



## **2011 Demand-Side Management Plan**

Electric and Natural Gas  
Revised March 2011

Public Service Company of Colorado  
Originally Filed July 2010  
Docket No. 10A-471EG

## Executive Summary

Public Service Company of Colorado (“Public Service” or the “Company”) submits this combined electric and natural gas 2011 DSM Plan (“Plan”) to the Colorado Public Utilities Commission (“Commission”). In this filing, Public Service proposes an annual DSM Plan designed to achieve energy savings targets of approximately ~~240~~ 255.9 GWh in electric and 368,000 Dth in natural gas at proposed costs of ~~\$67.4~~ \$68.5 million and \$15.8 million, respectively. The Company respectfully requests that the Commission approve its plan to guide the Company’s Colorado electric and natural gas energy efficiency and load management activities for 2011. Table 1 provides a summary of the Company’s proposed savings targets and budgets for the overall portfolio of products.

**Table 1: Public Service’s 2011 DSM Plan Budgets and Savings Targets**

Proposed 2011 Products	Expenditures (\$)	Energy Savings (Gen kWh or Dth)	Demand Savings (Gen kW)
Total Electric Conservation	44,503,620 <u>47,565,023</u>	239,413,216 <u>255,611,601</u>	46,910 <u>50,679</u>
Total Load Management	12,859,703	296,038	20,085
Total Electric Indirect	10,052,497 8,109,209	---	---
<b>Total 2011 Electric DSM</b>	<b>\$67,415,820</b> <b>\$68,533,935</b>	<b>239,709,254</b> <b>255,907,639</b>	<b>66,995</b> <b>70,764</b>
Total Gas Conservation	12,236,337	368,227	---
Total Gas Indirect	3,570,838	---	---
<b>Total 2011 Gas DSM</b>	<b>\$15,807,175</b>	<b>368,227</b>	<b>---</b>

**\*Note: Commission Approved Electric Goal for 2011 = 235,000,000 kWh (Docket 07A-420E)**

The Company is filing this combined 2011 natural gas and electric DSM plan in accordance with the Commission’s Decision Nos. C08-0560 (“Decision”) and C08-0769 issued in Docket No. 07A-420E and Rules 4750 to 4760 of the Commission’s Rules Regulating Gas Utilities and Pipeline Operators (the Gas DSM Rules), as modified by the Commission’s Decision No. C10-584 authorizing the Company to make a one-year plan filing for 2011. This one-year Plan largely reflects a continuation and evolution of the gas and electric DSM products that the Company initiated during 2009 and 2010. Through the 60-day notice process put in place as part of the 2009-2010 DSM Plan, our DSM portfolio of products has continued to evolve within the parameters set forth in the Stipulation approved in Docket No. 08A-366EG (“2009/2010 Plan Stipulation” or “Stipulation”). The Company intends to continue for 2011 the same processes that were agreed to in the Stipulation and that have been in effect during 2009 and 2010.

On October 18, 2010, a Stipulation and Settlement Agreement (Settlement Agreement) along with the Joint Motion to Approve Stipulation and Settlement Agreement (Joint Motion) were filed by Public Service on its own behalf and on behalf of Staff, OCC, SWEEP, Boulder, and EEBC (the Settling Parties). On November 3, 2010, CEC joined the settlement and CF&I/Climax gave notice of its non-opposition to the settlement.

In the Settlement Agreement, the Settling Parties proposed modifications to the 2011 DSM Plan, including increases in the electric goals and budgets; request that the Commission authorize Public Service to implement changes in the electric and gas DSMCA rates effective January 1, 2011; and

pledge continuation of the DSM Roundtable meetings. The Settlement Agreement also proposed specific changes to the DSM programs.

The Stipulation and Settlement Agreement was approved by an Administration Law Judge on December 16, 2010 without significant modification. No exceptions were filed, and therefore, the ALJ's approval became the Commission's Final Order on January 5, 2011. It was Ordered by the ALJ that within 60 days of the effective date of this Recommended Decision, Public Service shall file an updated version of the approved DSM Plan reflecting changes by the Stipulation and Settlement Agreement, together with an erratum correcting errors.<sup>1</sup>

### **One-Year Plan and Strategic Policy Issues Filing**

On June 11, 2010, the Commission authorized Public Service to file a one-year DSM plan for the 2011 year. In its motion seeking permission to file a one year 2011 DSM plan, the Company also represented that it would contemporaneously file a strategic issues application to address larger policy issues, such as the incentive mechanism, long-term DSM goals, the DSM potential study and net-to-gross issues, market transformation, and non-energy benefits. The Company expects to file the latter application during the third full week of July 2010. The Company believes that filing a one-year plan, and deferring the larger policy issues to the strategic issues application will allow the Commission to give full consideration to the larger policy issues affecting the Company's DSM initiatives while ensuring that the Company's current efforts continue uninterrupted in 2011. The Company expects that many of the policy decisions made by the Commission in the context of the strategic issues filing would be incorporated into a multi-year DSM plan filing made on July 1, 2011, to be effective January 1, 2012.

### **Modifications in 2011**

While the majority of the DSM products included in this 2011 Plan are the same as those that have been implemented since 2009, products have naturally evolved since this time to remain effective and adapt to the marketplace. These product "evolutions," or changes, have been documented through the 60-Day Notice process<sup>2</sup>, established through 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. The 2011 Plan also reflects additional noteworthy changes as described below:

- Updated avoided costs and technical assumptions to reflect more current data and the results of the comprehensive program evaluations conducted during 2009 in accordance with Paragraph 12 b. of the 2009/2010 Plan Stipulation.
- Added a new pilot through this 2011 Plan—Energy Feedback Pilot. Other pilots continuing into 2011 that were added in 2009/10 through the 60-Day Notice process include the Central Air-Conditioning Tune-up Pilot, the ENERGY STAR Retailer Incentive Pilot, and the In-Home

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<sup>1</sup> Docket No. 10A-471EG, Recommended Decision of Administrative Law Judge Keith J. Kirchubel Accepting Stipulation and Granting Application, Paragraph 14, Page 17.

<sup>2</sup> 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/Colorado/Company/About\\_Energy\\_and\\_Rates/DemandSideManagement/Pages/60-DayNoticeOverview.aspx](http://www.xcelenergy.com/Colorado/Company/About_Energy_and_Rates/DemandSideManagement/Pages/60-DayNoticeOverview.aspx).

Smart Device Pilot, and the SmartGridCity Pricing Pilot<sup>3</sup>. These pilots are fully described in the Indirect Products and Services section, Product Development description of this Plan.

- Added new measures to 2011 products, including:
  - Ground source heat pumps measure added to the High-Efficiency AC Product
  - Advanced evaporative cooling measure added to the Cooling Efficiency Product
  - Heat pump water heater measure added to the Water Heating Rebate Product
- Relevant to the 2010 filed budgets and goals, due to performance in 2009-10, we have decreased budgets and goals for Evaporative Cooling Rebates, Home Performance with ENERGY STAR and Refrigerator Recycling Products. We have increased budgets and goals for ENERGY STAR Homes and Home Lighting and Recycling Products. These changes decrease the overall Residential Program budget.
- Due to the effect that the significant drop in gas prices has had upon the cost-effectiveness of many of the Company's gas and some of its electric DSM products, we have made the following changes to allow for continuation of these products in the near term:
  - 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 programs to a higher level.<sup>4</sup> This will effect 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  $\geq 1.0$ :
    - \* Business Electric
    - \* Business Gas
    - \* Residential Electric
    - \* Residential Gas
    - \* Low Income Electric
    - \* Low Income Gas
  - Reduced our natural gas expenditure and savings targets to approximately \$15.8 million and 368,000 Dth, respectively for 2011, relative to the targets approved by the Commission for 2010 of \$16.5 million and 402,808 Dth.
  - Reduced relevant administrative budgets and eliminated certain non-cost-effective measures in order to help the DSM Programs remain cost-effective overall. The resulting product changes, relative to 2010 filed goals, budgets, and/or measures include:
    - Reduced administrative budgets for Custom Efficiency, Energy Management Systems, New Construction, Recommissioning, Segment Efficiency, and Standard Offer, and Home Energy Audits.
    - Removed a low participation "O2 trim control" measure from Boiler Efficiency and combined both the Furnace and Boiler Efficiency products into one product, called Heating Efficiency to help improve the overall cost-effectiveness.

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<sup>3</sup> ~~The Commission recently entered an order in Docket No. 09A-796E disapproving inclusion of the SmartGrid Pricing Pilot as part of the Company's DSM plan. The Company has sought reconsideration of that order which ARRR is now pending before the Commission. In the event the Commission declines to reconsider its previous decision, the Company will remove this pilot from its DSM plan for 2011.~~

<sup>4</sup> In order to facilitate the change in the way cost-effectiveness has been assessed for purposes of the 2011 plan we have changed the way we refer to the DSM products within each higher level DSM program.

## History of DSM Activity in Colorado

In the last decade, 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:

- 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 124 MW of cost-effective DSM resources 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 (E\$P) 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 an Appropriation Therefore*, was passed by the Colorado General Assembly and signed into law by Governor Ritter in 2007, and 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 that public interest is served by providing such funding mechanisms. Such efforts will result in an improvement in the quality of life and health of Colorado citizens and an increase in the attractiveness of Colorado as a place to live and conduct business<sup>5</sup>.

Section 40-3.2-104, C.R.S. further charges 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

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<sup>5</sup> § 40-3.2-101, C.R.S.

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.<sup>6</sup>

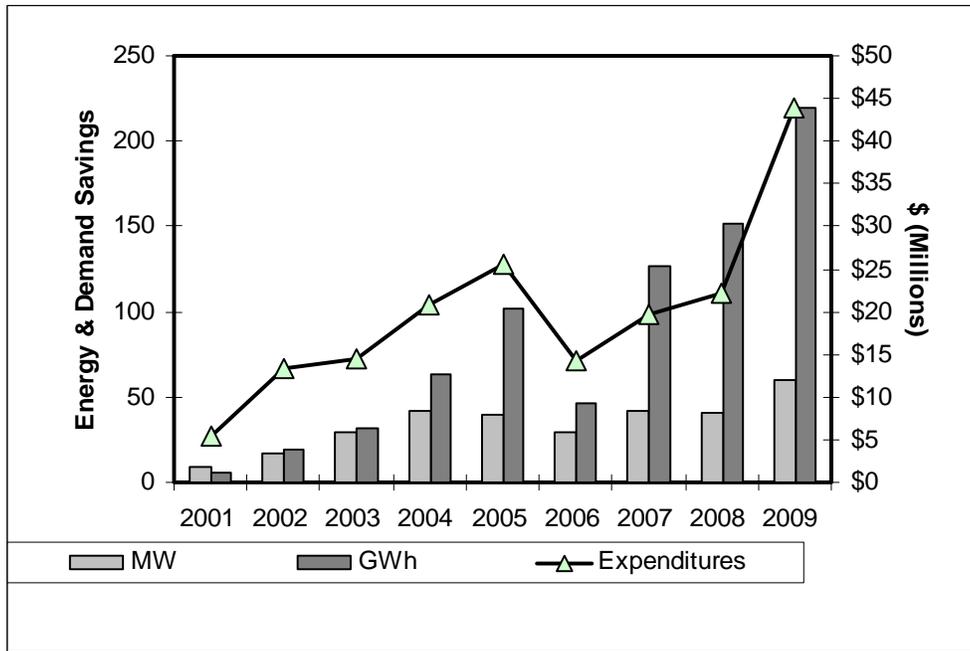
- On June 27, 2007, the Commission issued Decision No. C07-0562 opening Docket No. 07I-251G to investigate issues associated with the natural gas DSM requirements contained in § 40-3.2-103, C.R.S. which directs the Commission to implement rules to establish specific natural gas DSM requirements for jurisdictional 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.
- On October 31, 2007, Public Service filed its Application for Authorization to Implement an Enhanced Demand Side Management (DSM) Program and to Revise its Demand Side Management Cost Adjustment Mechanism to Include Current Cost Recovery and Incentives (Application). 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 2009/10 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 Intervenors, 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 Appendix A 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.

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

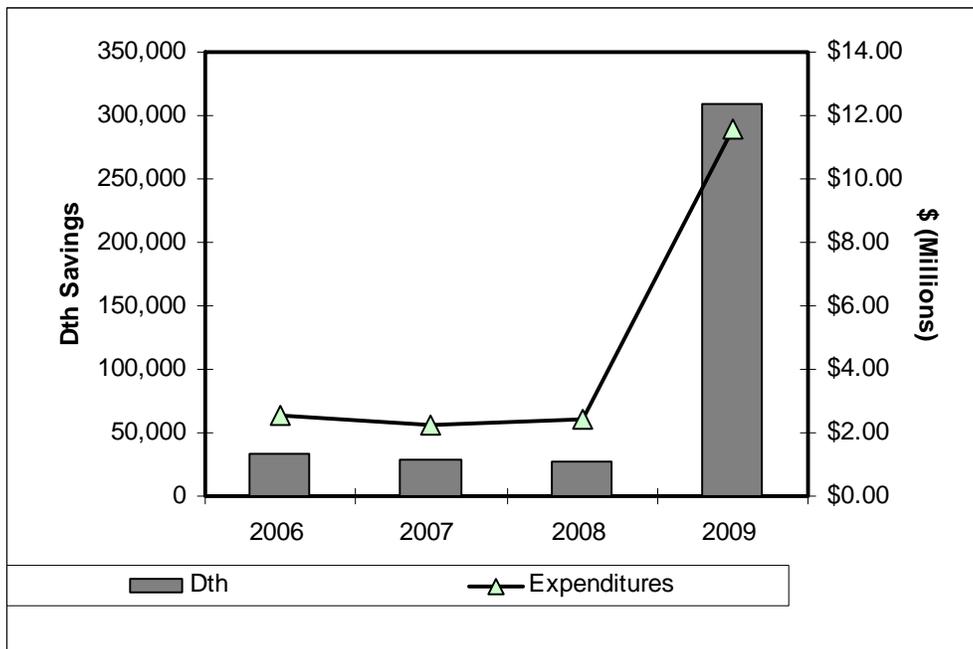
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<sup>6</sup> § 40-3.2-104(2).

**Figure 1: Historical Electric Program Savings and Expenditures**



**Figure 2: Historical Natural Gas Program Savings and Expenditures**



**Goals By Program**

For the 2011 Plan, Public Service continues from 2009/10 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 2011 include:

#### *Business Electric Program*

- Electric budget ~~\$33,723,129~~ \$36,334,530; Electric savings ~~31,973~~ 35,447 Gen kW, and ~~147,975,812~~ 161,706,399 Gen kWh
- Electric participants ~~3,020~~ 3,099

#### *Business Gas Program*

- Gas budget \$2,695,332; gas savings 84,735 Dth
- Gas participants 312

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 over 1.15 million electric and 1.20 million natural gas customers in its Residential market in Colorado. The Residential Program includes single-family homes, townhomes, 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 2011 include the following:

#### *Residential Electric Program*

- Electric budget ~~\$21,262,770~~ \$21,712,770; electric savings ~~32,761~~ 33,055 Gen kW; ~~62,835,061~~ 65,302,859 Gen kWh
- Electric participants ~~349,634~~ 395,166

#### *Residential Gas Program*

- Gas budget \$5,137,459; gas savings 170,279 Dth
- Gas participants 58,211

### 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 2011 include the following:

#### *Low-Income Electric Program*

- Electric budget \$2,377,425; Electric savings 881 Gen kW; 13,068,915 Gen kWh
- Electric participants 11,730

### *Low-Income Gas Program*

- Gas budget \$4,403,546; gas savings 77,528 Dth
- Gas participants 17,288

### Indirect Products and Services

The Indirect Products and Services support the direct products or are considered to be a pilot. The Education/Market Transformation area includes four products: Business Energy Analysis, Customer Behavioral Change-Business, Customer Behavioral Change-Residential, and Residential Home Energy Audits. The Planning & Research area includes four services: DSM Market Research, DSM Planning & Administration, DSM Product Development, and Evaluation, Measurement & Verification. While the majority of the Indirect Products and Services are indirect and do not have savings goals; the DSM Product Development offering contains five pilot products; three of which do propose electric and gas savings. Public Service proposes the following Indirect electric and gas budget and savings:

#### *Indirect Electric Products & Services*

- Electric budget ~~\$10,052,497~~ \$8,109,208; electric savings 1,379 Gen kW; 15,829,466 Gen kWh
- Electric participants 140,305

#### *Indirect Gas Products & Services*

- Gas budget \$3,570,838; gas savings 35,685 Dth
- Gas participants 88,653

All the Residential, Business, Low Income and Indirect products and services offered in 2011 are listed in the tables below, and fully detailed in each Program section of this Plan.

### **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 marketing strategies that result in a permanent decrease in energy usage by inducing changes either in the product supply chain or in the behavior of the end-user. Often these structural and behavioral changes in the marketplace result in an increased or earlier adoption of energy efficient technologies and energy efficient practices that remain even after the program stimulus is removed.

The Company is offering additional Market Transformation pilot products in this 2011 Plan, as well as continuing to offer the Market Transformation products that were first introduced in the 2009/2010 biennium. These new Market Transformation pilots (which have or will be first introduced in 2010 through the 60-Day Notice process) include an Energy Feedback Pilot and an In-Home Smart Devices Pilot ~~and a SmartGridCity Pricing Pilot~~. The continuing Market Transformation products or pilots from 2009/10 include the Customer Behavioral Change for Residential and Business Products, which are indirect, meaning that they produce no direct energy savings; and the ENERGY STAR Retailer Incentive Pilot, a direct impact pilot that has been re-scoped in 2010 to better fit its customer needs.

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.

With this Plan, Public Service continues its commitment to transforming the energy efficiency market through new construction. The Company is offering new construction rebate 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 program 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 Governor's 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 DSM Roundtable meetings as a forum for open dialogue and discussion.

## **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 MTRC test ratio greater than one. In Decision No. C08-0560, the Commission allowed for such products under these special circumstances to achieve a MTRC test ratio of less than one. For this Plan, Public Service offers ~~five~~ four pilots that are fully described in the Indirect Product Development section of this Plan, including the Company's overall pilot requirements. These pilots include:

- Central Air Conditioning Tune-up Pilot
- Energy Feedback Pilot
- ENERGY STAR Retailer Incentive Pilot
- In-Home Smart Devices Pilot
- ~~SmartGridCity Pricing Pilot~~

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 2011, the Commission Decision allows a presumptive TRC of 1.0 for purposes of calculating the financial incentive. For 2011, the Company proposes that this practice be continued and that a presumptive TRC of 1.0 be applied to ~~both the In-Home Smart Device Pilot and the SmartGridCity Pricing Pilot.~~

## Document Layout

This document has eight major sections, organized primarily by customer segment: Executive Summary, Business Programs, Residential Programs, Low-Income Programs, 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 2011 DSM Plan; provides program and product level goals and budgets, and provides budgets by cost category<sup>7</sup>.
- 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, and the technical reference manual summary (deemed savings electronic file).

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<sup>7</sup> Budget categories are described in Appendix D.

**Table 2a: Public Service's 2011 Electric DSM Program/Product Budgets and Goals**

2011	Electric Participants	Electric Budget	Customer kW	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
<b>Business Program</b>						
Compressed Air Efficiency	75	\$1,002,361	819	712	4,639,368	2.25
		\$1,100,762				2.19
Cooling Efficiency	294	\$2,824,538	4,463	2,641	7,131,966	1.99
Custom Efficiency	350	\$3,567,538	4,877	2,941	7,809,971	1.92
Data Center Efficiency	50	\$2,224,028	2,071	1,595	8,682,818	1.80
	14	\$840,317	470	383	3,972,363	2.11
Energy Management Systems	42	\$1,251,520	774	69	6,155,514	1.67
Heating Efficiency	50	\$1,581,520	922	82	7,327,993	1.70
	931	\$5,618,064	11,432	8,729	36,240,143	3.10
Lighting Efficiency	946	\$7,058,063	15,524	11,891	48,120,245	3.27
Motor & Drive Efficiency	1,100	\$2,889,440	4,955	3,616	20,385,702	4.00
			8,786			3.56
New Construction	60	\$7,039,703	7,829	7,033	26,582,420	3.41
Process Efficiency	4	\$1,197,706	1,606	1,231	7,782,869	2.53
Recommissioning	53	\$1,181,825	861	481	4,999,877	1.05
Segment Efficiency	124	\$1,751,712	1,463	897	6,614,412	1.83
Self-Directed Custom Efficiency	13	\$1,014,859	1,366	1,232	5,625,816	3.59
Small Business Lighting	200	\$3,350,397	1,401	1,268	4,626,514	1.68
Standard Offer	60	\$1,536,658	2,232	2,087	4,536,030	2.36
<b>Business Program Energy Efficiency Total</b>	<b>3,099</b>	<b>\$33,723,129</b>	<b>42,700</b>	<b>31,973</b>	<b>147,975,812</b>	<b>2.70</b>
		<b>\$36,334,530</b>	<b>46,397</b>	<b>35,447</b>	<b>161,706,399</b>	<b>2.71</b>
<b>Business Program Total</b>	<b>3,099</b>	<b>\$36,334,530</b>	<b>46,397</b>	<b>35,447</b>	<b>161,706,399</b>	<b>2.71</b>
<b>Residential Program</b>						
Energy Efficient Showers	5,231	\$95,589	10,462	-	1,033,159	3.73
ENERGY STAR New Homes	1,400	\$245,845	77	45	401,622	1.07
		\$1,357,260				4.37
Evaporative Cooling Rebate	3,000	\$1,517,260	5,067	3,194	1,567,480	4.05
Heating System Rebate						
High Efficiency Air Conditioning	1,785	\$1,940,949	3,061	2,548	2,181,463	1.34
	297,500	\$3,605,461	47,719	6,446	53,746,707	3.36
Home Lighting & Recycling	342,855	\$3,790,461	54,994	6,686	55,746,536	3.34
Home Performance with ENERGY STAR	100	\$59,270	185	29	153,298	1.77
Insulation Rebate	1,277	\$23,809	288	161	193,812	8.97
Refrigerator Recycling	1,500	\$488,928	209	138	1,016,471	1.06
School Education Kits	18,318	\$571,975	10,861	109	2,193,015	1.18
	20	\$13,982	45	6	\$1,997	1.48
Water Heating Rebate	200	\$118,982	448	59	519,966	1.57
<b>Residential Program Energy Efficiency Total</b>	<b>375,666</b>	<b>\$8,853,068</b>	<b>85,651</b>	<b>12,970</b>	<b>65,006,821</b>	<b>2.63</b>
<b>Load Management Program - Residential Saver's Switch</b>	<b>19,500</b>	<b>\$12,859,703</b>	<b>58,500</b>	<b>20,085</b>	<b>296,038</b>	<b>3.71</b>
	<b>349,634</b>	<b>\$21,262,770</b>	<b>136,473</b>	<b>32,761</b>	<b>62,835,061</b>	<b>3.16</b>
<b>Residential Program Total</b>	<b>395,166</b>	<b>\$21,712,770</b>	<b>144,151</b>	<b>33,055</b>	<b>65,302,859</b>	<b>3.12</b>
<b>Low-Income Program</b>						
Energy Savings Kit	7,975	\$758,578	25,438	437	7,579,429	3.76
Multi-Family Weatherization	888	\$164,619	347	43	504,571	1.55
Non-Profit Energy Efficiency	322	\$312,843	433	68	722,935	1.39
Single-Family Weatherization	2,545	\$1,141,385	3,355	333	4,261,979	1.88
<b>Low-Income Program Total</b>	<b>11,730</b>	<b>\$2,377,425</b>	<b>29,574</b>	<b>881</b>	<b>13,068,915</b>	<b>2.36</b>
<b>Indirect Products &amp; Services</b>						
<b>Education/Market Transformation</b>						
Business Energy Analysis	400	\$1,045,914				
Customer Behavioral Change - Business	1,385	\$153,756				
Customer Behavioral Change - Residential	34,000	\$982,682				
Residential Home Energy Audit	3,520	\$602,313				
<b>Education/Market Transformation Total</b>	<b>39,305</b>	<b>\$2,784,665</b>				
<b>Planning and Research</b>						
<b>DSM Planning &amp; Administration</b>						
		\$283,167				
<b>Program Evaluations</b>						
		\$265,162				
<b>Measurement &amp; Verification</b>						
		\$79,142				
<b>DSM Market Research</b>						
		\$263,243				
<b>DSM Product Development</b>						
Product Development - General		\$950,056				
Central AC Tune-up Pilot	1,000	\$277,566	344	254	262,783	1.19
Energy Feedback Pilot	50,000	\$329,450	788	120	7,482,526	1.00
ENERGY STAR Retailer Incentive Pilot	50,000	\$2,282,689	5,809	1,006	8,084,157	1.58
In-Home Smart Device Pilot		\$594,068				
		\$1,943,288				
SmartGridCity Pricing Pilot		\$0				
<b>DSM Product Development Total</b>	<b>101,000</b>	<b>\$4,433,829</b>	<b>6,942</b>	<b>1,379</b>	<b>15,829,466</b>	
		\$7,267,832				
<b>Planning and Research Total</b>	<b>101,000</b>	<b>\$5,324,543</b>	<b>6,942</b>	<b>1,379</b>	<b>15,829,466</b>	
		\$10,052,497				
<b>Indirect Products &amp; Services Total</b>	<b>140,305</b>	<b>\$8,109,208</b>	<b>6,942</b>	<b>1,379</b>	<b>15,829,466</b>	
<b>PORTFOLIO TOTAL</b>	<b>504,686</b>	<b>\$67,415,820</b>	<b>215,689</b>	<b>66,995</b>	<b>239,709,254</b>	<b>2.58</b>
	<b>550,300</b>	<b>\$68,533,935</b>	<b>227,064</b>	<b>70,764</b>	<b>255,907,639</b>	<b>2.64</b>

**Table 2b: Public Service's 2011 Gas DSM Program/Product Budgets and Goals**

2011	Gas Participants	Gas Budget	Net Annual Dth Savings	Annual Dth/\$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
<b>Business Program</b>						
Compressed Air Efficiency						
Cooling Efficiency						
Custom Efficiency	10	\$476,763	9,637	20,214	\$142,911	1.18
Data Center Efficiency						
Energy Management Systems	5	\$86,000	2,245	26,106	\$23,662	1.19
Heating Efficiency	233	\$1,534,345	44,012	28,685	\$1,063,687	1.29
Lighting Efficiency						
Motor & Drive Efficiency						
New Construction	13	\$321,098	17,532	54,600	\$607,910	1.51
Process Efficiency	3	\$123,332	4,301	34,874	\$94,104	1.57
Recommissioning	9	\$72,967	2,199	30,134	\$72	1.00
Segment Efficiency	9	\$55,661	3,627	65,161	\$107,455	1.96
Self-Directed Custom Efficiency						
Small Business Lighting						
Standard Offer	30	\$25,166	1,181	46,946	\$17,378	1.31
<b>Business Program Energy Efficiency Total</b>	<b>312</b>	<b>\$2,695,332</b>	<b>84,735</b>	<b>31,438</b>	<b>\$2,057,180</b>	<b>1.33</b>
<b>Business Program Total</b>	<b>312</b>	<b>\$2,695,332</b>	<b>84,735</b>	<b>31,438</b>	<b>\$2,057,180</b>	<b>1.33</b>
<b>Residential Program</b>						
Energy Efficient Showerheads	26,658	\$292,221	25,297	86,569	\$1,379,462	4.75
ENERGY STAR New Homes	1,400	\$2,207,711	39,618	17,945	\$104,641	1.02
Evaporative Cooling Rebate						
Heating System Rebate	6,500	\$1,284,228	54,093	42,121	\$1,845,793	1.49
High Efficiency Air Conditioning						
Home Lighting & Recycling						
Home Performance with ENERGY STAR	100	\$177,733	4,980	28,018	\$60,164	1.14
Insulation Rebate	2,935	\$490,372	24,063	49,070	\$297,732	1.13
Refrigerator Recycling						
School Education Kits	18,318	\$523,824	14,740	28,139	\$399,544	1.50
Water Heating Rebate	2,300	\$161,370	7,488	46,406	-\$221,474	0.78
<b>Residential Program Energy Efficiency Total</b>	<b>58,211</b>	<b>\$5,137,459</b>	<b>170,279</b>	<b>33,145</b>	<b>\$3,865,862</b>	<b>1.29</b>
Load Management Program - Residential Saver's Switch						
<b>Residential Program Total</b>	<b>58,211</b>	<b>\$5,137,459</b>	<b>170,279</b>	<b>33,145</b>	<b>\$3,865,862</b>	<b>1.29</b>
<b>Low-Income Program</b>						
Energy Savings Kit	14,025	\$677,008	30,597	45,195	\$1,169,916	2.50
Multi-Family Weatherization	940	\$602,448	6,788	11,267	\$141,828	1.13
Non-Profit Energy Efficiency	868	\$658,920	6,972	10,581	\$139,929	1.11
Single-Family Weatherization	1,455	\$2,465,171	33,171	13,456	\$673,363	1.15
<b>Low-Income Program Total</b>	<b>17,288</b>	<b>\$4,403,546</b>	<b>77,528</b>	<b>17,606</b>	<b>\$2,125,035</b>	<b>1.28</b>
<b>Indirect Products &amp; Services</b>						
<b>Education/Market Transformation</b>						
Business Energy Analysis	100	\$190,109				
Customer Behavioral Change - Business	593	\$69,324				
Customer Behavioral Change - Residential	34,000	\$918,294				
Residential Home Energy Audit	3,960	\$697,548				
<b>Education/Market Transformation Total</b>	<b>38,653</b>	<b>\$1,875,275</b>				
<b>Planning and Research</b>						
DSM Planning & Administration		\$166,721				
Program Evaluations		\$665,162				
Measurement & Verification		\$39,188				
DSM Market Research		\$263,243				
<b>DSM Product Development</b>						
Product Development - General		\$365,638				
Central AC Tune-up Pilot						
Energy Feedback Pilot	50,000	\$195,610	35,685	182,429	\$33,596	1.17
ENERGY STAR Retailer Incentive Pilot						
In-Home Smart Device Pilot						
SmartGridCity Pricing Pilot						
<b>DSM Product Development Total</b>	<b>50,000</b>	<b>\$561,248</b>	<b>35,685</b>	<b>63,582</b>		
<b>Planning and Research Total</b>	<b>50,000</b>	<b>\$1,695,562</b>	<b>35,685</b>	<b>21,046</b>		
<b>Indirect Products &amp; Services Total</b>	<b>88,653</b>	<b>\$3,570,838</b>	<b>35,685</b>	<b>9,993</b>		
<b>PORTFOLIO TOTAL</b>	<b>164,464</b>	<b>\$15,807,175</b>	<b>368,227</b>	<b>23,295</b>	<b>\$4,856,445</b>	<b>1.16</b>

**Table 3a: Public Service's 2011 Electric DSM Program/Product Costs by Category**

2011	Electric Cost Categories - 2011						
	Program Planning & Design	Administration & Program Delivery	Advertising/Promotion/Customer Ed	Participant Rebates and Incentives	Equipment & Installation	Measurement and Verification	Total
<b>Business Program</b>							
Heating Efficiency				\$334,542			\$1,002,364
Compressed Air Efficiency	\$53,593	\$406,418	\$171,283	\$427,993		\$26,555-\$41,475	\$1,100,732
Cooling Efficiency	\$68,049	\$421,533	\$152,675	\$2,092,284			\$2,824,538
Custom Efficiency	\$245,903	\$734,876	\$320,744	\$828,581		\$90,000	\$3,567,538
Data Center Efficiency	\$56,040	\$121,209	\$256,160	\$356,908		\$50,000	\$2,224,028
Energy Management Systems	\$43,101	\$568,944	\$172,056	\$448,754			\$840,317
Lighting Efficiency	\$88,063	\$386,353-\$439,454	\$456,787	\$5,833,580		\$240,180	\$1,251,520
Motor & Drive Efficiency	\$26,686	\$322,360	\$205,635	\$2,247,617			\$1,581,520
New Construction	\$13,343	\$2,052,314	\$485,970	\$3,704,405		\$783,672	\$5,618,064
Process Efficiency	\$133,429	\$622,277	\$32,000	\$350,000		\$60,000	\$7,058,065
Recommissioning	\$93,386	\$246,298	\$156,485	\$641,773		\$43,883	\$2,889,440
Segment Efficiency	\$16,011	\$532,586	\$149,385	\$953,740		\$99,990	\$7,039,703
Self-Directed Custom Efficiency	\$18,680	\$268,755	\$6,452	\$720,972			\$1,197,706
Small Business Lighting	\$6,671	\$2,463,941	\$220,673	\$600,420		\$58,692	\$1,181,825
Standard Offer	\$17,346	\$265,388	\$34,129	\$1,183,795		\$36,000	\$1,751,712
<b>Business Program Energy Efficiency Total</b>	<b>\$880,301</b>	<b>\$9,413,252</b>	<b>\$2,820,434</b>	<b>\$18,880,439</b>		<b>\$1,728,703</b>	<b>\$33,723,429</b>
<b>Business Program Total</b>	<b>\$880,301</b>	<b>\$9,466,353</b>	<b>\$2,935,488</b>	<b>\$21,302,265</b>		<b>\$1,750,123</b>	<b>\$36,334,530</b>
<b>Residential Program</b>							
Energy Efficient Showerheads	\$300	\$23,890	\$54,456	\$14,879		\$2,064	\$95,589
ENERGY STAR New Homes	\$1,334	\$61,001	\$15,348	\$113,449		\$54,712	\$245,845
Evaporative Cooling Rebate	\$2,669	\$101,513	\$282,554	\$1,069,000		\$61,524	\$1,357,260
Heating System Rebate							
High Efficiency Air Conditioning	\$2,669	\$153,706	\$185,674	\$1,498,900		\$100,000	\$1,517,260
Home Lighting & Recycling	\$3,043	\$755,589	\$956,829	\$1,690,000			\$1,940,949
Home Performance with ENERGY STAR	\$1,334	\$789,871	\$1,014,701	\$1,782,846		\$200,000	\$3,605,461
Insulation Rebate		\$27,530	\$12,411	\$15,377		\$2,618	\$3,790,461
Refrigerator Recycling	\$1,334	\$5,148	\$8,747	\$7,914		\$2,000	\$59,270
School Education Kits	\$1,334	\$231,452	\$157,678	\$75,000		\$23,464	\$23,809
Water Heating Rebate	\$200	\$345,461	\$24,903	\$165,142		\$35,135	\$488,928
		\$2,982	\$1,000-\$25,000	\$9,000-\$90,000		\$800	\$571,975
<b>Residential Program Energy Efficiency Total</b>	<b>\$14,217</b>	<b>\$1,708,272</b>	<b>\$1,699,600</b>	<b>\$4,498,661</b>		<b>\$482,317</b>	<b>\$13,982-\$118,982</b>
<b>Residential Program Total</b>	<b>\$14,217</b>	<b>\$1,742,584</b>	<b>\$1,781,473</b>	<b>\$4,832,507</b>		<b>\$482,317</b>	<b>\$8,403,068</b>
<b>Load Management Program - Residential Saver's Switch</b>	<b>\$27,895</b>	<b>\$791,643</b>	<b>\$1,550,303</b>	<b>\$5,520,000</b>	<b>\$4,806,363</b>	<b>\$163,500</b>	<b>\$12,859,703</b>
<b>Residential Program Total</b>	<b>\$42,112</b>	<b>\$2,499,915</b>	<b>\$3,249,903</b>	<b>\$10,018,661</b>	<b>\$4,806,363</b>	<b>\$645,817</b>	<b>\$21,712,770</b>
<b>Low-Income Program</b>							
Energy Savings Kit	\$1,334	\$429,720	\$122,452	\$182,072		\$23,000	\$2,499,915
Multi-Family Weatherization	\$2,669	\$14,674	\$21,226	\$120,047		\$6,002	\$3,249,903
Non-Profit Energy Efficiency		\$35,761	\$16,226	\$252,856		\$8,000	\$10,018,661
Single-Family Weatherization	\$2,669	\$60,472	\$131,226	\$901,922		\$45,096	\$1,141,385
<b>Low-Income Program Total</b>	<b>\$6,672</b>	<b>\$540,627</b>	<b>\$291,130</b>	<b>\$1,456,897</b>		<b>\$82,098</b>	<b>\$2,377,425</b>
<b>Indirect Products &amp; Services</b>							
<b>Education/Market Transformation</b>							
Business Energy Analysis	\$29,346	\$842,689	\$173,878				\$1,045,914
Customer Behavioral Change - Business			\$153,756				\$153,756
Customer Behavioral Change - Residential		\$200,664	\$782,018				\$982,682
Residential Home Energy Audit		\$441,089	\$144,664			\$16,560	\$602,313
<b>Education/Market Transformation Total</b>	<b>\$29,346</b>	<b>\$1,484,442</b>	<b>\$1,254,316</b>			<b>\$16,560</b>	<b>\$2,784,665</b>
<b>Planning and Research</b>							
DSM Planning & Administration		\$281,942	\$1,226				\$283,167
Program Evaluations						\$265,162	\$265,162
Measurement & Verification						\$79,142	\$79,142
DSM Market Research		\$263,243					\$263,243
<b>DSM Product Development</b>							
Product Development - General	\$322,056	\$258,000		\$350,000	\$20,000		\$950,056
Central AC Tune-up Pilot	\$2,539	\$62,575	\$27,452	\$150,000		\$35,000	\$277,566
Energy Feedback Pilot	\$329,450						\$329,450
ENERGY STAR Retailer Incentive Pilot	\$302,029	\$220,640	\$1,635,020			\$125,000	\$2,282,689
In-Home Smart Device Pilot		\$250,000	\$100,008	\$129,060		\$115,000	\$594,068
Smart Grid City Pricing Pilot		\$628,600	\$100,008	\$134,060	\$965,620	\$115,000	\$1,943,288
<b>DSM Product Development Total</b>	<b>\$956,074</b>	<b>\$1,419,815</b>	<b>\$791,215</b>	<b>\$1,762,480</b>	<b>\$20,000</b>	<b>\$275,000</b>	<b>\$4,433,829</b>
<b>Planning and Research Total</b>	<b>\$956,074</b>	<b>\$1,965,000</b>	<b>\$1,863,714</b>	<b>\$763,120</b>	<b>\$985,620</b>	<b>\$734,304</b>	<b>\$7,267,832</b>
<b>Indirect Products &amp; Services Total</b>	<b>\$985,420</b>	<b>\$3,449,442</b>	<b>\$3,118,030</b>	<b>\$763,120</b>	<b>\$985,620</b>	<b>\$750,864</b>	<b>\$10,052,497</b>
<b>PORTFOLIO TOTAL</b>	<b>\$1,914,505</b>	<b>\$15,362,019</b>	<b>\$9,576,416</b>	<b>\$33,740,729</b>	<b>\$4,826,363</b>	<b>\$3,113,902</b>	<b>\$67,415,820</b>

**Table 3b: Public Service's 2011 Gas DSM Program/Product Costs by Category**

2011	Program Planning & Design	Administration & Program Delivery	Advertising, Promotion, Customer Ed	Participant Rebates and Incentives	Equipment & Installation	Measurement and Verification	Total
<b>Business Program</b>							
Compressed Air Efficiency							
Cooling Efficiency							
Custom Efficiency	\$52,160	\$258,484	\$69,150	\$72,539		\$24,430	\$476,763
Data Center Efficiency							
Energy Management Systems	\$14,671	\$47,325	\$2,328	\$19,323		\$2,352	\$86,000
Heating Efficiency	\$6,671	\$349,490	\$111,217	\$1,039,027		\$27,940	\$1,534,345
Lighting Efficiency							
Motor & Drive Efficiency							
New Construction		\$26,248	\$137,523	\$113,817		\$43,510	\$321,098
Process Efficiency	\$21,349	\$57,290	\$31,503	\$10,160		\$3,030	\$123,332
Recommissioning	\$8,020	\$19,612	\$4,810	\$35,279		\$5,246	\$72,967
Segment Efficiency	\$8,006	\$11,055	\$24,090	\$8,505		\$4,005	\$55,661
Self-Directed Custom Efficiency							
Small Business Lighting							
Standard Offer	\$5,337	\$3,867	\$1,226	\$11,136		\$3,600	\$25,166
<b>Business Program Energy Efficiency Total</b>	<b>\$116,215</b>	<b>\$773,371</b>	<b>\$381,848</b>	<b>\$1,309,786</b>		<b>\$114,113</b>	<b>\$2,695,332</b>
<b>Business Program Total</b>	<b>\$116,215</b>	<b>\$773,371</b>	<b>\$381,848</b>	<b>\$1,309,786</b>		<b>\$114,113</b>	<b>\$2,695,332</b>
<b>Residential Program</b>							
Energy Efficient Showerheads	\$1,034	\$109,878	\$98,822	\$75,827		\$6,660	\$292,221
ENERGY STAR New Homes	\$2,669	\$521,732	\$130,323	\$1,047,716		\$505,271	\$2,207,711
Evaporative Cooling Rebate							
Heating System Rebate	\$5,337	\$167,645	\$303,042	\$769,980		\$38,224	\$1,284,228
High Efficiency Air Conditioning							
Home Lighting & Recycling							
Home Performance with ENERGY STAR	\$2,669	\$69,178	\$28,534	\$72,038		\$5,314	\$177,733
Insulation Rebate	\$1,334	\$37,439	\$68,539	\$353,060		\$30,000	\$490,372
Refrigerator Recycling							
School Education Kits	\$1,334	\$238,221	\$2,452	\$281,817			\$523,824
Water Heating Rebate	\$3,000	\$27,538	\$12,800	\$103,000		\$15,032	\$161,370
<b>Residential Program Energy Efficiency Total</b>	<b>\$17,377</b>	<b>\$1,171,631</b>	<b>\$644,512</b>	<b>\$2,703,438</b>		<b>\$600,501</b>	<b>\$5,137,459</b>
<b>Load Management Program - Residential Saver's Switch</b>							
<b>Residential Program Total</b>	<b>\$17,377</b>	<b>\$1,171,631</b>	<b>\$644,512</b>	<b>\$2,703,438</b>		<b>\$600,501</b>	<b>\$5,137,459</b>
<b>Low-Income Program</b>							
Energy Savings Kit	\$1,334	\$429,720	\$121,226	\$101,728		\$23,000	\$677,008
Multi-Family Weatherization	\$2,669	\$35,423	\$21,226	\$517,266		\$25,863	\$602,448
Non-Profit Energy Efficiency		\$64,586	\$21,226	\$565,108		\$8,000	\$658,920
Single-Family Weatherization	\$2,669	\$123,401	\$191,226	\$2,045,595		\$102,280	\$2,465,171
<b>Low-Income Program Total</b>	<b>\$6,672</b>	<b>\$653,130</b>	<b>\$334,904</b>	<b>\$3,229,697</b>		<b>\$159,143</b>	<b>\$4,403,546</b>
<b>Indirect Products &amp; Services</b>							
<b>Education/Market Transformation</b>							
Business Energy Analysis	\$9,365	\$175,293	\$5,452				\$190,109
Customer Behavioral Change - Business			\$69,324				\$69,324
Customer Behavioral Change - Residential		\$200,664	\$717,630				\$918,294
Residential Home Energy Audit		\$511,570	\$166,538			\$19,440	\$697,548
<b>Education/Market Transformation Total</b>	<b>\$9,365</b>	<b>\$887,527</b>	<b>\$958,944</b>			<b>\$19,440</b>	<b>\$1,875,275</b>
<b>Planning and Research</b>							
<b>DSM Planning &amp; Administration</b>		<b>\$165,495</b>	<b>\$1,226</b>				<b>\$166,721</b>
<b>Program Evaluations</b>						<b>\$665,162</b>	<b>\$665,162</b>
<b>Measurement &amp; Verification</b>						<b>\$39,188</b>	<b>\$39,188</b>
<b>DSM Market Research</b>		<b>\$263,243</b>					<b>\$263,243</b>
<b>DSM Product Development</b>							
Product Development - General	\$163,638	\$42,000		\$150,000	\$10,000		\$365,638
Central AC Tune-up Pilot							
Energy Feedback Pilot	\$195,610						\$195,610
ENERGY STAR Retailer Incentive Pilot							
In-Home Smart Device Pilot							
SmartGridCity Pricing Pilot							
<b>DSM Product Development Total</b>	<b>\$359,248</b>	<b>\$42,000</b>		<b>\$150,000</b>	<b>\$10,000</b>		<b>\$561,248</b>
<b>Planning and Research Total</b>	<b>\$359,248</b>	<b>\$470,738</b>	<b>\$1,226</b>	<b>\$150,000</b>	<b>\$10,000</b>	<b>\$704,350</b>	<b>\$1,695,562</b>
<b>Indirect Products &amp; Services Total</b>	<b>\$368,612</b>	<b>\$1,358,265</b>	<b>\$960,170</b>	<b>\$150,000</b>	<b>\$10,000</b>	<b>\$723,790</b>	<b>\$3,570,838</b>
<b>PORTFOLIO TOTAL</b>	<b>\$508,876</b>	<b>\$3,956,397</b>	<b>\$2,341,433</b>	<b>\$7,392,921</b>	<b>\$10,000</b>	<b>\$1,597,547</b>	<b>\$15,807,175</b>

## Business Program

### A. Description

In the 2011 Plan, Public Service’s Business Program consists of commercial and industrial customers in the Colorado service area. As of May 30, 2010, Public Service had a total of 197,819 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 4: Business Program Customer Counts**

<b>Type</b>	<b>Natural Gas Only</b>	<b>Electric Only</b>	<b>Both Gas &amp; Electric</b>	<b>Subtotal</b>
Commercial	33,788	89,080	70,756	193,624
Industrial	3,630	441	124	4,195
<b>Total</b>	<b>37,418</b>	<b>89,521</b>	<b>70,880</b>	<b>197,819</b>

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.

**Table 5: Business Program Market Sectors**

<b>Market Sector</b>	<b># of Electric Customers</b>	<b># of Gas Customers</b>	<b># of Combo Customers</b>	<b>% of Total Customer Base</b>
Chemicals	105	121	137	0.18%
Electronics	85	159	251	0.25%
Fabricated Metals	145	162	345	0.33%
Food	2,883	649	852	2.23%
Food Store/ Grocery	695	587	1,154	1.24%
Hospital/Healthcare	1,559	1,404	1,986	2.52%
Hotel/Motel	741	725	420	0.96%
Industrial Machinery	226	262	536	0.52%
Instruments	176	141	246	0.29%
Lumber, Furniture	203	146	389	0.38%
Mining	86	22	45	0.08%
Misc. Manufacturing.	8,920	2,080	11,186	11.28%
Miscellaneous	17,680	5,376	4,318	13.91%
Office	15,463	7,293	13,349	18.35%
Paper	35	24	61	0.06%
Petroleum	257	130	135	0.27%
Primary Metals	37	30	51	0.06%
Printing	281	165	531	0.50%
Restaurant	1,716	1,847	4,044	3.87%
Retail	6,696	4,778	12,294	12.08%
Rubber, Plastics	57	63	134	0.13%
School College	1,543	1,600	895	2.05%
Stone, Clay, Glass	196	131	164	0.25%
Textiles	75	68	193	0.17%
Transportation Equip.	51	72	73	0.10%
Transportation	1,060	452	844	1.20%
Warehouse	2,382	1,545	4,126	4.09%
Water/Wastewater	442	135	94	0.34%
Unknown Categories	24,933	6,522	12,463	22.32%

### Products

An extensive portfolio of products is planned for the Business Program in 2011. Public Service is proposing to continue offering 14 electric and 8 natural gas direct impact products. 7 of the 8 natural gas products coincide with their electric counterparts such as Custom Efficiency where electric, natural gas or both savings can be analyzed. In addition, a new advanced evaporative cooling measure will be added to the Cooling Efficiency Product with the launch of the 2011 Plan. 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 6

below, and the products goals and budgets are shown in Table 7a and 7b below. Additional detail on these products is presented in each product description.

**Table 6: Business Product Rankings**

Product Name	Product Ranking <sup>8</sup>	Type	Fuel
Heating Efficiency	27	Prescriptive	Gas
Compressed Air Efficiency	28	Custom	Electric
Cooling Efficiency	8	Prescriptive	Electric
Custom Efficiency	20	Custom	Both
Data Center Efficiency	34	Custom	Both
Energy Management Systems	14	Custom	Both
Lighting Efficiency	6	Prescriptive	Electric
Motor and Drive Efficiency	7	Prescriptive	Electric
New Construction	13	Custom	Both
Process Efficiency	29	Custom	Both
Recommissioning	31	Custom	Both
Segment Efficiency	24	Custom	Both
Self-Direct Custom Efficiency	30	Custom	Both
Small Business Lighting	21	Custom Prescriptive	Electric
Standard Offer	23	Custom	Both

Xcel Energy has extensive experience offering DSM products throughout its service areas, with its most long-standing products coming from Minnesota. It intends to use its experience gained in other states to provide 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.

The current product profile includes several products that began their launch in Minnesota. The following are the newest products launched in 2009 for the Colorado market: Data Center Efficiency, Process Efficiency, Segment Efficiency, Self-Direct, Small Business Lighting, and Standard Offer products. 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 2011 Plan, accounting for 147,975,812 161,706,399 GWh at the generator and 84,735 Dth over the one-year period. This equates to ~~62%~~ 63% of the Company's total electric energy savings target and 23% of the total natural gas savings target.

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<sup>8</sup> Rankings are established by determining market segments that could participate in the program, customer classes available, total projected savings, cost per kW/Dth, participation, and participation % of market. The entire portfolio ranking can be found in the Appendices of this filing.

The most significant Business Program energy savings will come from the Lighting Efficiency, New Construction, Motor and Drive Efficiency, and Boiler Efficiency Products. In this plan the Business Program is proposing a modest contraction from 2010 goals due to market and economic indicators, which continue to show slow recovery in new construction and equipment replacement. Some individual products savings targets have decreased due to cannibalization into newer programs such as compressed air upgrades at customer sites participating in the Process Efficiency or Self Direct products. The following table shows the Company's proposed electric and natural gas Business Program savings targets and budgets by product.

**Table 7a: 2011 Electric Business Program Budgets and Savings Targets**

2011	Electric Participants	Electric Budget	Customer kW	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
<b>Business Program</b>						
Compressed Air Efficiency	75	\$1,002,361	819	712	4,639,368	2.25
		\$1,100,762				2.19
Cooling Efficiency	294	\$2,824,538	4,463	2,644	7,131,966	1.99
	350	\$3,567,538	4,877	2,941	7,809,971	1.92
Custom Efficiency	50	\$2,224,028	2,071	1,595	8,682,818	1.80
Data Center Efficiency	14	\$840,317	470	383	3,972,363	2.11
	42	\$1,251,520	774	69	6,155,514	1.67
Energy Management Systems	50	\$1,581,520	922	82	7,327,993	1.70
Heating Efficiency						
	931	\$5,618,064	11,432	8,729	36,240,143	3.10
Lighting Efficiency	946	\$7,058,063	15,524	11,891	48,120,245	3.27
Motor & Drive Efficiency	1,100	\$2,889,440	4,955	3,616	20,385,702	4.00
			8,786			3.56
New Construction	60	\$7,039,703	7,829	7,033	26,582,420	3.41
Process Efficiency	4	\$1,197,706	1,606	1,231	7,782,869	2.53
Recommissioning	53	\$1,181,825	861	481	4,999,877	1.05
Segment Efficiency	124	\$1,751,712	1,463	897	6,614,412	1.83
Self-Directed Custom Efficiency	13	\$1,014,859	1,366	1,232	5,625,816	3.59
Small Business Lighting	200	\$3,350,397	1,401	1,268	4,626,514	1.68
Standard Offer	60	\$1,536,658	2,232	2,087	4,536,030	2.36
<b>Business Program Energy Efficiency Total</b>	<b>3,020</b>	<b>\$33,723,129</b>	<b>42,700</b>	<b>31,973</b>	<b>147,975,812</b>	<b>2.70</b>
	<b>3,099</b>	<b>\$36,334,530</b>	<b>46,397</b>	<b>35,447</b>	<b>161,706,399</b>	<b>2.71</b>
<b>Business Program Total</b>	<b>3,020</b>	<b>\$33,723,129</b>	<b>42,700</b>	<b>31,973</b>	<b>147,975,812</b>	<b>2.70</b>
	<b>3,099</b>	<b>\$36,334,530</b>	<b>46,397</b>	<b>35,447</b>	<b>161,706,399</b>	<b>2.71</b>

**Table 7b: 2011 Gas Business Program Budgets and Savings Targets**

2011	Gas Participants	Gas Budget	Net Annual Dth Savings	Annual Dth/\$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
<b>Business Program</b>						
Heating Efficiency	233	\$1,534,345	44,012	28,685	\$1,063,687	1.29
Compressed Air Efficiency						
Cooling Efficiency						
Custom Efficiency	10	\$476,763	9,637	20,214	\$142,911	1.18
Data Center Efficiency						
Energy Management Systems	5	\$86,000	2,245	26,106	\$23,662	1.19
Lighting Efficiency						
Motor & Drive Efficiency						
New Construction	13	\$321,098	17,532	54,600	\$607,910	1.51
Process Efficiency	3	\$123,332	4,301	34,874	\$94,104	1.57
Recommissioning	9	\$72,967	2,199	30,134	\$72	1.00
Segment Efficiency	9	\$55,661	3,627	65,161	\$107,455	1.96
Self-Directed Custom Efficiency						
Small Business Lighting						
Standard Offer	30	\$25,166	1,181	46,946	\$17,378	1.31
<b>Business Program Energy Efficiency Total</b>	<b>312</b>	<b>\$2,695,332</b>	<b>84,735</b>	<b>31,438</b>	<b>\$2,057,180</b>	<b>1.33</b>
<b>Business Program Total</b>	<b>312</b>	<b>\$2,695,332</b>	<b>84,735</b>	<b>31,438</b>	<b>\$2,057,180</b>	<b>1.33</b>

## Goals and Participants

Electric goals were established first at the portfolio level by the Commission in Docket No. 07A-420E.<sup>9</sup> 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 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 2011, 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.

Electric budgets have increased slightly overall due to net to gross downward adjustments in two of the largest business products, Lighting Efficiency and Business New Construction. A lower net to gross will reduce claimed savings for the same spend causing an increase in dollar per kW/kWh metrics. Additionally, Business New Construction raised rebate levels to further penetrate the market. Natural gas budgets also increased mainly due to raising the rebate level and goal in the Heating Efficiency product (formerly Boiler Efficiency and Furnace Efficiency) and the goal in Custom efficiency.

## **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.

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<sup>9</sup> 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.

Public Service's Plan shows the Company strengthening its efforts within the Business Program to address specific market segments and their needs. Data Efficiency, Segment Efficiency and Process Efficiency are the beginning of this effort. Further analysis will be conducted in future process and impact research to identify other likely candidates for such targeted efforts.

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 customer 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 more than 1 year and less than 15 years.
- Studies: Study funding cannot exceed 75% of the study cost and studies must be completed within three months.

- Incremental cost: Rebates cannot exceed 60% of the total incremental cost of the efficiency measure.
- 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 one year or greater than 15 years, they will not receive a rebate, but Public Service will claim those study-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.

## **F. Stakeholder Involvement**

Through 2009 and 2010, 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 Governor's Energy Office, Commission staff, trade partners, large customers, Environmental Pollution Control Agency staff, Office of General Council staff, 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 2011 are noted in the E,M&V section of the Indirect Products and Services, as well as in the respective product description.

## ➤ **Compressed Air 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 replacement 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.
3. Custom rebates for implementation of unique improvements identified by the studies. Improvements can include capital purchases, such as qualifying compressors and “process” changes, such as piping modifications or horsepower reductions.

If customers choose to improve compressed air equipment, as identified in the study, rebates are available through the Custom Efficiency Product for any size equipment. For equipment over 50 horsepower, it is expected that the customer will participate in the study portion of the product prior to submitting for a custom efficiency rebate. Examples of equipment replacement that may qualify for the custom equipment rebate include:

- Replace 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.

All electric commercial and industrial customers within Public Service’s service area are eligible to participate in the Compressed Air Efficiency Product. The primary target is a larger business customer that has some or all of the following characteristics:

- Demand of 500+ kW
- 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:

- Demand of less than 500 kW
- Limited internal resources to purchase, install, and finance projects
- Limited technical expertise
- Focus on short-term paybacks

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

## Settlement Terms

The Company agrees to implement a 50% increase in the rebate offered for this product. The Settling Parties agree that the 2011 DSM electric budget shall be increased by \$98,401 to accommodate the increased rebate offered in connection with the Compressed Air (custom) product.

## **B. Goals, Participants & Budgets**

### Goals and Participants

For 2011, goals were established at the portfolio level by Xcel Energy'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 on a review of past product performance and the allocation from the prior year's 2010 goal.

2011 planed participation was derived from the prior year's 2010 goal, trade participant feedback, and an evaluation of potential customers within the Colorado service area. The participation was also adjusted due to the recent trend of customers bundling their compressed air measures within Public Service's interdisciplinary programs.

### 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, since other external variables like promotions, materials and staffing exist. Experience from Minnesota products is used as a checkpoint.

For the Compressed Air Product, rebates, internal labor, and third party consulting drive most of the budget. The following is information pertaining to these specific drivers.

- **Rebates** – The budget for rebates is established by estimating participation for the product and multiplying by the rebate per kW amount plus an additional amount in the event that Public Service runs special promotional incentives 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 preapproval of each opportunity. Labor is typically around 30% of the product cost.
- **Third party consulting** – In early 2010, Public Service transferred the project analysis duties from a third party consultant to our in-house engineering staff. The consultant continued to provide measurement and verification (M&V) duties. In 2011 the third party consultant will continue to support M&V projects. Consulting expenses are expected to decrease, as a percentage of total costs, over time as Public Service uses internal labor to conduct project analysis work.

## **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 newly installed equipment. The customers may submit for a rebate after the equipment has been purchased and installed. The replacement of compressors must be a one-for-one replacement of load/no-load compressor(s) with a variable speed drive compressor(s). If the retrofit is not a one-for-one replacement but still results in energy savings, customers may apply for preapproval 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 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 weeks.

### **Compressed Air Studies**

First, the customer contacts a participating compressed air vendor/contractor and requests a study estimate. A trade network list is available from Public Service if the customer has not chosen a vendor. The customer submits the Compressed Air Efficiency study application and the proposed cost of the study to the Public Service representative. To receive preapproval, the study application must propose to include the following components:

- An ultrasonic leak survey — locate and tag air leaks; estimate the cost of inefficiencies due to system leaks and misuses.
- An efficiency report — 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.
- 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% 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 Public Service account manager. The customer and Account Representative review the list of identified leaks, and notes 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 preapproval letter. Public Service will reimburse the customer for the study portion of the project within six weeks of when the information described above is received.

### **Custom Compressed Air**

If the customer chooses to implement recommended capital improvements to the compressed air system, they may apply for preapproval of their equipment replacement 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, following are strategies that will help meet product goals in 2011.

Target Industrial Customers. Industrial customers make up a sizeable untapped market that has the potential to bring in large compressed air projects. Public Service will target these customers with direct mailings to create awareness and answer questions about the product.

Partner with Trade Allies. Trade allies will be a significant factor in the success of this product. Working directly with these trade allies will help them to identify customers for the product early in the planning stages of a project. The trade allies must be educated to see how incorporating Public Service's rebates into their bids can be beneficial to their business.

Vendor Training. Currently there are only three major providers of compressed air studies in the Denver market. Competition amongst this group is high due to the limited market size. For this reason, it is best to approach these trade allies individually rather than offer a group training format. Throughout 2011, we will schedule several one-on-one meetings with these trade allies. 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. Public Service continuously solicits feedback from customers and trade allies to improve these materials. Collateral is available in soft and hard copy format for customers, trade allies, and internal Public Service staff. Customers and trade allies 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** – Tool 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.
- **Compressed Air Application for qualifying prescriptive measures** – The document 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 on the business location, account manager, applicable rates, project description, technical information related to proposed and existing equipment, equipment supplier and project verification upon completion.
- **Vendor List** – A list of trade allies 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. Public Service does not endorse any particular company over another.
- **Compressed Air Study Template** – This tool is a detailed example of what Public Service would like to see at the completed stage of a study.

## **E. Product-Specific Policies**

Compressed Air studies and custom projects require pre-approval before purchase and installation. This process is in place to help insure free ridership is kept to a minimum and that rebates are awarded to projects that are technically and financially sound. All compressed air equipment projects must have a payback period between one and fifteen years.

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 allies, 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), 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.

## G. Rebate Levels

~~Participating facilities must be Public Service electric business customers. The product helps these customers lower operating costs by offering rebates on compressed air studies and by providing rebates on compressed air equipment up to \$400 saved through the Custom Efficiency Product. The prescriptive and study rebates cannot exceed 60 percent of the incremental costs. Rebates apply to new and leased equipment, but not to used equipment. These are similar rebate levels to what Xcel Energy offers in Minnesota.~~

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.

The product provides custom rebates for all other compressed air equipment projects that start in 2011 of up to \$600 (an increase of 50%) per KW saved.

## ➤ Cooling Efficiency Product

### A. Description

The Cooling Efficiency Product encourages Public Service business customers to choose the most efficient air conditioning equipment that best meets their needs. The product offers rebates in two tiers, new construction and retrofit, while focusing on the most common air conditioning equipment available, and encouraging customers to make the most appropriate equipment choice. This product is similar in structure and technology to the Xcel Energy's Minnesota Cooling Efficiency Product and many other products nationally.

This product has broad applicability within the Business segment, as most businesses in Public Service's Colorado service area air-condition their facilities, and cooling is typically the second or third largest user of electricity in a facility.

While every attempt is made to create prescriptive rebates for high efficiency options, some energy saving solutions require individual evaluations to determine cost-effectiveness. These projects are evaluated under the custom efficiency process and require preapproval following all of the guidelines of the Custom Efficiency Product.

Product participants will benefit from newer equipment and therefore better reliability and lower maintenance costs, as well as lower utility bills from energy savings, and rebates that help to buy down the initial capital cost and shorten payback. Public Service reviewed and adopted best practices for DSM product development and structure from across the country. Specifically the Company reviewed the Best Practices Benchmarking for Energy Efficiency Products Non-Residential HVAC study, available from Pacific Gas and Electric. The Company also used the guidelines of the IECC International Energy Conservation Code 2006 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. For instance a 10 ton rooftop air-conditioner at 11.0 EER and a 10 ton rooftop air conditioner at 11.8 EER both qualify for rebates. The 11.0 EER unit is eligible for ~~\$500~~ \$650 dollars while the 11.8 EER receives ~~\$820~~ \$1050 Dollars.

### Settlement Terms

Cooling Efficiency (Plan A) - New Units or Replacement upon Burnout. The Company agree to increase rebate levels from \$50/ton to \$65/ton and from \$4/.1EER to \$5/.1 EER and to increase the level of forecasted participation by 56 units. The baseline for determining eligibility for and level of the rebate shall continue to be IECC2006. In order to qualify for a rebate, the unit must exceed the minimum which is set above the IECC 2006 level. The Settling Parties agree that the 2011 DSM electric budget shall be increased by \$743,000 to accommodate the increase in rebate levels and expansion of this product. The Company projects an associated increase in its electric energy savings target of 678,000 kWh.

Cooling Efficiency (plan B early replacement of working units). During the remainder of 2010 and the first four months of 2011, the Company agrees to evaluate options for including an Early Replacement retrofit product in its portfolio. As part of that evaluation the Company shall consider the applicability of its residential replacement product for business customers. The Company agrees to implement replacement retrofit product options that are cost-effective or that have positive benefits as part of a bundled product, during the second half of 2011 by filing a 60 Day notice no later than May 1, 2011.

## **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 (2010) goal which saw a net-to-gross reduction from 94% to 75%. Additional factors included feedback from trade partners, 2009 and 2010 product trends, average project size, and historical participation.

### Budgets

Once goals were established, the budget process is generally the same for Cooling Efficiency as with the other DSM products. Historical cost and participation information is tracked and analyzed to project budgets in advance. Furthermore, external resources and discussion 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 annual factor, since other external variables like promotions, materials, and staffing exist. Experience from Minnesota products is used as a checkpoint.

For the Cooling Efficiency Product, rebates, labor, promotions and consulting 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.
- Labor Charges: 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 during the year and a contribution to the general conservation advertising campaign.
- Consulting: The Company also receives consulting and professional services from the University of Wisconsin's Heating, Ventilating, Air Conditioning and Refrigeration Consortium and analytical services from outside consultants for Custom cooling projects

## **C. Application Process**

Customers learn of the Cooling Efficiency Product and its benefits through newsletters, direct mail, the trade, and Public Service's account managers and Business Solutions Center representatives. 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 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 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 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.

Customers with projects that save cooling energy but do not have a corresponding prescriptive rebate can participate in the Custom component of the product. Custom cooling is governed by all of the requirements of the Custom Efficiency Product including pre-approval.

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 Business Solutions Center representatives 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 flat plate heat exchangers, cooling controls and energy recovery ventilators, have also been identified as an area of growth. Rooftop units, condensing units, and split systems 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 prescriptive rebates to add to the portfolio including energy recovery.

#### **E. Product-Specific Policies**

The Cooling Efficiency Product does not rebate back up equipment since assumed 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 about once per quarter 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. Xcel Energy has been hosting these meetings for the last two years and have found great success in improving communication and identifying new ways to evaluate cooling equipment in the current market. We look forward to continuing future meetings and improving the delivery of the cooling efficiency product.

## 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 to qualify efficiencies. The rebate structure by component is listed below:

EQUIPMENT		MINIMUM TO QUALIFY	REBATE
<b>PTACs</b>		11.0 EER	\$50 \$65/ton + \$4 \$5/ton for every 0.1 EER above min
<b>Water-Source Heat Pumps</b>		14.0 EER	\$50 \$65/ton + \$4 \$5/ton for every 0.1 EER above min
<b>Rooftop AC Units</b>			
	< 65,000 BTUH (<5.4 tons)	13.5 SEER	\$50 \$65/ton + \$4 \$5/ton for every 0.1 EER above min
	65,000 - 135,000 (5.5 - 11.3 tons)	11.0 EER	\$50 \$65/ton + \$4 \$5/ton for every 0.1 EER above min
	135,000 - 240,000 (11.4 - 19.9 tons)	10.8 EER	\$50 \$65/ton + \$4 \$5/ton for every 0.1 EER above min
	240,000 - 760,000 (20 - 63.3 tons)	9.8 EER	\$50 \$65/ton + \$4 \$5/ton for every 0.1 EER above min
	> 760,000 (> 63.3 tons)	9.4 EER	\$50 \$65/ton + \$4 \$5/ton for every 0.1 EER above min
<b>Condensing Units</b>	>65,000 BTUH (>5.4 tons)	11.0 EER	\$50 \$65/ton + \$4 \$5/ton for every 0.1 EER above min
	>= 65,000 BTUH and ≥ 5.4 tons	11.0 EER	\$50 \$65/ton + \$4 \$5/ton for every 0.1 EER above min
<b>Split Systems</b>	< 65,000 BTUH and < 5.4 tons	14.0 SEER	\$50 \$65/ton + \$4 \$5/ton for every 0.1 EER above min
<b>Air Cooled Chillers</b>		10 EER	\$6 \$2/ton + \$4 \$1.50/ton per FLV + \$25 \$7.5/ton per IPLV for every 0.1 EER above min
<b>Chillers - Scroll or Rotary Screw</b>	< 150 Tons	0.74 kW / ton	\$42 \$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
	>=150 tons and < 300 tons	0.67 kW / ton	\$42 \$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
<b>Chillers - Centrifugal</b>	All sizes	Determined by ASHRAE 90.1 2004	\$42 \$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
<b>Advanced Evaporative Cooling (Indirect or Hybrid) - (replacing or installing in lieu of DX Roof Top Unit)</b>	All sizes		\$750 per 1,600 CFM

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 ~~33~~ 50% of the incremental cost. This level balances the cost-effectiveness of the product with the influential value to the customer and a payback less than 5 years in most cases. Rebates are designed to buy down the incremental cost of purchasing high efficient equipment which is becoming more challenging with the increasing code requirements in the market.

## ➤ Custom Efficiency Product

### A. Description

The Custom Efficiency Product (Custom) is designed to provide rebates on a wide variety of equipment and process improvements that do not fall within Public Service's prescriptive rebate products. Similar to prescriptive products, the primary goal is to obtain verifiable and persistent on-peak electric demand reduction and energy savings in the Colorado service area. Colorado's Custom Efficiency Product was modeled after Xcel Energy's Custom Efficiency Product in Minnesota, which has been successfully operated since 1994 and received numerous ACEEE awards and recognitions.

Custom is designed to incorporate measures that save demand and/or energy, but currently are not included in any of the prescriptive rebate products. This does not mean that Public Service Company will rebate every energy saving technology. Each measure must be screened using a detailed engineering analysis. The analysis is described in more detail in Section C. Key criteria used to screen the measures include:

- Evidence that the measure is cost-effective to the customer and Public Service include:
  - Simple payback before rebate of 1 to 15 years.
  - A Total Resource Cost Test (TRC) ratio of greater than or equal to 1.0.
- Evidence of measure persistence which could include:
  - A measure life of 10 years or greater.
  - Description that supports permanent installation
  - Capital investment undertaken by customer.
  - Independent, third party verification if technology is new to the marketplace.
  - Other research conducted for energy efficiency technologies that demonstrate persistence (e.g., utility impact evaluations, DOE lab testing of technologies).

Many types of energy saving measures are not currently eligible for a prescriptive rebate, but could be eligible for a Custom rebate, including the measures listed in the table below.

<b>Equipment</b>	<b>Application</b>
Compressed Air	New equipment, reduction in horsepower (hp) of compressors, storage, vacuum pumps, and variable frequency drive compressors
Controls	CO <sub>2</sub> based ventilation, compressed air and refrigeration controls
Cooling	Economizers, heat exchangers, and ventilation fans
Lighting	Lumen output changes, exterior lighting, LED and daylighting, retrofits not one to one
Miscellaneous	Energy efficient windows (film, argon, Low E), humidification, printing presses, welders, and elevator modernization (DC to AC motor conversion)
Motors & Drives	Motors > 500 hp. Drives > 200 hp and 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.

The Company's engineering team determines if a project is covered under Public Service's prescriptive products and, if not covered, warrants analysis through Custom. The product team then conducts the analysis to determine rebate eligibility. The review process typically is completed within two weeks of receiving an application.

The Custom Efficiency Product strives for consistency of its project analyses. All projects are reviewed to make sure they do not meet the requirements of our prescriptive products, as a prescriptive project cannot be analyzed under Custom. Any assumptions made in the review of a project are clearly documented within the analysis and all projects of a similar type are reviewed using the same set of assumptions.

## **B. Goals, Participants & Budgets**

### Goals and Participants

The estimated goals for the Custom Efficiency Product are heavily dependent on the specific projects that come in. For this 2011 Plan, Public Service has used both historical performance and those projects that are in the pipeline to get a sense of the number and magnitude of future project participants.

Participation was derived from historical performance over the last three years and in particular from 2009 activity.

### Budgets

Once goals were established, the budget process is generally the same for Custom Efficiency as with the other DSM products. Historical cost and participation information is tracked and analyzed to project future budgets. Furthermore, external resources and discussion with local stakeholders are used to ascertain expenditures and market equipment cost. Comparative spending analysis of past year activity is conducted but is not the determining annual factor,

since other external variables like promotions, materials and staffing exist. Experience from Minnesota products is used as a checkpoint.

For the Custom Efficiency Product, labor, consulting, and rebates drive the vast majority of the budget. The following is information pertaining to these specific drivers:

- Internal labor – Custom Efficiency is a labor-intensive product due to the preapproval process and analysis component of the product. Labor is typically more than half of the total cost of the product.
- Third party consulting – In early 2010, Public Service transferred the project analysis duties from a third party consultant to our in-house engineering staff. The consultant continued to provide measurement and verification (M&V) duties. In 2011 the third party consultant will continue to support M&V projects. Consulting expenses are expected to decrease, as a percentage of total costs, over time as Public Service uses internal labor to conduct project analysis work.
- Rebates – The budget for rebates is established by estimating participation for the product and multiplying by the rebate per kW amount.

### **C. Application Process**

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

#### **1. Application Submission**

Public Service account managers and/or Business Solutions Center (BSC) representatives work with a customer and their vendor to identify a project with energy efficiency opportunities and start the application process. The application form is available from the account manager, BSC, Xcel Energy website or from the product manager. Applications must contain a well-defined scope of work with enough detail to allow Public Service's internal engineers to analyze the savings opportunities. Applications must be signed by the customer but can be submitted by others on their behalf, including: building owners; lighting, HVAC, refrigeration, or building controls contractors; architecture and engineering firms; energy services companies; equipment manufacturers and distributors; or project financing entities.

#### **2. Application Review**

The product manager receives the completed application from the account manager or BSC representative. The application is reviewed for completeness of information. This process is in conjunction with a technical consultant review prior to the information being officially submitted. Once the product manager and technical consultant feel all necessary information has been provided, a project number is assigned and the application is entered into the tracking system.

### **3. Project Analysis**

Analysis of the project begins with our internal technical staff. Engineers review the project information and enter pertinent data into a spreadsheet model to determine the projected energy savings, benefit/cost ratio (i.e. TRC) and payback. These models were developed originally in Minnesota and adapted for Colorado (e.g., different avoided costs, climate, and other factors). The models calculate 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.

### **4. Project Acceptance or Rejection**

Once the engineer has approved the analysis, a preapproval or rejection letter is sent to the customer. The preapproval letter provides critical information regarding the project, including: the project rebate amount, the project description and costs, and any conditions that must be met to receive the rebate (e.g., measurement and verification). In 2010 energy savings information was provided along with the preapproval letter to help the customer understand the rebate amount and estimated energy savings. This procedure will continue in 2011. Should a project be rejected, a rejection letter is sent informing the customer their project will not be eligible and explaining why. A copy of the preapproval/rejection letter is also sent to the account manager for project tracking. The marketing assistant collects all project documentation, including the application, specification sheets, proposals, and analysis, and stores it in the product files (both electronically and in hard copy).

### **5. 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 preapproval letter. The product manager reviews final documentation for accuracy and completeness. Should clarification or additional materials be needed the product manager will work with the account manager to obtain the information from the customer. 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 check.

Occasionally, projects must undergo re-analysis because the final project parameters do not match the original project application. This discrepancy 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. 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, the following are some strategies we will use to achieve our goals in 2011:

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.

Business Solutions Center (BSC). The BSC implemented a new dedicated personnel resource strategy for business customers in 2010. This new strategy is geared toward non-managed accounts and provides additional Xcel employees to manage DSM sales activities for our mid-market customers.

Use of Collateral. Public Service has developed a wealth 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.

- **DVD Case Studies** – DVD’s have been produced that showcase successful customer implementation of custom energy conservation measures. These DVD’s will be distributed at various forums and customer site visits throughout 2011.

### **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 on the Front Range. Account managers manage the largest 800 accounts.

A key difference between Xcel Energy’s Colorado and Minnesota service territories is the size of the industrial base. Minnesota has approximately ten times the number of industrial customers as Colorado. The lack of industrial base in Colorado has dictated that the Colorado Custom Efficiency Product to develop a marketing approach that targets mid market to small business customers. The new resource focus from the BSC will help address and target market to this customer segment

### **E. Product-Specific Policies**

All Custom projects require preapproval before order, purchase, and installation; a TRC ratio of equal to or greater than 1.0; and a simple payback criteria of one year to fifteen years. 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. Feedback is garnered individually from each participant 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.

### **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 2011, Public Service is maintaining an incentive level of \$400 per kW for electric savings projects and \$7 per Dth for gas savings projects.

## ➤ Data Center Efficiency Product

### A. Description

The Data Center Efficiency Product is designed to help customers address energy conservation opportunities in both new and existing data centers. This specialized product was designed due to the significant energy savings potential for the customer, and the huge projected growth in energy use over the next several years as determined by the Environmental Protection Agency (EPA).

A holistic approach is taken to package energy efficiency information and rebate opportunities through the use of site evaluations and design assistance. The product consists of two separate paths: one for existing data centers and one for new construction. 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

Design assistance will be available separately or in conjunction with our existing Energy Design Assistance Product for new facilities utilizing a third party expert for the analysis. For existing facilities, the product will provide funding towards an on-site evaluation and analysis and rebates based on the demand savings resulting from implementing energy conservation opportunities recommended in the study.

Custom and prescriptive rebates will also be part of the package of information to the customer. Current prescriptive, high-efficiency cooling and lighting equipment rebates will be available and, in time, new prescriptive rebates will be developed for high-efficiency servers, server optimization, and data storage/archiving practices. In the mean time, these measures will utilize our existing Custom Efficiency rebates and analysis process under the Data Center Efficiency product.

Data centers are often discussed in terms of their size. This product focuses on the following three categories as defined by the EPA: Localized Data Centers (500-1,000 sq. ft.), Mid-tier Data Centers (1,000-5,000 sq. ft.), and Enterprise-class Data Centers (5,000+ sq. ft.). However, any size data center will be accepted in the product.

Public Service will conduct periodic requests for qualification process 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 our study provider for analysis of the data center portion of the project.

## **B. Goals, Participants & Budgets**

### Goals and Participants

The demand and energy goals were determined by defining different categories of data centers based on square footage and assuming an average number of servers/energy use. Then the various energy efficiency options that could arise from a data center design study were defined (e.g. install high-efficiency servers, virtualize servers, install more efficient lighting, etc.) and the estimated savings of the individual measures was calculated and totaled. Our estimation of the data center market in Colorado is based on the August 2007 EPA Report “EPA Report to Congress on Server and Data Center Energy Efficiency.” The data center load is estimated at 1.5% of the total energy use in our territory and is expected to grow to 2.5% by 2011 according to the EPA study. The kW demand savings of installed projects as a result of a data center design analysis will determine energy savings. Energy conservation opportunities will be identified within the study report.

Participation is based on historical participation since the product launch in early 2009.

### Budgets

In developing the budget for this product, Public Service built the goals and budgets from the desired participation level for data centers being redesigned and built each year. The largest cost in the budget is for implementation and study rebates, which represent 70% of the overall product budget.

## **C. Application Process**

Customers will 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 will be made available through all of these channels. Customers may submit an application through their account manager, trade allies or by mailing it to Public Service.

Customers building a new data center need to submit their application in the early phases of design to make sure our recommended strategies make it into their final plans. Preapproval for the design study will be required and only customers will be able to apply for rebates.

## **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 an account manager focused on data center customers. It will be necessary to provide good face-to-face contact with our customer base in order to engage

them in the product. Research on this customer segment suggests that data center customers look to their utilities to be the energy expert.

The marketing strategy for Data Center Efficiency will include a variety of channels, including account managers, trade relations managers, professional organizations, and direct customer communications. Tactics include, but are not limited to, the creation of 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 at the time the study funding application is submitted, prior to receiving study funding preapproval.

Measures identified within a study will be evaluated together as one bundled project. The cost-benefit analysis will be calculated on the aggregated NPV costs and benefits of the bundled project. The rebate will be calculated based on the savings.

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 check.

#### **F. Stakeholder Involvement**

As part of the product design effort, 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.

Xcel Energy has also been an active participant in the Consortium for Energy Efficiency (CEE) Data Centers and Servers workgroup where we are working with other utilities collaboratively to

push for energy efficiency standards for data center equipment and provide guidance to one another as individual data center efficiency products are developed.

#### **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, such as for lighting or cooling equipment upgrades. Other energy efficiency upgrades will be handled through a custom-type analysis. All measures will be rebated at up to \$400 per kW saved. The data center design study will follow the existing Energy Design Assistance Product guidelines

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

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

## Settlement Terms

Electric: The Company agrees to implement a 50% increase in the rebates proposed for this product resulting in and expected increase of 8 participants. The Settling Parties agree that the 2011 DSM electric budget shall be increased by \$330,000 to accommodate the rebate increases and additional participation in this product. The Company expects to realize an increase in targeted electric energy savings of approximately 1.1. GWh as a result of the changes agreed to in this paragraph.

Gas: The Company agrees to consider temporary promotional increases in 2011 within the 125% portfolio budget flexibility to the gas portion of projects, in addition to the rebates for the electric portion of projects.

## **B. Goals, Participation & Budgets**

### Goals and Participants

For 2011, goals were established at the portfolio level by Public Service 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 three and half years, longer-term experience with similar products in Minnesota, and the allocation from the prior year's (2010) goal.

Participation was derived from trade participant feedback, 2009 product trends, average project size and historical participation in the Minnesota product as well as an evaluation of market and economic trends.

### Budgets

To develop the 2011 budgets, Public Service used the historical performance (costs and participation) of the product as a guide. For the EMS product, rebates, consulting and labor drive the vast majority of the budget. The following is information pertaining to these specific drivers.

- **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 preapproval process and analysis component of the product. Labor is approximately 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 as energy management systems were initially covered through Custom. 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. Typically,

the customer or a vendor selling to the customer identifies a project with energy efficiency opportunities and starts the application process. The general application steps and requirements are as follows:

### 1. Application Submission

Typically, the Public Service account manager 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. Applications must contain a well-defined scope of work with enough detail to allow Public Service's internal engineers to analyze the savings opportunities. Most applications include:

- General Building Information – Square footage, 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

The product manager receives the completed application from the account manager or Business Solutions Center (BSC) representative. The application is reviewed for completeness. This process is in conjunction with an energy engineer review prior to the information being officially submitted. Once the product manager and energy engineer feel all necessary information has been provided, the marketing assistant assigns a project number and enters the application into the tracking system.

### 3. Project Analysis

Our outside consultant completes the initial analysis of the project. The consultant will review the project information and enter 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 Public Service's internal engineering staff. The engineer reviews the consultant's work. Should an error be discovered, the internal engineer will document it and send the information back to the external consultant for reanalysis. If everything was analyzed correctly, the Public Service engineer will approve the analysis.

### 4. Project Acceptance or Rejection

Once Public Service's engineer has approved the analysis, a preapproval or rejection letter is sent to the customer. The preapproval 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 their project will not be eligible and explaining why. A copy of the preapproval or rejection letter is also sent to the account manager for project tracking. All project information is then documented, including the application, specification sheets, proposals, and analysis, and stores it in the product files (both electronically and in hard copy).

## 5. Completion

The final step in the application process is verification that savings occurred. Payment of the rebate is dependent on verification of the results of the project. The customer first fills out the verification section of the application and provides invoices for the completed project. In rare instances, customers may submit American Institute of Architects project continuation sheets in lieu of invoices.

## **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 are some strategies that will help meet product goals in 2011.

### Use of Collateral

Public Service has developed and refined marketing collateral for the EMS product. This information is available in soft and hard copy format for customers, trade allies, and internal Public Service staff. Customers and trade allies can request hard copies of the material or they can access material on Xcel Energy's website. Internal staff involved with the product usually has hard copies available within their departments and can access material from the company's intranet site. The marketing material available 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, 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.
- **Payback Calculator** – This tool is a simple way to calculate whether a project is a good, fair or poor project in terms of passing payback and getting approved.

## **Improve Vendor Communications**

Public Service will continue to communicate via email to all energy management system vendors. The email will reintroduce the product and remind vendors that the product exists and how they can take advantage of it with their customers. Communications will 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.
- **Training Products** - Public Service has also held product training for vendors. That was done when the product was launched. Public Service will hold future product training as it is deemed necessary.

## **Target Market**

All electric commercial and industrial customers within Public Service'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 products focus will be on the larger managed accounts in Colorado. 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 that has some or all 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 that has 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 allies, which primarily consists of:

- Manufacturers of equipment
- Installers
- Design engineers, architects and electricians

## **E. Product-Specific Policies**

Much like the Custom Efficiency product, EMS projects require preapproval before any equipment is purchased or installed, and must have a TRC ratio equal to or greater than one, and

have a payback between one and ten years within our analysis. Preapproval must occur prior to purchase and installation of the equipment and the rebate cannot exceed 50 percent of the incremental costs. Generally, any energy management system project should have a minimum of 10 kW or 100,000 kWh of savings as projects with less than these predicted energy savings levels typically do not pass the tests. The information pertaining to minimum requirements is included on the application.

## **F. Stakeholder Involvement**

Customers, trade allies, 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), 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.

## **G. Rebate Levels**

~~The Energy Management Systems product is designed to offer customers rebates for installing energy management systems that control and reduce a building's energy usage. The product separately rebates on peak electric savings, off peak electric savings, and natural gas savings. Measures qualifying for the on peak electric reduction rebate must reduce demand during the on-peak period (8 a.m. to 6 p.m. Monday through Friday) and specifically impact the company's system coincident peak during the hours of 2 p.m. to 6 p.m. June 1st through September 30th (holidays excluded). These measures receive a rebate of up to \$400 per kW saved. Measures qualifying for an off peak rebate provide savings between 6 p.m. and 8 a.m. Monday through Friday and all day Saturday, Sunday, and holidays. Off peak savings qualify for a rebate of \$0.08 per kWh saved. Natural gas rebates are provided up to \$7 per Dth.~~

The Energy Management Systems product offers customers rebates for installing energy management systems that control and reduce a building's energy usage. Measures that reduce energy usage will receive a rebate of up to \$400 per kW [a 2011 promotional rebate total of up to \$600 per kW]. Natural gas rebates are provided up to \$7 per Dth." Public Service has internal guidelines which limit the \$/kW incentive to no more than 60% of the incremental costs and/or the customer payback after rebate can be no less than one year.

## ➤ Heating Efficiency Product

### A. Description

The Heating Efficiency Product provides rebates for business customers who purchase high efficiency natural gas or dual-fuel commercial equipment for heating or process loads. Product rebates are designed to promote the installation of high-efficiency commercial hot water heaters, boilers, furnaces, pipe insulation, and boiler system auxiliary equipment that improves combustion and seasonal efficiency. This product is for Public Service's retail natural gas business customers only. The Heating Efficiency Product has several components which include energy efficient hot water boiler systems, furnaces, commercial hot water systems, boiler auxiliary equipment such as controls and system improvements, and custom boilers. The details of each product component 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 Product (FEMP). These boiler systems are generally 5-12% more efficient than standard boilers. Rebates cover three scenarios:

- Non-condensing boilers greater than 85% efficiency.
- Condensing boilers greater than 92% efficiency; Plan A – Rebate for the installation of a new condensing boiler where either no previous boiler existed, or the current boiler is no longer functional.
- Condensing boilers greater than 92% efficiency; Plan B – Rebate for the installation of a new condensing boiler where the customer's existing boiler is currently functioning and within the assumed lifetime of the equipment. Rebate amount is set higher than plan A to better incentivize the customer to remove functional, but lower efficiency equipment, and make a change to a higher efficiency system.

#### 2) Commercial 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 higher rebate.

#### 3) Commercial Hot Water Systems

Public Service rebates commercial hot water systems that exceed the minimum efficiency levels established by the ASHRAE 90.1 Energy Standard and FEMP. These can be either:

- Tankless – systems greater than 150 MBTUH and 92% efficiency.
- Condensing – systems, with storage, that are greater than 92% efficient.

#### 4) Boiler Auxiliary Equipment

The performance of a boiler system can be enhanced with controls and system 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.) The following will be rebated:

a) Boiler Tune-Ups, including the following activities:

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

c) Pipe Insulation:

- Rebates are available for insulation of hot water or steam pipes. Rebate is based on linear feet and the thickness of the insulation installed.

## 5) Custom Boilers

While every attempt is made to create prescriptive rebates for high efficiency options, some energy saving solutions require individual evaluation to determine cost-effectiveness. These projects are evaluated under the custom efficiency process and require preapproval following all of the Custom Efficiency Product guidelines. Large boiler systems (greater than 10 million BTUH) or unique systems will be analyzed for rebates in the Custom Efficiency Product.

## **B. Goals, Participants & Budgets**

### Goals and Participants

Public Service reviewed the “typical” equipment and project characteristics of historical projects in its Minnesota product and cross-referenced that with the limited information we have received from committed Colorado projects in 2009 in order to develop a projected average savings per participant. This average savings was used for the benefit-to-cost analysis. Reported energy savings for the product will be determined by using project specific inputs of actual boiler capacity and efficiency.

Participation was determined by looking at the market in our Colorado service area and through our understanding of how newer products and new product components typically ramp up, along with our understanding of equipment sales cycles and customer budget cycles.

### Budgets

Once goals were established, the budget process is generally the same for Heating Efficiency as with the other DSM products. Experience from Minnesota products has been used as a checkpoint. For the Heating Efficiency Product, rebates, labor, promotions and consulting drive most of the budget. The following was used to identify these specific drivers.

- **Rebates:** determined by calculated average rebate cost per Dth and the gas savings goal.
- **Labor Charges:** 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 during the year and a contribution to the general conservation advertising campaign. 2009, 2010 and 2011 promotional dollars are important to quickly build awareness of the product and provide education about the benefits of higher efficiency boiler systems.
- **Consulting:** The Company receives consulting and professional services from the University of Wisconsin's Heating, Ventilating, Air Conditioning and Refrigeration Consortium.

### **C. Application Process**

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. Applications for the product will be available both on Xcel Energy's website and from trade allies. Participants in the product may submit their application through their account manager or via the call center. Customers must apply for rebates within 12 months of purchase and installation. Participants are required to complete an application and provide an invoice as proof of purchase. For Plan B boilers, customers must provide additional information including their most current Colorado State boiler inspection report and proof that their boiler is less than 25 years old (as indicated on the inspection report or invoice.)

The following equipment information must be included on the application: boiler type (condensing, non-condensing), manufacturer, model #, boiler serial number(s), boiler/furnace age, size (MMBTUH), % efficiency, and estimated full load operating hours. Preapproval 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.

### **D. Marketing Objectives, Goals, & Strategy**

The objective of the Heating Efficiency Product is to provide education and incentives that motivate customers to purchase efficient boilers and furnaces and run their existing systems at optimum efficiency. Boiler systems are typically installed in mid to large sized customer

facilities, while furnaces tend to be in smaller locations. The product will work to identify and target these different facilities for efficiency improvement.

The Heating Efficiency Product will follow the marketing strategy of our other prescriptive products and create a base level of knowledge in the marketplace through Xcel Energy's Energy Solutions newsletter and several direct mail campaigns to customers and trade allies. 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. Over time, case studies and guidebooks will be 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 Business Solutions Center representatives 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**

To qualify for the Plan B hot water boiler rebate, the customer must supply a copy of their most recent State of Colorado boiler inspection certificate as well as the name-plate efficiency and age of the boiler.

#### **F. Stakeholder Involvement**

Public Service consulted with several of the major equipment vendors for guidance when designing the Heating Efficiency Product for Colorado. These vendors provided insight into the types of products to rebate, the incremental and total equipment costs to be expected, and how the application process should work. The Company will also rely on the trade to help promote the product to their customers.

#### **G. Rebate Levels**

Rebate levels have been designed to encourage customers to install high efficiency equipment, even if their current low efficient system is functioning adequately. Plan B options were added to condensing hot water boilers and are structured similarly to the Motor & Drive Efficiency Product. 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 to enhance the overall performance and efficiency of their system.

There are three levels of hot water boiler equipment rebates. The non-condensing boiler product rebates systems greater than 85% efficiency and is the lowest efficiency hot water boiler rebate offered. Plan A covers condensing boilers greater than 92% efficiency. This is for Public Service customers who have installed a new condensing boiler where either no previous boiler existed, or the current boiler is no longer functional. Plan B is also for condensing boilers greater than 92%

efficiency, but the rebate amount is set higher than Plan A to better incentivize the customer to remove functional, but lower efficiency equipment, and make a change to the higher efficiency equipment. Details are in the tables below.

**Table 8: Boiler Efficiency Rebate Levels**

<b>Hot Water Boilers</b>			
<b>Type</b>	Non-condensing 85% (min efficiency)	Condensing - Plan A 92% (min efficiency)	Condensing - Plan B 92% (min efficiency)
<b>Rebate</b>	\$1,000/MMBTUH	\$4,000/MMBTUH	\$14,000/MMBTUH

Rebates for commercial furnaces will be consistent with those offered through the Residential customer segment. The minimum efficiency requirements for participating furnaces align with the ENERGY STAR guidelines. Customers may receive the rebates detailed in Table 9.

**Table 9: Commercial Furnace Rebate Levels**

<b>Commercial Furnaces</b>	
92% (min efficiency)	94% (min efficiency)
\$80	\$120

Commercial hot water heater equipment rebate levels are set at \$350. Cost information was gathered from various vendors in Colorado to confirm we would not exceed 60% of incremental equipment cost. Rebates are detailed in Table 10.

**Table 10: Commercial Hot Water Heaters Rebate Levels**

<b>Commercial Hot Water Heaters</b>	
With Storage	Tankless
92% (min efficiency)	92% (min efficiency)
\$350	\$350

Pipe insulation rebate levels are based on the size of the pipe being insulated and the thickness of the insulation. Larger diameter pipes with thicker insulation will be eligible for the highest rebates at \$5.00. 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 Table 11.

**Table 11: Pipe Insulation Rebate Levels**

<b>Pipe Insulation</b>		
Pipe Diameter	R-Value	Rebate per linear foot per inch of pipe diameter
0.5" – 2"	3.5	\$3.00
0.5" – 6"	5.25	\$4.00
2.5" – 6"	7.0	\$5.00

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 or combustion 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.

Retrofit controls, heat recovery and system improvement rebates are designed to improve the efficiency of existing equipment. Add-ons allow the system to perform above standard operating efficiency, while tune-ups check for routine issues that may limit a systems performance. Rebates are detailed in Table 12.

**Table 12: Controls, Heat Recovery and System Improvement Rebates**

	<b>Rebate</b>
Boiler Tune-Ups	25% up to \$250
Modular Burner Controls	5 :1 Turndown Ratio or Greater: 25% up to \$5,000
Outdoor Air Resets	25% up to \$500
Stack Dampers	25% up to \$250
Steam Trap Replacement/Parts	25% up to \$250/trap; max \$10,000 per 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 rebates to customers who purchase and install qualifying energy-efficient lighting products in existing or new construction buildings. Rebates are offered to encourage customers to purchase energy-efficient lighting by lowering the up-front premium costs associated with this equipment. This product is available to business electric customers in the Company's service area.

The product incorporates several features designed to influence decision-makers to choose the higher efficiency options. These features include application forms with full instructions to make it easy for the customer and/or vendor to apply for the rebates, and additional resources such as feature sheets, brochures, and web pages to help explain the advantages of efficient lighting sources.

For businesses, the cost of lighting is one of the main components of energy bills. Installing energy efficient lighting or reducing the number of lights needed can significantly lower energy bills. The main goals of energy efficient lighting is to ensure good visibility for the task required, increase productivity and safety for employees, provide an attractive and comfortable work environment, and reduce operating and maintenance costs.

There are four ways customers can lower their lighting costs and earn rebates:

#### Lighting Retrofit Rebates (prescriptive)

Rebates are available for existing facilities of any size to help offset the cost of installing new equipment that is more energy efficiency than the current lighting systems. Rebates are based on a one-for-one replacement of existing fixtures. Situations where a lighting retrofit can be beneficial are when employees are complaining of comfort issues, such as eyestrain from under- or over-lit conditions, or where high energy bills are a concern.

A common lighting retrofit application is replacing an existing fluorescent T12 system in a typical office space with more-efficient T8 fluorescent lamps and a high-efficiency electronic ballast. In some instances, the number of lamps installed per fixture can be reduced, while still providing ample light levels. This yields significant energy savings. In warehouse buildings, or spaces with high ceilings, replacing a High Intensity Discharge lighting (HID) system with a more efficient fluorescent option is a typical retrofit project. Replacing HID lamps such as mercury vapor, high-pressure sodium, and metal halide fixtures with high-bay fluorescent options can reduce energy costs and improve light levels. In addition, by installing fluorescent T5 systems, T8 with electronic high-efficiency ballast, compact fluorescent lamps fixtures, and several other technologies, customers can receive a rebate when replacing less efficient systems.

#### New Construction Rebates (prescriptive)

Rebates are available for new facilities of any size as well as existing facilities that are going through a major renovation. There are several lighting options available to building owners and

architects. Influencing better, energy efficient lighting options during installation is the goal of the building. Fluorescent high-bay fixtures, Compact Fluorescent fixtures, and low-wattage lamps are a few of the technologies rebated for new construction facilities.

### Custom Efficiency

Energy saving lighting projects that do not fit into the prescriptive products above will be reviewed through the custom product. Preapproval is required before equipment purchase and installation. Examples of projects that would be reviewed through the Custom Efficiency product include some LED lighting sources ~~other than LED exit signs~~, retrofit situations where it is not a one-for-one replacement of the existing fixtures, and daylighting.

### Lighting Redesign

Lighting redesign offers rebates for studies as well as for the implementation of energy saving opportunities. Studies must be performed by a lighting professional with one of the following credentials: Lighting Certified professional (LC), Certified Lighting Efficiency Professional (CLEP), or membership with International Association of Lighting Designers (IALD). Customers may select a lighting professional of their choice to perform the study as long as the professional holds one of the qualifications listed above. For customer reference, Public Service also provides on our website a list of qualified lighting professionals who have agreed to participate in the Lighting Efficiency Product.

The Colorado product was patterned after the Lighting Efficiency product in the Minnesota service area, which has operated since the mid 1980's. The Minnesota product received Exemplary Honors for best practices from the American Council for an Energy-Efficient Economy (ACEEE) in 2008 for using proven approaches and providing consistent, reliable and cost-effective savings<sup>10</sup>. In 2003, the Minnesota product received Honorable Mention for best practices from ACEEE<sup>11</sup>. Best practices were identified on four major product components: 1) product theory and design, 2) product management, including project management, reporting and tracking, quality control and verification, 3) product implementation such as the participation process, marketing and outreach strategies, and 4) product evaluation.

### Settlement Terms

The Company agrees to increase the number of participants in order to achieve electric energy savings of 48 GWh, an increase of 11.9 GWh from what the Company proposed initially. The Settling Parties agree that the 2011 DSM electric budget shall be increased by \$1,440,000 to accommodate the expansion of this product. The Company further agrees to evaluate rebates prior to end of 2nd quarter 2011 based on Wattage per square foot for inclusion in late 2011 or in the 2012 DSM Plan.

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<sup>10</sup> Compendium of Champions: Chronicling Exemplary Energy Efficiency Programs from Across the U.S., February 2008. Report Number U081.

<sup>11</sup> America's Best: Profiles of America's Leading Energy Efficiency Programs, March 2003. Report Number U032.

## B. Goals, Participants & Budgets

### Goals and Participants

The Lighting Efficiency Product goals are rolled-up into the total goal for the business portfolio. Therefore, the initial process of goal setting begins with our management team. They review the entire portfolio's goal and allocate individual product goals along with input from the product portfolio manager. Individual product goals, including the Lighting Efficiency goals, are based on the achievements of past years and the extensive experience from the Minnesota Lighting Efficiency Product. The Lighting Efficiency Product historically is one of the largest contributors to Public Service's DSM portfolio savings and therefore is allocated a large percentage of the annual goal.

Participation was derived from the prior year's (2010) goal, trade participant feedback, 2009 and year-to-date 2010 product trends, average project size and historical participation in the Minnesota product as well as an evaluation of market and economic trends.

### Budgets

Once goals were 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. Given the increase in goals for 2010, additional time was spent reviewing the information for reasonableness. Experience from Minnesota products is used as a checkpoint.

For the Lighting Efficiency Product, rebates, labor and promotional expenses drive the majority of the budget. The following was used to identify these specific drivers.

- **Rebates:** The majority of the Lighting Efficiency budget is dedicated to rebates, so the energy savings goal is the main contributor to the overall Lighting Efficiency budget. The rebate budget is an average of all the rebate amounts by lighting technology (or end-use), which has been tracked in previous years.
- **Labor Charges:** determined by estimating the number of full-time employees needed to manage the product and execute the marketing strategy and rebate process.
- **Marketing and Advertising:** cross-promotional vehicles used to reach the business customers including print, web, direct mail, email, radio and television marketing efforts.

## C. Application Process

Customers may hear of the Lighting Efficiency Product through several channels, including the Xcel Energy website, 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 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 preapproval 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 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.

### Lighting Redesign

The lighting redesign study requires preapproval. Once the customer has identified a qualified lighting professional to perform the study, they can complete the Lighting Redesign Preapproval application and submit it to Public Service along with a brief proposal from the lighting professional. The proposal includes a description of the facility, the current lighting system in the facility, the customer's concerns or issues with their current lighting system, and what alternatives the lighting professional recommends. During this process, Public Service's internal engineering staff is available to the lighting professional and customer to work alongside and assist with energy calculations as needed.

Public Service will review the preapproval application and proposal for the estimated energy saving potential. If approved, the Company will send a preapproval letter to the customer and the lighting professional approving the study detailing the amount of the study Public Service will fund.

After the lighting professional completes the study, they will prepare a report that identifies the energy saving opportunities in the facility. The purpose of the report is to provide the customer with a business case justification to implement the energy efficient lighting redesign opportunities. The report must be submitted to Public Service within three months after the study is completed to ensure the results are presented in a timely manner to the customer. If they are unable to meet the three-month window, they can request an extension. The report should include the following: the customer's information, an executive summary, the study summary (project costs, capital costs, energy reduction (in kilowatts), kilowatt hours, footcandle levels and rebate amounts where applicable), the project description, the project's non-energy impacts, all calculations (energy savings, payback) and implementation recommendations.

Once the report is completed, the lighting professional will organize a meeting with the customer and the Public Service account manager to present their study findings. At this point, the customer may choose to implement the recommended energy saving opportunities at their discretion.

## **D. Marketing Objectives, Goals, & Strategy**

### Marketing Strategy

The Lighting Efficiency marketing strategy is comprised of several vehicles. The target market is business electric customers in the Colorado Public Service area. The marketing strategy is

directly linked to the type of customer we are trying to target. For lighting, there are two main segments of customers, large and small business customers. Each group has their own needs and requires different marketing approaches. The majority of our savings will come from the large customers. Office space, retail, schools and universities, warehouse space, and healthcare facilities are a few segments that comprise the large customer base in Colorado. Marketing to the large customers is primarily done through account managers.

Public Service's relationship with the lighting trade is another key to reaching the larger customer base and the Company intends to strengthen its relationship with them in order to make more lighting professionals aware of the product. Several vehicles are used to reach them, including:

- The Trade Advisory board, described in the Stakeholder Involvement Section below
- Trade Website, including applications, specific brochures and informational pieces directed toward the trade and updates on product offerings.
- Energy Exchange, a quarterly email that is sent to the trade discussing energy efficiency lighting applications, case studies, product changes, and other pertinent topics.
- Trainings and events as needed. Examples include the Energy Efficiency Expo held in March, 2010, for both customers and trade allies.

Marketing to the small business customers is primarily through direct mail, email and the Business Solutions Center. Historically, they have been a harder market to reach. The Lighting Efficiency Product will continue to reach out to small business customers with direct marketing approaches as well as Xcel Energy's Small Business Lighting consultant Franklin Energy Services.

In addition, several collateral pieces are available on the Xcel Energy website and we will continue to improve upon them. These pieces are geared toward both large and small business customers as well as the trade. The website offers 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 are designed to include all product requirements, rebate levels and additional information to help complete the form and attach needed documentation quickly and easily.
- Lighting Efficiency Product Brochure – This is available on the Public Service web page and is used by the account managers to describe the product and discuss reasons to upgrade to more efficient lighting and identify projects in facilities.
- 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.

## Lessons Learned and Critical Success Factors

A lesson learned is continued opportunity for T12 to T8 retrofits. Although T12 to T8 retrofits for large business customers are partly exhausted, the small business segment still holds promise and awareness grows.

Another lesson learned is to keep up with the changing lighting technology. This includes adding measures to the prescriptive products (such as LEDs) as they become readily available and eliminating obsolete technologies. Identifying similar projects that have passed through the Custom Efficiency product is typically how emerging technologies have been identified.

Engaging the trade is critical to the success of the product. Establishing the Trade Advisory board has led to implementing several improvements to the product. Recommendations from the board are fed into the Product Development process and have resulted in new offerings.

### **E. Product-Specific Policies**

The Lighting Efficiency Product has a number of product-specific policies, as follows:

- All equipment rebated through the product must be new and meet all product rules and requirements and the application must be submitted within twelve months of the invoice date.
- In cases where the customer is unable to obtain an equipment invoice, Public Service will send an account manager to complete an on-site field verification to confirm that equipment was installed as stated on the application.
- Lighting redesign studies must be submitted no later than three months after the study is completed.
- 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.

### **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 fourteen key lighting professionals and Public Service's Lighting Efficiency Product 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 Public Service's product development process and incorporated into the product. The board will continue to meet on a quarterly basis or as long as needed.

### **G. Rebate Levels**

The Lighting Efficiency Product offers rebates through the retrofit and new construction prescriptive components, the lighting redesign component, and through the Custom Efficiency Product. (See Custom Efficiency Product for rebate details.)

**Table 13: Lighting Efficiency Retrofit Rebates**

<b>Equipment Type</b>	<b>Rebate Amount</b>
Fluorescent T8 lamps with high efficiency electronic ballasts and low ballast factors	\$13-\$22 per fixture
Low-wattage 4-Foot fluorescent T8 lamp (28W or less)	\$1.00 per lamp in addition to the standard rebate
Delamping: T12, T12HO or T8 systems to more-efficient T8 systems, including high-efficiency ballasts	\$12-26 per fixture
Fluorescent T5 lamps with electronic ballasts	\$13 per fixture
High-bay fluorescent fixtures with high-efficiency electronic ballasts	<del>\$12-\$50</del> \$85 - 210 per fixture
Screw-based Compact Fluorescent lamps (CFL)	\$1 - \$3 per lamp
Hardwired compact fluorescent fixtures	<del>\$10-\$20</del> \$25-35 per fixture
Pulse start metal halide fixtures	<del>\$8-\$18</del> \$25-140 per fixture
Ceramic metal halide fixtures	\$25-\$75
Wall, ceiling or fixture mount occupancy sensors, photocells	\$30 - \$50
LED or LEC exit signs	\$15
Custom Efficiency	Custom Efficiency rebate amount is based on energy savings. See Custom Efficiency Product for details.

**Table 14: Lighting Efficiency New Construction Rebates**

<b>Equipment Type</b>	<b>Rebate Amount</b>
Low-wattage 4-Foot fluorescent T8 lamp (28W or less)	\$1 per lamp
High-bay fluorescent T8s, T5HO and T8VHO with various options	\$12-\$50
Screw-based compact fluorescent fixtures	\$1 - \$3 per lamp
Hardwired compact fluorescent fixtures (CFL)	\$10-20 per fixture
Pulse start metal halide fixtures	\$8-\$18
Ceramic metal halide fixtures	\$12-\$25
Custom Efficiency	Custom Efficiency rebate amount is based on energy savings. See Custom Efficiency Product for details.

The lighting redesign component offers study rebates that cover up to 75% of the cost of the lighting redesign study, not to exceed \$25,000. Rebates for implementation of identified equipment may reach \$400 per kW.

## ➤ **Motor and Drive Efficiency Product**

### **A. Description**

Public Service's Motor and Drive Efficiency Product focuses on reducing the barriers associated with purchasing high efficiency motors and adjustable speed/variable frequency drives (ASD/VFDs) a.k.a. drives herein. Public Service offers prescriptive rebates to customers who install National Electrical Manufacturers Association (NEMA) premium efficiency motors in the 1-500 hp range, and ASD/VFDs on motors that operate fans or pumps in the 1-200 hp range. Non-prescriptive equipment can participate in our Custom Efficiency Product. NEMA premium motors allow customers to optimize motor systems efficiency, reduce electrical power consumption and costs, and improve system reliability. Properly designed drive applications match the motor speed to the workload providing overall machine operating efficiency, while saving energy and reducing maintenance costs.

The benefits of installing premium efficiency motors and drives include:

- Reduced downtime that can be caused by motor failure
- Increased reliability since premium motors are manufactured with high quality materials and standards, which reduce internal losses and heat
- Longer warranties than standard motors
- Longer product lifetimes, allowing customers to save on capital expenses, and
- Increased productivity due to reduced maintenance activities and fewer repairs.

At the close of 2010, the new federal minimum efficiency thresholds for manufactured equipment will be effective. NEMA Premium will now become the new minimum produced efficiency standard and Energy Policy Act (EPA) efficiency motors will no longer be manufactured, but their inventories will still be available for customer purchase. Therefore, we are extending the current product and offer into 2011 to deter customers from purchasing cheap, inefficient motors by offering them an incentive. An unpredictable economic environment will more than likely keep EPA motors on distributor shelves for longer time periods and therefore available.

Variable frequency drives are not impacted by the aforementioned Federal changes.

### **B. Goals, Participants & Budgets**

#### Goals and Participants

The individual product goals are based on empirical research from primary and secondary research sources available such as: the Motor Decision Matters workgroup, 2007 MN Motor Efficiency Product Process and Impact Evaluation, Best Practices - Non-Residential Large Comprehensive Products and the Electric Apparatus Service Association (EASA) State of the Industry Report, proxy values from our historical product performance, and analysis in other state jurisdictions, adjusted as warranted to meet the local conditions.

Goals are 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 snap shot of anticipated customer participation (purchase of products).

### Budget

For the Motor and Drive Efficiency Product, rebates, labor, and marketing/advertising drive most of the budget. Public Service reviewed historical cost and participation information for the past two years for guidance on expected product performance. The Company also held discussions with external consultants and local stakeholders to determine likely expenditures and market equipment cost. Xcel Energy's experience with its Minnesota Motor Efficiency Product was all used as a guide.

### **C. Application Process**

Customers become aware of the Motor and Drive Efficiency Product through the Xcel Energy 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 (only on installed equipment) and the supporting documentation (invoice and equipment specifications) are reviewed. Customers, who purchase motors in batches for current needs and future inventory for emergency situations, are served through our product. The inventoried equipment is recognized at the year it is installed using the rebate offer terms and funding level at that time.

Custom equipment measures must receive pre-approval for their potential claim, and undergo engineer review and subsequent analysis to confirm viability and cost-effectiveness. Customers with successful projects will receive their rebate within six weeks. They may also reassign their rebate to their vendor.

### **D. Marketing Objectives, Goals, & Strategy**

The Motor and Drive Efficiency Product plans to meet its goals using a variety of resources and communications paths. 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 our business segment customers.

The Company participates in customer fairs, trade shows, and customer meetings, and works with trade organizations and service providers to raise customer awareness throughout the year. There are generally three planned events each year—one customer fair and trade group meeting, as well as ad-hoc functions when warranted.

To overcome market barriers, marketing materials specifically addressing the importance of planning for a motor failure, the need for taking inventory of existing equipment, and the need to develop an understanding for when to replace or rewind a particular motor were created based on insights of primary and secondary research regarding customer needs.

We also have collaborative efforts with the following organizations:

- Motor Decision Matters - Motor Decisions Matter<sup>SM</sup> is a national public-awareness campaign sponsored by a consortium of motor manufacturers, motor service centers, trade associations, electric utilities and government agencies of which Public Service is a contributor.
- 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<sup>®</sup> logo for premium products. NEMA Premium<sup>®</sup> labeled electric motors will assist purchasers to optimize motor systems efficiency, reduce electrical power consumption and costs, and improve system reliability.

## **E. Product-Specific Policies**

Public Service realizes that motor equipment is not always installed immediately and may be entered into on-hand stock; therefore, for prescriptive products, customers must submit their rebate application claim for motors and VFD rebates within 24 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 representative, roundtable workgroups, primary and secondary research, and through discussions with other utilities. Comments are considered and implemented if and when appropriate.

## G. Rebate Levels

The Motor and Drive Efficiency Product offers the following rebates for installing NEMA Premium efficiency motors and/or VFDs:

<b>Description</b>	<b>Horsepower (hp)</b>	<b>Rebate Amount</b>
New motor purchases- Plan A or Upgrade motor purchases – Plan B	1 hp – 500 hp	Tiered and demonstrated on our rebate application.
VFDs controlling motors used on fans and pumps	1 hp – 200 hp	Tiered rebate offer depending on the controlled horsepower
Custom for larger and non-prescriptive motor or drives	Motors: > 500 hp Drives > 200 hp	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 and Energy Efficient Buildings. Both components are available to non-residential customers in Public Service's electric and natural gas service territory.

#### Energy Design Assistance

The Energy Design Assistance (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 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. EDA is a free service to Public Service customers.

According to the *Best Practices Benchmarking for Energy Efficiency Programs*<sup>12</sup>, 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 process and identify energy savings opportunities using new technologies and energy methodology. The following requirements apply to the Basic track:

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<sup>12</sup>National Energy Efficiency Best Practices Study, Quantum Consulting Inc., Dec. 2004, pg. NR8-2

- Square footage: Greater than 50,000 square feet (new construction, major renovation or addition)
- Design phase: Schematic design or early design development
- Energy Savings: 105% energy 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<sup>®</sup>). The Enhanced track allows for further analysis in daylighting and mechanical system changes. The following requirements apply to the Enhanced track:

- Square footage: Greater than 50,000 square feet (new construction, major renovation or addition).<sup>13</sup>
- Design phase: Pre-design or early schematic design
- Energy Savings: 30% energy demand savings required to receive incentives
- Must be registered with the US Green Building Council for LEED certification

Public Service administers the product with help from outside energy design consultants who facilitate meetings with the design teams, including the owner, and complete energy modeling activities. Our energy consultants are a key contributor to Energy Design Assistance by identifying product candidates, facilitating the design process, and completing the energy models. While Public Service approves all models and reports, we rely heavily on the expertise these consultants bring to the table. A request for proposal is completed every three years to select these resources. A request for proposal was completed a year ago to identify our current contractors. This contract is in effect until June 2012.

Since 2006, the product has achieved 20 GWh in savings with 29 completed projects. Acceptance into the Colorado market exceeded Public Service's expectations up until the recession of 2008 with over eighty projects in the pipeline. However, the slowdown in new construction that occurred in 2008 and 2009 resulted in the cancellation of some of these projects and a lower than expected number of new starts in 2009. We expect increased participation in 2010 and therefore higher energy savings in future years. All segment types can participate in the Energy Design Assistance Product; however, many of our projects fall in the sectors of office, schools, retail and healthcare due to the square footage requirements.

### Energy Efficient Buildings

The Energy Efficient Buildings 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 Energy Design Assistance offering. Projects are generally less than 50,000 square feet and past the schematic design stage of new construction.

Focusing on the needs of small building owners, the Energy Efficient Buildings offering provides a comprehensive list of typical energy efficiency measures that can be incorporated into

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<sup>13</sup> Smaller buildings, which anticipate high energy and demand savings, may be considered on a case-by-case basis.

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.

### 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 (ACEEE) for its approach and use of best practices. Specifically, they said, "Energy Design Assistance is an exemplary product as recognized by ACEEE 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 15-year history of the Minnesota product.

### Settlement Terms

The Company agrees to a 15% minimum savings requirement above the basic track baseline. The 15% will allow the program to accommodate the customer segments, such as Low Income and Hospitals, which have a limited ability to maximize energy efficiency due to competing code requirements such as health and safety (which can take a priority over the energy requirements). In consideration of the agreed upon increase in minimum savings requirements, the Settling Parties agree to an increase in the Net-To-Gross ratio from 79% to 90% for new construction projects started in 2011. If the local government energy code is at least 10% more stringent than the EDA baseline, participants can qualify for the EDA program if their energy efficiency savings exceeds the local code by 5% for the basic track, 10% for the Enhanced track. Photovoltaic systems may be used to meet the local code, but amounts spent towards a photovoltaic system will not be eligible for rebate under this program.

## **B. Goals, Participants & Budgets**

### Goals and Participants

The Energy Design Assistance offering 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 90.1-2004 Energy Standard with addenda. This estimation was based primarily on a review of product performance for the past two and half years and longer-term experience with similar products in Minnesota. 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 2011 are already known and tracked. Currently, there are approximately 45 projects expected to finish in 2011.

The design of the Energy Efficient Buildings offering was based on a similar product in Minnesota (called the Plan Review component of the Energy Design Assistance Product). Xcel Energy used its historical experience with the Minnesota product to develop goals for Colorado,

recognizing that new buildings generally take one to two years from project initiation to completion and occupancy. We were unable to use Colorado data to adjust the goals since there were only six projects started and none completed in 2009. The lower than expected participation was primarily due to a delay in launching the product as it was not launched until the end of June 2009. Based on current information in the pipeline and discussions with industry representatives, we estimated approximately 15 projects will finish in 2011.

### 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, customer project modeling drives the budget, construction incentives, measurement and verification, and promotional dollars. The following was used to identify these specific drivers:

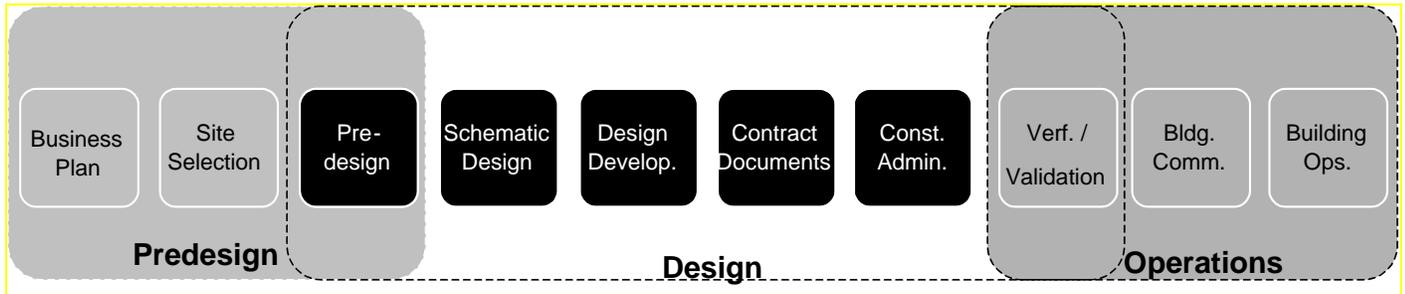
- **Consulting Charges:** Much of the product delivery budget is associated with the cost of modeling specific customer projects. Modeling costs are estimated to be approximately \$260 per kW saved for the basic track and \$300 to \$400 per kW saved for the enhanced track. Modeling costs are then split 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 no consulting dollars allocated for the Energy Efficient Buildings 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. Estimates of verification costs are between \$8,000 and \$12,000 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 2010 will likely be completed in 2012 or beyond.

**Figure 3: 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 Energy Design Assistance offering, the customer and design team receives an email approving the project and a note explaining next steps.

2. **Introductory Meeting:** An introductory meeting 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 base systems, are collected during this meeting.
3. **Preliminary Analysis:** Using project details and costs from the design team, the Energy Design Assistance consultant begins the modeling process. Analysis is completed using a whole-building energy simulation computer program. eQUEST is often used as the interface tool in conjunction with the DOE-2.2 energy simulation engine. Modeling protocols are established using ASHRAE 90-1 – 2004 Energy Standard. Further analysis on protocols continues with our third-party consultants and utilizes ASHRAE 90.1-2004 Performance Rating System (PRM), which is outlined in Appendix G of the Energy Standard.

Within this analysis, different conservation 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. **Bundle Analysis:** Conservation opportunities are then packaged together in a bundle 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 strategies 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 are then presented to the design team who chooses the best bundle for their project.

5. **Final Energy Analysis:** Once the design team completes construction documents, the external consultant completes a final energy model. This final energy model is used to determine the expected Public Service incentives and to verify compliance with the energy savings commitment given in writing by the bundle selection form. A meeting is held to review this final energy analysis before construction.
6. **Verification:** The final step in the EDA offering occurs when Public Service completes an on-site verification of energy opportunities 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 Energy Efficient Buildings 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, preapproval is required via an agreement between Public Service and the customer to complete energy efficient measures with the building, to allow verification of project design and to accept a final verification of actual installation.

The first step in the process is for the customer to submit a preapproval 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). The application is built into the calculator tool that allows customers to enter data and estimate their overall rebate for the product.

Once preapproved, the customer will receive a letter from Public Service explaining the terms of the product and how to participate. The owner will then submit the rebate application, as well as 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 often marketed through our energy consultants directly to architects, engineers, and general contractors. 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.

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. In addition, discussions with industry representatives were held to review other possible changes to the product. Changes being adopted include:

1. Increase in minimum thresholds: Thresholds have been raised from 5% to 10% for the Basic track and from 16% to 30% for the Enhanced track.
2. Increase the incentive level: The Company is raising the electric incentive from \$300 to \$400 per kW and exploring the possibility of adding a kWh-based incentive for 2012.

These changes only impact projects in which the Introductory Meeting is held after January 1, 2011 and do not impact projects closing in 2011. Therefore, the change to the benefit/cost analysis will not take place until 2012 at the earliest.

As detailed below, Energy Design Assistance is primarily marketed to the design community, general contractors, and engineers involved in the design stage. A secondary market is building owners and developers. The Energy Efficient Buildings offering, on the other hand, is primarily marketed to developers and customers. A secondary market for Energy Efficient Buildings is developing, which is to market the product through Energy Modeling Firms that are not selected through our competitive bidding process for Energy Design Assistance.

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 a unique website.

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

The Energy Efficient Buildings offering provides Public Service with the opportunity to conduct a larger marketing effort for New Construction. Several strategies are being implemented:

- Direct Mailings: Direct mail to architects, engineers, developers and contractors will begin the launch of this product aimed at new construction.
- E-newsletters: Another avenue to educate our market on the product and benefits of reviewing new construction for energy efficient opportunities.
- 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.

## **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 Energy Efficient Buildings 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 each participant and once a trend develops (positive or negative), Public Service makes a change to the product design. In addition, Public Service is meeting with representatives of the Energy Modeling industry for the possibility of product revisions requested by this group. 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.

Xcel Energy continues to coordinate with other utilities, such as Fort Collins Utilities and Platte River Power Authority, in developing and offering the Energy Efficient Buildings Product. Both of the utilities mentioned currently have similar products available to their customers. In addition, a survey is also being developed to send to product participants at the end of each project to begin a feedback loop between participants and product management for continuous product improvement

## **G. Rebate Levels**

The Energy Design Assistance offering covers energy modeling services valued at \$30,000 to \$40,000 per project. Public Service also reimburses architects and engineers to offset the

incremental cost of their participation from \$8,000 to \$12,000 per project depending on the square footage of the building.

In addition to energy modeling, Public Service provides financial 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 natural gas savings of \$7 per dekatherm saved. The rate of \$400 per kW represents an increase from the 2010 rate of \$300 per kW.

## ➤ **Process Efficiency Product**

### **A. Description**

Process Efficiency targets energy intensive processes at large industrial facilities. The product is primarily intended to identify and incent large process changes and establish business practices that drive additional conservation measures in the future. Although the product is available to all Colorado industrial customers, the minimum conservation impact thresholds will require the customer to have significant energy use. This product began in 2009 and is still considered in a start-up phase due to the long lead times for project implementation and the complexity of the studies.

Public Service works with customers participating in the Process Efficiency Product to develop a long-term relationship that results in a multi-year energy management action plan (E-MAP). There are three main phases to the Process Efficiency Product: identification of energy savings, further refinement of the scope of the projects and opportunities, and implementation.

The identification process (Phase 1) starts with a walkthrough of the customer facility to identify significant technical energy saving opportunities. A cross-section of the customer's management and workforce participate in a facilitated energy management self-assessment session using the EnVinta software One2Five. This results in the customer identifying where the unique priorities are for their business in moving towards sustainable energy management. The result of this session is an estimate of total energy that can be saved at the facility and an action plan describing priorities to achieve these savings. This phase is typically completed in one day.

Public Service will use the information from Phase 1 in conjunction with other available data regarding the customer, industry, and any additional environmental concerns to develop a proposal to assist and support the customer's action plan. This proposal may incorporate funding for a variety of activities to support conservation at the facility. Examples include: specific process studies, further refining and scoping of conservation opportunities, identification and tracking for key parameters driving energy use or training. Phase 2 may take anywhere from ten weeks to six months.

In Phase 3, the customer, in cooperation with Public Service, will develop a three to five year energy management action plan (E-MAP) with goals and targets. In addition to the standard rebate offering, customers will be eligible for bonuses for system optimization and for exceeding their annual goals. Over the three to five year period, the customer will implement their identified conservation projects. Public Service representatives will meet with the customer as often as once per year to review progress against the E-MAP and repeat the EnVinta assessment if the customer so chooses.

The industrial market represents a significant pool of conservation opportunity where product penetration is not approaching saturation due to barriers to customer participation, including inadequate resources to research, develop and package the improvements. Several factors have been incorporated into the design of the Process Efficiency Product to provide significant differences between this offering and other DSM products. Process Efficiency is designed to

provide external resources and expertise to these customers in order to overcome such barriers. The product also establishes tracking metrics to provide the customer internal justification to drive access to the capital investments necessary to implement measures and to quantify the business and financial impact of the changes.

Xcel Energy implemented a similar Process Efficiency Product in Minnesota in 2007. The Minnesota product is growing and is anticipated to bring in significant energy conservation in 2010-2011. Public Service utilized its experience with the Minnesota product to guide the design of the Colorado product.

## **B. Goals, Participants & Budgets**

### Goals and Participants

Due to the long lead times associated with this product, the Process Efficiency goals were developed under the assumption that the product would have high expenditures and low savings in its start up years of operation. Much of our efforts in 2009-2011 will “fill the pipeline” with conservation projects which will be completed in later years. Participation levels were based on a review of historic electric usage for large Colorado industrial customers. It should be noted that the impacts for the first year reflect only a portion of the impact anticipated for a single participant. This 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 efficient projects in the interim.

The majority of the high natural gas consumption customers in the Public Service territory are transport-only customers who 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. As a result, Public Service anticipates very limited gas savings from the Process Efficiency Product.

### Budgets

The majority of the 2009-2011 budgets have been, and will continue to be spent on consulting services to provide the assessment and scoping phases of the product. Customer incentives (rebates) accounted for a small portion of the 2009 budget, but are anticipated to increase significantly in the 2010-2011 budgets. The budgets and goals were developed by reviewing the performance of the Minnesota Process Efficiency product while considering the industrial customers in Colorado. The most significant difference between the Minnesota product and the anticipated performance of the Colorado product is that the majority of the large industrial customers in Colorado do not participate in the gas DSMCA product, and therefore the expected budgets and goals for the gas products were adjusted downward accordingly.

## **C. Application Process**

Due to the narrow focus of this product, Public Service initially identified potential product participants by cross referencing historic electric usage with general industry energy

consumption and conservation potential data for Colorado industrial customers using over 10 GWh per year.

A Public Service account manager serves each large industrial 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-thru 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 preapproval 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 preapproval 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 industrial 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 industrial customers but because of the minimum conservation potential requirements of the E-MAP, it is expected to attract participants primarily from the large industrial segment. The process load associated with this group of customers has historically been difficult to penetrate with conservation measures.

#### **E. Product-Specific Policies**

Target customers and projects are Public Service's electric and/or gas customers who have a minimum annual conservation potential of 2 Gigawatt hours annually or 8,000 dekatherms. Gas transport customers are ineligible for rebates.

Conservation opportunities may be grouped into a single, or multiple projects in the E-MAP. The E-MAP will identify the expected sequencing and scheduling for the projects.

If Process Efficiency studies identify custom projects that are not eligible under the Custom Product policy due to the project having less than a one year payback, it can take credit for the conservation as study induced savings.

The anticipated time from project initiation to completion is expected to be 18-24 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 associated with a system are completed.

#### **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 E-MAP, or achievement of conservation exceeding that detailed in the E-MAP.

## ➤ **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. Through the completion of an investigative study, recommissioning identifies existing functional systems that can be "tuned up" to run as efficiently as possible through low- or no-cost improvements. With Recommissioning, a customer may:

- Optimize HVAC equipment operations
- Fine-tune time of day schedules
- Improve indoor air quality
- Suggest new and advanced equipment control strategies
- Improve productivity of facility maintenance personnel
- Reduce equipment wear and tear

Recommissioning consists of two main steps: diagnosis 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 three 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 - Customers have two options for receiving implementation rebates:
  - a. Fast track study – For customers who have completed a recommissioning study on their own and have not received study funding from the Company. Before a customer implements any measures, they can apply for implementation only rebates. To qualify, Public Service will review their study and recommendations/savings opportunities to determine recommissioning implementation rebates.
  - b. Fast track proposal – For customers who are not completing a full recommissioning study, but would rather look at one or two specific opportunities that a vendor may identify. To qualify, Public Service will review their project proposal and savings calculations 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 study.

Xcel Energy offers a similar product in Minnesota, which has been in existence since 2000. To benefit customers and providers, we have applied lessons learned in Minnesota to the Colorado product.

## **B. Goals, Participants & Budgets**

### Goals and Participants

Due to the long sales cycle of each project, approximately one to two years, and our dependence on recommissioning providers, Public Service expects that the Recommissioning Product will continue to grow for a few more years, increasing the project pipeline during this time.

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.

While the savings goal is relatively staying the same as the 2010 goal, which was based on evaluating the potential market, economic factors and trade feedback, we determined that we needed to increase the participation goal for the number of studies approved in a given year to match the results of 2009 and to build the opportunity pipeline for future years.

### 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.

## **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 must receive preapproval before they begin the study. To obtain preapproval, the customer will submit an application and a proposal from their recommissioning provider that outlines the scope of the project. After the customer receives preapproval, 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 preapproved, 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 must obtain preapproval for implementation rebates before they complete the measures. To obtain preapproval, 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 preapproval via the product website by entering relevant information regarding the project. After their investigation/implementation is, 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.

Over the years a comprehensive list of marketing materials has been developed to provide to customers, providers, and our account management team. Available materials include:

- Product feature sheet – explains the features and the benefits of the product

- Study preapproval application – used to obtain study preapproval
- Study rebate application – used to receive study rebate after study has been approved
- Fast track preapproval application – used to obtain fast track preapproval
- 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 benefitted from participating in recommissioning
- Process flow chart – detail information on the product 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.

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 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 driven credit:** If a customer implements measures that are less than one year or greater than 15 years, they will not receive a rebate, but Public Service will claim those study-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.

## **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 all of 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. Funding is based on the potential energy savings of the project and the cost of the study. 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 \$7/Dth saved for Public Service natural gas customers, up to 60% of the recommissioning measure cost that are identified in recommissioning studies or preapproved through our fast track option.

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 condenser water temperature

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 2011, Segment Efficiency will focus on the commercial real estate sector, specifically office space, to address a historical lag in participation.

The commercial real estate effort will 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 are attractive to this customer segment.

### **National Industry Review**

The Company's Segment Efficiency Product in Minnesota has been recognized by the American Council for an Energy Efficient Economy (ACEEE) for its innovative approach and use of best practices. Specifically, ACEEE said:

We are encouraged by this approach as it recognizes that sub-categories within the broad class of business customers have unique needs and face different barriers than other customer sub-categories.

This is exactly the type of finer customer segment differentiation that we have observed may boost participation and savings in some of Public Service's existing business products. Efforts like this begin with analysis of why certain customer types have not been reached by products. Once unique barriers and needs are identified for such groups, product designs can be developed that provide appropriate marketing and product services to achieve desired participation levels among the targeted customer population. Public Service should closely monitor and evaluate initial results from this product—both to refine this specific initiative (commercial real estate) as necessary and to determine if similar targeted segment

approaches may be effective in other areas. Some possibilities may be schools, lodging, restaurants, small retail and government/municipal customers.

Public Service already has an extensive portfolio of products built around end-uses and technologies. Initiatives like the Segment Efficiency provide opportunities to package such products and services so as to best elicit positive responses from eligible customers. Such efforts are not so much as creating new products and services, but rather to bundle these in ways that best meet the needs of readily differentiated customer segments.

The Company will partner with a commercial real estate industry specialist to administer the product. The partner will be identified and contracted with through our sourcing process. The partner will bring substantial experience in the commercial real estate industry.

## **B. Goals, Participants & Budgets**

### Goals and Participants

Given the limited product participation in 2009, estimated savings were determined by utilizing the historical achievement and forecasts of the Minnesota Commercial Real Estate Product offering that launched in January of 2007. We also analyzed the market size of commercial real estate in Colorado versus Minnesota to make adjustments. Savings will come through myriad 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 the 2010 product goal and participant levels. It was necessary to adjust the participant levels for 2011 to compensate for lower net-to-gross factors in some products, specifically CRE Prescriptive Lighting, CRE Prescriptive Cooling, and CRE Custom Lighting.

### Budgets

Once goals were established, the budget process is generally the same for Segment Efficiency as with the other DSM products. Since the product has had little exposure in the Colorado service territory, historical cost and participation information from our existing Minnesota Commercial Real Estate Product was tracked and analyzed to project budgets two years in advance.

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 \$20,950 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, on-site visits, energy assessment reports, and provide product support as needed.

### **C. Application Process**

Segment Efficiency is introduced primarily through the Company's account managers to commercial real estate customers. 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 a phone interview and on-site walk-through.

There are three primary phases within the product process:

- Energy Assessment Report
- Investment-Grade Engineering Study
- 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 on-site walk through. The study provider will be paid a fixed amount per study and customers will be billed \$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 preapproval 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. Account management, trade publications, trade relations managers and local associations such as NAIOP and BOMA will be utilized.

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 technical assistance and financial incentive products with the goal of increasing uptake for these products among this hard-to-reach sector.

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

**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 at \$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-Direct Product

### A. Description

The Self-Directed Custom Efficiency Product (Self-Direct Product) will provide large commercial and industrial electricity customers in Colorado the opportunity to self-fund 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. The dollar value of the rebates will be based on the amount of conservation attained. Because the Self-Direct Product shares many of the features of the Custom Efficiency Product, it should be viewed as a traditional self-direct product a custom product targeted towards a unique subset of customers, as opposed to a traditional self-direct product.

A fundamental principle and differentiating factor of the Self-Direct Product is that the customer performs the majority of the design, engineering, measurement, verification, and reporting work associated with the energy conservation projects. Large customers with energy conservation resources may choose participate in the Self-Direct Product because they believe that it is beneficial for them to perform more of the administrative activities, and in doing so, receive a higher rebate over Public Service's other DSM products.

Participation in the Self-Direct Product will generally follow the sequence below. Public Service prequalifies customers who are eligible for participation in the Self-Direct Product. Once prequalified, a customer identifies the opportunity, then develops and submits a project application. 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. The Customer can request a meeting to discuss Public Service's decisions related to the application.

If the customer chooses to implement the measures, they sign a letter, which includes an M&V plan, stating that they intend to implement the preapproved measures. After the customer signs their letter of intent, they must conduct any pre-installation monitoring required in the M&V plan, and submit the data to the Company. The Company must approve this data before the customer may implement the efficiency measures. The customer then implements the measures and performs follow-up monitoring as described in the M&V plan.

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 by check upon completion of project and Public Service's approval of project completion report.

### B. Goals, Participants & Budgets

#### Goals and Participants

The Self Direct product was launched in 2009 and did not have any projects completed in 2009. However the project pipeline was being built in 2009 and projects were beginning to be

completed in 2010. 2011 goals were established by evaluating the preapproval and completed projects occurring in 2010.

Participant forecasts was based on past 2009/2010 participant data, 2009 pipeline projects and an evaluation of continued interest in this product.

### Budget

Preapproved self direct and completed projects during 2010 were used to develop the 2011 budget. The product is expected to experience significant growth in 2011. The majority of the budget will go towards rebate dollars for customers.

## **C. Application Process**

Customers are most likely to hear about the Self-Direct Product through their account managers. Customers must be prequalified for participation in the Self-Direct Product before submitting a Self-Direct project application. The customer is responsible for providing the Company with justification for eligibility (prequalification) in the Self-Direct Product. The Company will respond to a customer request for prequalification within 30 working days or other agreed on period. Justification must include, but is not limited to, a list of the customer's account numbers, locations, and meter numbers to be aggregated.

Once prequalified, the customer will submit a project application for each Self-Direct project. Self-Direct 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-Direct Product will be marketed initially to large customers who have expressed an interest in overseeing their own DSM product. Specifically, we will focus on those customers who have participated in the Self-Direct Product development process. Other marketing efforts will focus on customers based on their energy use, conservation potential, and in-house experience and expertise with conservation projects.

## **E. Product-Specific Policies**

The Self-Direct 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 usage 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-Direct Product.

The Total Resource Cost (TRC) ratio for each application will be calculated based on the combination of all measures proposed in the application. The TRC ratio must be equal to or greater than 1.0. The customer will calculate a final project TRC ratio 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. Customers may enroll their new buildings in either the Self-Direct Product or the New Construction Product, but not both. If the customer chooses to participate in the Self-Direct 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 perform the energy modeling internally, or pay for all energy modeling costs.

The Company understands that some of the information provided by customers to document project assumptions and calculations may be of a sensitive nature. Specifically, operation and maintenance (O&M) savings associated with implementation of a project may contain information that the customer deems privileged. The Company will treat Participant O&M data in accordance with Section 4 of the Stipulation and Settlement Agreement. Specifically, in the absence of a written agreement signed by the Participant authorizing disclosure of the Participant's operations and maintenance savings or expense data ("Participant O&M data"), all such Participant O&M data shall be treated as proprietary and trade secret information that is privileged and highly sensitive. Accordingly, the Company will use Participant O&M data to evaluate the cost-effectiveness of all DSM projects and products that use the Custom Efficiency analysis process. Public Service will not include Participant O&M data in its incentive calculations unless it has been authorized to disclose such data by written agreement.

The Company will only disclose the results, by cost category, of calculations made using the privileged values, but not the values themselves, upon request by members of the Commission, its Staff, or the Office of Consumer Counsel. The Company will provide the Participant 10 business-days notice of the place and time of the inspection and provide the opportunity for a customer representative to be present during the inspection. The Company shall maintain a log of the persons, dates, times and documents reviewed.

Within 45 days following the end of each quarter, the Company will provide a report to the Commission, its Staff, and the Office of Consumer Counsel on the number and value of rebates spent on measures whose cost effectiveness depends on the Participant O&M data. In addition, this report will include the TRC calculations on the Self-Directed Custom Efficiency projects approved by Public Service.

#### Incremental Costs

Incremental costs are all actual, incremental expenses reasonably incurred by a customer in connection with the construction, installation, or implementation of an approved Self-Direct project, including but not limited to equipment costs, engineering and consulting expenses, and removal of old equipment. Incremental costs represent the cost incurred to achieve energy efficiency levels that exceed industry standards or existing equipment efficiency based on

practices generally utilized by energy engineering professionals and/or reference to publically available resources for energy engineering.

### Project Application

The format of the project application will be determined by the customer, but at a minimum, 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-Direct 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 will be determined by the customer, but at a minimum, it 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.
- 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 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.

#### **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-Direct 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 or paybacks greater than fifteen years. 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 purposed, kWh saved will be the annual kWh saved as a result of the energy efficiency projects.

The expected rebate for the project will be communicated to the customer upon preapproval. 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 attractive rebates for lighting upgrades and special services to small and mid-sized business facilities 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.

This product focuses on saving energy through the installation of energy-efficient lighting retrofits. The product specifically targets barriers that often prevent small businesses from investing in energy efficiency products, such as: 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 Public Service
- Substantial rebates to offset the cost of installing energy efficient fixtures and lamps.

A similar product currently exists in Minnesota, the One-Stop Efficiency Shop, administered by the Center for Energy & the Environment (CEE). The Minnesota product has been offered to Xcel Energy Minnesota customers since 2000 and has been quite successful in bringing lighting efficiency to small businesses. Of note, the CEE One-Stop Efficiency Shop product was selected as a finalist for the 2005 Minnesota Environmental Initiative Award for Energy and Climate Protection. The Minnesota product was used as a model for building a similar small business lighting product in Colorado.

The California “Best Practices Benchmarking for Energy Efficiency Products” recognized turnkey installations opportunities to non-residential customers, such as this Small Business Lighting product, as a best practice. Although several of the products mentioned offered a range of measures (e.g., refrigeration and HVAC), lighting measures accounted for the bulk of energy savings attributed to such products.

In 2009, Public Service conducted a Request for Proposal and selected Franklin Energy Services (Franklin) as the consultant for the Small Business Lighting Product. Franklin is responsible for the following: provide a walk-through audit of a facility focusing on the lighting systems, provide a report with recommendations including level of potential energy savings, serve as a liaison between the customer and the contractor during the retrofit, and complete and submit the rebate paperwork

## **B. Goals, Participants & Budgets**

### Goals and Participants

Actual results of energy savings achievements including an average energy savings per customer from CEE's first two years of running the Minnesota product were used to determine the Colorado goals. The Minnesota product is a good proxy because the market size is similar between MN and CO.

Participation was derived from the prior year's (2010) goal, trade participant feedback, 2009 and year-to-date 2010 product trends, average project size and historical participation in the Minnesota product as well as an evaluation of market and economic trends.

### Budget

The budgets were developed based on Colorado 2009 actual costs, as well as historical data from CEE's 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 2011 to accommodate increased participation.

## **C. Application Process**

Public Service promotes the Small Business Lighting Product through several channels, including the Xcel Energy website, direct mail, email promotions and through the lighting trade. Our Business Solutions Center is available for all business customers, particularly the small business customers, who may need information on our rebate products. Public Service also expects that Franklin will aggressively promote the product to increase participation.

The product does not require preapproval for participation. The application process is similar to our Lighting Efficiency prescriptive product. The first step in the process is to conduct a lighting audit at the customer's facility.

Franklin 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 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.

## **D. Marketing Objectives, Goals, & Strategy**

The Small Business Lighting Product is marketed primarily through Franklin Energy Company. They are required to meet the implementation goals for which they are contracted and will determine the marketing strategies needed to meet them.

Public Service 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 Public Service staff. Over time, referrals have become a significant portion of the audits and we hope to have that same result with Franklin for the Colorado product.

The target customers for this service are small businesses of up to 400 kW annual average 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.

Also, stakeholders and interested parties who participated in the Colorado Roundtable recommended implementing a product of this type for our Colorado Small Business customers.

Public Service selected Franklin via request for proposal to implement the Small Business Lighting product. Franklin will perform these product guidelines:

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

#### **E. Product-Specific Policies**

The Small Business Lighting Product's policies are as follows:

- All equipment rebated through the product must be new and meet all product rules and requirements and the application must be submitted within twelve months of the invoice date.
- The product applies to customers whose peak electricity demand is 400kW or less.
- Rebates assume a one-for-one replacement of retrofit fixtures that will result in energy savings.
- One completed paperwork is submitted, rebate payments are usually issued in 6 to 8 weeks.

#### **F. Stakeholder Involvement**

Franklin will have considerable importance in the success of the product. They will be the face of Public Service to the product participants. The Company expects that Franklin will engage stakeholders in the implementation of this product. For example, Franklin might propose to contact the Chambers of Commerce in cities within Public Service's service territory and invite them to a meeting regarding the product.

Lighting contractors will be an important part of the product as they will not only be doing the lighting retrofits, but will also help market the product to customers. We encourage Franklin to develop a list of qualified contractors available for product participants. The contractors on this list will have a vested interest in the product success, as they will benefit from the work generated by the audits.

#### **G. Rebate Levels**

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

## ➤ Standard Offer Product

### A. Description

The Standard Offer Product allows business customers to identify conservation opportunities and develop a bundled package of conservation measures to be implemented. The product offers funding for customers to receive a technical energy audit and provide rebates to help offset the cost of implementation. The product is entering its third year of existence in 2011 and will need to pass cost-effectiveness tests to continue past 2011. The product did not have any projects completed in 2010; hence, why it was unable to pass the cost-effectiveness tests.

The initial phase of the Standard Offer Product involves completion of a technical energy audit. The audit is typically performed by an Energy Service Company (ESCO), but also may be performed by the customer. A list of prequalified auditors is available through the Governor's Energy Office. The audit follows the format established by GEO<sup>14</sup>. The customer receives a final report detailing the energy conservation opportunities, financial analysis, and potential funding mechanisms. Additionally, the audit report provides a summary page detailing the technical inputs required for the project benefit-cost analysis.

The Standard Offer Product is intended to serve customers with limited financial and human resources who have conservation potential. There are many key aspects of the product that differentiate it from our other DSM offerings, which are developed specifically to address this group of customers. This product, along with GEO support and prequalification of ESCOs, adds credibility to performance contracting as a method to implement conservation projects for customers who are locked into capital and operating budgets for long periods into the future. These customers typically do not have qualified internal personnel available to identify, develop, and implement the conservation projects. The Standard Offer Product can support these customers with financial resources and a framework for conservation to pursue these opportunities internally, or alternatively, Standard Offer is designed to align with the typical process of implementing conservation measures using an ESCO. Specifically, bundling measures together, and determining savings for the comprehensive project based on actual M&V data aligns this Product with typical performance contracts.

Public Service provides a rebate of 50% of the technical energy audit cost if the customer agrees to implement the bundled conservation measures. Study funding at 50% for the Standard Offer Product is lower than study funding for other DSM products because some of the work to generate the technical energy audit focuses on measures and technologies that fall outside of the scope of the Company's DSM products. Public Service will also rebate a portion of the incremental costs to implement the recommended measures.

The Standard Offer Product provides customers with an opportunity to identify and implement a comprehensive package of cost effective efficiency measures whether they have internal

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<sup>14</sup> GEO Technical Energy Audit & Project Proposal Contract, Scope of Work, (Exhibit A), Section 7.

resources and funding or they want to use outside resources such as those from an ESCO. The Product differs from Public Service's other DSM offerings in that it allows customers to work with Energy Service Companies if desired. By doing so, customers are open to alternative funding mechanisms for their conservation projects that may not be available through the Company's other products. The technical energy audit used in this Product is an investment grade audit, which can be used by the customer to secure internal or external funding for the project. Additionally, bundling individual measures into comprehensive projects minimizes required Company and customer resources, and increases the size of the projects, which draws more interest from contractors, equipment suppliers and ESCOs.

Public Service has found that the majority of participants in the Standard Offer Product will utilize ESCOs to perform the technical energy audit as well as to implement the bundled project using a performance contract. Performance contracting has been used in Colorado for many years, however it has not historically been supported by the GEO and Public Service at the levels proposed. We therefore anticipate significant growth for this contracting mechanism, which will allow entities with capital constraints to implement conservation measures.

## **B. Budget, Participants & Goals**

### Goals and Participants

Public Service worked with GEO and the Colorado Energy Services Coalition to develop estimated participation rates for the Standard Offer Product. The Company used the average savings from historical projects completed by government and education customers under the Colorado and Minnesota Custom Efficiency Products to develop product budgets and goals. There was only one completed project by the time the Company needed to complete planning work for this 2011 Plan; hence, the original planning estimates remain the basis for budget and goals.

The participant pipeline for Standard Offer is established one to two years in advance. Our current pipeline includes eleven projects that are expected to finish in 2011. Additionally, we expect that at least one more will begin in 2010 that will finish in 2011 so the final projected participation is twelve.

### 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 preapproval 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 draft study is completed. After all supporting documentation is supplied including the draft study, commitment to install measures, monitoring plan and invoices, the study rebate can be paid.
3. The customer fills out the Standard Offer Measure Rebate Application prior to commencing installation of measures. This application is typically filled out at the same time as the customer submits the application for the study rebate. The monitoring plan is finalized at this time and the M&V of the project commences with the acceptance of the application.

### **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 pre-qualified 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 technical energy audit 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. Standard Offer implementation rebates will not be provided for these measures. 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 preapproved technical energy audits at 50% of the cost up to \$0.10 per square foot for standard buildings. For non-standard buildings, Public Service will provide study rebates up to 50% of the technical energy audit cost, up to a limit identified in the pre-approval letter. Study rebates for customers performing their own technical energy audit will be given at \$0.10 per square foot. Implementation rebates 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. 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 \$7.00 per annual dekatherm. Rebate amounts could be increased depending on the results of the benefit-cost tests for this product.

All implementation rebates will be limited to 60% of incremental costs. Rebates will not be given for bundled projects with expected paybacks of less than nine months. Rebate levels will be adjusted downward so that no bundled project (with rebates included) has a payback less than

nine months. Rebates will not be given for projects with expected paybacks of more than fifteen years. For rebate calculation purposes, the demand savings shall reflect the reduction in the customer's peak demand (kW) as a result of the energy efficient project. For rebate calculation purposes, energy savings will be the annual kWh saved as a result of the energy efficiency project. For rebate calculation purposed, dekatherms saved will be the annual dekatherms saved as a result of the energy efficiency project.

Implementation rebate levels will be calculated based on the initial M&V results for the bundled project specified in the construction contract/letter of intent. M&V data from each year will be reviewed to determine if the implementation rebate amount was appropriate. Additional rebate 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 2011. The Residential Program will be available to over 1.13 million electric and 1.18 million natural gas customers. 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 2011. 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 2011 Plan, including ground source heat pumps and electric heat pump water heaters.

**Table 15: Residential Program Product Rankings**

<b>Product Name</b>	<b>Product Ranking<sup>15</sup></b>	<b>Type of Product</b>	<b>Fuel</b>
Energy Efficient Showerheads	3	Prescriptive	Electric/Gas
ENERGY STAR New Homes	19	Custom	Electric/Gas
Evaporative Cooling Rebates	11	Prescriptive	Electric
Heating System Rebates	18	Prescriptive	Gas
High Efficiency Air Conditioning	17	Prescriptive	Electric
Home Lighting & Recycling	1	Prescriptive	Electric
Home Performance with ENERGY STAR	32	Prescriptive	Electric/Gas
Insulation Rebates	9	Prescriptive	Electric/Gas
Refrigerator Recycling	16	Prescriptive	Electric
School Education Kits	4	Prescriptive	Electric/Gas
Water Heater Rebate	15	Prescriptive	Electric/Gas
Saver's Switch	12	Prescriptive	Electric

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 ~~62,835,061~~ 65,302,859 GWh and 170,279 Dth over the one-year period account for 26% of the Company's total electric energy savings target and 46% of the total natural gas target. The most energy efficiency savings within the Residential Program will come from Home Lighting & Recycling, Heating System Rebates, Insulation Rebates and Energy Efficient Showerheads.

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<sup>15</sup> Rankings are done by determining market segments that could participate in the program, customer classes available, total projected savings, cost per kW/Dth, participation, and participation % of market. The entire portfolio ranking can be found in the Appendices of this DSM Plan filing.

**Table 16a: 2011 Electric Residential Program Budgets & Goals**

2011	Electric Participants	Electric Budget	Customer kW	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
<b>Residential Program</b>						
Energy Efficient Showerheads	5,231	\$95,589	10,462	-	1,033,159	3.73
ENERGY STAR New Homes	1,400	\$245,845	77	45	401,622	1.07
Evaporative Cooling Rebate	3,000	\$1,517,260	5,067	3,194	1,567,480	4.05
Heating System Rebate						
High Efficiency Air Conditioning	1,785	\$1,940,949	3,061	2,548	2,181,463	1.34
Home Lighting & Recycling	297,500	\$3,605,461	47,719	6,446	53,746,707	3.36
Home Performance with ENERGY STAR	342,855	\$3,790,461	54,994	6,686	55,746,536	3.34
Insulation Rebate	100	\$59,270	185	29	153,298	1.77
Refrigerator Recycling	1,277	\$23,809	288	161	193,812	8.97
School Education Kits	1,500	\$488,928	209	138	1,016,471	1.06
Water Heating Rebate	18,318	\$571,975	10,861	109	2,193,015	1.18
	20	\$13,982	45	6	51,997	1.48
	200	\$118,982	448	59	519,966	1.57
<b>Residential Program Energy Efficiency Total</b>	<b>330,131</b>	<b>\$8,403,068</b>	<b>77,073</b>	<b>12,676</b>	<b>62,539,022</b>	<b>2.66</b>
<b>Load Management Program - Residential Saver's Switch</b>	<b>375,666</b>	<b>\$8,853,068</b>	<b>85,651</b>	<b>12,970</b>	<b>65,006,821</b>	<b>2.63</b>
	19,500	\$12,859,703	58,500	20,085	296,038	3.71
	349,631	\$21,262,770	136,473	32,761	62,835,061	3.16
<b>Residential Program Total</b>	<b>395,166</b>	<b>\$21,712,770</b>	<b>144,151</b>	<b>33,055</b>	<b>65,302,859</b>	<b>3.12</b>

**Table 16b: 2011 Gas Residential Program Budgets & Goals**

2011	Gas Participants	Gas Budget	Net Annual Dth Savings	Annual Dth/\$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
<b>Residential Program</b>						
Energy Efficient Showerheads	26,658	\$292,221	25,297	86,569	\$1,379,462	4.75
ENERGY STAR New Homes	1,400	\$2,207,711	39,618	17,945	\$104,641	1.02
Evaporative Cooling Rebate						
Heating System Rebate	6,500	\$1,284,228	54,093	42,121	\$1,845,793	1.49
High Efficiency Air Conditioning						
Home Lighting & Recycling						
Home Performance with ENERGY STAR	100	\$177,733	4,980	28,018	\$60,164	1.14
Insulation Rebate	2,935	\$490,372	24,063	49,070	\$297,732	1.13
Refrigerator Recycling						
School Education Kits	18,318	\$523,824	14,740	28,139	\$399,544	1.50
Water Heating Rebate	2,300	\$161,370	7,488	46,406	-\$221,474	0.78
<b>Residential Program Energy Efficiency Total</b>	<b>58,211</b>	<b>\$5,137,459</b>	<b>170,279</b>	<b>33,145</b>	<b>\$3,865,862</b>	<b>1.29</b>
<b>Load Management Program - Residential Saver's Switch</b>						
<b>Residential Program Total</b>	<b>58,211</b>	<b>\$5,137,459</b>	<b>170,279</b>	<b>33,145</b>	<b>\$3,865,862</b>	<b>1.29</b>

### Goals and Participants

Electric goals were established first at the portfolio level by the Commission in Docket No. 07A-420E.<sup>16</sup> 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 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 2011, 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 energy efficiency budgets overall in 2011 are decreasing based on changes to product goals and efficiencies identified from the 2009-10 product performance. Budgets and goals are decreasing for Evaporative Cooling Rebates, Home Performance with ENERGY STAR and Refrigerator Recycling due to performance in 2009-10. Budgets and goals are increasing for ENERGY STAR Homes and Home Lighting and Recycling.

## **C. Market Analysis**

With the increase in awareness of energy issues and saving energy, there continues to be great energy efficiency opportunities for residential customers. In addition, due to the current building code situation in Colorado, there is an excellent 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.

The retailer and customer market will continue to expand for compact fluorescent light bulbs (CFLs) in the next several years until the new federal energy standards take effect beginning 2012. There is a great opportunity to rapidly build customer knowledge and use of CFLs

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<sup>16</sup> 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.

through marketing the benefits of the bulbs and offering them at reduced prices through select retailers.

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:

- Condensing storage tank water heaters
- Radiant cove and radiant floor heating
- Variable speed fan motor retrofits for furnaces
- Solar tube lighting
- LED lighting
- Airtight CFL down lights
- Residential condensing boilers
- 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 a 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, Governor's 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 2011 are noted in the E,M&V section of the Indirect Products and Services, as well as in the respective product description.

## ➤ Energy Efficient Showerhead Product

### A. Description

The Energy Efficient Showerhead Product is designed to offer year-round, long-term natural gas and electric savings to Public Service customers. Residential natural gas and electric customers Public Service customers are eligible to receive a free high-efficiency 1.5 gallon per minute showerhead (approximately a \$5.50 value) to help reduce energy and water use costs.

Public Service added an electric budget for the Energy Efficient Showerhead product in late 2009 through the 60-Day Notice process, as part of the 2009-10 DSM Plan Settlement agreement between all parties. This addition will continue in 2011.

Direct mailings are sent to customers in the spring and fall offering a free energy efficient showerhead. Customers send back the business reply card if they would like to receive the free unit. The reply card allows the customer to make the active decision whether or not to request the energy efficiency measure. Public Service has contracted with a third-party provider to manage all customer responses and send out the free energy efficient showerhead. The third-party is a residential distributor of energy efficiency-related products in the United States.

### B. Goals, Participants & Budgets

#### Goals and Participants

Public Service set the 2011 goal based on past Performance. Participants receive one showerhead per request. If the customer has two or more showers and four or more residents in the household, Public Service may provide a second free showerhead.

#### Budgets

The product budget was developed based upon the participation level. Using Public Service's 2009 showerhead product performance as a proxy, the cost of the showerheads, fulfillment charges, postage, and all necessary marketing efforts were included to develop the 2011 budgets. Since the third-party will manage all day-to-day activities, minimal internal labor will be 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, the customer will be shipped one free energy-efficient showerhead.

In addition to the direct mail campaigns, Public Service will continue to seek out partnerships with other organizations or cities such as Denver Water to distribute free energy efficient showerheads.

#### **D. Marketing Objectives, Goals, & Strategy**

In 2009, approximately 15% to 18% of customers that received a direct mail brochure signed up for the product. Based on this data, Public Service has developed a marketing plan utilizing direct mail campaigns and partnerships to reach the participant goal. In addition, Public Service is currently testing new email marketing approaches and may be able to use this lower cost marketing channel in 2011. The direct mail reply card requests the following information from the customer:

- Number of showers in household
- Number of people in household
- Whether the water heater runs on natural gas, and
- Whether the customer owns or rents their home.

Customer responses will be tracked by the third-party provider and sent to Public Service following the distribution of the showerheads to participants. This information is kept in a tracking system to calculate savings.

#### **E. Product-Specific Policies**

In general, each participant is allowed one showerhead. If the customer lists more than four residents in the home and more than one shower, a second showerhead to the home may be distributed. A second showerhead option is listed as well on the business reply card. The third-party provider will note when multiple showerheads are requested and send that in the report to Public Service. Further, if a customer who did not receive the mailing becomes aware of the product and would like a free showerhead, they will receive one if budget allows.

#### **F. Stakeholder Involvement**

Public Service currently partners with Denver Water in its Plumb Green, Save Blue Program, providing the energy efficient 1.5 gallons per minute showerhead to participating residential customers. Denver Water serves 25% of the state's population and is a leader in water conservation activities. Their aggressive goal to reduce water use 22% by 2016 can be paired with Public Service's energy efficiency goals to produce maximum benefits and cost savings to both companies. Customers benefit from a unified messaging and marketing approach. In addition, the CO DSM Roundtable quarterly meetings provide a forum for stakeholder involvement and feedback about this program as well as the full portfolio of Public Service's DSM Programs offered in Colorado.

#### **G. Rebate Levels**

The product provides free energy efficient equipment rather than a rebate to the customer. It costs Public Service about \$5.50 to deliver each showerhead, including the costs of the showerhead, mailing tube, custom labels, business reply postage for returned cards, phone costs, order processing, and postage.

## ➤ ENERGY STAR New Homes Product

### A. Description

The ENERGY STAR New Homes Product provides homebuilders with an incentive to build to ENERGY STAR standards. The product continues to build on the work started in 2009, when the Public Service launched the product.

ENERGY STAR homes are built to be more energy efficient than standard code built homes. This product encourages homebuilders to consider a “whole-house” approach to energy conservation when building new single-family and multi-family homes. This approach combines energy saving construction methods with energy efficient appliances to achieve significantly higher energy savings and provide the customer with lower energy bills, fewer maintenance concerns, higher resale value, and a more comfortable, quiet home.

The Environmental Protection Agency (EPA) ENERGY STAR product is expected to change significantly from its current design beginning in 2011. This change is expected to impact Public Service’s product in several ways, starting with technical assumptions to how it is marketed to participants. The changes and potential product impacts are not fully understood at this time since the EPA just released the final specifications (Version 3) in April 2010. Based on our current understanding, Version 3 is expected to increase product participation costs for both builders and HERS raters; however, Public Service is uncertain if there will be additional energy saving impacts.

Since the EPA policies have not been reviewed yet, the 2011 Public Service program is based on the current product design and does not attempt to incorporate potential impacts from the upcoming Version 3. Public Service may amend this product in late 2010 or early 2011 once we thoroughly review and evaluate the new Version 3 specifications.

The ENERGY STAR New Homes Product provides ENERGY STAR testing services and a rebate to builders who construct homes that are ENERGY STAR qualified and meet the established HERS index requirements. Additional rebate dollars are available if energy efficient electric appliances and lighting are installed.

The national ENERGY STAR qualification threshold in the Denver climate zone is a Home Energy Rating System (HERS) score of 85 or below, however homes in this climate zone must also reach a minimum HERS index of 75 to receive a rebate. This is a change from the 2009-10 product. The ENERGY STAR criteria for higher elevations is a HERS score of 80 or below, however, homes built in this climate zone must also reach a minimum HERS index of 75 to receive a rebate.

For the City of Boulder and most Boulder County residents, the ENERGY STAR qualifications criteria is a HERS index of 65 or below for a home up to 3,000 square feet (On the HERS Index, the lower score represents the more efficient home.) Due to differing building codes throughout the state, Public Service has built in flexible options for cities or counties that have more stringent codes than the ENERGY STAR rating. Builders will still be able to participate in those

areas but the required HERS index in order to receive a rebate will be set below the existing code requirements for that area.

The builder may mix and match efficient technologies or building techniques to obtain a HERS index that meets ENERGY STAR and qualifies for the Xcel Energy rebate. For example, a builder could install a high efficiency furnace of 96% AFUE combined with less efficient windows, but still meet the threshold requirements. The builder has the flexibility to install any combination of technologies to obtain the desired HERS index target. To obtain the additional rebate dollars for electric appliances and lighting, the builder must install an ENERGY STAR clothes washer, dishwasher, refrigerator and 20 ENERGY STAR rated fixtures or bulbs.

This product applies to builders of residential single-family, multi-family (duplex, triplex, fourplex) and town homes that receive electric and/or gas service from Public Service. The Company uses a Product Implementer to enroll builders and maintain a quality pool of HERS rating companies. HERS companies have the flexibility to participate in this product by agreeing to a standard Scope of Work managed by Public Service's third party product implementation vendor. The vendor and HERS Raters will serve as points of contact for builders, assist with builder training, and track the product. The HERS Rater will model and test the home to determine whether it meets the ENERGY STAR standards and to establish a final HERS index. The third party implementation vendor will continue to recruit HERS rating companies throughout the year. All participating HERS rating companies are under contract with the vendor and required to go through training on the product and data collection requirements.

## **B. Goals, Participants & Budgets**

### Goals and Participants

The product goals were determined based on performance in 2009 and early 2010. The current new home construction market continues to remain stagnant with only modest increases in building of new homes expected for 2011. Construction lending remains tight and difficult for builders to obtain. Public Service understands new homes starts should begin to increase and we also expect the product to gain greater market penetration even with the rebate level changed to a HERS rating of 75 or below.

### Budgets

The budget includes costs for product administration, rebates/incentives, materials, promotional events, advertising, measurement and verification and labor. Product administration costs include those for our third party implementation vendor and payments made to HERS Raters for rating the home. The measurement and verification budget for this product is one of the largest components of the total product budget.

## **C. Application Process**

Homebuilders are likely to hear about the product through marketing done by Public Service, by our third party vendor's field representative or through a HERS Rater. The field representative has the primary roll of engaging builders and recruiting raters into the product. Many of the HERS raters participating in the product have strong, existing relationships with their builder

clients and as a result, they also will enroll builders in the product. To initiate the process, the builder expresses interest in building an ENERGY STAR home to a HERS 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 vendor's tracking database. The Rater will also work with the builder throughout the construction phase, to construct the home to or better than ENERGY STAR standards.

When the home is completed, the HERS Rater will perform an air tightness test on the house and then calculate the final HERS index and the energy savings on the house. Once the Rater has submitted the test data and final HERS index to our implementation vendor and they have been approved by Public Service, the builder will receive a rebate based on the final HERS index achieved. The HERS index is correlated to specific gas and electric savings. There is no rebate application for this product because the HERS report is the data that will be used to determine the rebate for each individual house. The third party vendor will ensure that all the information entered into the database system is correctly tracked and submitted to Public Service. Houses that qualify will be recorded on the Environmental Protection Agency's ENERGY STAR website.

#### **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 promoted to HERS Raters, builders, sales agents and consumers using appropriate marketing tactics. The third party implementation vendor provides recruitment and training services for our HERS rating companies. The participating HERS rating companies conduct and report on the homes efficiency level when construction is complete. The product is promoted to builders by the participating Raters and RSR using individual sales and recruitment techniques. The product is also promoted through trade journals and other print media, targeted to homebuilders, developers, sales agents (including Realtors) and consumers.

Public Service will continue to work closely with the Colorado Governor's Energy Office, cities and environmental organizations to build awareness throughout the customer and builder markets. Public Service will advertise in local trade magazines and steer builders to local training events. This comprehensive marketing effort is intended to communicate the benefits of ENERGY STAR and motivate builders to differentiate themselves by building ENERGY STAR qualified homes.

#### **E. Product-Specific Policies**

In order to participate in this product, homebuilders must be registered as ENERGY STAR partners, licensed, and bonded. Participating HERS Raters must be Residential Energy Services Network (RESNET) authorized and use modeling software approved by RESNET. There are two paths to qualify a home to become ENERGY STAR's qualified and be eligible for rebate. Both paths require independent verification by a qualified HERS Rater: HERS Performance Method and the Builder Option Package (BOP).

A HERS rating is where approved software, such as REMRate, is used to model the home's energy use to verify that it meets a target HERS index. In order to become ENERGY STAR qualified and receive a rebate from Xcel Energy, homes need to meet a minimum HERS rating of 75 in the mountain communities and Denver area. The minimum HERS index requirements for Boulder County homes is lower yet and can be seen in Section H. Note that in addition to being ENERGY STAR qualified, homes must reach a minimum HERS index in order to receive a rebate, which can be seen in Section H. Public Service will encourage each house to be modeled and tested using the HERS Performance method. The BOP is a method to achieve ENERGY STAR certification where builders construct the home using a prescribed set of construction specifications that meet product requirements. A final HERS index is not determined by the rater for homes using the BOP method. The EPA has approved BOP specifications at the county and regional levels, however, builders enrolled in PSCo's ENERGY STAR New Home product must also install a 92% furnace and achieve at least a 4.5 air change per hour at 50 Pascal's (ACH50) in order to receive the BOP rebate.

Public Service will accept homes that use the HERS method or an approved BOP to obtain the ENERGY STAR qualification or the "sampling" method as performed by a RESNET certified Rater. Sampling allows an accredited Home Energy Rater to qualify a group of new homes to meet ENERGY STAR guidelines based on pre-analysis of building plans and subsequent random testing and inspections of a sample set of the homes as-built. For those builders who have demonstrated an ability to consistently meet the ENERGY STAR guidelines, sampling helps to minimize production interruptions and verification costs, while ensuring that homes meet or exceed the guidelines for qualifying homes as ENERGY STAR. Sampling can be applied when either the performance verification method (HERS Index score) or prescriptive verification method (Builder Option Package) is used.

A few homes enrolled in the 2009 and 2010 product included the use of Photovoltaic (PV) systems. The ENERGY STAR New Homes product does not include the impacts of a PV or other renewable generation systems when calculating the HERS Index for a home. Rebates for PV systems are paid through the Solar Rewards product rather than demand-side management (DSM) products. Accordingly, energy savings credit for PV systems is not taken under the product or the DSM portfolio.

## **F. Stakeholder Involvement**

Prior to developing the Colorado ENERGY STAR New Homes Product, Xcel Energy participated in the national ENERGY STAR Homes Partner meeting and helped to develop the best practices model along with other product sponsors and the Environmental Protection Agency. Lessons learned from participants factored in the development of the Public Service product. Xcel Energy also met with several utilities in Texas and the southwest to review their product structures and guide the Colorado product design. In addition, Xcel Energy 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, and attends the ENERGY STAR Homes Partner meetings and RESNET conferences.

Public Service continues to meet with the Colorado GEO, as well as other Colorado entities such as Platte River Power Authority, Fort Collins Utilities and City of Denver to make the ENERGY STAR New Homes Product successful by offering a consistent message and process.

**G. Rebate Levels**

Builders may participate in either the gas or electric, or both ENERGY STAR New Homes Product options. The product’s gas option includes rebates to the builder based on the level of HERS index achieved and the rating method they choose. The builder will receive a rebate of \$360 for meeting the minimum ENERGY STAR certification for that climate zone or region and achieving a minimum HERS index of 75 in non Boulder county areas. For example, a new home in the Denver Metro area with a HERS index of 70 building under the Performance method, would receive a total rebate of \$700, whereas the same home built using the Builder Option Package (BOP) Rating method would receive the minimum rebate of \$360. The reduced rebates for the Sampling option reflect both the construction efficiencies obtained by the builder, and the builders reduced investment for cost of rating. Additionally, there are inherent problems for the builder and raters when using Sampling and we are not encouraging either to choose this path.

**Table 17: Builder Rebate Levels (not applicable to homes built in City of Boulder)**

<b>HERS Index for Rebate Eligibility</b>	<b>Performance Rating Rebate</b>	<b>BOP Rating Rebate**</b>	<b>Sampling Rating Rebate</b>
75 – 71	\$360	\$360	\$120
70 – 66	\$700	\$360	\$233
65 – 61	\$1,400	\$360	\$467
60 or below	\$2,200	\$360	\$733

\* \*\*Builders participating in PSCo’s ENERGY STAR New Home product must also install a 92% furnace and achieve at least a 4.5 air change per hour at 50 Pascal’s (ACH50) in order to receive the BOP rebate.

Public Service will offer a separate rebate structure for homes within the City of Boulder and other localities with a more stringent code. Within the City of Boulder, the ENERGY STAR New Homes Product will offer the following rebates based on the HERS index achieved and the size of the home in square feet:

**Table 18: City of Boulder Rebate Structure for ENERGY STAR New Homes**

<b>HERS Index for Rebate Eligibility</b>	<b>Up to 3,000 sq ft</b>	<b>3,001 - 5,000 sq ft</b>	<b>5,001 sq ft and Over</b>
65 – 61	\$800	N/A	N/A
60 or below	\$1,100	N/A	N/A

For example, a 3,000 square foot home built in the City and County of Boulder that achieves a HERS index of 65 would receive a total rebate of \$800 (for meeting the minimum Rebate Eligibility threshold). The BOP and Sampling Rating options are not offered in the Boulder area

at this time. Rebates will not be offered for homes greater than 3,000 SF in the City of Boulder and greater than 1,000 SF in unincorporated Boulder County due to the stricter standards already established for these homes and the higher incremental costs needed to achieve savings below these standards.

Additional product requirements (refers to both Tables above) are: 1) The final HERS index must be less than the maximum allowed by code to qualify for a rebate. 2) Rebate levels will be adjusted as appropriate to account for codes requiring lower than standard HERS indexes. 3) No rebates will be given for homes with a baseline HERS index requirement of 60 or lower.

For the ENERGY STAR electric option, the builder will receive a \$110 rebate for installing the four required bundled measures: ENERGY STAR clothes washer, dishwasher, refrigerator and 20 ENERGY STAR fixtures or bulbs. This rebate is available to all electric residential new home construction or large remodeling projects. All four measures must be installed in order to receive any portion of the \$110 rebate.

Rebates will only be paid for the HERS rating for homes and/or the electric option package. Prescriptive rebates for other equipment such as air conditioners, furnaces, insulation, and hot water heaters are not paid for in these homes since the impacts from these appliances are already included in the HERS analysis and final HERS index.

The HERS ENERGY Rater will also receive a payment for homes enrolled into the product and tested using the HERS Performance rating system or an approved BOP or Sampling Path. Raters are eligible to receive two payments per home: 1) for successfully enrolling a qualified home in the product and 2) when the home is completed following Public Service’s specified scope of work. Total payment to the Rater for enrolling and completing the scope of work (for the path chosen) will not exceed the maximum amounts listed below. Payments will be based on the following schedule:

**Table 19: HERS ENERGY Rater Enrollment and Completion Payment Structure**

<b>HERS Performance Path</b>	
Enrollment	\$ 150.00
Completion	\$ 250.00
	\$ 400.00 Maximum
<b>BOP Path</b>	
Enrollment	\$ 75.00
Completion	\$ 125.00
	\$ 200.00 Maximum
<b>Sampling Path</b>	
Enrollment	\$ 50.00
Completion	\$ 85.00
	\$ 135.00 Maximum

## ➤ **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 levels available for the evaporative cooling product. Two rebate levels are for the customer and one is for the builder of new homes.

This product dedicates resources toward increasing energy efficiency in residential homes by encouraging consumers & builders to purchase evaporative coolers rather than central air conditioning. Through this product, participating Public Service customers benefit by reducing the cost of buying energy-efficient units in addition to experiencing energy savings throughout the lifetime of the equipment. This product not only motivates customers to make energy-wise purchases, but also educates customers on their environmental impact.

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.

#### Settlement Terms

In order to help stimulate participation in the Evaporative Cooling program, the Company agrees to add retailer/contractor incentive tiers and rebates as follows: Tier 1 - \$50; Tier 2 - \$75; Tier 3 - \$100. The Settling Parties agree that the 2011 DSM electric budget shall be increased by \$160,000 to accommodate the addition of the agreed upon incentives.

### **B. Goals, Participants & Budgets**

#### Goals and Participants

The goal in 2011 is based on past activity, current market conditions, and projected sales of evaporative coolers in 2011. 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 2011 budget was developed using historical Evaporative Cooling Rebate participation. The 2011 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 web site, HVAC contractors, builders, 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.

### **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 “clicks”
- Monthly customer email updates
- Bill inserts in the spring and mid-summer
- Contractor packets to all contractors in the Colorado area
- Builder kits

Public Service has partnered with over 350 dealers and over 50 retailers in the state of Colorado who receive our product literature and help to promote the product. Contractors & 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, technical support navigating product tracking systems, and overall relationship 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. Equipment is added to the list of qualifying units as Public Service is notified of their release.

### **F. Stakeholder Involvement**

When designing the Tier 2 portion of this product, Public Service worked with Frontier Associates to ensure that the equipment was energy efficient and the best cooling option for

Colorado customers. Frontier ran technical assumptions on the Tier 1 and Tier 2 options for evaporative cooling and found that the product was beneficial to the customers and to the Company. Tier 3 builder rebates were developed out of the 2009-2010 DSM Plan Settlement agreement.

In order to determine qualifying equipment, Public Service worked with evaporative cooling manufacturers to verify current and new equipment efficiencies. The following manufacturers were contacted:

- Climate Technologies
- Champion Manufacturers
- Coolerado Corporation
- Essick Manufacturer
- Goettl Manufacturer
- Jenrus Corporation
- Phoenix Manufacturer Incorporated
- Seeley International Manufacturer
- Speakman CRS
- Symphony coolers
- Tradewinds Manufacture

#### **G. Rebate Levels**

Three rebate levels are available for the Evaporative Cooling product. Two rebate levels are provided to the customer for equipment installs, and one is available to the builders of new homes. Coolers must be permanently installed, direct, indirect, or two-stage evaporative cooling units for customer equipment rebates. Per the Settlement Agreement, the Company agrees to add a retailer/contractor incentive that correlates with the rebate tiers below.

**Tier 1:** Qualifying evaporative cooling units have a minimum Industry Standard Rated (ISR) airflow of 2,500 CFM. The rebate amount is the lesser of \$200 or the purchase price of the unit. Taxes and ancillary items such as hoses are not covered by the rebate. Retailers and 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. Units with periodic purge water control pumps sold separately do not qualify for the rebate. Retailers and or contractors will receive a \$75 incentive for every approved rebate application received.

**Tier 3:** To qualify for the builder rebate, the whole house cooler must be indirect cooling and fully ducted in the home. Tier 2 equipment eligibility requirements also apply to Tier 3. The rebate amount is \$1,000 directly to the builder. Builders and or contractors will receive a \$100 incentive for every approved rebate application received.

Rebate applications must be submitted by July 31 the following year after installation to qualify for a rebate. Public Service limits rebates to one per household.

## ➤ 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 for residential use.

This product dedicates resources toward increasing energy efficiency in residential homes by encouraging consumers to purchase ENERGY STAR furnaces and boilers. Public Service customers benefit by reducing the cost of buying energy-efficient units in addition to experiencing energy savings throughout the lifetime of the equipment. In making a purchase decision, consumers can identify the ENERGY STAR logo and check with Public Service or a participating Heating, Ventilating and Air Conditioning (HVAC) contractor to ensure all minimum qualifications exist with the chosen appliance to obtain a rebate. Public Service allows customers to choose their own independent residential heating system contractors/installers.

The product is applicable only for the purchase of qualifying new furnaces and boilers installed in new or replacement applications. The two-tier rebate schedule provides for a minimum efficiency of 92% Annual Fuel Utilization Efficiency (AFUE) for furnaces, in line with ENERGY STAR. A 94% AFUE or higher efficiency offers a higher rebate.

Public Service will continue to use an 84% AFUE minimum for boilers, which is consistent with other Xcel Energy jurisdictions. While the ENERGY STAR recommended minimum for boilers is 85% AFUE, Public Service prefers the 84% AFUE requirement due to model availability in the market and installation costs. The purchase price and installation cost of the 85% + AFUE Boiler was found to be significantly higher on average than the 84% AFUE. In addition, model availability for the 85% AFUE boiler is lower than the 84% AFUE model.

### B. Goals, Participants & Budgets

#### Goals and Participants

Goals were developed based on the Colorado 2009 product data and knowledge of similar products in Xcel Energy's other jurisdictions. Total product participants will match the 2010 goal based on 2009 results.

#### Budgets

Budgets were developed based on the costs per participant from the 2009 Colorado product results. The budget also accounts for costs needed to engage the HVAC contractor base necessary to serve the territory. Continuing to build the contractor community in the product's initial years is essential to its success. 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 2011 budget contains contingency funding to pay incentives to further motivate the HVAC contractors. In past experience throughout Xcel Energy areas, 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 bill inserts, 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 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 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 Gas Appliance Manufacturers Association (GAMA) directory. Xcel Energy personnel review each application and verifies 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.

### **D. Marketing Objectives, Goals, & Strategy**

The 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 experience an energy savings 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 the broad audience. Banner advertising will be strategically placed on local popular news 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 inserts. 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 inserts for high-efficiency heating equipment have 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 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 and conduct training sessions on product specifics. The Marketing team participates in appropriate tradeshow 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. The product is applicable only for the purchase of qualifying new furnaces and boilers installed in new or replacement applications. Public Service also accepts self-installed units in addition to HVAC contractor installations, though it is rare.

#### **F. Stakeholder Involvement**

Public Service considers its stakeholders for the Heating System Rebate Product to be the HVAC contractors and distributors, the Governor’s Energy Office (GEO), 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 92% AFUE qualify for a rebate of \$80.
- Furnaces above 94% AFUE and boilers above 84% AFUE receive a rebate of \$120.
- Boilers above 84% AFUE receive a rebate of \$100
- The proposed incentive amounts offer strong encouragement to move to the highest efficiency furnace, offering a \$34/Dth increase between a 92% AFUE and a 94% AFUE. The higher rebate is intended to move more customers to the highest efficiency choice.

## ➤ High Efficiency Air Conditioning Product

### A. Description

The High Efficiency Air Conditioning (AC) Product was launched in May of 2009 and comprehensively addresses energy efficiency opportunities related to central air conditioners and air-source heat pumps. The Product is comprised of five measures, each meeting a different need in the marketplace

- **Equipment Rebates: Plan A** – Central air conditioners and air-source heat pumps that meet certain energy efficiency standards as outlined in Section H 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 Performance Certified at standard rating conditions and have a thermostatic expansion valve (TXV), as this improves the efficiency by matching the flow of liquid refrigerant to the cooling load of the home.
- **Early Retirement Equipment Rebates: Plan B** – The Early Retirement equipment rebate measure was added to this product in June 2010. 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. Customers will be required to replace them with high efficiency units (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 existing Plan A equipment rebate, will now choose to participate in the Plan B Early Retirement measure. In addition, this measure is expected to bring in new incremental participation that would not have been realized otherwise.
- **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 (ACCA) which dictate the steps a contractor must take to ensure a true quality installation. This 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 a newly installed AC equipment is realized.
- **Tune-Ups** – The Tune-up pilot measure includes contractor incentives for repair, service work, and related improvements to central air conditioners and air-source heat pumps that result in improvements in cooling efficiency. The Tune-up measure is designed as a pilot and implemented through the 60-Day Notice process on April 1, 2010. The pilot product will be evaluated at the end of the 2010 cooling season to determine if the product, as designed, meets the requirements established for the pilot. Pilot projects are included under Public Service's Product Development effort, and, as such, the full Tune-up Pilot description is included in the Product Development section of this Plan (see Indirect Section Product Development).
- **Ground Source Heat Pumps** - The Ground Source Heat Pump (GSHP) equipment measure, new for 2011, serves a small market niche of our consumers who seek out the highly 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 GSHP's performance criteria are currently 3.3 COP and 14.1 EER. Rebates will be available for GSHP's 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. The product budget allows for GSHP rebates within the overall High Efficiency Air Conditioning Product. This measure will require a similar Quality Installation standard as required in the Plan A and Plan B measures; however, a \$100 contractor incentive for completing the QI standard is not being offered. For 2011, we are targeting 5 participants in existing homes and 5 in new homes. The rebate and participation levels for this measure can be seen in Section G, Table 3.

### Equipment Rebates

Residential customers with electric service within Public Service's service area are eligible for rebates for the following:

#### *Plan A*

- The installation of new qualifying equipment in existing homes without air conditioning;
- The installation of new qualifying equipment in existing homes replacing old, burned out air conditioning units;
- The installation of new qualifying equipment in new homes

#### *Plan B*

- The installation of new qualifying equipment in existing homes, replacing existing units that are operable or in need of minor repair to make them operable.

In order to receive a rebate, air conditioning equipment must be installed by a registered contractor. The contractor must perform a heat loss/gain calculation for proper sizing consistent with the quality installation process. It is recommended, that participating contractors follow the process stated in the Air Conditioning Contractors of America (ACCA) Manual J® procedures, which can be purchased from online from ACCA or through local HVAC distributors. At a minimum, contractors must complete our Load Calculation form and have it available for review when requested by Public Service. Submitted rebate applications which have not had an acceptable Load Calculation and proper sizing performed will be denied.

### Quality Installation

The details of the quality installation process are described in the *ACCA Standard 5: HVAC Quality Installation Specification*.<sup>17</sup> Public Service is focusing on four quality installation elements:

- Load calculation and equipment sizing.
- Refrigeration charging, testing and performance.
- Air flow testing, adjustment and performance.
- Duct sealing and repairs where feasible.

The continued success of the product is dependent on having contractors who understand the quality installation process. Eligible contractor firms are required to have at least one North American Technician Excellence (NATE)-certified technician on staff. As of April 2010, there are 670 NATE-certified technicians in the state of Colorado. Of these, 434 are certified in air conditioning or air-source heat pump servicing. NATE certification is at the individual technician level, not at a company level. Any individual technician who has passed the quality installation exam, holds the NATE certification, or who works under the supervision of someone

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<sup>17</sup> Available for download from the ACCA website (must sign in first): <http://www.acca.org/quality/>.

within the same company who has met these criteria is allowed to perform quality installation and testing under the parameters of Public Service's High Efficiency AC Product. Any trade partner who meets the criteria in the above areas will be allowed to register and participate in the product.

Each spring, Public Service will offer several courses to assist and support HVAC contractors with the Quality Installation measure of this product. The courses will include Quality Installation requirements and best practices, as well as product Load Calculation requirements. Public Service's Channel Manager will coordinate these training sessions and will employ an accredited subject matter expert to conduct each training session.

## **B. Goals, Participants & Budgets**

### Goals and Participants

The energy savings goals for 2011 are consistent with the targeted participants, which have been scaled down from the previous two product years due to recent performance. However, the Company expects to pay more in rebates per participant than previously envisioned for this product. The primary reason being we are seeing a vast majority of the participants installing AC units with SEER 15 and higher, whereas we originally expected many 13 SEER installations (no customer rebate) with a Quality Installation.

Participation levels for this product are based primarily on past product performance in the Colorado marketplace. Original participation assumptions developed for the product in years 2009 and 2010 were not realized. The 2009 product was launched in May 2009 and generated 119 participants at year end, which was significantly under the goal of 2,000. With the addition of the Plan B Early Retirement measure and a full year and half into the product, we have reason to believe there will be a significant increase in participation over the past years.

Approximately 90% of all participants are projected to qualify through the Plan B Early Retirement measure and the remaining through Plan A. This is a significant increase over actual participation seen in 2009. At the 50% incentive level, studies suggest a potential 10 year cumulative energy savings of 2.8 GWh or .28 GWh annually. These savings are based on replacing a 13 SEER unit, with a high efficiency 14 SEER unit. However for Plan B, we are moving customers from a baseline 10 SEER to a minimum 14 SEER unit and assumed significantly greater potential for energy savings. Using an average savings of 1,000 kWh per unit, we estimated over 1,100 participants. The HEAC product should generate significantly more participants than this due to the tired SEER levels, which are designed to move customers beyond the 14 SEER level.

The distribution of participants among the various product measures was based largely on the distribution levels seen in 2009 and early 2010. The vast majority of 2009 participants, 66%, purchased 16 SEER or higher AC units. 29% purchased units with a SEER of 15%. We expect the 2011 product to follow these same trends. The trend to purchase 16 SEER units was in part due to the Federal tax credit being offered and is due to expire at the end of 2010.

## Budgets

The 2011 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 2009 data obtained from sources such as the Energy Efficiency Business Coalition and current market conditions.

The high efficiency equipment rebate begins at the ENERGY STAR minimum of 14.5 SEER, for Plan A and 14 SEER for the Plan B Early Retirement 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. Incentive levels for 2011 remained unchanged from those used in the 2009-10 product years. The budget also provides for a product manager, trade relations manager, energy engineer, and market assistant who each will spend a portion of their time managing or supporting this product.

## **C. Application Process**

The application process requires the customer use a registered contractor (i.e., NATE-certified). These contractors have agreed to the terms of the product and meet the requirements related to quality installation practices. A list of participating 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 Plan A equipment rebate and 14.0 or higher for the Plan B Early Retirement equipment rebate. All new equipment installed for this product *must* have a quality installation to receive an equipment rebate. The 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 simultaneously purchased and installed a new furnace and air conditioner. The overall furnace and air conditioning rating must be found in the AHRI directory.

Equipment must be purchased and installed between January 1, 2011 and December 31, 2011 and Public Service must receive the rebate application by July 31, 2012 to be eligible for the rebate. In order to verify that the equipment has been properly installed, the contractor must

activate the system and perform tests as specified in the ACCA 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.

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).

Additionally for the Plan B Early Rebate measure, the following retired (existing) equipment information must accompany the rebate application:

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

The equipment installation and testing for quality installation 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. Applications that are missing any information or differ from the invoice will be returned to the customer without a rebate. If a problem exists after a customer submits the form a second time, the application will be returned to the contractor.

Public Service recommends, but does not require, a printed Air Conditioning, Heating and Refrigeration Institute certification document that is dated within two weeks of the installation date. This additional documentation helps to prove the equipment's eligibility at the time of install.

#### **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 affect 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 ally training, meetings, telephone calls, letters and newsletters with regular frequency to keep the trade informed

and engaged in the product. In addition, a qualified contractors list is available on the website and participating contractors are expected to assist in promoting the product.

- 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 AC sizing and airflow, product details and where to find qualified contractors. The site also hosts pages designed specifically for HVAC trade partners to obtain information about the product.
- 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 \$50 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 and approved by Public Service. Contractors that don’t comply with the product requirements and guidelines are not allowed to participate further in the product.

In order to be eligible for the Plan B Early Retirement equipment rebate, the retired (existing) AC 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 rebate application. If the SEER cannot be determined by the contractor, the unit will not be eligible for the Plan B equipment rebate, but may be eligible for the Plan A equipment rebate. It is likely that a lower SEER eligibility limit or range, such as SEER 12-10, will be established beginning in 2012.

<b>GSHP Specifications</b>	<b>Total Rebate</b>
ENERGY STAR Certified Closed-loop system 3.3 COP 14.1 EER	\$300/Ton

**F. Stakeholder Involvement**

The development of this product represents an ongoing cooperative effort between Public Service, Southwest Energy Efficiency Project and Energy Efficiency Business Coalition. In compliance with the 2009/10 Biennial DSM Plan Settlement and Stipulation Agreement, a committee was formed to explore the most effective way to offer a product to residential

customers for improving air-conditioner efficiency. The committee met weekly beginning in January 2009 and continues to meet periodically, as demonstrated by the addition of the Plan B Early Retirement measure to this product in June 2010. This committee also helped design and develop the Tune-Up measure, which was launched into the marketplace in early April of 2010. The consensus resulting from these meetings is reflected in design of this product.

### G. Rebate Levels

Public Service will pay rebates for the purchase and quality installation of qualifying high efficiency air conditioning equipment. The following tables describe the customer rebate and contractor incentive levels available for installation of qualifying high efficiency equipment for Plan A and Plan B equipment rebates are paid directly to the customer, while quality installation incentives are paid to the contractor. Plan A rebate levels were established to be consistent with the ENERGY STAR efficiency tiers. Plan B includes the same rebate levels as Plan A and adds an extra rebate for the retirement 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 for either Plan A or Plan B.

**Table 20: Plan A Equipment Rebate Levels with Quality Installation**

Equipment Tier	SEER	EER	Customer Equipment Rebate*	Total Contractor QI Incentive	Total Possible Rebate
Base	13		\$0	\$100	\$100
Tier 1/ENERGY STAR	14.5	12	\$250	\$100	\$350
Tier 2	15	12.5	\$350	\$100	\$450
Tier 3	16	13	\$500	\$100	\$600

**Table 21: Plan B Early Retirement Equipment Rebate Levels with Quality Installation**

Equipment Tier	SEER	EER	Customer Equipment Rebate*	Customer Early Retirement Rebate*	Total Customer Rebate*	Total Contractor QI Incentive
	13	below 12	\$0	\$0	<b>\$0</b>	\$100
	14	below 12	\$0	\$500	<b>\$500</b>	\$100
Tier 1	14.5	12	\$250	\$500	<b>\$750</b>	\$100
Tier 2	15	12.5	\$350	\$500	<b>\$850</b>	\$100
Tier 3	16	13	\$500	\$500	<b>\$1,000</b>	\$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. 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.

**Table 22: Ground Source Heat Pump Rebate Levels and Participation**

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

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 consists of two offerings for customers: sales of compact fluorescent light bulbs (CFLs) and an environmentally friendly method for customers to dispose of CFLs. Customers may purchase CFLs at a discount through the mail-order sales or local retailers. CFLs are an economical and easy way for customers to save electricity.

#### Mail Order Sales

The Mail Order Sales channel offers a wide variety of CFLs (listed below), including hard-to-find bulbs, through a third-party vendor at competitive prices. The actual sale and fulfillment of the bulbs is handled through the lighting vendor that manages and owns the entire lighting inventory. Public Service promotes the bulbs through direct mail, newsletters, bill inserts and the Internet and offers an incentive for customers to buy in quantity. Customers can order bulbs via mail, phone, Internet and fax. The customer pays our vendor directly and the bulbs are delivered to the customer's home. The following bulbs are available for mail order:

- Twist: 13, 14, 19, 23, 27, 30, 42-Watt
- Indoor Reflectors: 14, 15, 16-Watt, outdoor: 19-Watt
- Globes: 11, 14-Watt
- Decorative – standard or candelabra: 7-Watt
- A-Line: 13-Watt
- 3-Way Twist: 12/20/28-Watt
- Bug Light: 14-Watt
- Full Spectrum: 13, 27-Watt
- Dimmable: 20, 25-Watt
- Torchiere fixture or replacement bulbs: 65-Watt

#### Retail Discounts

Public Service also promotes CFLs by offering in-store retail discounts. In these promotions the bulb manufacturer, retailer, and Public Service combine funds to offer instant rebates enabling customers to purchase a CFL for approximately \$0.99. Public Service partners with such retailers as Home Depot, Costco, Ace Hardware and King Soopers to promote the bulbs. Customers purchase a bulb as they normally would and receives the discounted price at the register. There is no rebate form to complete and mail-in.

During the fall retail promotion, Public Service participates in the ENERGY STAR Change A Light, Change the World campaign. This campaign was initiated by the Environmental Protection Agency and encourages utility sponsors nationwide to engage in retail discount promotions during the fall. The campaign leverages a nationwide effort providing economies of scale in promotion costs and offers a consistent message across various sponsors. The bulbs are promoted through advertising, signage and public relation efforts.

All Public Service electric customers are eligible to participate in the Colorado Home Lighting Product. Mail order sales are currently offered in all of Xcel Energy's service areas. Although sales of CFLs have declined nationwide, Colorado, consumers continue to have a strong interest in saving energy by using CFLs.

#### Recycling of CFLs

The CFL Recycling offer provides an environmentally friendly method for customers to dispose of CFLs. Public Service created a partnership with Ace Hardware to serve as the retail arm for the CFL recycling offering. Customers can bring spent CFLs to any Ace Hardware store 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 of the bulbs recycled through stores in our service area. Public Service was instrumental in developing this product with the Colorado Department of Public Health & Environment (CDPHE) and other Colorado utilities to implement the product statewide in 2008. Since the inception, CDPHE and one of the other utilities have discontinued their funding, however Ace Hardware saw value in the product and continues to offer the product statewide.

#### Settlement Terms

The Company agrees to expand participation in this program by 45,355 residential customers to 1.37 million bulbs from the proposed target of 1.19 million bulbs. The Settling Parties agree that the 2011 DSM electric budget shall be increased by \$185,000 to accommodate the increase in bulbs. The Company further agrees that the net-to-gross ratio to be used in calculating net energy savings associated with the Residential Home Lighting Program shall be reduced from 1.0 to .90. The Company expects that the combined effect of both these changes will be a net increase in electric energy savings of approximately 2.0 GWh.

### **B. Goals, Participants & Budgets**

#### Goals and Participants

The energy savings are developed in a prescriptive or deemed savings manner. They are derived by taking the difference between the average wattage bulb of an incandescent and CFL, and multiplying by the average hours of use. The technical assumptions used in the process are explained in detail under the Technical Assumptions section.

#### Budgets

The Home Lighting & Recycling Product budget is based primarily on the number of product participants (bulbs sold). Public Service developed the budget by combining the CFL retail discounts, promotion implementation, advertising, labor and promotion costs. The average incentive cost is applied to the bulbs sold, and the implementation, promotion and labor costs are added.

### **C. Application Process**

Customers need not apply to participate in the Home Lighting & Recycling Product. Public Service works with large retail chain stores in order to obtain maximum penetration of the

product. Most large retailers are not willing to accept coupon or rebate forms because of the increased processing time and costs associated with them. However, they are willing and supportive of discount products. To reach as many customers as possible, we work with retailers and provide a discounted price on bulbs through upstream incentives to bulb manufacturers. The discount varies depending on the type of bulb and the manufacturer/retailer partner.

CFL promotions are offered for a limited time period. They are promoted through various media. Customers need to purchase the advertised product during the promotion period at a participating retailer. The customers receive 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 CFLs, persuade them to try using CFLs in different applications throughout their homes, and encourage them to recycle the bulb when it burns out. Public Service uses the mail order sales channel to help customers locate specialty and hard-to-find bulbs. This channel also offers the benefit of home delivery. Although the sales through this channel are minimal (less than 1% of overall projected achievement), Public Service believes that it is important to encourage customers to go beyond purchasing the typical twist CFLs and thus markets a variety of models and styles. The Company will market this channel through publications, trade shows and on the Xcel Energy website.

The retail discount channel will drive 99% of the CFL sales. It offers the lowest prices and reaches more customers than the mail order channel, offering more participation and savings potential from our historical experience. Public Service will implement a minimum of two retail promotions and use several different retailers per year to achieve the goal of selling over one million CFLs. The Company will also look for opportunities to do educational, local, and community-focused events. The peak sales period for CFLs is in the fall and winter, as such, promotions are focused during these peak time periods. Public Service will market this product through bill inserts and advertising.

Public Service uses a variety of retailers to ensure we obtain optimal pricing and help reduce free-ridership, including big box, mass merchandiser, hardware and grocery outlets.

CFL Recycling is marketed locally through our retail partner, Ace Hardware. We will market the product in collaboration with the CFL promotion through bill inserts and the Xcel Energy website.

#### **E. Product-Specific Policies**

Public Service endeavors to promote ENERGY STAR lighting whenever possible. The Company uses only ENERGY STAR-certified CFLs in both the retail sales and mail order sales channels. Public Service guarantees 100% satisfaction on all CFLs through the mail order sales channel.

For the retail discount sales channel, Public Service selects retailers within the Colorado service area and assumes that the customers purchasing the CFLs live with the given area. Although there are 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 ground soil or water. Mercury Technologies also provides bins made of recycled material and recycles the bins that the bulbs are shipped in. They also 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 the E-Source, American Council for an Energy Efficient Economy (ACEEE), EPA, DOE and ENERGY STAR. Public Service also utilized results from the 2009 market research program evaluation performed by the Cadmus Group.

#### **G. Rebate Levels**

The upstream markdown incentives account for 30% to 70% of the incremental cost, depending on the bulb. The savings is ultimately passed on to the customer as an instant rebate for the Retail Discount channel.

For the Mail Order sales channel, there are no rebates. Public Service passes the wholesale price on to the customer and provides a free bulb to customers that spend \$35 or more.

## ➤ 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 electric only with electric heat residential.

The 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 energy auditing services, direct contractor resources for implementing efficiency measures recommended in the energy audit; and 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 requirements, the customer may sign up to participate in the Home Performance Product. Customers must implement at least five conservation measure improvements: three mandatory elements and two optional from those recommended by the auditor. A list of approved participating Home Performance contractors will be provided to the customers to obtain bids and contract installations.

Trade contractors interested in performing installations associated with the program are required to 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 required diagnostic testing that Public Service requires as part of the efficient measure installations. Once contractors have completed this training, they will be included on the Approved Contractor List. This list will be 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 approved installs for participants in the product.

### Settlement Terms

The Company agrees to evaluate duct testing/sealing during the first six months of 2011 and if duct testing/sealing is cost effective or has positive benefits as an additional measure in a bundled product, the Company will add this measure to its 2011 DSM Plan. This could result in additional expenditures of \$4,000 for duct testing/sealing (pre-test, sealing, and post test to confirm energy savings) and \$12,800 for increased rebates for other existing measures. Xcel also agrees to add an incentive for auditors and/or contractors that influence a customer to enroll (and the customer documents their involvement) in the program; the incentive will be paid out once the customer completes the program and receives customer rebates. The incentive amount is yet to be determined. Overall, the Company agrees that it will make these changes without

requesting any associated increase in its electric DSM budget for 2011, but will handle any increase in the forecasted costs of this program within the 115% portfolio budget flexibility. Product Development will analyze the duct testing/sealing component and if results are positive, will add the measure through posting a 60 Day Notice. The Company also agrees to consider promoting 3rd party financing options and marketing elements from Best Practices in 2011.

## **B. Goals, Participants & Budgets**

### Goals and Participants

The Home Performance Product goals were developed based on the Colorado 2009 product results and knowledge of similar products in Xcel Energy's other jurisdictions. Participants were determined using 2009 actual data and the anticipated participants in 2010. The product in 2009-10 has experienced significant challenges due to the poor economy and high costs to participate.

### Budgets

The budgets for this product are based on the 2009-10 participant and implementer costs including post improvement verification inspections. The associated costs to promote the product through print have also been included.

## **C. Application Process**

Customers interested in participating in the Home Performance product will begin by contacting Public Service and requesting their Home Energy Audit with blower door. 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 required installs along with the selected optional installs and contacts the Home Performance provider to schedule a final inspection. When the inspection is completed the Home Performance provider will submit a rebate form to Xcel Energy along with copies of invoices for all of the completed installs. The rebate is then processed and the check is issued within four to six weeks.

The Home Performance Product information, product forms and approved contractor list is available at 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 web site, advertising, and local "green" community events. We will also provide incentives to the auditors, in an effort to identify additional participants that are interested in the product, 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 that 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 is designed to increase the amount of work performed. These incentives are designed provide contractors additional motivation to promote the Home Performance Product.

#### **E. Product-Specific Policies**

Home Performance product requires that customers must have either a Standard Audit with blower door, or an Infrared Audit to qualify for participation. The audit is required prior to starting the improvements. Public Service will provide the customer a list of contractors participating in the product, however does not guarantee the contractor expertise or warrants any of the products or a service installed, 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 implement five improvements: three mandatory and two optional. The customer will receive rebates for improvements made within one year of the initial audit and verified by the auditor. The Company will not rebate for pre-existing efficient equipment, but will allow it to count towards the required or optional equipment installs.

#### **F. Stakeholder Involvement**

Public Service has met with the Cities of Boulder, Fort Collins, Greeley, and Colorado Springs, as well as the Smart Energy Living Alliance, the Center for Resource Conservation, the Platte River Valley Authority, the GEO, and EEBC 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 following table provides product participation requirements and rebates offered to qualified customers. Each rebate is prescriptive and energy savings are based on the specific technology assumptions used in the cost-benefit modeling. Rebate levels have been increased for some measures to encourage customers in whole-house improvements instead of individual upgrades.

<b>Required Improvement</b>	<b>Rebate</b>
Attic Insulation & Bypass Sealing	\$225
Air Sealing & Weatherstripping	\$150
CLFs – Quantity of 20	\$40
<b>Optional Improvements</b>	
Wall Insulation: Sub-Siding or Cavity	\$325
ENERGY STAR Set Back Thermostat	\$15
92% AFUE High Efficient Furnace	\$120
94% AFUE High Efficient Furnace	\$160
84% AFUE High Efficient Boiler	\$120
Electrically Efficient Furnace	\$130
.82 EF Tankless Water Heater	\$50
Power Vented Water Heater .65 EF or higher	\$100
ENERGY STAR Dishwasher	\$15
ENERGY STAR Clothes Washer	\$10
Refrigerator Recycling/Secondary Unit	\$35

## ➤ Insulation Rebate Product

### A. Description

The Insulation Rebate Product offers Public Service residential natural gas or electric-heated customers rebate incentives for installing insulation and air sealing 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
- Air sealing and weather stripping

Customers may use any licensed, bonded and insured insulation contractor to qualify for the rebate. A rebate application and associated invoices must be submitted to Xcel Energy for processing prior to receiving a rebate check in the mail.

### Settlement Terms

The Company agrees to evaluate insulation rebate options, including the potential for offering crawl space insulation, building envelope, ducts and new construction rebates. To the extent that such rebates can be provided cost-effectively or have positive benefits as part of a bundled product, the Company agrees to file a 60-Day Notice within the first quarter of 2011 to implement the insulation rebate options described in this paragraph.

### B. Goals, Participants & Budgets

#### Goals and Participants

The Insulation Rebate Product goals were developed based on 2009 Colorado product performance and projected market conditions.

#### Budgets

Budgets were based upon 2009 and early 2010 product performance. The Colorado heating market was also analyzed for typical insulation costs including materials and installed costs. Budgets were then created using 20% of total insulation costs to frame the annual budget for rebates in addition to promotions, labor and other program costs.

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

### C. Application Process

Qualified customers must complete a rebate application, which is available on the Xcel Energy website, or by contacting our customer call center or an insulation contractor. Customers must provide Public Service with a copy of their dated invoice reflecting the installation along with the rebate application. Qualified installs will be processed and checks issued within four to six 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 insulation contractors, retailer education, and environmentally-focused community events and home shows.

Additionally, we will incorporate communications using a channel manager to local insulation contractors so they can educate qualified customers on how they can benefit from this rebate. By collaborating on outreach to our customers, the local contractors may be able to drive more customers to commit to insulation installs. The Insulation Rebate Product will be promoted through the retailer channel through our current partnership with Wisconsin Energy Conservation Corporation (WECC) that has a field representative working with local stores.

Finally, we will initiate cross marketing efforts with other natural gas rebate products offered by Public Service. An example of this could be a winter direct mail letter that outlines existing rebate and energy efficiency products available to natural gas customers of Public Service.

#### **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. Customers must submit a copy of the paid invoice along with their rebate application form within the product timeframe. Qualified insulation contractors must be fully licensed, bonded and insured. Self-installs do not qualify for rebates.

The rebate applies to attic or wall insulation installs and air sealing and weather-stripping. Product excludes new residential construction, new residential additions, garages, sheds and workshops. 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. 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.

#### **F. Stakeholder Involvement**

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. Public Service has also met with the Governor's Energy Office who conducts similar efforts with home insulation in Colorado.

## **G. Rebate Levels**

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

## ➤ Refrigerator Recycling Product

### A. Description

Public Service's Refrigerator Recycling Product strives to decrease the number of inefficient secondary refrigerators in general use, and by doing so, deliver electric energy savings. The product is designed to reduce energy usage by allowing customers to dispose of their operable, inefficient secondary refrigerators in an environmentally safe and compliant manner. Eligible customers include Public Service residential electric customers. Customers with qualifying units will receive an incentive for their participation in 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 retain the services of a qualified vendor, utilizing an RFP process, to perform the following:

- Refrigerator collection, transportation and storage
- Qualifying refrigerator 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
- 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 market and be placed back on Public Service's grid.

### B. Goals, Participants & Budgets

#### Goals and Participants

The product goal takes into account past performance and product changes for 2010. In 2009, the product had 699 participants which represented 22% of goal. In 2010, participation at the end of the first quarter was 122, 3% of goal, which further proved the product was less popular than anticipated.

As a result, Public Service is decreasing the product goal in 2011 but plans to offer an increased incentive to customers. The Company believes with an increased incentive amount and another year of marketing and advertising to gain product awareness, the product could reach a more modest goal in 2011.

#### Budgets

The Refrigerator Recycling Product budget was developed based on our decreased participation goal and increased incentive.

### **C. Application Process**

Customers will learn about this product through various marketing channels such as bill inserts, Public Service's customer newsletter and email magazine, the Xcel Energy website, and/or or through advertising channels such as newspaper ads, online search optimization, billboards, and truck wraps.

Marketing messages will direct customers to visit [responsiblebynature.com/fridge](http://responsiblebynature.com/fridge) that will redirect them to our vendor's website or to call our vendor using a toll free phone line. During the call, 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 request. Customers will be called one to two days prior to their scheduled pick-up date 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 four to six weeks after their refrigerator has been picked up by our vendor.

### **D. Marketing Objectives, Goals, & Strategy**

The target market consists of an estimated 240,000 customers with a second refrigerator, usually located in a garage or basement area. 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 uses several advertising channels such as newspaper, billboards, and direct mail campaigns. We also market through bill inserts, newsletters, email, and the Xcel Energy website. In addition, we will work with other Public Service products to help find ways to promote this product, such as leave-behind brochures, which can be handed out when a secondary refrigerator has been identified during an audit. Similar marketing opportunities exist with other Public Service products such as the Home Performance with ENERGY STAR and some of the Low-Income Products. 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 units must meet the following requirements in order to participate in this product:

- Must be an operational secondary refrigerator unit. No primary units will be allowed.
- Operational is defined as in working order and used as a secondary unit for at least two months prior to pick up (we are trying to avoid situations where a customer recently purchased a new refrigerator and is looking for a means to dispose of their old one, with no intention of using it as their secondary unit).

- Refrigerators must be capable of freezing water.
- Refrigerator 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) when inspected at the time of pick up.
- Refrigerators must be no smaller than 10 cubic feet or no larger than 30 cubic feet.
- There will be a limit of one refrigerator per household.

#### **F. Stakeholder Involvement**

In addition, 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 receive a \$50 rebate to remove their inefficient secondary refrigerator. This is an increase from a \$35 rebate offered in 2009-10. The secondary refrigerator will be removed and properly recycled at no cost to the customer. In addition to the \$50 rebate, customers will receive the benefit of energy savings, which on average is equal to approximately \$88 annually and a responsible and environmentally friendly way to dispose of a 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 area. Public Service works with Resource Action Programs (RAP) to implement this product. RAP fully implements 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:

- Natural Resources Fact Chart
- Digital Water / Air Thermometer
- FilterTone<sup>®</sup> Alarm
- High Efficiency Showerhead (1.5 gpm)
- Kitchen Aerator (1.5 gpm)
- Toilet Leak Detector Tablets
- Compact Fluorescent Bulb (14 Watt - 60 Watt Equivalent)
- Compact Fluorescent Bulb (19 Watt - 75 Watt Equivalent)
- Flow Rate Test Bag
- LimeLite<sup>®</sup> Night Light
- Mini Tape Measure
- Parent Comment Card
- Wristband Postcard

An evaluation of the K-12 schools in Colorado indicates that there are annually about 58,000 sixth grade students. Grade six has been chosen due to alignment with Colorado State learning requirements. Specifically, the topics covered in six grade Science Standard 4 Earth Sciences class 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 do have the ability to establish their own standards, which supersede state requirements, so there could be some local areas where the product might be moved to the appropriate grade level to accommodate these local preferences. This is a rare occurrence, but a possibility nonetheless. The same content and kit measures would be provided, and the product would remain at that specific grade level in subsequent years.

This product has many advantages including: it enables an educational product to have direct-impact conservation, it helps build awareness of energy conservation to children, and it can impact customers at all income levels.

## **B. Goals, Participants & Budgets**

### Goals and Participants

Participation is based on available schools in Public Service's service area that interested in participating in this product and the overall size of the product within the Residential program. Energy savings goals are derived using the product's technical assumptions. The assumptions take into account projected installation rates of the kit measures based on 2009-10 results. The 2011 year-end results will be updated based on measurement and verification efforts implemented after the kits are distributed to students in 2011.

### Budgets

The product budget includes all costs associated with the kits, curriculum support materials for the teacher, the pre- and post-surveys, website support, postage and administrative costs from the third-party implementation vendor. The product budget was developed based on participation goals and an approximate cost per kit.

## **C. Application Process**

The teachers may enroll through various means (i.e., fax, phone, email, mail and website). If teacher response is not sufficient, RAP will redesign the marketing materials and/or offer incentives to the teachers to participate. RAP does not use incentives in every product, but if the enrollment or data collection portions are not at a satisfactory level, incentives are used to get numbers to the level desired goal by the product sponsor.

Upon enrollment, the teachers and RAP will identify the best time period in the school year to implement the product to students. School Kits are distributed just prior to the beginning of the lesson plan by teachers. RAP staff will remain in contact with the teachers via fax, phone, email, and mail at various times throughout the product to provide support for the teachers and to request the return of the surveys. Participants are provided with a toll free number to call if they need help. It can take up to three months to receive the results from each school depending on when teachers decide to begin the activity.

## **D. Marketing Objectives, Goals, & Strategy**

RAP manages all aspects of marketing and outreach for the product. They identify schools and determine the approximate number of eligible teachers and students. RAP sends out customized marketing materials to help enroll the teachers, usually during the late winter. These materials explain the product, and the fact that it's offered free of charge to their classroom, thanks to the sponsoring agency (Public Service). RAP and Public Service will work together to determine the strategic approach for selecting schools.

In 2010, in an effort to increase install rates, the Company offered a teacher promotion. The goal of the promotion was to motivate the teachers to encourage students to install the energy saving measures in their homes. This promotion is budgeted for 2011 and will be implemented if successful in 2010.

**E. Product-Specific Policies**

Only those schools that are selected to participate in the product are able to distribute the School Kits. All kits must come from Public Service's third party implementation vendor.

**F. Stakeholder Involvement**

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**

The School Kit product is fully funded by Public Service and does not provide rebates to the customer. Students and teachers involved in the product receive a free School Kit when they sign up a classroom to participate.

## ➤ Water Heating Rebate Product

### A. Description

The Water Heating Rebate Product is designed to encourage residential Colorado customers to purchase and install high-efficiency natural gas water heating equipment. The purpose of the product is to build awareness of energy efficient water heater options and promote market transformation through increasing customer demand for high-efficiency equipment in the marketplace. By purchasing and installing a qualifying water heater, customers can receive a rebate ranging from \$25 to \$450, depending on the type of equipment.

Electric heat pump water heaters are being added to the 2011 product. The measure is intended to motivate homeowners to replace older, low-efficiency electric water heaters with a new high efficiency heat pump water heater. When installed in conditioned space inside the home, an electric heat pump water heater will provide a cooling benefit during the summer season and a small heating penalty during the heating season. This measure will only be rebated for the replacement of existing electric water heaters. Gas to electric switching will not be rebated. Eligibility requirements for participation include having a residential natural gas, or electric account with Public Service, where Xcel Energy is the customer's primary provider of heat. The product is applicable only for the purchase of qualifying new standard tank or tankless water heaters installed in new or replacement applications.

#### Settlement Terms

The Company agrees to expand this program to 200 Heat Pump water heaters. The Settling Parties agree that the 2011 DSM electric budget shall be increased by \$105,000 to accommodate the expansion of this program. The Company projects that the expansion of this program will result in increased energy savings equal to 467,969 kWh.

### B. Goals, Participants, & Budgets

#### Goals and Participants

The Water Heater Rebate Product goals and participants were established based on Colorado 2009-10 product performance data as well as available sales data on the new types of water heaters added to the program. The target for tankless water heaters have been reduced due to their impact on the cost effectiveness on the product.

#### Budgets

Budgets were developed based on the expected costs per participant and on how the product performed in 2009-10. This product is often cross-marketed with the Heating System Rebate Product and the Insulation Rebate Product as yet another way to save on natural-gas costs in the home. The budget also includes promotion dollars needed to engage HVAC contractors that sell qualifying equipment. The channel manager communicates to contractors through newsletters and training sessions to build contractors knowledge so they can sell the product rebate to their

customers. The budget increase of \$105,000 in the settlement will account for an additional 180 units costing \$90,000 in rebate dollars. The remainder of the budget increase of \$15,000 will be spent on conservation promotion dollars. After speaking with several big box retailers, it was found that the majority of these stores have not started stocking heat pump water heaters. The additional promotional dollars will help create awareness of the available rebate a persuade customers to speak directly to their retailer about purchasing a new heat pump water heater.

### **C. Application Process**

The customer learns about the product primarily through bill inserts, the HVAC contractors and large retailers that sell water heaters. The typical sales cycle includes a consumer hiring an HVAC technician, from whom the water heater is purchased unless it was purchased by the customer at a retail site. Following installation, a completed Public Service application and appropriate invoices are submitted to Public Service for processing. 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 customer's Public Service account number, mailing address (if separate from installation address), customer signature, contractor signature (unless self-installed), and unit's efficiency level.

Equipment eligibility is determined by using the Gas Appliance Manufacturers Association (GAMA) directory, which is now part of the Air Conditioning, Heating and Refrigeration Institute (AHRI) in a combined online web site. The product in 2011 will expand to include the ENERGY STAR web site as a resource to verify equipment that cannot be found in GAMA. Public Service will review each application, check to ensure all required information is provided, match the invoice to the application form, and determine the exact amount of the rebate. Customers can expect to receive a rebate in four to six weeks after submitting the application. Rebates for new home construction are negotiated between the builder and resident or new homebuyer to determine who receives the rebate.

### **D. Marketing Objectives, Goals, & Strategy**

The product's objectives are to increase demand for high-efficiency water heating equipment among Public Service customers, and through consumer demand assist the overall effort to increase the availability of high-efficiency water heaters in the marketplace. The goal is to help customers reduce their energy usage through energy efficient water heaters and educate them about the long-term benefits of energy efficiency.

Marketing tactics are in place to assist the product meeting its goals, and these include the marketing communications strategies of Public Service bill inserts, Xcel Energy website, tradeshow and HVAC communications, HVAC relationship building, and through point-of-purchase materials at larger retailers such as Home Depot and Sears.

Specifically:

- Public Service bill inserts are timed according to appropriate seasons for the equipment. Since water heating is a year-round demand, this provides flexibility with marketing

seasonality. To maximize use of bill insert expenses, the Water Heating Rebate Product is cross-marketed in bill inserts along with Heating System Rebates.

- Separate Internet pages for water heating are developed for customers and energy partners—installers, contractors and distributors. The pages are updated according to equipment efficiency changes and available promotions.
- The Public Service Channel Manager will participate in tradeshows 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.
- Point of purchase materials, namely application forms and product details are made available at larger retailers.

#### **E. Product-Specific Policies**

Product-specific policies include a pre-determined date on which applications are due for the previous year's installations. The date is July 31 of the following year, keeping in mind that any product and budget changes for the next filing year may alter customer rebate amounts. The water heating equipment must be purchased and installed within the product's calendar year, and customers and installers must adhere to all product rules that are listed on the reverse side of the rebate application form. An invoice for the equipment is required along with the application form. The forms are three-part forms, allowing the customer and installer to retain their own copies.

High-efficiency water heating equipment installed must match specifications for equipment installed in residential homes and be certifiable via the online AHRI/GAMA site or the ENERGY STAR web site before a rebate is provided to the customer. This product requirement is communicated to the customer through the installer, on the Xcel Energy web site, through bill inserts, and at many of the larger retailers where customers may be purchasing their own equipment.

Those customers applying for water heater rebates will be rebated according to the current calendar year's rebate schedule. The current calendar year refers to the year in which the application is processed by Xcel Energy. The equipment must meet the minimum efficiency requirement. Customers are allowed to submit for more than one water heater rebate at a time, as some larger homes do require more than one.

#### **F. Stakeholder Involvement**

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. Ongoing consumer research studies through Public Service are used to assist product modifications and enhancements. Public Service participates with the Consortium for Energy Efficiency (CEE) related to water heating technologies and efficiencies.

## G. Rebate Levels

Public Service has a tiered rebate schedule in Colorado allows for a minimum efficiency of 0.62 Energy Factor (EF) for standard tanks. The additional tank tiers are 0.65 EF, 0.67 EF. Tankless water heaters are rebated at an EF of 0.82. Additionally, electric heat pump water heaters will be rebated.

The new ENERGY STAR minimum efficiency will start at .67 in September 2010. Public Service has researched current availability of units at or above this level with national and local energy efficiency and trade organizations. Due to the lack of qualifying units, Public Service will delay changing the program to start at 0.67 in 2011. Instead, the Company will reduce or keep the 0.62 and 0.65 tank rebates to begin educating customers and retailers about the new standards. In addition, rebates for the .82 tankless water heater will be reduced in 2011 due to their negative impact to the TRC for the entire product in 2009-10.

Minimum requirements for energy efficiency units through the Water Heating Rebate Product are as follows along with recommended rebate amounts.

**Table 23: Rebate Schedule for Colorado High-Efficiency Water Heating Equipment**

<b>Water Heater Type</b>	<b>Rebate</b>
Standard Tank Water Heater 0.62 EF	\$25
Standard Tank Water Heater 0.65 EF	\$70
Standard Tank Water Heater 0.67 EF	\$90
Tankless Water Heater 0.82 EF	\$50
Electric Heat Pump Water Heater	\$450

## ➤ Saver's Switch®

### 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. In the past ten years, Public Service has declared an average of 10 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 since 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 88% of the 120,000 switches in the field (as of December 31, 2009) 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. The 2011 Saver's Switch goal is unchanged from 2009 and 2010 goals at 19,500 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. The number of participants expected for the year drives these costs. As the recruitment goal is unchanged from 2009 and 2010, the overall spend is largely unchanged, with the exception of the rebate amounts.

### C. Application Process

The Saver's Switch Product is promoted to residential customers using a variety of channels including bill inserts, company newsletters, direct mail and telemarketing. 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 6 to 8 weeks. Due to variations in air conditioner age and where it is located next to the house, the installer will make the final on-site determination as to whether the customer qualifies for the product.

#### **D. Marketing Objectives, Goals, & Strategy**

Based on an analysis of customer energy usage during the summer months, Public Service estimates that about 410,000 residential electric customers in Colorado have central air conditioning. Of those, about 120,000 were signed up for the product at the end of 2009. 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 2011, Public Service will continue an intense promotional product with activities including:

- Direct mail, including up-front incentives to new participants
- Outbound telemarketing
- E-mail marketing
- Bill inserts

#### **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 1<sup>st</sup> 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 2011 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 2009-10 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, Mile High Youth Corps and the Governor’s 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 portfolio<sup>18</sup>. 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 24: Low-Income Program Product Rankings**

Low-Income Program	Product Ranking	Type of Product	Fuel Market Segments Served
Energy Savings Kit	2	Prescriptive	Electric/Gas
Multi-Family Weatherization	26	Prescriptive	Electric/Gas
Non-Profit Weatherization	35	Prescriptive	Electric/Gas
Single-Family Weatherization	10	Prescriptive	Electric/Gas

<sup>18</sup> 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 GEO, EOC, low-income agencies, and vendors to further refine the goals and budgets.

The administration budget was increased from 2010 for the four products due to the challenges of reaching qualified customers, as well as the customized process involved when evaluating the Multi-Family and Non-Profit products.

**Table 25a: 2011 Electric Low-Income Program Budgets and Goals**

2011	Electric Participants	Electric Budget	Customer kW	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
<b>Low-Income Program</b>						
Energy Savings Kit	7,975	\$758,578	25,438	437	7,579,429	3.76
Multi-Family Weatherization	888	\$164,619	347	43	504,571	1.55
Non-Profit Energy Efficiency	322	\$312,843	433	68	722,935	1.39
Single-Family Weatherization	2,545	\$1,141,385	3,355	333	4,261,979	1.88
<b>Low-Income Program Total</b>	<b>11,730</b>	<b>\$2,377,425</b>	<b>29,574</b>	<b>881</b>	<b>13,068,915</b>	<b>2.36</b>

**Table 25b: 2011 Gas Low-Income Program Budgets and Goals**

2011	Gas Participants	Gas Budget	Net Annual Dth Savings	Annual Dth/\$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
<b>Low-Income Program</b>						
Energy Savings Kit	14,025	\$677,008	30,597	45,195	\$1,169,916	2.50
Multi-Family Weatherization	940	\$602,448	6,788	11,267	\$141,828	1.13
Non-Profit Energy Efficiency	868	\$658,920	6,972	10,581	\$139,929	1.11
Single-Family Weatherization	1,455	\$2,465,171	33,171	13,456	\$673,363	1.15
<b>Low-Income Program Total</b>	<b>17,288</b>	<b>\$4,403,546</b>	<b>77,528</b>	<b>17,606</b>	<b>\$2,125,035</b>	<b>1.28</b>

## 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 GEO, 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 GEO, 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 2011 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 in a kit that can be 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 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. If the customer chooses to receive a kit, they will send the business reply card, postage pre-paid, to the third party implementation vendor. Customer will receive a kit within 6-8 weeks.

The Energy Savings Kits will include the following electric and natural gas efficiency measures:

- High Efficiency Showerhead (1.5 gpm)
- Kitchen Aerator (1.5 gpm)
- Bathroom Aerator (1.0 gpm)
- Four (4) Compact Fluorescent Bulbs (14 Watt - 60 Watt Equivalent)
- Two (2) Compact Fluorescent Bulbs (19 Watt - 75 Watt Equivalent)

### B. Goals, Participants & Budgets

#### Goals and Participants

The Company determined the number of kits to send out based on 2009 product performance and projections for possible participation in 2011. Participation remains constant with the 2010 goal for the 2011 program year. Public Service also reviewed the entire Low-Income Program Portfolio for providing a thorough offering to the customer group. Based on this analysis, the Company believes the Energy Savings Kit Product is an excellent opportunity to impact a large population of income qualified customers.

Energy savings goals for 2011 included installation rates that occurred in the 2009 program. As a result, the energy savings in the 2011 technical assumptions are lower for most measures compared to what was filed for the 2009-10 programs.

#### Budgets

The Energy Savings Kit Product budget for 2011 is based on the number of participants and kits. The product budget covers kit contents, education, distribution, and the fees from the third party implementation vendor.

### C. Application Process

Customers who have applied for LIHEAP funding, energy assistance, or LEAP funding and live in Public Service's territory will be sent an offer via mail to qualify for 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.

#### **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 energy assistance funding. Public Service will explore in the future 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.

#### **F. Stakeholder Involvement**

Public Service worked with an external consultant in 2009 to determine the best “kit” contents for customers in the Colorado area. The Company will continue to work with local and state agencies to determine additional kit content needs.

#### **G. Rebate Levels**

Public Service will fund 100% of the cost of the Energy Savings Kit. Hence, there will be no rebate provided to customers.

## ➤ **Multi-Family Weatherization Product**

### **A. Description**

The Multi-Family Weatherization Product will offer natural gas and electric efficiency measures to low-income multi-family buildings. This is somewhat similar to the Single-Family Weatherization Product, but differs in that these homes have common areas, greater square footage, and more appliances and potential measures.

The Multi-Family Weatherization components will include, but are not limited to:

#### Natural Gas Measures

- Ceiling insulation
- Wall insulation
- Storm Windows
- Air Leakage Reduction

#### Electric Measures

- Refrigerator Replacements
- Compact Fluorescent Lighting (10 bulbs per unit)
- Boiler Efficiency Upgrades

The Multi-Family Weatherization Product will be run in partnership with Energy Outreach Colorado. Public Service funds will supplement federal weatherization grants to produce incremental, cost-effective gas and electric savings. The EOC works jointly with GEO 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.

### **B. Goals, Participants & Budgets**

#### Goals and Participants

Participation for the Multi-Family Weatherization Product was created using the 2009 actual projects completed and through discussions with the EOC on anticipated product applicants.

#### Budgets

Budgets for this product were developed based on the actual data from the 2009 product results and future projections. Participation rates were established for 2011 in partnership with the EOC in relation to participation in the 2009 product.

### **C. Application Process**

To participate in the Multi-Family Weatherization Product, customers apply through the EOC. Applications are reviewed by EOC. 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 50% low-income.

#### **D. Marketing Objectives, Goals, & Strategy**

The overall marketing objective is to increase and expand education among the low-income customers on the importance of energy efficiency. Public Service will also work to educate customers on the value of taking action to improve efficiency in their homes. With the four low-income products available in this portfolio, Public Service hopes to reach key areas within the Low-Income Program.

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. In Xcel Energy's Minnesota low-income product, the Company partnered with Meals On Wheels, having an informative brochure of low-income services included with each meal delivered to homes in the Xcel Energy service territory. This and other similar tactics will be explored.

#### **E. Product-Specific Policies**

In order to participate, customers must be owners of multi-family housing 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 GEO, 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. In addition, Public Service will continue to evaluate historical projects with EOC to determine measure trends.

#### **G. Rebate Levels**

For the Multi-Family Weatherization Product, Public Service will evaluate each project on a custom basis. Projects will be bundled in order to pass the total resource cost test. Testing, engineering and project management fees may be included in the project costs.

## ➤ **Non-Profit Weatherization Product**

### **A. Description**

The Non-Profit Weatherization Product will provide funding for energy efficiency retrofit improvements 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 for those who are on the brink of homelessness. Public Service will work with Energy Outreach Colorado to support the Non-Profit Weatherization product. EOC utilizes funds through their existing NEEP offering (Non-Profit Energy Efficiency Program) targeting non-profits.

The Non-Profit Weatherization components will include, but are not limited to:

#### Natural Gas Measures

- Ceiling insulation
- Wall insulation
- Storm Windows
- Air Leakage Reduction
- Boiler Efficiency Upgrades

#### Electric Measures

- Refrigerator Replacements
- Compact Fluorescent Lighting (10 bulbs per unit)

Qualifying facilities will receive an energy audit, as well as funding for subsequent energy efficiency upgrades. Testing, engineering and project management fees may be included in the project costs.

### **B. Goals, Participants & Budgets**

#### Goals and Participants

The goals were derived in conjunction with EOC based on a historical approved and completed projects in 2009. Participation for the 2011 product was created using the 2009 actual participation rates and in discussions with the EOC on anticipated product applicants.

#### Budgets

The budget for 2011 was based on historical donations for the product. Public Service reviewed previous amounts spent to improve non-profit organizations in Colorado and based funding on overall improvements.

### **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 also 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 Xcel Energy website or through participating low-income providers. The online application must also be accompanied by a third-party 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 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 eligibility requirements must be met:

- Customers must receive electricity and/or natural gas from Public Service
- Operate 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.
- 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 energy efficiency measures must be met:

- Be recommended by an independent energy auditor based on energy conservation calculations that are available for review;
- Reduce the use of energy (natural gas or electricity or both) provided by Public Service to the facility.

In addition, participating low income agencies must be amenable to the following:

- Agree to 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.
- 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 evaluate historical projects with EOC to determine 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. Projects will be bundled in order to pass the total resource cost test. 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
- Ceiling insulation

#### Electric Measures

- Refrigerator replacements
- Compact fluorescent light bulbs (installment of 16 per home).

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 the Governor's Energy Office (GEO). The Company's funds will supplement federal weatherization grants to produce incremental, cost-effective gas and electric savings. The GEO 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 GEO with the local contracts.

### **B. Goals, Participants & Budgets**

#### Goals and Participants

Goals and participation rates were established in partnership with GEO and the low-income agencies using historical participation in the 2009 Single Family Weatherization Product as a guide, as well as recommendations from the GEO 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. Information will be provided to new customers as they sign up for LIHEAP funding.

#### **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. In Xcel Energy's Minnesota low-income product, the Company partnered with Meals On Wheels, having an informative brochure included with each meal delivered to homes in the Company's service territory. This and other similar tactics will be explored.

#### **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 GEO, 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 GEO has contracted with low-income weatherization agencies to perform weatherization measures. These contractors are funded through the GEO 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. The following table below provides the incremental cost of each measure. The measures that were considered replacement on burnout do not include a labor and equipment rental cost, as the measure would have to be replaced regardless of whether there is an efficiency upgrade or not.

**Table 26: Incremental Cost of Efficiency Measures**

<b>Efficiency Measure</b>	<b>Incentive to Agency</b>
Ceiling Insulation R-11 to R-38	715
Wall Insulation R-3 to R-11	670
Furnace AFUE 78 to 92	623
Refrigerator Replacements	631*
Compact Fluorescent Lighting Package 16 Bulbs	48

\*Includes Incentive of \$561 and Service Fee of \$70 for removal, disposal

## **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 four customer-facing products, including: Business Energy Analysis, Customer Behavioral Change – Business, Customer Behavioral Change – Residential, and Residential Home Energy Audits. 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.

### **B. Overall Goals, Participants & Budgets**

Indirect products and services have no savings goals, with the exception of three 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 27a and 27b provide the overall Indirect products and services goals, participants, and budgets if applicable, broken out by product and service.

**Table 27a: 2011 Electric Indirect Products & Services Goals & Budgets**

2011	Electric Participants	Electric Budget	Customer kW	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
<b>Indirect Products &amp; Services</b>						
<b>Education/Market Transformation</b>						
Business Energy Analysis	400	\$1,045,914				
Customer Behavioral Change - Business	1,385	\$153,756				
Customer Behavioral Change - Residential	34,000	\$982,682				
Residential Home Energy Audit	3,520	\$602,313				
<b>Education/Market Transformation Total</b>	<b>39,305</b>	<b>\$2,784,665</b>				
<b>Planning and Research</b>						
DSM Planning & Administration		\$283,167				
Program Evaluations		\$265,162				
Measurement & Verification		\$79,142				
DSM Market Research		\$263,243				
<b>DSM Product Development</b>						
Product Development - General		\$950,056				
Central AC Tune-up Pilot	1,000	\$277,566	344	254	262,783	1.19
Energy Feedback Pilot	50,000	\$329,450	788	120	7,482,526	1.00
ENERGY STAR Retailer Incentive Pilot	50,000	\$2,282,689	5,809	1,006	8,084,157	1.58
In-Home Smart Device Pilot		\$594,068				
		\$1,943,288				
SmartGridCity Pricing Pilot		\$0				
		\$6,377,117				
<b>DSM Product Development Total</b>	<b>101,000</b>	<b>\$4,433,829</b>	<b>6,942</b>	<b>1,379</b>	<b>15,829,466</b>	
		\$7,267,832				
<b>Planning and Research Total</b>	<b>101,000</b>	<b>\$5,324,543</b>	<b>6,942</b>	<b>1,379</b>	<b>15,829,466</b>	
		\$10,052,497				
<b>Indirect Products &amp; Services Total</b>	<b>140,305</b>	<b>\$8,109,208</b>	<b>6,942</b>	<b>1,379</b>	<b>15,829,466</b>	

**Table 27b: 2011 Gas Indirect Products & Services Goals & Budgets**

2011	Gas Participants	Gas Budget	Net Annual Dth Savings	Annual Dth/\$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
<b>Indirect Products &amp; Services</b>						
<b>Education/Market Transformation</b>						
Business Energy Analysis	100	\$190,109				
Customer Behavioral Change - Business	593	\$69,324				
Customer Behavioral Change - Residential	34,000	\$918,294				
Residential Home Energy Audit	3,960	\$697,548				
<b>Education/Market Transformation Total</b>	<b>38,653</b>	<b>\$1,875,275</b>				
<b>Planning and Research</b>						
DSM Planning & Administration		\$166,721				
Program Evaluations		\$665,162				
Measurement & Verification		\$39,188				
DSM Market Research		\$263,243				
<b>DSM Product Development</b>						
Product Development - General		\$365,638				
Central AC Tune-up Pilot						
Energy Feedback Pilot	50,000	\$195,610	35,685	182,429	\$33,596	1.17
ENERGY STAR Retailer Incentive Pilot						
In-Home Smart Device Pilot						
SmartGridCity Pricing Pilot						
<b>DSM Product Development Total</b>	<b>50,000</b>	<b>\$561,248</b>	<b>35,685</b>	<b>63,582</b>		
<b>Planning and Research Total</b>	<b>50,000</b>	<b>\$1,695,562</b>	<b>35,685</b>	<b>21,046</b>		
<b>Indirect Products &amp; Services Total</b>	<b>88,653</b>	<b>\$3,570,838</b>	<b>35,685</b>	<b>9,993</b>		

### **C. Market Analysis**

Indirect serves all markets addressed by Public Service's direct impact products. During 2011, 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.

## ➤ 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 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 core energy efficiency opportunities. Energy Analysis is a gateway product and a perfect 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 products. Participation is heavily dependent on promotion by internal Public Service representatives as well as the trade allies and outside customer assistance products.

The Energy Analysis Product offers three different types of assessments: online assessments, on-site 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 EnerSys, a third-party provider. This online assessment interviews the customer about his or her 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 industry average derived from Energy Information Administration (EIA) data. Most of the EIA's information about commercial buildings and their energy use comes from the Commercial Buildings Energy Consumption Survey which collects energy-related building characteristics data and energy consumption and expenditures data for commercial buildings in the United States.
- **On-site energy assessments:** Public Service sends an energy engineer to a customer's facility to conduct an onsite energy assessment, which is a comprehensive audit of the facility and energy use. The customer receives a detailed report including energy saving opportunities with the associated payback, savings, cost and potential rebate information for each opportunity. Three companies were selected through an RFP process to perform the onsite assessments across Public Service's Colorado service area.
- **Engineering assistance studies:** Provides guidance to a customer seeking to replace or upgrade 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

2011 goals for participation are set equal to 2010 levels. The 2010 goals were derived from looking at past participation, a review of the market potential in Colorado, and experience from Xcel's other jurisdictions on this product offering.

### Budgets

The Energy Analysis budget was developed based on the participation goal and historical data for the product. The three, third-party auditors established a pricing schedule based on the size and location of the building. The product team used this information, combined with historical data, to estimate an average assessment cost. The rebate level and participation goals are expected to stay the same for the next two years.

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 product 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 programs such as the City of Boulder's Building Performance Program, 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, preapproval is not necessary. Customers will find the free online tool linked to the Xcel Energy website.

Onsite assessments and Engineering Assistance studies require preapproval prior to project completion. Customers may access the onsite assessment preapproval application on the Xcel Energy website and work with their Public Service representative to complete the preapproval 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. The preapproval application for engineering 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 preapproval, because a project proposal including the scope of work must be included with the preapproval 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 of Boulder's Building Performance Programs and Free Plus, 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, are popular with small business customers. The most participants are expected to be in the following segments: churches, restaurants, manufacturing, office/warehouses, and apartment buildings. Conversely, engineering studies are popular with larger commercial and industrial customers.

Methods used to reach and educate customers:

- Xcel Energy website: Provides a description of the product offering and links to product collateral.
- Collateral available: Product brochure, case study, applications, frequently asked questions and study templates so the customer has an idea of the information they will receive by participating.
- 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.
- Customer seminars: Educate customers about the product offering and benefits.

#### **E. Product-Specific Policies**

Indirect impact products are different from traditional products because there is no immediate savings associated to the product efforts or that the savings are too difficult to measure and quantify. Energy Analysis is meant to open the door for customers to participate in Public Service's other energy efficiency product offerings and rebates. Once an onsite assessment or engineering report is complete the customer will receive a summary of energy conservation opportunities that could be prescriptive, custom or involve recommissioning. 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 continues to work closely with the contracted audit trade allies to streamline its assessment process. The product is also open to 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 13% of the actual cost of the audit. Public Service will pay up to 75% of the engineering study cost; funding is based on the potential energy savings of the project and the cost of the study.

## ➤ **Market Transformation: Customer Behavioral Change**

### **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 in the Public Service gas DSM Rulemaking: “‘Market Transformation’ means 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.” (4 CCR 723-4-4751(m))

The initial goal of the Customer Behavioral Change (CBC) 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 resource, 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 CBC 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 buyers 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 CBC 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 compel them to action to reduce their energy usage.

Messages and themes of the CBC 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 Customers Behavioral Change Product will emphasize:

- 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.

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. The following sections describe some of those partnerships for both business and residential behavior change products.

Successful market transformation efforts are typically long-term in nature and utilize methods to understand customer acceptance and behavioral change. Therefore, the CBC 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 generic efficiency and conservation topics.

Customer Behavioral Change 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 fairs and workshops, as well as requests for further information from direct mail 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 CBC Product by residential and business sectors.

### **Residential Customer Behavioral Change 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 propelling customers to take steps to reduce energy usage. Messages and themes through the residential portion of CBC 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.
- Publication of reference education materials (in English and Spanish).

Xcel Energy 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 CBC Product in Colorado.

### **Business Customer Behavioral Change 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.
- Customer employee behavior change campaign (BC Hydro Power Smart model).

E-Source 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 a one-day training session. 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. Goal, Participants & Budgets**

### Goals and Participants

The Customer Behavioral Change Product 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 2011 reflect an increase from the first two years of the product due to the increased number we have been able to interact with through event marketing.

### Budgets

Public Service's budget for this product was determined through estimates of material and 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 2011 will increase in order to expand into television coverage to further broaden and develop energy efficiency messaging to residential customers.

The residential budget for Customer Behavioral Change 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 – heating, water heating, insulation, and appliances compared to electric – 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, & Strategy**

The primary objective of the Customer Behavioral Change Product is to initially 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 to thereby reduce their energy consumption. 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 Governors' Energy Office (GEO), Smart Energy Living Alliance, the Center for Resource Conservation, and local government and non-governmental agencies to drive home the message so the customer isn't 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 Customer Behavioral Change Product.

**Table 28a: Residential Customer Behavioral Change Communication Tactics**

<b>Residential Customer Communications Tactics</b>	<b>Description</b>
Energy Update Newsletter/Conservation Tips	Energy efficiency messages delivered through newsletter on bimonthly 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 Cherry Creek Arts Festival New West Fest Western Welcome Week Colorado Fall Home Show Fruita Fall Festival Jack O’Launch Trail of Lights
Enhanced New Mover Communications	Target customers moving to new residences to educate and engage them in efficiency before they make key decisions regarding their house.
On-hold Messaging	Utilize call center on-hold messaging to communicate to customers re: conservation.
Enhanced Web (home page) Messaging	Enhance existing Web presence to promote conservation and tie to branding campaigns.
Bill Messages	Use to coincide with bill inserts and seasonal messaging.
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 CBC 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 Customer Behavioral Change message:

**Table 28b: Business Customer Behavioral Change Communication Tactics**

<b>Business Customer Communications Tactics</b>	<b>Description</b>
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"> <li>• Government</li> <li>• Education</li> <li>• Hospitality</li> <li>• Nonprofit</li> <li>• Small Business Association</li> <li>• Chambers of Commerce</li> <li>• Building Owners and Managers Association</li> <li>• National Association of Industrial and Office Properties</li> </ul>
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-Specific Policies**

This product has no specific policies.

**F. Stakeholder Involvement**

Public Service will collaborate on messaging with the GEO and other consumer organizations to deliver consistent energy efficiency education to our business and residential customers. The Company will meet with GEO 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.

## ➤ Residential Home Energy Audit

### A. Description

The Home Energy Audit Product offers Public Service residential customers three options for energy-use 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 in-home Standard Audit are:

- Customer energy bill analysis
- Client assessment and education
- Shell assessment
- Mechanical and electrical equipment review
- Written energy savings recommendations

The customer has the option to add a blower door 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 recommendations to the homeowner and a final review of the customer's questions and concerns. The auditor will email the completed report to the customer and leave behind efficiency product collateral on relevant rebate products. The entire in-home audit process takes about two hours to complete.

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 increasing their potential savings. As with the Standard Audit product offerings, customers pay for this audit on their Public Service bill.

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 an advanced 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.

## **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. The participation goal was determined by the product's 2009 & 2010 in-home energy audit product performance plus a 10% increase.

### Budgets

The Home Energy Audit Product budget was developed based upon the desired participation level. Using the products previous years' performance and marketing needs as a proxy, the cost of the audit, product collateral, and all necessary marketing efforts were included.

## **C. Application Process**

The product will be promoted to a customer through seasonal bill inserts, trade allies, advertising, and the local media. The customer will contact Public Service through the customer call center or by submitting a reply card to a marketing campaign and will request a specific type

of audit. The customer is then contacted for scheduling their audit within two weeks of receiving the request. Typically, audits are completed within four weeks of the original request date. This timeline is established as part of the product RFP contract. Customers are limited to one audit per three-year period, unless they move to a new address.

Once the completed audit report is submitted to Public Service, the processing team will enter the audit data into our customer database and bill the customer for their audit through our internal billing system. Typically, customers will see the audit charge on their monthly Public Service bill within the first month of billing cycle after the audit is completed. Again, timely entry of audit data and billing is tied to the audit provider's RFP contract.

#### **D. Marketing Objectives, Goals, & Strategy**

Completed audits and monthly totals are processed and reported in our customer database on a monthly basis. A quarterly Customer Satisfaction Survey will be put in place to provide the company quantitative feedback around product offering.

Historically, Xcel Energy's Home Energy Audit Product has proven to be a popular offering in both Minnesota and North Dakota, and now Colorado. This product will be marketed primarily through seasonal bill inserts, advertising, direct mail, 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. Public Service will implement direct mail tactics targeting high usage customers as a contingency plan if the product is not meeting its monthly goals. Product activity will be monitored on a monthly basis to quickly implement the above strategies, if warranted.

To confirm the continuing quality of the product, Public Service will implement a quarterly Customer Satisfaction Study to gauge customer satisfaction with the Home Energy Audit transaction, 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 audit 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. Public Service will offer the Standard Audit without blower door and the Standard Audit with blower Door to qualified customers once every three years.

Qualified auditors have a minimum of BPI or RESNET certification and five years of audit experience, or comparable training/in-field experience to provide audit services for this product.

#### **F. Stakeholder Involvement**

Public Service collaborates with trade allies such as Energy Efficiency Business Coalition (EEBC), Governor's Energy Office, local communities, and contractors. The product holds regularly scheduled monthly meetings with product partner, The Center for Resource Conservation, of Boulder County. The product is presented and given quarterly updates to interested parties at the DSM Roundtable.

#### **G. Rebate Levels**

To simplify the process for homeowners, the product will be made available at a reduced price instead of providing customers a rebate/coupon to be used to lower the price. One reason this method was selected was that offering a rebate to customers will require increased processing costs for the product, which will reduce the number of audits able to be completed each year. The Company understands that the actual price for an in-home audit will vary based on 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.

The Home Energy Audit Product will include a customer co-pay of \$60 for the Standard Audit without blower door test, \$90 for the Standard with blower door audit, and \$120 for the Infrared audit offering a 60% discount for these services. Public Service has found it valuable to charge customers a co-pay fee for the product services so that they are fully invested in the outcome of the audit. The audit fee for the Standard audit without blower door will be waived for low-income qualified customers. Public Service will not waive the fee for the Standard audit with blower door or the Infrared audit offerings.

In addition to the in-home audits, a free online audit is available on the Xcel Energy web site. 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 program 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 programs are listed at the end of the online audit.

## ➤ 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 areas so that comparisons are possible.

In the 2011, the Market Research group plans to conduct several projects and studies as listed below.

- *Residential DSM Awareness, Attitude & Usage (AAU) Studies [2011]* – Quantitative research to gauge the energy awareness and energy efficient behaviors of Residential Public Service customers; (\$50,000).
- *Home Energy Audit Customer Satisfaction Tracker [2011]* – Gauge satisfaction with the Home Energy Audit product; (\$47,250)
- *Low Income Energy Savings Product Tracker [2011]* – Identify and quantify those specific aspects of the customer's relationship with the Company that are critical to product continuity and satisfaction; (\$32,550)
- *Contractor Research [2011]* – Qualitative research with Public Service trade ally partners to gauge DSM Product success and opportunities for improvement; (\$20,000)
- *Dun & Bradstreet Business List Purchase [2011]* – Quarterly update of firmographic information for existing customer business customers lists to use for understanding, profiling, and targeting marketing efforts; (\$52,500).
- *E-Source Membership-Colorado Portion [2011]* – Robust repository of secondary and syndicated research resources for national marketing studies, research services, and consulting services; (\$75,250).

### B. Goals, Participants & Budgets

#### Goals and Participants

This is an indirect product and as such, has no estimated energy or demand savings. Participants are based on the products participants.

#### Budgets

The DSM Market Research budget was estimated based on actual 2009 costs from Colorado, as well as from historical cost of similar studies in other service areas. Projects that cross jurisdictions had costs allocated according to the estimated percent of accounts Public Service represents in Xcel Energy's entire service area. Internal labor for administering and managing

these projects is also included in the Administration & Product Delivery category of the budget. The budgets for each project were split equally between gas and electric for all studies.

**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, the DSM Market Research Product does not have marketing objectives or goals.

**C. Product-Specific Policies**

This product does not have any specific policies.

**D. 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.

**E. Rebate Levels**

This product does not provide customer rebates.

## ➤ **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 as needed. 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 in outside 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 labor and expenses for both internal and external resources. Public Service anticipates that these costs will be relatively constant from 2010 to 2011.

### **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 is not customer-facing, and therefore, has 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 and 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.

## ➤ 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 submit 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 is split into two groups, those that work on energy efficiency, and those who work on load management. The efforts of each group are discussed in further detail below:

#### 1. Product Development for Load Management

The Load Management Product Development group will be searching for, evaluating, and developing new opportunities that can help improve Public Service's load management products with new offerings and/or technologies.

##### *Examples of New Load Management Technologies and Rate Design*

###### Residential:

- Review and develop advances in air conditioning control strategies software and hardware).
- Identify and develop options for advanced appliance controls (i.e. ZigBee chips or other systems) 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.
- Scrutinize customer and load aggregation strategies and options.
- Identify battery and flywheel technology for load management.

#### 2. Product Development for Energy Efficiency

The Energy Efficiency Product Development group is responsible for developing new energy efficiency product offerings. For 2011 and beyond, Product Development will be a major contributor in the Company's efforts to achieve its increasing conservation 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. Further described below are three energy efficiency activities and five pilots:

- Emerging Technologies Grant Funding
- Variable Frequency Drive Study
- Whole House Energy Efficiency and Comfort Study

*Pilots*

- Energy Feedback Pilot
- ENERGY STAR Retailer Incentive Pilot
- Air-Conditioning Tune-up Pilot
- In Home Smart Device Pilot
- SmartGridCity Pricing Pilot

**a. Emerging Technology Grant**

In, 2009 and 2010, the Energy Efficiency Product Development group began an initiative focused on tracking energy efficiency emerging technologies and providing grant funding to external parties to help fund commercialization of energy efficiency emerging technologies. For 2011, Public Service intends to continue this effort by providing grant funding to external parties for development of technologies that are close to commercialization, i.e. those that just need a little push to be considered commercially viable. For 2011, Public Service will fund energy efficiency emerging technology grants with an electric budget of \$350,000 and a gas budget of \$150,000.

**b. Variable Frequency Drive (VFD) Study**

The VFD Study will collect and evaluate data related to VFD penetration and energy efficiency opportunities for customers with multiple motors. The primary goals of the VFD Study are to increase our understanding of the VFD marketplace and energy savings potential, and to determine if targeting Engineering Assistance Studies to potential VFD customers is warranted. Specifically, this product will

- Collect additional motor population data (such as number and types of drive installation opportunities by customer SIC code, etc.) to refine and verify our understanding of the Colorado market
- Identify opportunities to increase conservation credit and net economic benefits associated with installation of multiple drives for a customer

Public Service will coordinate its efforts for the VFD Study with the existing Process Efficiency and Segment Efficiency Products to identify customers with multiple potential applications for drives. Public Service will review projects already in the pipeline for these products for potential participation in the VFD Study. Additionally, Public Service will seek assistance from motor and VFD vendors to identify other customers that may be good candidates for participation.

Public Service intends to use a vendor(s) to perform two main types of work for the VFD Study:

1. Perform motor and drive surveys and evaluate the results.
2. Perform pre and post metering and data collection for VFD installations and work through the energy savings calculation methodology and assumptions.

### Expected Results

To improve VFD savings calculations in the future, the VFD Study will provide information to support our technical assumptions and calculation methodology consisting of:

- Energy savings calculation methodology for fans and pumps
- Relevant input factors need to be used for fan and pump conservation calculations
- Typical values for input variables such as hours of operation, % of time at reduced speeds, power use at reduced speeds, load factor, and efficiency of motors drives are applied to for different applications
- Typical value of non-energy benefits and other components of net economic benefit calculations
- Size distribution of drive opportunities
- Other drive applications that might qualify for custom rebates

### **c. Colorado Whole House Energy Efficiency and Comfort Study**

The 2010-2011 Whole House Energy Efficiency and Comfort Study (WHEC-Study) will evaluate the potential savings from implementing a comprehensive package of energy saving technologies, through coordinated design and installation to optimize energy efficiency for each individual home. The WHEC-Study treats the house as a system and will give Xcel Energy an opportunity to acquire data from homes that have undergone a comprehensive energy efficiency retrofit. Since the homes will be occupied by Xcel energy customers there is an opportunity to study the effects of a decrease in energy usage under live conditions. The study will evaluate the true costs of the house as a system concept. Xcel will work with the Energy Efficiency Business Coalition (EEBC) to implement the WHEC-Study with the intent to complete the majority of the retrofits and installations in the ten homes in 2010 and collect data and study results in 2011 and 2012 to determine the most cost effective mix of energy saving technologies.

Objectives:

- Evaluate the “house as a system” approach to energy efficiency retrofits and upgrades
- Provide a comprehensive energy efficiency retrofit to ten homes in the Denver area (no EEBC member or Public Service employee homes included)
- Eight of the homes will receive additional “emerging technologies”
- EEBC will coordinate the 2010-2012 study and review with Xcel Energy
- Evaluate the cost effectiveness of various measures and optimum mix of measures that results in the most energy savings at the lowest cost

### Study Specific Policies

Ideal homes selected for the study would include poorly insulated homes with low attic and wall R values of typical size for the area. The energy retrofit will include the following:

- Home owner survey to determine typical energy use patterns.
- Detailed initial test out results for the home
- Insulation and air sealing
- HVAC – properly sized energy efficient furnace and air conditioning, air duct sealing, proper ventilation, commissioning and home owner training/education.

- Emerging technology which may include solar, tankless, sealed combustion and heat pump water heaters, a ground source heat pump, indirect evaporative cooling and energy efficient windows.

The EEBC will assemble a list of standards on specifications to determine to what extent the energy retrofits would be made to each home in the study. Since each home will be unique each home project coordinator will consult with the EEBC to determine the best practices for each situation. The budget for the 2010-2011 WHEC Study is included in the 2010 Product Development general budget. All retrofit work and equipment will become the property of the homeowner immediately upon completion of the retrofits and installations.

### **Measurement and Verification**

Public Service will coordinate the actual measurement of energy savings through billing data collection and share data with EEBC for evaluation and verification. This will determine which measures and which mix of measures is the most cost effective approach to energy savings and help guide future product development opportunities. This study is a result of 2009-2010 settlement discussions recommending research into the whole house approach to residential energy conservation.

## Colorado Whole House Energy Efficiency and Comfort Study Budget

Measure	Type	Cost of Measure	Base Case	Base Case	GSHP	Windows	Solar WH Gas	Solar WH Elec	Coolerado	Coolerado	ASHP	ASHP
			Home 1	Home 2	Home 3	Home 4	Home 5	Home 6	Home 7	Home 8	Home 9	Home 10
Insulation	Attic and Walls	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000
	Air Sealing	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800
Duct Sealing	Standard	\$ 400	\$ 400	\$ 400	\$ 400	\$ 400	\$ 400	\$ 400	\$ 400	\$ 400	\$ 400	\$ 400
Heating System	ES 95% 2stage Gas	\$ 4,500	\$ 4,500		\$ 4,500	\$ 4,500	\$ 4,500	\$ 4,500	\$ 4,500	\$ 4,500	\$ 4,500	\$ 4,500
	GSHP	\$ 30,000		\$ 30,000								
Air Conditioning	Central A?C 14 SEER	\$ 4,000	\$ 4,000		\$ 4,000	\$ 4,000	\$ 4,000					
	Air Source Heat Pump	\$ 4,800									\$ 4,800	\$ 4,800
	Evap - Coolerado	\$ 8,500							\$ 8,500	\$ 8,500		
Water Heating	Gas Tankless	\$ 4,000	-	\$ 4,000	\$ 4,000				\$ 4,000	-	-	\$ 4,000
	SolarWH w Elec Tank	\$ 12,000				\$ 12,000	\$ 12,000					
	Sealed Combustion	\$ 3,500	\$ 3,500									
	ASHP Water Heater	\$ 4,500								\$ 4,500	\$ 4,500	
Lighting	CFL 100%	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	
Windows	High Efficiency Windows	\$ 10,000			\$ 10,000							
Ventilation	"Poor Man's" HRV	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	
<b>Total</b>			\$ 18,500	\$ 18,500	\$ 40,500	\$ 29,000	\$ 27,000	\$ 27,000	\$ 23,500	\$ 24,000	\$ 20,300	\$ 19,800

### Total Measures

Total EEBC Program Administration

### Total Pilot

**\$ 248,100**

**\$ 61,297**

**\$ 309,397**

### Potential Average Savings and Payback

		Home 1	Home 2	Home 3	Home 4	Home 5	Home 6	Home 7	Home 8	Home 9	Home 10
<b>*Average Usage Customers</b>											
Average Annual Electric	"Homeowners"	\$ 703.29	\$ 703.29	\$ 703.29	\$ 703.29	\$ 703.29	\$ 703.29	\$ 703.29	\$ 703.29	\$ 703.29	\$ 703.29
Average Annual Gas	"Homeowners"	\$ 753.62	\$ 753.62	\$ 753.62	\$ 753.62	\$ 753.62	\$ 753.62	\$ 753.62	\$ 753.62	\$ 753.62	\$ 753.62
<b>Total Avg. Energy Cost</b>		\$ 1,456.91	\$ 1,456.91	\$ 1,456.91	\$ 1,456.91	\$ 1,456.91	\$ 1,456.91	\$ 1,456.91	\$ 1,456.91	\$ 1,456.91	\$ 1,456.91
<b>Save 50% Of Total</b>		\$ 728.45	\$ 728.45	\$ 728.45	\$ 728.45	\$ 728.45	\$ 728.45	\$ 728.45	\$ 728.45	\$ 728.45	\$ 728.45
<b>Payback w 50% Savings</b>	Years	30.89	30.89	55.60	39.81	37.06	37.06	32.26	38.44	33.36	27.18

## **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).<sup>19</sup> 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
- 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 and methods/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
- Savings – address whether pilot will claim savings, and if so, include the savings and technical assumptions

The following 2011 Plan pilots are described next.

- Central Air-Conditioning Tune-up Pilot
- Energy Feedback Pilot
- ENERGY STAR Retailer Incentive Pilot
- In-Home Smart Device Pilot
- SmartGridCity Pricing Pilot

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<sup>19</sup> Pilots are defined in Docket No.07A-420E, Decision No. C08-0560 pp. 39, 44 and Sundin Direct Testimony, p. 21-22.

## ➤ Central Air-Conditioning Tune-up Pilot

### A. Description

Public Service launched the new Residential Central Air Conditioning Tune-up Pilot in April of 2010 through a 60-Day Notice. The pilot seeks to provide customers with an affordable option for improving existing residential AC efficiency and reducing costs in Colorado. Representatives from Public Service and the EEBC agree that participating HVAC contractors will continue improving their quality installation (QI) and service practices through this pilot. Public Service is evaluating this Pilot and plans to ascertain its viability at the end of the 2010 cooling season. If the Pilot results are successful, Public Service will propose to add this pilot as a measure under the High Efficiency AC Product in 2011. Since this pilot evaluation has not been completed as of the submission of our 2011 Plan, we are continuing it as a pilot in this Plan until late 2010 or early 2011 and based on results a determination is made whether to develop a program or to terminate it. In either case, a 60/90-Day Notice will be posted to the DSM Roundtable.

The pilot proposes 1,000 tune up units in 2010, beginning in the spring, and allowing Public Service to monitor results and determine true cost-benefit savings toward the end of the cooling season. Unique to this pilot is a diagnostic and measurement tool from Field Diagnostics Services, Inc (FDSi) that measures suction and liquid pressure and temperature, ambient temperature, and supply and return air wet-bulb and dry-bulb temperatures. It gives an efficiency index (EI) rating pre-and post-tune up and diagnostic messages based on patented algorithms. The diagnostic tool is necessary to capture anticipated savings in energy efficiency improvements per tune-up. Currently, the tool is carried by one distributor in Public Service territory, and retails for approximately \$3500. Pilot (contractor) participants will be responsible for their own purchase of the tool. Between ten and twenty trade partners, with a total of twenty to forty participating field technicians are estimated to be necessary to reach the pilot goal of 1,000 tune ups in 2010. The number of training slots funded by Public Service, currently 40 slots, determines the upper limit for technicians.

The pilot targets customers whose functioning AC cooling units are at least five years old. With 13 SEER as the minimum efficiency standard only since 2006, any unit older than five years holds the highest potential for energy savings in two ways; its lower-end SEER and its inefficiency due to outdated installation practices.

Key research questions addressed by this pilot are:

1. What level of EI improvement results in cost effective energy savings?
2. What is the realized energy and demand savings for a residential AC tune up?
3. What is the optimal age that generates the best combination of participation rate and participant unit savings resulting in the highest overall savings?
4. What is the most effective combination of customer and contractor incentives?
5. Will the FDSi unit be the best way to account for savings and be utilized for M&V measurement purposes?

6. Are the ten items on the inspection list the right items to require for a tune up?
7. What is the customer satisfaction and response to the service?
8. Will this version of the Residential AC Tune Up Program be both cost effective and have customer and HVAC contractor support?
9. Is the customer aware this is a Public Service energy efficiency program?

See E,M&V section H. below for the approach to answering the above research questions.

Public Service is working to find the correct product design that will conserve energy and demand, be cost effective, and be of interest to customers and contractors. In the past we have attempted to find a program design that worked, but both previous attempts did not succeed. In this attempt we have taken what we have learned from the past pilot trials and worked with the EEBC to determine the structure of this pilot to hopefully be a success. If what we learn in this Pilot is successful, Public Service will look to launch a full program in 2011; if not, Public Service may not offer a Residential AC Tune Up Program in the future.

#### **B. Goals, Participants & Budgets**

The Residential AC Tune Up Pilot was developed through a collaborative effort between the Public Service marketing team and the CO DSM Settlement's AC and Tune Up Settlement Committee and the EEBC. The team studied the results of past programs in Colorado and a current similar program in Chicago to develop forecasted goals, participants and budgets.

#### **C. Application Process**

No rebate forms are required for tune ups. Field data including customer and system information will be downloaded via the internet from the diagnostic tools to FDSi, the third party contractor providing quality control, verification/validation, analysis and reporting to Public Service. Public Service will pay a flat incentive to the contractors based on the reported results.

#### **D. Marketing, Objectives, Goals & Strategy**

The C/FT is expected to seek out their own customer base for this pilot. Public Service will market the pilot through available channels as afforded by the pilot's budget. Public Service's Trade Relations Manager will hold responsibility for relationship management with the participating trade base.

Public Service will do the following to support contractor marketing efforts:

- Recruit the 2010 contractor participants, with input from the EEBC with emphasis on past contractor participants in the 2009 High Efficiency AC Program
- Conduct marketing efforts that will include a) recruitment of NATE-certified AC residential contractors to participate and b) developing related internet pages

- Provide marketing materials to the Contractors as needed to promote the pilot. This may include documents to provide to customers while in their home.
- Provide program management
- Manage the performance and participation of the C/FT to ensure proper use of the tool and correct data is gathered.
- Monitor and manage C/FT performance issues as needed.
- Pay for the initial training of the contractor participants on the FDSI tool (to a maximum of 40 technicians, in four one-day classes, to be held at the FDSi distributor's Denver-area training facility)

## **E. Program Specific Policies**

### **Tune up elements defined**

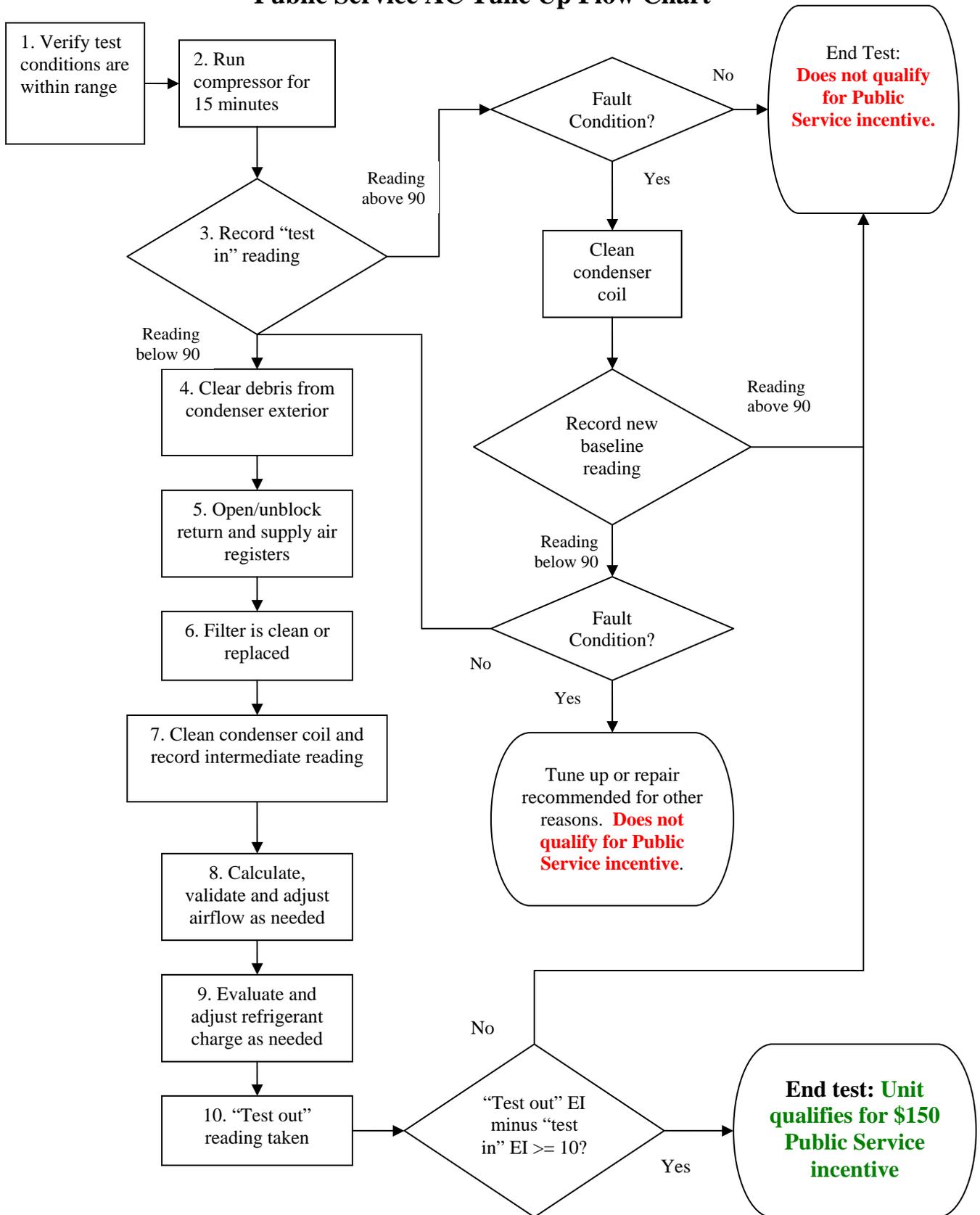
“Tune up” means different things to different people. The use of the diagnostic tool in this pilot will help guide the contractors’ actions. At a minimum, actions taken during a tune up will include the 10 item inspection list below:

1. Verify the test conditions are within the testable range:
  - a. Ambient temperature between 55°F and 115°F
  - b. Return air wet bulb temperature between 50°F and 76°F
2. HVAC unit set to run the AC system for 15 minutes to achieve steady state condition of running at full capacity with the fan set to the correct speed. Information gathered about the unit and a visual inspection occurs at this time.
3. At steady state, a “test in” diagnostic reading is recorded. Contractor checks for an Efficiency Index (EI) reading of 90 or less and for any diagnostic messages. If the EI is 90 or greater AND there is a diagnostic message indicating a fault condition, the baseline needs to be reset by cleaning the condenser and taking a new baseline pre-test reading.
4. Condenser unit exterior is cleared of debris.
5. Return and supply air registers open, and not blocked.
6. Filter is clean (or replaced).
7. Condenser coil is cleaned using proper cleaning detergents. (An “intermediate” diagnostic reading is recorded after the condenser coil cleaning).
8. Air flow is calculated via the tool’s patented algorithms and validated based on expected results. Airflow to be adjusted as needed.
9. Refrigerant charge evaluated and adjusted as needed.
10. A final “test-out” reading is taken to determine the change in Efficiency Index.

C/FT’s will find specific conditions that cannot be fully defined herein. It is the expectation of the Public Service that the participating contractors will do their best work for the customer, as the situation dictates.

**Tune up workflow and incentive qualification determination are shown in the flow chart below.**

## Public Service AC Tune Up Flow Chart



## **Qualifying Equipment**

All units must meet the following requirements to participate in the pilot:

- Existing, operational central AC system in a residential home within the Public Service Colorado electric service territory
- An Public Service-sponsored tune up has not been performed in the past 5 years
- The unit must be in service for 5+ years
- Must be able to improve the EI value by 10 or more points.
- The customer does not have a current maintenance agreement on the unit
- Heat pumps are currently not eligible; however, they may be added in the future.

The 5-year service history requirement is designed to target units with the greatest potential for both energy and demand savings.

## **Outside Responsibilities**

### **The distributor(s) of the FDSi tool will:**

- Recruit and train C/FT on their diagnostic tool and pilot details/requirements, working in collaboration with Public Service
- Certify C/FT on the tool through classroom training (one day session per group of up to ten students) done in March 2010
- Provide ongoing technical support (tier 1)
- Ensure that a technical support person is available to the C/FT for pilot and technical questions via phone during normal business hours (tier 1)

### **FDSi will:**

- Perform on-going support to the C/FT as appropriate (tier 2)
- Ensure that a technical support person is available to the C/FT for pilot and technical questions via phone during normal business hours (tier 2)
- Provide reporting to Public Service as described below in the Measurement & Verification section.
- Invoice Public Service weekly on a per customer basis.
- Maintain confidentiality of all Public Service customer information except as expressly authorized by the Public Service.

### **The Participating Contractors/Field Technicians will:**

- Purchase the FDSi tool and send at least one FT to training. (Every tool purchased comes with two seats at Public Service sponsored training in March 2010).
- FT will complete certification through the March diagnostic tool training, sponsored by Public Service
- One FT attending training must hold North American Technical Excellence (NATE) Service Certification in either air conditioning or air source heat pumps
- Both FT's attending training must have a minimum of five years' experience in AC/ASHP installation and service

- The contractor must be registered to participate in the High Efficiency AC Program before the AC tune up pilot participation begins
- C/FT will market the pilot to eligible customers only
- Upload tune up results to FDSi, including all requested system and customer information, within one business day.

**F. Stakeholder Involvement:**

The Residential AC Tune Up Pilot is emerging from the current CO DSM Settlement’s AC and Tune Up Settlement Committee. As such, it has received input from the EEBC representing the HVAC contractor community.

**G. Rebate Levels**

The objective of the Public Service AC Tune Up incentive is to generate energy savings and be cost effective. Public Service will only pay an incentive for demonstrated energy savings resulting from a 10 point improvement in the post-test EI vs. the pre-test or baseline EI. Tested units that provide little to no kWh savings for the utility will not result in any payment to the contractor or customer. The specific conditions under which an incentive will or will not be paid are described in the table below.

There will be situations in which a tune up will not generate energy savings but is necessary for another reason such as protecting the longevity of the customer’s equipment. In such a situation the “tune up” is not eligible for a Public Service incentive and the decision to proceed with any additional work is between the customer and the contractor.

<b>Test Result</b>	<b>Customer Incentive</b>	<b>Contractor Incentive</b>	<b>Customer Out of Pocket</b>
Pre-test EI $\geq 90$	\$0	\$0	\$90-179.99
EI improves < 10 points after tune up	\$0	\$0	\$179.99
EI improves $\geq 10$ points after tune up	\$0	\$150	\$29.99

The estimated cost of the tune up that Public Service is defining as the Residential AC Tune Up is estimated to range from \$150-\$200. Any work over and above that specified in the tune up is at the customer’s expense.

**H. Evaluation, Measurement & Verification**

The C/FT uploads tune up results to FDSi, including all requested system and customer information, within one business day. The uploaded data includes:

- Customer name, address, account number, and premise number
- System information including: manufacturer, model numbers and serial numbers for condenser and evaporator coils

- Name, or some identifier, for Field Technician performing the tune-up
- Verification that required tune up components have been done
- Test-in/Test-out data collected including, but not limited to, the following:
  - SEER and/or EER
  - Stamped refrigerant charge
  - Refrigerant metering device (TXV, piston or cap tube)
  - Refrigerant type
  - Condenser air entering temp (test-in and test-out)
  - Return air dry and wet bulb temps (test-in and test-out)
  - Suction and liquid line temps (test-in and test-out)
  - Evaporator and condenser saturation temps (test-in and test-out)
  - Suction and Discharge pressure (test-in and test-out)
  - Refrigerant charge adjustment (ounces added/removed)
  - Air flow correction (blower speed, coil cleaning, filter replacement, etc.)
  - If not performed, a reason for why a test-out was not done.
- Measures recommended to the customer
  - What measures the customer implemented
  - Total cost of tune up
  - Total cost to customer
  - kW savings per AC system tune-up
  - kWh savings per AC system tune-up
  - Customer ARI number match (yes/no)
  - Any data FDSi would normally collect on make, model or serial number for condensing unit and other equipment by customer.

FDSi performs Quality Assurance on the test results and the field work. FDSi reports the program results and data to Public Service. Public Service pays a flat incentive to the contractors based on the reported results.

Public Service will analyze the reports and data to ascertain the answers to the pilot questions discussed in section A and report the results. These results will help determine the viability of a future Residential Tune Up Program at Public Service. If this Pilot is successful Public Service will propose to develop a full program in 2011.

Specifically Public Service intends to answer the key pilot questions as follows:

<b>Key Question</b>	<b>Who</b>	<b>How</b>
1. What level of EI improvement results in cost effective energy savings?	Product Development	Analyze data received from FDSi.
2. What is the realized energy and demand savings for a residential AC tune up?	Product Development	Analyze data received from FDSi.

<b>Key Question</b>	<b>Who</b>	<b>How</b>
3. What is the optimal age that generates the best combination of participation rate and participant unit savings resulting in the highest overall savings?	Product Development	Analyze data received from FDSi.
4. What is the most effective combination of customer and contractor incentives?	Product Development	Analyze data received from FDSi.
5. Will the FDSi unit be the best way to account for savings and be utilized for M&V measurement purposes?	Product Development	Analyze data received from FDSi.
6. Are the ten items on the inspection list the right items to require for a tune up?	Product Development	Analyze data received from FDSi.
7. What is the customer satisfaction and response to the service?	Market Research	Measure customer satisfaction through a customer survey.
8. Will this version of the Residential AC Tune Up Program be both cost effective and have customer and HVAC contractor support?	Product Development, Market Research and Marketing	Analyze data received from FDSi for cost effectiveness, measure customer acceptance through a customer survey and receive feedback from contractors through the Channel manager
9. Is the customer aware this is a Public Service energy efficiency program?	Market Research	Measure customer brand awareness through a customer survey.

E,M&V Cost Breakdown:

- FDSi: \$15,000
- Market Research: \$20,000
- Product Development: \$750

## ➤ *Market Transformation: Energy Feedback Pilot*

### A. Description

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 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 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. The pilot is based on OPOWER's Home Energy Reports feedback system.

The first part of the three-year pilot will consist mainly of set up, data gathering and report delivery. We plan to begin the first part of this pilot in 2010 through the 60-Day Notice process. Subsequent years will focus on interpretation, development and marketing trials.

This pilot will focus on testing energy use feedback options for residential customers to better understand behavior-based energy conservation can what be achieved by providing residential customers better feedback on their energy use. The proposed pilot will test various forms, frequencies and contents of feedback including paper reports mailed periodically and emailed reports sent monthly to better understand which works better and why.

Residential customer behavior-based energy conservation is a large and untapped source of savings to both utilities and their customers. If we can better understand how to address, motivate and support customers in their efforts, while operating within our statutory requirements, achieving some savings from many customers may go a long way toward meeting our new energy efficiency goals. Xcel Energy is eagerly anticipating results from this project that will enable us to capture these untapped residential savings and help move us toward our goals.

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 project 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 (OPOWER);

- The same periodic feedback supplemented with 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 residential electricity and natural gas use be reduced by providing 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?
- How much additional savings can be achieved by providing supplemental feedback through e-mail?
- 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?

**B. Goals, Participants & Budgets**

Goals and Participants

The goal of this project is to quantify the impact of two different types of feedback on residential 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 several months.

50,000 participants will be randomly selected from Public Service’s residential customers. 15,000 of the customers will require e-mail access as a part of the test of feedback types.

**Colorado Goals**

<b>Year</b>	<b># Customers</b>	<b>Status</b>	<b>kWh Goal</b>	<b>Dth Goal</b>
2010	50,000	Start-up (partial year)	100,000	100
2011	50,000	Operational	7,482,526	35,685
2012	50,000	Operational	7,482,526	35,685
2013	50,000	Operational (partial year)	7,482,526	35,685
<b>Totals</b>	<b>3 Yr Totals</b>	<b>Pilot</b>	<b>22,547,578</b>	<b>107,155</b>

\* Note: 2010 startup will be filed separately from additional product years due to filing cycles.

**Budget**

	<b>Start-up*</b>	<b>Operational</b>	<b>Optional Year</b>
License Fee	\$250,000	\$225,000	\$225,000
Print & Mail	\$192,500	\$162,750	\$148,750

Retention Card	\$9,050	0	0
Xcel Labor	\$83,080	\$18,760	\$12,060
Data Set-up	\$25,000	0	0
Evaluation		\$99,500	0
Promotion/Contingency		\$10,000	\$10,000
<b>Totals</b>	<b>\$559,630.00</b>	<b>\$516,010.00</b>	<b>\$395,810.00</b>

\*Set up to start program takes approx. 6-10 months and is intended to begin in 2010 with 60-Day notice

### C. Application Process

Customer engagement will occur through random selection of 50,000 participants (35,000 in method 1 and 15,000 in method 2) 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 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 will be provided an “opt out” opportunity if they choose not to participate in the pilot product. Appropriate control and comparison groups will allow us to isolate effects attributable to each strategy.

The objective of the pilot study is to establish with sufficient rigor the viability of various feedback methods for sustaining conservation behaviors over time. Public Service will take direct impact energy and demand savings credit for this pilot.

The Feedback Methods figure below illustrates the two feedback methods to be used.

**Figure 4: Feedback Methods**

	Frequency of feedback	Sample size	Electricity, natural gas or both	Provision of behaviorally optimized information	Additional hardware needed	Applicability to other utilities	Ability to accommodate various rate structures
Method 1	Approx. every two months	35,000	Both	Yes	No	Any	Yes
Method 2	Periodic & e-mail	15,000	Both	Yes	No	Any	Yes

#### Method 1: 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 OPOWER 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. The Opower's "Insight Engine" analysis software will continually analyze and tailor messaging based on these evolving customer profiles. On a monthly basis, OPOWER will compile the usage data that has been provided by Xcel Energy and will generate the appropriate analysis to create personalized reports for all 50,000 individuals enrolled in this method. After the personalized Energy Reports have been created, they will be printed and mailed in an Xcel branded envelope to customers.

Following the receipt of the 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 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 channels.

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.

### **Method 2: 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 Energy Report will be mailed to the 15,000 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 reports for Method 1.

Following the initial printed report, the customers assigned to Method 2 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 logon to adjust their profiles or to view energy data and analysis at any time during the month.

The monthly feedback from OPOWER 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 is consistently measured to deliver 1.5% to 3.5% savings on electricity and .9% to 1.5% on annual natural gas usage. Specific results for Public Service in Colorado will be quantified and tracked with this project.

The persistence of savings from feedback is key to its cost-effectiveness. To assess persistence, this project will provide feedback and monitor results for three years from approximately 4Q-2010 through 2013. In past studies by other utilities, the product has

been run for up to a 2 year period with consistent savings delivered throughout the product. Ongoing measurement of these products continues to be monitored by OPOWER and the participating utilities. This information will be available to Public Service. If likely high-savers can be identified in advance, targeting them can almost certainly increase cost-effectiveness and further research on this would be helpful. Past results indicate that the best indicator for high saving is high initial relative energy usage. High users from before the product start have consistently saved more than low initial users in all other tests. This too will be further quantified by the Xcel Energy product in Colorado and the Xcel Energy product in Minnesota (began December 2009). Based on previous research and currently active pilot projects throughout the country, we expect to measure first year reductions in electricity use averaging two (2) percent and for natural gas usage one (1) percent. If these savings persist, they can make a significant contribution toward Colorado's goals for energy savings in the hard to reach residential sector.

Test results 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. Xcel Energy will look at opportunities to discuss partnering with other utilities with overlapping service areas if the test is successful.

#### **D. Marketing Objectives & Strategy**

Customers tracked remain consistent for the entire test period. Energy savings will be counted each year as new savings for an additional 1-year life. This is different than the standard conservation product, which installs a conservation project then takes credit for the multi-year life. A goal of the Energy Feedback pilot is to study the persistence of the behaviors to determine what the true lifetime should be – that is if or when the incremental savings for the New Year becomes statistically insignificant.

OPOWER will calculate and recognize savings twice yearly using a comparison of the Participant Group and the Control Group as it occurs and only if it occurs.

Public Service will track rebates by customer/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 appliances, CFLs, furnaces etc. that may contribute to the savings. These savings, if measured to be significant, 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, these questions 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 product

#### **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 homes and control homes will be file-transferred to OPOWER 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 50,000 non-participant customers that are uninformed by any direct action of this pilot. OPOWER will use the same measurement and verification (M&V) approach that has already provided Xcel in Minnesota and numerous other utilities with reliable performance metrics. Rigorous measurement and verification will help us assess and fine-tune the product's effectiveness, and help ensure that Xcel can accurately document energy-efficiency savings for credit.

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.

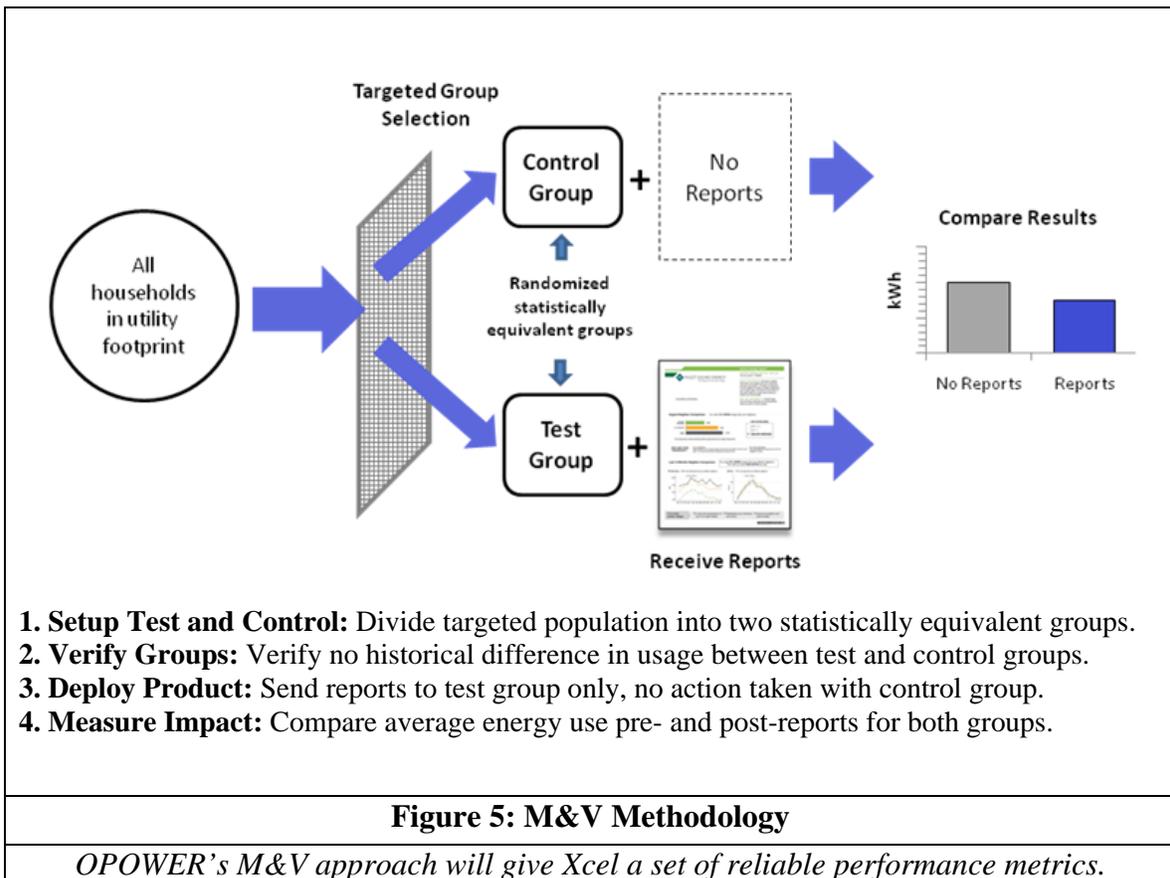
This M&V approach sets up a test group which receives energy feedback and a separate control group which does not, enabling us to gather information on how consumers are affected by:

- Energy usage in kWh and kW or therms
- Incremental participation in other energy-efficiency products

If this Market Transformation pilot does become a product in the DSM Plans in the future, then it will follow the guidelines for market transformation evaluation as set forth

in the California Evaluation Framework<sup>20</sup>, as market transformation products do not lend themselves to evaluation, measurement and verification in the same manner as a traditional resource acquisition product.

OPOWER’s 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, the ACEEE, and by Summit Blue have verified the methodology and results. Figure 5 depicts the M&V methodology.



More simply put, the rough calculation represented in the Compare Results will be as follows:

- Electric - kWh saved (test group) = kWh used (control group) – kWh used (test 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 (test group) = Dth used (control group) – Dth used (test group) – Dth saved by rebated equipment (product participation) for the same time period and same customers.

#### Future Energy Feedback Product Development

Public Service believes we can replace OPOWER in future years with an internally developed behavioral feedback product that leverages our existing Online Account Management (OAM) platform. It will be necessary to add additional functionality to OAM in order to support this new product. We intend to collect the cost of this additional functionality through the DSM Plan.

➤ **Market Transformation:**  
**ENERGY STAR Retailer Incentive Pilot**

**A. Description**

The ENERGY STAR Retailer Incentive Pilot is designed to increase the sales of energy efficient technologies by working directly with retailers that sell ENERGY STAR equipment. This product is focused on large appliances and electronics, which are estimated to use approximately 18% of total household energy. The product provides upstream rebates to retailers for the purchase of ENERGY STAR televisions, computer monitors and appliances (clothes washer, dishwasher, refrigerator, and room air conditioners). The objective of the product is to influence retailers to stock merchandize and sell more ENERGY STAR units.

For 2009 and 2010, the Energy Star Retailer Incentive Pilot was filed as a pilot product. In the filing, Public Service estimated the sales data at roughly 16,000 units. We found that the actual sales were substantially higher than what was estimated. Thus, in 2009 we tried a new concept that would only count the sales above the baseline and provide incentives associated with those sales. This “lift” concept would reduce the number of units that would receive the rebates and more closely relate to the numbers that were filed.

We presented this concept with a handful of retailers and ultimately implemented the concept with just one, Best Buy. We found that most retailers were not interested in the product design. They found the concept too complex to understand and some were reluctant to provide historical sales data. Retailers were familiar with how compact fluorescent lighting mark-down incentive products were run and were somewhat resistant to change to a new concept that demanded more from them.

The 2009 Energy Star Retailer Incentive Pilot Product achieved substantially less than the filed goal because of lack of participation and ability for retailers to get behind the “lift” concept. For 2010 ~~and 2011~~, Public Service ~~is piloting~~ piloted a new implementation technique that ~~is consistent with what was filed for 2010 offering upstream incentives to retailers. The new concept that will~~ provided more savings ~~potential~~ and reduced barriers for retailers. The new technique uses individual net-to-gross ratios for each level of TV and the appliances based on data from the Wisconsin Energy Conservation Corporation and the Consortium of Energy Efficiency. We used this to calculate the energy savings and pay incentives on all equipment that ~~meets~~ meets the rebate criteria. Using the net-to-gross ratios eliminated the need for the retailer to submit one year of historical data and complete an analysis of it. This simplified things for the retailer and made it more likely that they would ~~will~~ participate in the program.

Due to the difficulties with 2009 market acceptance, and the fact that the 2010 product final achievements were not available when the 2011 DSM plan was filed ~~won't be available until year end~~, Public Service ~~prefers to~~ has continued to offer this product as a

pilot for 2011 until a viable implementation strategy is determined. As such, Public Service will have more flexibility to steer this product in a successful direction and allow for adjustments to be made if needed.

Because of the variety and multitude of ENERGY STAR products on the market, the Company will look to modify the assortment of products as applicable and increase the portfolio of ENERGY STAR products that will provide additional energy saving opportunities. For 2011, the Company has added computer monitors and eliminated ENERGY STAR 4.1 televisions and ceiling fans from the product mix. ~~because the majority of ENERGY STAR 4.1 televisions have quickly gained the majority of the market share, thus we have increased the rebate criteria to only include ENERGY STAR 5.1 televisions.~~ The energy saving for ceiling fans is attributed to compact fluorescent lighting (CFL), not the fan. Since this product is focused on appliances and electronics, we believe that it is better served to promote CFLs within the Home Lighting product.

This product represents one of Public Service's first market transformation products, as contemplated in Colorado Public Utilities Commission Order Number C08-0560. The definition in the Public Service Gas DSM Rulemaking at 4 CCR 723-4-4751(m) is:

*“Market transformation” means 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, and product demonstration and marketing, often conducted in concert with rebates or other financial incentives.*

Public Service believes that there are several key components to ensuring this pilot product is truly a market transformation effort. These include:

- Recognition that market transformation is best accomplished at a state, regional and national level. To accomplish this, Public Service plans to align the product with other national efforts and will work closely with the Consortium for Energy Efficiency (CEE), which is an organization that focuses on market transformation at a national level.
- Identification of market barriers or product gaps that currently exist and that might result in an opportunity to provide a stimulus to change the market.
- Recognition that true market transformation takes time. Successful market transformation efforts are typically long-term in nature with many measurable impacts occurring years after product introduction. Sales levels or market share for energy efficient products and energy-saving practices can define these impacts.
- Understanding that it is important to establish measurement and evaluation components upfront to monitor progress and to determine when “course corrections” or product enhancements are needed.

## Settlement Terms

The Company agrees to re-evaluate the technical assumptions applicable to ENERGY STAR 5.1 TVs and to remove ENERGY STAR 4.1 TV's 'from the Energy Star Retail Incentive Program. The Company will implement these modifications by filing a 60 Day Notice within 30 days after receiving PUC approval of the entire 2011 Plan. As part of its re-evaluation, the Company may use only the incremental cost of the ENERGY STAR 5.1 TV Light Board to determine incremental cost instead of the full purchase price. The Company further agrees that it will evaluate and develop technical assumptions for computer monitors and 2nd tier dishwashers. If based upon its evaluation, the Company is able to develop a cost-effective product, including computer monitors and 2nd tier dishwashers, it will agree to file a 60-Day notice to incorporate such changes in the program within 30 days after receiving PUC approval of the 2011 DSM Plan. The Company expects that the electric DSM budget and energy savings targets associated with this product will be affected by such changes. A new program budget and energy savings target will be included in the 60-Day notice assuming the Company is able to develop a cost- effective program without including ENERGY STAR 4.1 TV's. The Company agrees to consult with the Settling Parties as it conducts its reevaluation of this program.

### **B. Goals, Participants & Budgets**

#### Goals and Participants

As a result of the elimination of the ENERGY STAR 4.1 televisions the participation and savings goals have decreased from the original 2011 filing. However, the goals are still substantially higher than what was achieved in 2010. The table below illustrates the original goals, modified goals and incremental changes. The goals for 2011 have been increased from the filed 2010 goal to match the increased potential in the market. This will allow us to use a wider variety of retailers, create efficiencies and make the program more cost effective.

#### Budgets

The budget has decreased from the 2011 filed budget as well as a result of the elimination of ENERGY STAR 4.1 televisions measure. The ENERGY STAR Retailer Incentive Pilot budget has been reduced substantially. Public Service believes that a new implementation strategy will allow us to implement the program with less advertising and administration costs. This will make the program more cost effective and viable for the future.

### **C. Application Process**

The ENERGY STAR Retailer Incentive Pilot does not require an application for participation. To reach as many customers as possible and reduce barriers for the retailers, Public Service will pay up-stream rebates to the retailers to motivate them to increase their inventory of appliances and electronics. The incentives will vary depending on the type of equipment. The incentives are relatively minimal compared to

the incremental cost of the equipment. However, since the incentive is paid to the retailer by unit, the number of units and incentive add up to a substantial amount. The retailer may choose to pass the incentive on to the customer in the form of a discount or gift card, but is not required to do so.

#### **D. Marketing Objectives, Goals, & Strategy**

The Market Transformation ENERGY STAR Retailer Incentive Pilot is a retailer-driven product. A long-term marketing goal of the product is to spawn market transformation for electronics and appliances. Short term goals include developing an implementation process that is feasible and cost effective. In addition, we also have some key learning objectives for this pilot product:

- Recruiting – understand resources needed and barriers to recruiting retailers.
- Tracking - understand complexities surrounding model numbers and tracking of sales data.
- Distribution - gain knowledge around the stocking and ordering practices, and the distribution channels.
- Training and Education – determine the level of knowledge of the retailers, and best way to bridge gaps.
- Motivation – determine best practices for influencing retailers and consumers in relation to buying TVs and appliances.

To reduce costs, Public Service will work with national retailers that have one point of contact. Our third party implementer will establish a list of potential retailers and recruit them for the product. Public Service is hoping to recruit the large retailers such as Best Buy, Home Depot, Walmart, Target, Ultimate Electronics, Costco, and Sam’s Club.

Participating retailers will be encouraged to increase their stocks of qualifying products, merchandize the products in an effective manner, promote them through in-store displays, and highlight the products in advertising. Public Service will explore the potential for co-marketing with the retailers, possibly by having promotional booths within the stores, and having the ENERGY STAR and Xcel Energy logo on store advertising. Public Service will require retailers to implement sales training and will assist with employee sales events or contests.

Public Service uses a variety of utility marketing channels to promote the product such as bill inserts, bill messages, the call center, consumer advertising, customer education campaigns, and the Public Service website.

#### **E. Pilot-Specific Policies**

Public Service will use retailers that commit to sell and highlight ENERGY STAR certified products. Participating retailers must be an existing ENERGY STAR partner or agree to sign an ENERGY STAR partner agreement. Retail partners must submit sales reports and an initial inventory report one week prior to the start of the promotion

showing the on hand inventory for each participating location. This sales data will show the total number of units that each store has sold. The retailer must also agree to display the pre-approved utility signage for the duration of the promotion.

**F. Stakeholder Involvement**

Public Service consulted with staff from the Southwest Energy Efficiency Project (SWEET) and the Consortium for Energy Efficient, the Wisconsin Energy Conservation Corporation and Pacific Gas and Electric to assist in the design of the product. To continue this involvement, stakeholders directly involved in Colorado will be engaged in the development process through regular meetings of an advisory board.

**G. Rebate Levels**

The following table shows proposed measures with their efficiency requirements and rebate levels. As requested, Public Service has removed the ENERGY STAR televisions 4.1 from the product and added computer monitors as an additional measure. ENERGY STAR is a well-recognized name, and leveraging the ENERGY STAR label as much as possible in designing the product will increase participation levels. However, where the saturation level of ENERGY STAR has reached the high rate, Public Service will increase the qualifying rebate criteria using additional measures and/or CEE tiers. We will review rebate levels as the product progresses in 2010 and evaluate whether the levels are appropriate moving forward. It may be necessary for Public Service to modify the rebate levels listed below from time to time. The product is scheduled for a process and impact evaluation in 2011. Since we will have minimal results by that time period, we propose the evaluation be done in 2012.

Rebates have been determined by reviewing incremental cost and cost-effectiveness criteria of the ENERGY STAR equipment. These rebates are lower than would typically be offered as consumer rebates for a number of reasons. Specifically:

- Retailers can process high numbers of rebates at low cost, reducing processing costs.
- Even a small increase in the profit margin on a product will affect retailer stocking and promotion practices.
- Rebating directly to retailers avoids the retail markup on the rebate amount.

**Table 29: ENERGY STAR Retailer Incentive Pilot Rebates**

Measure	Baseline Criteria	Rebate Criteria	Rebate Levels
Refrigerators	Minimum Standard	ENERGY STAR	\$20
Clothes Washers	ENERGY STAR	CEE TIER 3	\$25
Dishwashers	.68 EF	CEE TIER 1	\$20
Room Air Conditioners	Minimum Standard	ENERGY STAR	\$20
TVs	ENERGY STAR 3.0	ENERGY STAR 4.1	\$20

TVs	ENERGY STAR 3.0	ENERGY STAR 5.1	\$25
<u>Computer Monitors</u>	<u>ENERGY STAR</u>	<u>ENERGY STAR +</u> <u>10%</u>	<u>\$5</u>

The rebate budget will be allocated to match the estimated number of participants.

#### **H. Evaluation, Measurement & Verification**

Although the ENERGY STAR Retailer Incentive Pilot is a market transformation product, Xcel Energy believes the product can be feasibly evaluated using the sales data provided by the retailers, similar to what is with the Home Lighting Product.

The product performance is measured by our third party contractor using pre-determined deemed technical assumptions and post-promotion retailer sales data. Customer data is not available but the participating retailers are required to submit monthly sales data reports.

1. Third party administrator determines qualified models within each product category using pre-determined rebate criteria
2. Retailer signs a memorandum of understanding that details the requirements of the Xcel Energy participation agreement.
3. Xcel Energy and retailer promote the ENERGY STAR units for a given time period.
4. Retailer submits sales data for stores within the Xcel Energy service area for the given sales period to the third-party administrator.
5. Third party administrator evaluates the sales data and determines total number of eligible units within each product category using the rebate criteria.
6. Third party administrator verifies that model numbers submitted at valid.
7. Third party administrator pays retailers on behalf of Xcel Energy based on the eligible sales units.
8. Third party administrator and Xcel Energy calculate the energy savings using the deemed savings assumptions and the number of units sold within each product category.
9. Verification Contractor review the sales data, qualified models and energy savings calculations using the deemed savings assumptions filed by Xcel Energy.

## ➤ **Market Transformation: In-Home Smart Device Pilot**

### **A. Description**

The In-Home Smart Device Pilot that began in late 2009 is designed to test how customers respond to various control strategies and energy consumption information delivered to their homes through in-home energy management devices. Multiple device vendors will participate and the Pilot will test a variety of devices and load control strategies to determine which are most effective. Participants are expected to lower their energy consumption when provided with the tools to monitor and track their energy usage. Participants will be outfitted with a combination of in-home devices from the following list, depending upon the device provider and their meter type:

- Utility-controllable programmable thermostat
- Plug-load or hard wired appliance controls
- Gateway to communicate with thermostat and plug-load controls
- Encoder-Receiver-Transmitter (ERT) meter bridge device (for customers outside the broadband over power line (BPL) footprint).

Energy conservation through behavioral change is a large and untapped source of savings for both utilities and their customers. Behavior is a key determinant of residential energy use. Studies have shown that energy use may vary by a ratio of 3:1 in physically identical homes. Both feedback on energy use and related strategies designed to influence behavior have been found to significantly reduce consumption over the past 30 years. Initially, this pilot will include approximately 1,000 customers within the PSCo service territory, of which, approximately 550 are expected to be installed within the Boulder area served by SmartGridCity. The intent of the pilot is to quantify how various devices and feedback methods affect customer electricity and natural gas usage. After the results have been analyzed, Public Service will decide whether to discontinue the pilot or offer it to a broader audience. The utilization of technology in conjunction with customer control and choice has the potential to transform the market.

This pilot is currently being offered under the 2009/2010 Biennial DSM Plan and implemented in late 2009 through the 60-Day Notice process.

### **B. Goals, Participants and Budgets**

#### Goals and Participants

Based on previous research and current pilot projects by Xcel Energy and other utilities throughout the country, Public Service expects in-home devices and controls to produce first year reductions in electricity and natural gas use of two to ten percent. Rather than proposing energy and demand savings goals at this time, Public Service will use the pilot as an opportunity to study and measure the savings generated by the In-Home Smart Device Pilot. Pilot results will be monitored, quantified, and reported upon pilot completion. Direct savings will not be claimed for the pilot period. If the results of the

pilot indicate that in-home devices are a valuable and viable energy and demand savings opportunity, Public Service will consider offering a direct impact product in the future.

### Budgets

The expected budget requirements for 2011 are related to customer education and promotion, evaluation, measurement and verifications costs, and delivery costs related to systems testing and integration, including incentives to participate in market research.

## **C. Application Process**

This Pilot will be available to residential customers in Public Service's area. Participants will be accepted on a first-come, first-served basis. To participate, customers must have a smart meter (or an Itron ERT meter) and central air conditioning that is not already controlled via the Saver's Switch Product. Customers must complete an on-line qualification survey and an in-home installation appointment. Customers will be notified of this pilot through a general consumer education campaign intended to educate customers on the technologies and options available to them. Communication methodologies may include e-mail, direct mail, telemarketing, and community outreach activities such as community workshops.

## **D. Marketing Objectives, Goals, & Strategy**

The In-Home Smart Device Pilot will offer customers with information and functionality to make behavioral decisions with the potential for year-round energy savings. The target audience is households that have already qualified for an in-home trial, households currently equipped with a smart meter, and new households scheduled to receive a smart meter in 2010. Public Service will use the following marketing strategies to educate customers in the pilot:

- Direct mail and e-mail
- Telemarketing reinforcement and participation drive
- Customer education regarding portal and device capabilities and options
- Incentive for research engagement
- Community outreach through the onsite mobile experience and information workshops

The In-Home Smart Device Pilot hopes to address the following questions during the pilot period:

- How much will customers reduce their residential electricity and natural gas use when provided with energy consumption feedback coupled with behavior change techniques?
- How much will customers reduce residential electricity and natural gas demand and energy usage when Public Service is allowed to control the temperature setting on their thermostats?
- What are the technical assumptions per participant (i.e., energy, demand, and natural gas savings per participant, number of hours controlled equipment is operated per year, equipment operation coincidence with peak, etc.)?

- Does the pilot produce sufficient energy and demand savings to make it cost-effective?
- What is the expected lifetime savings from smart device installations and behavioral changes?
- How do customers perceive the various types of feedback, and what actions account for their savings?
- Which is the preferred device manufacturer and what components are most appealing?
- How do customers choose to manage home energy usage via in-home devices?
- Are there comfort issues associated with various load management strategies?
- What level of energy and/or financial savings makes behavioral persistence worthwhile for the customer?

If this Pilot shows substantial energy and demand savings, future projects may test additional strategies that complement feedback, such as community-based social marketing, energy workshops, energy use counseling, home performance audits, and/or alternative rate structures. Results of this test will determine if a future DSM product will be offered.

#### **E. Pilot-Specific Policies**

Customers interested in participation will be required to read, agree to, and sign an equipment installation and energy management agreement. This agreement will be administered by the device installer and provided to Public Service once signed by the customer. Each participant is allowed one device package per household. By participating in the In-Home Smart Device Pilot, customers agree to allow the Company to test various load control options and strategies. The controls will be limited in time, frequency, duration, and temperature according to the following restrictions:

- Customer loads will be controlled only on weekdays between the hours of 10:00 AM and 8:00 PM.
- Customer loads will be controlled no more than twice per day and no more than three days per week (Monday through Friday).
- Customer loads will be controlled for no more than four consecutive hours per Control Period.
- Customers' thermostats will be adjusted by no more than plus or minus five degrees Fahrenheit during a Control Period.

#### **F. Stakeholder Involvement**

The Company has worked closely with device vendors, who will provide the following services:

- Fulfillment of each request by making arrangements and installing the device package (completed in 2010 and continuing in 2011);
- Management of customer requests via toll-free telephone number and link to provider's website; and

- Recording of data and signed agreement for each participant receiving a device and report monthly to the Company.

### **G. Rebate Levels**

The In-Home Smart Device Pilot provides no-cost equipment and installation rather than a rebate to the customer.

### **H. Evaluation, Measurement & Verification Plan**

Because this is a pilot without claiming savings, it does not yet have Technical Assumptions developed for the control group and proposed pricing structures. Instead, Public Service has contracted with MetaVu and Global Energy Partners to collaboratively evaluate, measure, and verify any savings produced. Global will conduct the impact evaluations, while MetaVu will integrate these results and analysis into their analysis of the overall SmartGridCity value propositions, manage the reporting requirements for the impact evaluations Global conducts, and coordinate the survey work. MetaVu will collect customer and demographic information in order to evaluate customer acceptance and other qualitative value propositions. MetaVu is working to optimize the market research efforts between a SmartGridCity pricing pilot, this pilot, and SmartGridCity systems requirement evaluation. This is to minimize survey and customer fatigue while maximizing results. The survey demographic results will also be used as part of the impact regression analysis that will be performed by Global. The following specifies in more detail the approach and tasks that will be performed as part of the impact evaluation:

#### Preliminary Evaluation

The preliminary evaluation will provide initial estimates for the impact of the in-home smart pilot based on the first summer of the pilot, using a difference of differences approach. This task consists of the following subtasks:

- Transfer load and survey data from Public Service to Global, then validate and cross-check the data; This will include any available survey or demographic information, the date that participants became active in the pilot, and hourly load data for all customers. Global will then verify that data are available for all customers in the pilot (both control group and participants), and that the data are present for all hours and are internally consistent. Before transferring the data, Public Service will complete their standard load data validation checks and data editing, so that the data are complete, correct, and are consistent with monthly billing data. As part of this subtask, Global will also tie the data from different sources together to ensure consistency and enable the analysis for the remainder of the project.
- Estimate impacts using a difference of differences approach for each combination of technology. This approach estimates the impact of the pilot as the difference between the average load shape of the participant group and the control group, corrected for any pre-pilot differences between the two groups. This simple

difference will estimate the impact, since in essence the customers are their own control group.

#### Final Evaluation

Using data from both 2010 and 2011, Global will refine the estimates for summer 2010 from the preliminary evaluation, and will estimate the impacts for fall/winter 2010/2011 and summer 2011.

This task consists of the following subtasks:

1. Estimate impacts using a difference of differences approach for each combination of rate and technology for entire time period. Global and MetaVu will calculate impacts for winter 2010/2011 and the summers of 2011, 2012, and 2013 to check consistency between the summers. Global will calculate both the impacts and the related confidence intervals.
2. Estimate impacts using a regression approach for each combination of technology for entire time period. A regression approach, such as what was used in Public Service's earlier TOU pricing pilot, accounts for the specific characteristics and appliances of each customer, includes the information about the specific weather on each day, and quantifies how these factors interact to influence the load impact of the pilot. Using a regression model to estimate the impacts will allow Public Service to define the range of impacts that they will see across different customer types and different weather.
3. Prepare final report with results for fall/winter 2010/2011, and the summers of 2011, 2012, and 2013. Global will provide the final results and descriptions of the methods used to MetaVu for inclusion in the preliminary evaluation report that they will deliver to Public Service.

## ➤ *Market Transformation: SmartGridCity Pricing*

### A. Description

On November 2, 2009, Public Service Company of Colorado filed an application with the Colorado Public Utilities Commission for approval to initiate the SmartGridCity Pricing Pilot. The Commission is considering the Company's application in Docket No. 09A-796E. The SmartGridCity Pricing Pilot will offer Residential customers a variety of pricing structures (rates) to test customer understanding, acceptance, and behavioral change resulting from the use of pricing signals. Participating customers will be offered one of three pricing options: (1) Time-Of-Use (TOU) Rate, (2) Critical Peak Pricing (CPP) Rate, or (3) Peak Time Rebate (PTR) Rate. The TOU Rate will divide each day into two periods, representing on peak and an off peak. Customers will pay more for their on peak usage. The CPP Rate will include the on peak and off peak aspects of the TOU Rate, and will add a third tier of usage on days when system capacity or economic conditions warrant. The PTR Rate will allow customers to pay the standard residential rate, but they are offered a rebate when they can reduce their usage at critical peak times. Customers will be notified of pricing events through the portal, automated phone calls, or e-mail. The unique nature of this pilot is that it unites technology with pricing and has the potential to transform the market.

Participants in this Pilot, as well as all other customers with a smart meter, will be provided access to a website, the Online Account Management (OAM) portal or MyAccount, where they can access their electricity consumption in 15 minute intervals until midnight the day prior. The Pilot will also monitor a control group of customers who will not be offered these rates and who will be used as a baseline to evaluate the objectives of the Pilot. Participants, but not the control group, will also receive education about pricing signals and what types of actions may be taken to reduce consumption.

This Pilot, offered in conjunction with the In-Home Smart Device Pilot, will begin immediately following issuance of the Commission's order approving the Pilot. The following table provides a tentative schedule for Pilot launch and conclusion:

<b>Date</b>	<b>Action</b>
July 2010	Pilot marketing and customer education begins; pricing signal functionality is available on the OAM portal
October 2010—September 2013	Phase 1 begins: up to 2,000 customers participating voluntarily
October 2010—January 2011	Development of customer education and direct mail pieces for mandatory phase of the pilot
January 2011	Placing of customers into each group with ability to opt out; customer communication begins
March 2011	Phase 2 begins with approximately 5,000 randomly selected customers
October 2011—	Customers on the CPP and PTR rates receive price signals.

September 2013	
September 30, 2013	Expected conclusion of the Pilot.
March 2014	Final report submitted to the PUC within six months of completion of Pilot (interim reporting TBD)

SmartGridCity is Public Service's project, which offers customers a portfolio of smart grid technologies, such as energy delivery and control technologies, to be used to realize environmental, financial, and operational benefits. Customer responsiveness will be a critical component of the pilot. SmartGridCity is now in Phase IV, where the Company's focuses are wider technology deployment, systems operation, and evaluation of the systems requirements that drive the project.

## **B. — Goals, Participants & Budgets**

### Goals and Participants

This pilot has no energy and demand goals, nor will Public Service claim any energy or demand savings resulting from the Pilot. However, Public Service will use the results of this Pilot to determine the value of such a pricing product for future energy and demand savings.

Though customers may join at any time, Public Service hopes to enroll approximately 2,000 customers in the SmartGridCity Pricing Pilot voluntarily and keep these same customers enrolled through October 2013. Increasing participation to 7,000 customers in Phase 2 will require building a new billing system. In addition, the Company will monitor approximately 1,200 customers as control groups (Phase 1 only; Phase 2 control group numbers under development). The control groups will be selected from non-participating smart-metered customers who have characteristics similar to the participants. Customers with in-home devices (see "In Home Smart Device Pilot" pilot description) will also be encouraged to participate in this Pilot. The following table provides the anticipated participation in each rate for the duration of the Phase 1 (Phase 2 numbers under development):

<b>Rate Type</b>	<b>Pricing Participants</b>	<b>Control Group Participants</b>	<b>Total Participants</b>	<b>Subset of Participants with In-Home Devices</b>	<b>Maximum Customer Participation in Pricing Plans</b>
TOU	809	742	1,551	222	1,055
CPP	317	0	317	173	414
PTR	407	372	779	222	531
<b>Total</b>	<b>1,533</b>	<b>1,114</b>	<b>2,647</b>	<b>617</b>	<b>2,000</b>

### Budgets

The SmartGridCity Pricing Pilot will incur expenses for internal and contract labor to administer the pilot, retooling the billing system to accommodate these new rates, rebates for customers participating in the PTR Rate, customer education and marketing, and

measurement and verification. Per the PUC written order, the budget also includes the equipment purchase and installation of 1,000 additional in-home devices in order to have a statistically significant evaluation sample and sub-samples.

Public Service estimates the following costs for the SmartGridCity Pricing Pilot.

<b>SmartGridCity Pricing Pilot</b>	<b>2011 Electric Goal</b>	<b>2011 Gas Goal</b>
<b>Budget</b>		
Planning & Design	\$0	N/A
Admin & Pilot Delivery	\$583,200	N/A
Ad, Promo, & Customer Ed.	\$105,408	N/A
Customer Incentives	\$134,060	N/A
Equipment & Installation	\$965,620	N/A
M&V	\$115,000	N/A
Miscellaneous	\$0	N/A
<b>Total</b>	<b>\$1,903,288</b>	<b>N/A</b>
<b>Generator kW</b>		N/A
<b>Generator kWh</b>	N/A	N/A
<b>MCF</b>	N/A	N/A
<b>Dkt/\$</b>	N/A	N/A
<b>Participants</b>	7,000	N/A
<b>Participation as % of Segment</b>	0.591%	N/A
<b>Modified TRC Test Ratio</b>	N/A	N/A

### **C. — Application Process**

#### Phase 1 (marketed and launched in 2010):

The first phase will be a voluntary pilot of up to 2,000 customers. This pilot will be advertised through e-mail, direct mail, and online advertising within the OAM portal. Customers may learn of this pilot when they submit a SmartGridCity qualification survey or register for the OAM portal. Customers may enroll in the pilot directly through the OAM portal, or via toll-free telephone number. Participants will be accepted on a first come, first served basis. To participate, customers must have a smart meter. Once qualified for the pilot, participants will be provided with information about the rate options and be asked to select their preferred option. If the chosen rate is fully subscribed at the time of enrollment, the customer will be directed to choose a different rate.

~~This pilot is considered to be voluntary. Customers must have a smart meter within the BPL (broadband over powerline) footprint and opt in to participate. Customers may enroll at any time. By enrolling, the customer agrees to stay in the pilot for a minimum of 12 months, or until termination of the pilot, whichever comes first. However, should the participant experience a significant change in circumstances, they may request to opt out of the pilot.~~

Phase 2:

~~Customers will be randomly selected into one of each of the three pilots, with total participation up to 5,000 and the ability to opt out. This process will be repeated until each of the three pilots has reached the goal number of participants.~~

**~~D. Marketing Objectives, Goals, & Strategy~~**

~~Unlike Public Service's other demand side management products, the SmartGridCity Pricing Pilot does not have the goal of maximizing participation at this stage. The purpose of the SmartGridCity Pricing Pilot is to test customer understanding, acceptance, and behavioral change resulting from the use of pricing signals. The Pilot hopes to assess these parameters by answering the following questions:~~

- ~~• What is the average reduction in customer demand during monthly system peak hours?~~
- ~~• What are the average seasonal and annual changes in on-peak and off-peak electricity consumption?~~
- ~~• For the CPP and PTR tariffs; what is the average reduction in demand and consumption during the critical peak periods?~~
- ~~• What are the demographics and characteristics of the customers who provide the greatest response (load reduction) due to pricing signals?~~
- ~~• How well do customers understand pricing signals, and how do these signals impact customers' perceptions of Public Service?~~
- ~~• In conjunction with pricing signals, how does the voluntary use of In-Home Devices impact energy and demand relative to those without such devices?~~
- ~~• How do various combinations of In-Home Devices (or lack thereof) and SmartGridCity Pricing options impact energy and demand relative to other combinations?~~

**~~E. Pilot-Specific Policies~~**

~~This Pilot is open to all residential customers within the SmartGridCity footprint with a smart meter installed by the Company. There are no minimum consumption requirements. Customers who also participate in the Saver's Switch Product are limited to the TOU Rate. This pilot is not open to customers taking service under Schedule NM (Net Metering).~~

## **F.— Stakeholder Involvement**

Phase 1 of the SmartGridCity Pricing Pilot was proposed to Public Service's DSM Roundtable Group via 60-Day Notice. Phase 2 is being proposed as part of the 2011 DSM Plan filing process. Interested parties will have the opportunity to provide feedback through this filing process. The tariffs associated with this Pilot were filed with the Colorado Public Utilities Commission via Application on November 2, 2009 in Docket No. 09A-796E. In addition, the Company has worked closely with third party vendors, who will provide the following services:

- Development of the OAM portal
- Providing customer devices as part of the In-Home Smart Device Pilot
- Any third party contractors associated with the billing portion of the pilot
- Measurement and Verification and any associated market research.

## **G.— Rebate Levels**

The SmartGridCity Pricing Pilot will not offer traditional rebates for pilot participation. Instead, customers will receive bill savings depending on their behavior and the tariff they select or are randomly selected into. The following paragraphs describe the tariff options:

- The TOU Rate divides each day into two periods, on-peak and off-peak. The on-peak period reflects times of higher system load and generally higher system costs. The TOU Rate structure is designed to align retail rates with the cost of providing electric service. It is expected that customers will react by reducing consumption during the on-peak period or to shift consumption from the on-peak to the off-peak period in reaction to an on-peak price that is higher than the off-peak price.
- The CPP Rate builds on the TOU Rate. When system conditions warrant, for capacity or economic reasons, the system operator can invoke a critical peak period, during which the price charged increases significantly above the on-peak price. This rate structure is intended to send customers a clear pricing signal that consumption during these critical peak periods is at a premium and that reduced consumption is valuable to the utility. Critical peak periods are limited to 15 days per year and customers will be notified of these periods the day prior to their occurrence.
- The PTR Rate does not have a TOU component, but employs the same critical peak period as the CPP Rate. Customers pay the standard residential tariff rate for all consumption used during a billing period. However, during critical peak periods, customers are credited for any consumption they reduce below their normal use in the amount of the difference between the critical peak rate and the standard tariff rate. In other studies, the PTR Rate has been shown to produce similar reductions in critical peak period consumption as the CPP Rate while being attractive to customers due to the fact that they do not pay more on a PTR structure than they would have paid on the standard tariff.

## H.—Evaluation, Measurement & Verification

The primary goals of the SmartGridCity Pricing Pilot are to:

- Understand the impacts of the combination of optional in-home devices and optional advanced pricing policies on residential energy use and demand;
- Utilize this understanding to:
  - (1) Predict how these impacts are likely to vary with weather;
  - (2) Predict how a larger roll-out of optional load management devices and optional advanced pricing policies in residential settings would impact system-wide energy use and demand;
  - (3) Inform the design of such products in the event of a larger roll-out.
  - (4) Determine cost-effectiveness of the pilot and the separate strategies within the pilot.

Because this is a pilot, it does not yet have Deemed Savings or Technical Assumptions developed for the control group and proposed pricing structures. Instead, Public Service has contracted with MetaVu and Global Energy Partners to evaluate, measure, and verify any savings produced. Global and MetaVu will work collaboratively. Global will conduct the impact evaluations, while MetaVu will integrate these results and analysis into their analysis of the overall SmartGridCity value propositions, manage the reporting requirements for the impact evaluations Global conducts, and coordinate the survey work. MetaVu will collect customer and demographic information in order to evaluate customer acceptance and other qualitative value propositions. MetaVu is working to optimize the market research efforts between the In-Home Smart Device Pilot, this pilot, and SmartGridCity value proposition evaluation. This is to minimize survey and customer fatigue while maximizing results. The survey demographic results will also be used as part of the impact regression analysis that will be performed by Global. The following specifies in more detail the approach and tasks that will be performed as part of the impact evaluation:

### Preliminary Evaluation

The preliminary evaluation will provide initial estimates for the impact of the pricing pilot based on the first summer of the pilot, using a difference of differences approach. This task consists of the following subtasks:

- Transfer load and survey data from Public Service to Global, then validate and cross-check the data; This will include information about whether customers are participants or in the control group, any available survey or demographic information, the date that participants became active in the pilot, and hourly load data for all customers. Global will then verify that data are available for all customers in the pilot (both control group and participants), and that the data are present for all hours and are internally consistent. Before transferring the data, Public Service will complete their standard load data validation checks and data editing, so that the data are complete, correct, and are consistent with monthly billing data. As part of this subtask, Global will also tie the data from different sources together to ensure consistency and enable the analysis for the remainder of the project.

- ~~Estimate impacts using a difference of differences approach for each combination of rate and technology. This approach estimates the impact of the pilot as the difference between the average load shape of the participant group and the control group, corrected for any pre-pilot differences between the two groups. For those in the CPP group, a direct comparison between event days and at least two comparable non-called event days will be done. This simple difference will estimate the impact, since in essence the customers are their own control group. This will not, however, allow the estimation of the impact from the TOU part of the rate that underlies the CPP.~~

#### Final Evaluation

~~Using data from both 2010 and 2011, Global will refine the estimates for summer 2010 from the preliminary evaluation, and will estimate the impacts for fall/winter 2010/2011 and summer 2011.~~

~~This task consists of the following subtasks:~~

- ~~4. Estimate impacts using a difference of differences approach for each combination of rate and technology for entire time period. Global and MetaVu will calculate impacts for winter 2010/2011 and the summers of 2011, 2012, and 2013 to check consistency between the summers. Global will calculate both the impacts and the related confidence intervals.~~
- ~~5. Estimate impacts using a regression approach for each combination of rate and technology for entire time period. A regression approach, such as what was used in Public Service's earlier TOU pricing pilot, accounts for the specific characteristics and appliances of each customer, includes the information about the specific weather on each day, and quantifies how these factors interact to influence the load impact of the pilot. Using a regression model to estimate the impacts will allow Public Service to define the range of impacts that they will see across different customer types and different weather.~~
- ~~6. Prepare final report with results for fall/winter 2010/2011, and the summers of 2011, 2012, and 2013. Global will provide the final results and descriptions of the methods used to MetaVu for inclusion in the preliminary evaluation report that they will deliver to Public Service.~~

*Product Development continued*

**B. ~~Goals, Participants & Budgets~~**

Goals and Participants

~~As an indirect service, Product Development does not have savings or participation goals, except for some of the pilot products discussed in this section.~~

Budgets

~~The Product Development budget is made up primarily of labor and expenses for both internal and external resources.~~

**C. ~~Application Process~~**

~~Product Development is not customer facing, and therefore, has no associated application.~~

**D. ~~Marketing Objectives, Goals, & Strategy~~**

~~Product Development is not customer facing, and therefore, has no associated marketing objectives or strategy, with the exception of pilot products.~~

**E. ~~Product-Specific Policies~~**

~~This product has no specific policies.~~

**F. ~~Stakeholder Involvement~~**

~~Many stakeholders are involved in the pilot or product development process. Ideas come from customers, regulators, company employees, trade organizations, equipment manufacturers, vendors, service providers, and products we run in other states. These ideas are screened within the product development process, and those ideas that have significant conservation potential are further developed. The product development team draws on our experience with existing conservation products, as well as solicits information from published standards, trade groups, industry experts, and customers to further develop high potential ideas.~~

~~Once developed and filed, new products must be rolled out to customers. Implementing new products is a joint effort between product developers, product portfolio managers, and many other individuals including marketing assistants, customer account managers, engineers, and rebate specialists. The goal of the new product implementation is to transform the product design in to an efficient, sustainable, robust product that can serve the targeted customers. To do this, operational procedures, budgets, marketing communication materials, and employee training materials are developed. Employee~~

~~expertise, administrative systems, delivery channels, and vendor/customer relationships are leveraged from existing products and applied to the new product. Throughout the implementation process, and the normal product lifecycle, feedback is collected by the product development team to revise the product as needed, and include in future products.~~

**G. Rebate Levels**

~~There are no customer rebates associated with this service.~~

## ➤ Evaluation, Measurement & Verification Plan

### A. Description

The Evaluation, Measurement & Verification (EM&V) Plan for Public Service was developed to evaluate, measure, and verify direct savings for gas and electric DSM products. All products will be evaluated on an ongoing basis during each year to ensure that the reported savings are as accurate as possible. Additionally, select products will be evaluated on a post-performance year basis through comprehensive product evaluations in order to ensure that the savings, technical assumptions, and net-to-gross ratios that are reported by Public Service are accurate and that the product is operating as effectively as possible. The robustness of the EM&V Plan is balanced with the costs of the Plan, being mindful of the objectives of ensuring accurate savings while keeping expenditures prudent and maintaining the cost effectiveness of products. The Company will report any modifications to this EM&V plan in its written quarterly updates. All new products will include a detailed EM&V process consistent with this plan.

The Company's evaluation, measurement and verification approach is separated into performance year and post-performance year activities. The components are listed below and detailed in the following sections. Performance year activities are ongoing during the reporting year while products are being implemented and include rebate application validation and ongoing measurement and verification. Post-performance year activities take place in the years following the performance year and include comprehensive product evaluations. Comprehensive product evaluations will be staggered over at least the next eight years. Table 30 at the end of this program description summarizes each product's EM&V plan.

EM&V for Pilot products can differ from the EM&V for prescriptive or custom products since pilots are being evaluated as a viable product for the marketplace. Therefore, additional testing may be necessary, and in some cases, may be specifically designed for a particular pilot. For these reasons, the detailed EM&V for Pilots are included in each pilot product description, which can be found in the Indirect Products and Services section, Product Development description. These pilots include the Central Air-Conditioning Tune-up Pilot, the Energy Feedback Pilot, the ENERGY STAR Retailer Incentive Pilot, the In-Home Smart Device Pilot, and the SmartGridCity Pricing Pilot.

#### 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:

##### 1. 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.

## 2. Ongoing Measurement and Verification of Savings

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](http://www.calmac.org/publications/California_Evaluation_Framework_June_2004.pdf)

National Action Plan:

[http://www.epa.gov/cleanenergy/documents/evaluation\\_guide.pdf](http://www.epa.gov/cleanenergy/documents/evaluation_guide.pdf)

The IPMVP can be found in the Products & Services section of the Efficiency Valuation Organization's website at <http://www.evo-world.org>.

For direct impact prescriptive products, Public Service contracts with third-party verification contractors and product implementers to randomly select samples of business and residential rebates for verification inspections. For some products, such as ENERGY STAR New Homes, Home Performance with ENERGY STAR, and New Construction, the third-party implementer verifies all of the installations to ensure that reported gross savings are accurate. 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 a individual and unique M&V plan will be detailed within these two sections.

### **1. Prescriptive Products:**

Prescriptive products use technical assumptions based on stipulated or deemed technical assumptions that are assigned to measures 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 IPMVP—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.

Key parameters (also referred to as savings factors or checkpoints in this document) include the following:

- Installed equipment matches equipment listed on rebate application. For example, as applicable, the contractor will check:
  - 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)
  - Participant segment (e.g. restaurant versus college versus office building)
  - Quantity (e.g. number of light bulbs)
- Any comments concerning the operation of the fixtures or deviations from the customer application.

For most of the products, the contractor selects 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” is a calculated value that compares the verified savings to the reported savings. 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 general M&V process for the following prescriptive products or prescriptive components of products is outlined below.

Products and/or components that follow prescriptive process:

*Business Products*

- Compressed Air Efficiency
- Cooling Efficiency
- Heating Efficiency
- Lighting Efficiency
- Motor & Drive Efficiency
- Process Efficiency
- Segment Efficiency
- Small Business Lighting Efficiency

*Residential Products*

- Evaporative Cooling Rebate
- Heating System Rebate
- Insulation Rebate
- Water Heater Rebate

**General Prescriptive Project Process**

1. Customer submits rebate application and required documentation to Public Service after measure is installed.
2. Rebate Operations reviews all business and residential product rebate applications and vendor invoices. 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 to make changes.
3. If project qualifies for rebate, Rebate Operations enters rebate application form data into Siebel or ReCap (rebate tracking database) 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 are divided 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 Siebel or ReCap to determine gross verified savings.
12. Net-to-gross factors will be applied to the gross verified savings to determine net savings.

### **a. 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 Efficient Showerheads**

The Energy Efficient Showerhead Product offers a free showerhead to eligible residential customers. A third-party product implementer manages the showerhead fulfillment and another third-party will complete follow-up phone surveys to a sample of participants to confirm whether the unit was installed. The third-party determines the installation rate from the survey results, which will then be applied to the gross savings for the calendar year.

#### **ENERGY STAR New Homes**

The ENERGY STAR New Homes Product is designed to encourage homebuilders to consider a “whole-house” approach to energy conservation when building new single-family and multi-family homes. The 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.

1. Builder contacts HERS rater to express interest in building an ENERGY STAR home.
2. HERS rater works with builder to construct the home to meet or exceed ENERGY STAR standards. 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 an air tightness test on the house and then calculate the HERS index and the energy savings on the house. The HERS Rater models the home by entering the individual characteristics into REMRATE, a software product approved by RESNET. The software will generate the energy savings of the home. When the rating of the home is completed, the electronic model for the house is submitted to a HERS Provider. RESNET requires that each house be submitted to a HERS Provider for quality assurance. The HERS Provider may be employed by the rating company but must be separately designated as a Provider. The Provider shall not be the same person that rated the home. The HERS Provider will review the file for 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. Once the Rater has submitted 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 is the data that will be used to determine the rebate for each individual house. The Product Implementer will ensure that all the information entered into the software system is correctly

- entered, tracked and submitted to Public Service. Houses will be recorded on the Environmental Protection Agency's ENERGY STAR website by the energy rater.
5. Public Service will track the home address, meter number, characteristics (home style, square footage, heating and cooling equipment installed), builder name and address, HERS index on modeled homes, 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:

1. Equipment – Purchase of high efficiency equipment.
2. Quality Installation - The proper installation of new standard or high efficiency residential air-conditioning equipment.
3. Tune Ups – The tune up of existing central air conditioning equipment. (See Tune-Up Pilot in the Indirect Products and Services section, Product Development description for the M&V description.)

The M&V processes for the equipment and quality installation components of the HEAC Product are designed to verify that the installed equipment matches what was rebated and that the equipment was installed according to quality installation standards, as described by the Air Conditioning Contractors Association.

The M&V process for the HEAC Product involves ongoing random sampling of rebated projects, following the standard prescriptive product guidelines described above, with the only exception being that the air conditioners will be field verified 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 A/C's verified between October 1, 2009 and September 30, 2010 will be applied to the calendar year savings for 2010.

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 PSCo approved load calculation was performed 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 with Honeywell/Field Diagnostics instrument 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 ReCap 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. For instance, the realization rate established for A/Cs verified between October 10, 2009, and September 30, 2010 will be applied to the calendar year savings for 2010.
12. Net-to-gross factors are applied to the gross verified savings to determine net savings.

### **Home Lighting & Recycling**

The Home Lighting & Recycling Product is designed to increase the sale and use of compact fluorescent light bulbs in our Colorado service territory. Public Service partners with manufacturers and retailers to reduce the retail price of qualifying bulbs and promote them to the retailers' customers. One of the retailers, Ace Hardware, has agreed to require customers to complete an instant rebate coupon to purchase the bulbs at the discounted price. The information captured from the coupons will include customer contact information, number of bulbs purchased per customer, and model of bulbs purchased.

1. Participating retailers will provide weekly or monthly sales reports listing the model types and number of bulbs sold.
2. A third-party vendor will enter the information, including the coupon information from Ace Hardware, into a tracking system created by Xcel Energy. The vendor will submit monthly reports containing total number of bulbs sold, average

wattage of bulbs sold, number of bulbs purchased per customer, weighed average operating hours, and kW and kWh savings.

- To determine the demand savings, each bulb model will be assigned to one of five groups based on the CFL bulb wattage. A deemed value will be used for the wattage of the incandescent bulb being replaced for each group of bulbs as seen in the table below. The actual wattage of each CFL bulb model will be subtracted from the wattage of the incandescent equivalent to calculate the wattage (kW) saved for each model of bulb.

**Deemed Incandescent and CFL-Equivalent Wattages**

<b>CFL Wattage Range</b>	<b>Replaced Incandescent Bulb Wattage</b>
9 - 12	40
13 - 16	60
17 - 23	75
24 - 30	100
31 - 52	150

- The energy savings will be calculated for each bulb based on the demand saved multiplied by hours of operation for all of the bulbs based on the table shown below. The position in the table will be determined by compiling coupon data (number of bulbs purchased) from individual Ace Hardware customers. The Ace Hardware coupons are the only source of data for the number of bulbs purchased per customer. Customers purchasing more than 12 bulbs will be excluded from the Operating Hours calculation. The Operating Hours will be calculated from the chart below using the actual number of bulbs purchased per customer. The chart assumes that each customer already has eight CFL bulbs installed in their house (nine and over installed bulbs highlighted in chart), which will remain a fixed assumption.

**Average Operating Hours of Each Additional CFL Added to a Home**

<b>Total Number of Bulbs in the House</b>	<b>Newly Purchased Bulbs</b>	<b>Per Bulb Hours</b>	<b>Total Hours for Newly Installed Bulbs</b>	<b>Average Hours of Newly Installed Bulbs</b>
1	-	1210	NA	NA
2	-	1210	NA	NA
3	-	1210	NA	NA
4	-	1210	NA	NA
5	-	1210	NA	NA
6	-	1027	NA	NA
7	-	1027	NA	NA
8	-	1027	NA	NA
9	1	1027	1027	1027

10	2	888	1915	958
11	3	888	2803	934
12	4	864	3667	917
13	5	864	4531	906
14	6	864	5395	899
15	7	864	6259	894
16	8	864	7123	890
17	9	864	7987	887
18	10	829	8816	882
19	11	772	9588	872
20	12	772	10360	863

5. The distribution will be computed on the number of bulbs purchased per customer and a weighted average operating hours per bulb from the coupon distribution. This report should be completed by mid-summer and will be used (after audit and verification) to determine the operating hours for all bulbs for the calendar year. An example of the computation of the weighted average operating hours follows.
6. The third-party VC will audit the database by examining and comparing against the Retailer sales reports. The VC will adjust Watts/Bulb if errors are found and provide the final verified total kW for all bulbs by year-end.
7. The VC will also audit the number of bulbs purchased per customer against a sample of the customer coupons. They may remove outliers and correct errors in the final calculations of number of bulbs/customer that will be used to establish the operating hours per bulb. The VC may call a sample of customers to confirm purchases if necessary. The VC will provide the final operating hours by September to use for calculating the year-end gross energy savings.

### **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. Each project is subject to onsite verification prior to issuing a rebate.

1. Customer contacts Public Service to request a 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 and the selected optional measures and contacts the Home Performance provider to schedule a final verification inspection.
4. During the verification inspection the Home Performance provider performs a blower door and a Combustion Appliance Zone (CAZ) test after verifying the homeowner has performed all of their planned energy efficiency improvements. 100% of all homes will be inspected through this method.
5. When the inspection is completed, the Home Performance provider will submit a rebate form to the 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 through local low-income agencies. A third-party product implementer manages the kit fulfillment and another third-party will complete follow-up phone surveys to a sample of participants to confirm whether the unit was installed. Through the survey results the third-party determines the installation rate, which we then apply 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 energy efficiency measures. Savings from the measures are based on deemed savings values and include measures such as wall and ceiling insulation, furnace replacements, refrigerator replacements and compact fluorescent lighting. 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 a weatherization crew from a contracted agency 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 energy efficiency measures. This product differs from the Single-Family Weatherization Product in that deemed savings are not used to determine savings. Instead, an auditor visits the facility, analyzes the savings opportunities and calculates savings. 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 home 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 home 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.

### **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 and track if the equipment was installed. An installation rate is applied to the gross savings for the calendar year.

### **Refrigerator Recycling**

The Refrigerator Recycling product is designed to reduce energy usage by allowing customers to dispose of their operable, inefficient secondary refrigerators in an environmentally safe and compliant manner. On a bi-weekly 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 bi-weekly 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 refrigerator was operable at time of removal.

## **2. Custom Products:**

Custom products use technical assumptions that are specific to the actual measure characteristics in order to calculate the energy and demand savings. For all Custom projects, an internal engineer (or an outside firm) determines in the preapproval stage the demand and energy savings using technical assumptions specific to each measure. Senior and managing engineers will audit the preapproval calculations for all projects, as outlined in Step 4 of the General Customer Project Process. In addition, a random sample of all preapproved projects completed by Public Service associate engineers will be sent to an outside engineering firm for review, as shown in Step 5. All Custom projects must have the “Verification” section of the application completed and signed by the Account Manager and customer in order for the project to be approved, completed and forwarded onto Rebate Operations for a rebate check issuance. Account Managers or Business Solutions Representatives either field or telephone verify the installation of equipment, removal of old equipment, and collection of the invoices. The rebate is not paid until the savings are verified.

All projects with measure savings greater than or equal to one GWh or 20,000 Dth require enhanced rigor measurement and verification methods. Enhanced rigor can involve end use or whole facility metering or engineering and building simulation models, which correspond to IPMVP options B, C, or D. These projects 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. Length of time that metering takes place will vary depending upon the load variability, with a minimum of two weeks of metering 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:

- 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

### **General Custom Project Process**

#### Project Identification

1. Project identification and scoping.
2. Customer submits preapproval application to Public Service.

#### Preapproval

3. Public Service 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 resulting rebate.
4. Public Service engineers review the calculations, regardless of whether internal or external engineers completed Step 3.
  - a. For projects <0.5 GWh or <10,000 Dth, a senior engineer must review and approve.
  - b. For projects 0.5-1 GWh or 10,000 to 20,000 Dth, a senior engineer and managing engineer must review and approve.
  - c. For projects >1 GWh or >20,000 Dth, a senior engineer, managing engineer and the engineering team manager must review and approve.
5. Public Service selects a random sample of the projects and sends to an outside engineering firm (if Public Service associate engineer performed Step 3) to review the calculations.
  - a. For projects <0.5 GWh or <10,000 Dth, 10% of projects are sampled
  - b. For projects 0.5-1 GWh or 10,000-20,000 Dth, 25% of projects are sampled
  - c. For projects >1 GWh or 20,000 Dth, 100% of projects are sampled after pre- and post-monitoring data is collected.

6. If the outside engineering firm disagrees with the Public Service engineer's analysis, they discuss the project and reach consensus on the calculations.
7. Public Service sends out preapproval or rejection letter stating the preapproved demand and energy savings and rebate amount.

#### Monitoring

8. If monitoring will be needed, a Public Service engineer or outside engineering party drafts an M&V plan. The plan is finalized by the Public Service engineer and sent out for customer signature.
9. 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.
10. After the designated pre-monitoring period, the customer completes the project installation and contacts account manager.
11. Outside engineering firm collects post-installation monitoring data and sends pre and post data to Public Service.

#### Site Verification

12. 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 staff.
13. Currently, nearly all customers completing custom projects have an account manager. For non-managed customers completing custom projects, the Business Solutions Center and Public Service DSM staff will review project documentation, including checking the customer information, equipment eligibility and proper rebate amounts.

#### Approval & Rebate Payment

14. For non-monitored projects, the invoices are reviewed and if the installed measure specifications match the proposed measure specifications, then the preapproved rebate is awarded. If the costs increased by + or - 10% or the scope changed, the project is reevaluated (return to Step 3).
15. For monitored projects, Public Service engineer (or outside engineering firm) determines actual savings based on monitoring results.
16. For monitored projects, if Public Service engineer performs Step 3, 100% of projects will be sent to outside engineering firm for review.
17. If the outside engineering firm disagrees with the Public Service engineer's analysis, they discuss the project and reach consensus on the calculations.
18. Rebate is issued to the customer based on final savings.
19. Project savings are reported in the year that the rebate is awarded.

## **b. Custom Product Exceptions**

Products with special design elements are verified using processes unique to the product. The M&V process for these products is described below.

### **New Construction- Energy Design Assistance & Energy Efficient Building**

The Energy Design Assistance component of the New Construction Product provides design assistance in support of integrated design process by providing 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 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.

1. Application submittal.
2. Introductory meeting with design team.
3. Consultant completes energy modeling to identify conservation packages.
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. Consultants provide Public Service with a verification plan per project.
6. 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.
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 10% of the energy savings identified within the original 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 Building 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. Consultant 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. The rebate is not paid until the savings are verified. Metering Recommissioning projects may be very difficult. In these cases, a combination of metering and calculations may be used.

### Study Preapproval

1. Customer hires an engineering firm to conduct a 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.
2. Customer submits application and proposal from recommissioning provider to Public Service for study preapproval.
3. After preapproval, recommissioning provider or customer can begin study.

### 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 monitoring (measure savings > 1 GWh or 20,000 Dth).
6. If monitoring is needed, Public Service will send out general monitoring letter alerting customer that one or more measures will require monitoring.
7. Public Service follows up (generally within 7 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 selects measures.
11. If measure requires monitoring, customer must contact Public Service. Public Service will notify verification contractor that monitoring is needed. Pre-monitoring must be completed prior to measure installation in accordance with the M&V plan.
12. Customer implements selected measures. If monitoring is required, customer contacts account manager, who contacts the Public Service engineer. Public Service will notify the verification contractor that the customer is ready for post-monitoring.
13. For measure savings > 1 GWh or 20,000 Dth, post-monitoring is conducted in accordance with the M&V plan.
14. Post-monitoring data is submitted to Public Service engineer for analysis and determination of final savings and rebate amount.

### Approval & Rebate Payment

15. Account manager collects invoices and signed form identifying which measures were installed.
16. The invoices are reviewed and if the invoice details match what was submitted on the rebate form, then the preapproved rebate is awarded. If there are discrepancies, the account manager works with the customer to provide additional detail and reconcile differences.
17. Rebate is issued to the customer based on final savings.

### **Self-Directed Custom Efficiency**

The Self-Direct Product will provide large commercial and industrial electricity customers in Colorado the opportunity to self-fund 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.

1. Public Service prequalifies customers who are eligible for participation in the Self-Direct Product.
2. Once prequalified, 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 the 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. The Customer can request a meeting to discuss Public Service's decisions related to the application.
4. If the customer chooses to implement the measures, they sign a letter, which includes an M&V plan, stating that they intend to implement the preapproved measures. After the customer signs their letter of intent, they must conduct any pre-installation monitoring required in the M&V plan, and submit the data to the Company. The Company must approve this data before the customer may implement the efficiency measures. The customer then implements the measures and performs follow-up monitoring as described in the 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 by check upon completion of project and Public Service's approval of project completion report.
6. A random sample of all preapproved projects will be selected by the Company and sent to an outside engineering firm for metering and verification.

### **Standard Offer**

The Standard Offer Product is intended to serve customers with limited financial and human resources who have conservation potential. The 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.

1. The customer fills out an application to initiate the process and to receive preapproval 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 conservation 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 GEO. 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; alternatively, the customer refunds rebates if the actual savings are below the originally rebated savings.

### **3. Post-Performance Year Product Evaluation, Measurement and Verification**

Post-performance year evaluation, measurement and verification refers to efforts in the years following the product year to verify savings and update technical assumptions.

### **Comprehensive Product Process/Impact Evaluations**

In addition to the ongoing measurement and verification described in the plan, Public Service will hire independent third-party consultants to complete comprehensive product evaluations of three or four specific products each year. The comprehensive product evaluations of particular products will be staggered over a number of years. The principal purposes of comprehensive product evaluations are to assess customer satisfaction with the DSM product being evaluated, and to assess changes that should be made to technical assumptions, 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, technical assumptions and NTG ratios. If, as a result of a comprehensive program evaluation that is completed in a particular year, the evaluator recommends changes to any technical assumptions, program processes, or NTG ratios the Company shall implement such changes for purposes of its DSM activities undertaken during the next calendar year.

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, availability of other studies regarding the particular measures, etc. Discussions with portfolio managers, product developers, and technical consultants are used to finalize the priority and schedule of evaluations. The Company will also consult with interested parties at the scheduled roundtable meetings regarding suggested changes to the products that are proposed to be included as part of the comprehensive evaluation performed during 2011. In addition, the list of evaluations for 2011 was agreed to in the Settlement Agreement Docket No. 08A-366EG. However, we are proposing that one of these evaluations, Residential Energy Star Retailer Pilot, be postponed until 2012. This pilot is being significantly changed for 2011 and it would be most prudent and productive to wait until 2012 to study this program. Instead a Comprehensive Program Evaluation will be done for the Residential Showerheads Product in 2011.

The list below shows the products that are scheduled for comprehensive process and impact evaluations to be completed in 2011. This schedule will be reviewed at the beginning of each year and may be adjusted based on costs, scope and need.

#### **2011 Comprehensive Process and Impact Evaluations**

- Business Commercial Heating Efficiency (Gas)
- Business Self-Directed Custom Efficiency (Electric)
- Residential Showerhead (Electric & Gas)
- Low-Income Single-Family Weatherization (Electric & Gas)

*EM&V continued*

### **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

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 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 budgeted 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 30: Measurement and Verification Summary By Product**

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
<b>Business Electric:</b>				
Compressed Air Efficiency		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. Random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager of Business Solutions Center verifies project installation and collects equipment invoices. Project >=1 GWh savings: Pre & Post Metering verifies savings. (Projects of all sizes may be metered depending on certainty assessment of savings).	
		Direct/Prescriptive	Prescriptive rebates available for Variable Frequency Drive Compressors that are less than 50 hp and have no air loss drain valves. Verification Contractor selects random sample and performs field inspections of deemed savings factors -- e.g. size of compressor and number of drains.	
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. Random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager of Business Solutions Center verifies project installation and collects equipment invoices. Project >=1 GWh savings: Pre & Post Metering verifies savings. (Projects of all sizes 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		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. Random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager of Business Solutions Center verifies project installation and collects equipment invoices. Project >=1 GWh savings: Pre & Post Metering verifies savings. (Projects of all sizes may be metered depending on certainty assessment of savings).	

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
Data Center Efficiency		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. 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 & Post Metering verifies savings. (Projects of all sizes may be metered depending on certainty assessment of savings).	
Energy Management Systems		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. Random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager of Business Solutions Center verifies project installation and collects equipment invoices. Project >=1 GWh savings: Pre & Post Metering verifies savings. (Projects of all sizes may be metered depending on certainty assessment of savings).	
Lighting Efficiency	Lighting Efficiency Prescriptive	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. Random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager of Business Solutions Center verifies project installation and collects equipment invoices. Project >=1 GWh savings: Pre & Post Metering verifies savings. (Projects of all sizes may be metered depending on certainty assessment of savings).	
	Lighting Efficiency Custom	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.	

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
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. Random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager of Business Solutions Center verifies project installation and collects equipment invoices. Project >=1 GWh savings: Pre & Post Metering verifies savings. (Projects of all sizes 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.	
New Construction	Energy Efficient Buildings	Direct/Prescriptive	Consultant visits site and verifies that specified measures were installed. Projects with individual measure savings >= 1 GWh 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 >= 1 GWh savings: Four weeks of data logging verifies savings. All projects verified with actual results not within 10% of the energy savings identified in the original model will have an as-built model completed for rebate calculations.	
Process Efficiency	Process Efficiency - Prescriptive	Direct/Prescriptive	Verification: Contractor selects random sample and performs field inspections of deemed savings factors specified for applicable end-use product.	
	Process 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. Random samples of projects sent to outside engineering firm for verification if PSCo engineers complete analysis. Account Manager of Business Solutions Center verifies project installation and collects equipment invoices. Project >=1 GWh savings: Pre & Post Metering verifies savings. (Projects of all sizes may be metered depending on certainty assessment of savings).	

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
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. Approved customers may perform their own measure analysis and/or use our recommissioning calculator tool with standard savings calculations. Internal energy efficiency engineers reviews and verifies that savings calculations are accurate for 100% of projects. For measures over 1 GWh of savings, pre and post metering is required to verify savings. 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. Approved customers may perform their own measure analysis and/or use our recommissioning calculator tool with standard savings calculations. Internal energy efficiency engineers reviews and verifies that savings calculations are accurate for 100% of projects. For measures over 1 GWh of savings, pre and post metering is required to verify savings. For projects that are very difficult to meter, a combination of metering and calculation may be used.	
Segment Efficiency	Segment Efficiency - Prescriptive Lighting	Direct/Prescriptive	Same as Prescriptive Lighting Efficiency	
	Segment Efficiency - Prescriptive Motors/Drives	Direct/Prescriptive	Same as Prescriptive Motors & Drive Efficiency	
	Segment Efficiency - Prescriptive Cooling	Direct/Prescriptive	Same as Prescriptive Cooling Efficiency	
	Segment Efficiency - Custom Lighting	Direct/Custom	Same as Custom Efficiency	
	Segment Efficiency - Custom Motors/Drives	Direct/Custom	Same as Custom Efficiency	
	Segment Efficiency - Custom Cooling	Direct/Custom	Same as Custom Efficiency	
	Segment Efficiency - EMS	Direct/Custom	Same as Custom Efficiency	
	Segment Efficiency - Custom Custom	Direct/Custom	Same as Custom Efficiency	
	Segment Efficiency - Recommissioning	Direct/Prescriptive	Same as Custom Recommissioning	

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
Self-Direct Custom Efficiency		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.	Process/Impact Study in 2011
Small Business Lighting Efficiency		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.	
Standard Offer		Direct/Custom	Customer or customer's agent (such as ESCO) will calculate savings and Company will verify calculations. Initial M&V plan is submitted as part of the TEA Study; however, Xcel Energy develops a draft M&V plan and works with Customer or customer's agent to finalize this plan for implementation. The plan needs to cover initial site verification and a monitoring plan for three years.	
<b>Business Gas:</b>				
Heating Efficiency	Commercial 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. 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 & Post Metering verifies savings. (Projects of all sizes may be metered depending on certainty assessment of savings).	Process/Impact Study in 2011
	Commercial 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.	Process/Impact Study in 2011
Custom Efficiency		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. 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 & Post Metering verifies savings. (Projects of all sizes may be metered depending on certainty assessment of savings).	

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
Energy Management Systems		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. Random samples of projects sent to outside engineering firm for verification. Account Manager or Buusiness Solutions Center verifies project installation, collects equipment invoices. Project >=20,000 Dth savings: Pre & Post Metering verifies savings. (Projects of all sizes may be metered depending on certainty assessment of savings).	
New Construction	Energy Efficiency Buildings	Direct/Prescriptive	Consultant visits site and verifies that specified measures were installed. Projects with individual measure savings >= 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 >= 20,000 Dth savings: Four weeks of data logging verifies savings. All projects verified with actual results not within 10% of the energy savings identified in the original model, will have an as-built model completed for rebate calculations.	
Process Efficiency	Process Efficiency - Prescriptive	Direct/Prescriptive	Verification Contractor selects random sample & performs field inspections of deemed savings factors specified for applicable end use product.	
	Process 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. Random samples of projects sent to outside engineering firm for verification. Account Manager or Buusiness Solutions Center verifies project installation, collects equipment invoices. Project >=20,000 Dth savings: Pre & Post Metering verifies savings. (Projects of all sizes may be metered depending on certainty assessment of savings).	

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
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. Approved customers may perform their own measure analysis and/or use our recommissioning calculator tool with standard savings calculations. 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. For projects 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. Approved customers may perform their own measure analysis and/or use our recommissioning calculator tool with standard savings calculations. 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. For projects very difficult to meter, a combination of metering and calculation may be used.	
Segment Efficiency	Segment Efficiency - Prescriptive Boilers	Direct/Prescriptive	Same as Prescriptive Boilers.	
	Segment Efficiency - Recommissioning	Direct/Custom	Sames as Custom Recommissioning.	
Standard Offer		Direct/Custom	Customer or customers agent (such as ESCO) will calculate savings and Company will verify calculations. Initial M&V plan is submitted as part of the TEA Study; however, Xcel Energy develops a draft M&V plan and works with Customer or customer's agent to finalize this plan for implementation. The plan needs to cover initial site verification and a monitoring plan for three years.	
<b>Residential Electric:</b>				
Energy Efficient Showerhead		Direct/Prescriptive	A third-party product implementer manages the showerhead fulfillment and another third-party will complete follow-up phone surveys to a sample of participants to confirm whether the unit was installed. The third-party determines the installation rate from the survey results, which will then be applied to the gross savings for the calendar year.	Process/Impact Study in 2011

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
ENERGY STAR New Homes		Direct/Prescriptive	Third-party energy rater performs multiple site walk throughs and determines final HERS rating (blower door) at end of construction prior to rebating for product - 100% site verification. Data verified by Rater's Provider. Home size information, measures installed, and HERS rating are submitted to Program Implementer, then PSCO.	
Evaporative Cooling Rebate		Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors; e.g. type of unit (tier 1 or 2), and type of unit if previously installed.	
Home Lighting & Recycling		Direct/Prescriptive	Verification contractor audits product tracking databases.	
High Efficiency Air Conditioning		Direct/Prescriptive	Verification Contractor selects random sample and performs field inspections of deemed savings factors; e.g. type of unit and type of unit if previously installed. Additionally contractor, using a defined process, will verify quality installation has been completed. Includes verifying load calculation was performed and unit sized properly and that refrigerant charge, air flow and duct leakage are within acceptable ranges.	
Home Performance with ENERGY STAR		Direct/Prescriptive	Third-party product implementer (auditor) performs a blower door and CAZ test after verifying the homeowner has performed all of their planned energy efficiency improvements. 100% of all homes will be inspected through this method. The product has this permanently built into the product as a requirement to ensure all stated improvements have been and meet program requirements made prior to issuing the rebate. PSCO will also implement a market research survey with customers to gauge satisfaction with the product, auditors, and installation contractors that were used.	
Refrigerator Recycling		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		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.	
School Education Kit		Direct/Prescriptive	Third-party product implementer conducts phone/mail surveys to teachers/students to confirm what was installed at students home.	

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
Low-Income Program	Single-Family Weatherization	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.	Single-Family Weatherization Process/Impact Study in 2011
	Multi-Family Weatherization	Direct/Custom	Consultant visits home 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.	
	Non-Profit Weatherization	Direct/Custom	Consultant visits home 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 Kit	Direct/Prescriptive	Third-party conducts phone surveys to confirm what was installed at recipient's home.	
<b>Residential Gas:</b>				
Energy Efficient Showerhead		Direct/Prescriptive	Verification Contractor selects random sample & performs phone survey of deemed savings factors -- e.g. did the customer receive the product and was it installed.	Process/Impact Study in 2011
ENERGY STAR New Homes		Direct/Prescriptive	Third-party energy rater performs multiple site walk throughs and determines final HERS rating (blower door) at end of construction prior to rebating for product - 100% site verification. Data verified by Rater's Provider. Home size information, measures installed, and HERS rating are submitted to Program Implementer, then PSCo.	
Heating System Rebate		Direct/Prescriptive	Verification Contractor selects random sample & performs field inspections of deemed savings factors; e.g. manufacturer, model, serial number	
Home Performance with ENERGY STAR		Direct/Prescriptive	Third-party product implementer (auditor) performs a blower door and CAZ test after verifying the homeowner has performed all of their planned energy efficiency improvements. 100% of all homes will be inspected through this method. The product has this permanently built into the product as a requirement to ensure all stated improvements have been and meet program requirements made prior to issuing the rebate. PSCo will also implement a market research survey with customers to gauge satisfaction with the product, auditors, and installation contractors that were used.	
Insulation Rebate		Direct/Prescriptive	Verification Contractor selects random sample and conducts phone survey to confirm measure was installed.	

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
School Education Kit		Direct/Prescriptive	The third-party product implementers issue the kits and complete follow-up surveys to a sample of the participants to confirm and track if the equipment was installed. An installation rate is applied to the gross savings for the calendar year.	
Water Heating Rebate		Direct/Prescriptive	Verification Contractor selects random sample & performs field inspections of deemed savings factors -- e.g. type of unit installed.	
Low-Income Program	Single Family Weatherization	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.	Single-Family Weatherization Process/Impact Study in 2011
	Multi-Family Weatherization	Direct/Custom	Consultant visits home 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.	
	Non-Profit Weatherization	Direct/Custom	Consultant visits home 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.	
	Easy Savings Energy Kits	Direct/Prescriptive	Third-party product implementer conducts phone or mail surveys to confirm what was installed at recipient's home.	
<b>Education/Market Transformation</b>				
Business Energy Analysis		Indirect	As an indirect product no savings are claimed. Public Service tracks the number of online assessments, onsite assessments and engineering assistance studies. With onsite assessments and engineering studies, energy savings are calculated once the study has been approved by Public Service, but the savings are only claimed and tracked within a direct program once a project is actually implemented	
Customer Behavioral Change - Residential & Business		Indirect/Market Transformation	As an indirect product no savings are claimed. Public Service monitors the effectiveness of this product by tracking participation and response to marketing efforts. The method of measurement of participation and response are dependent on the type of channel used to communicate with customers. Marketing channels include print, radio, events, and web. Tracking metrics may include circulation and average readership (print), maximum audience exposure (radio), event attendance (events), and unique visits (web).	

Product Name	Component Name	Type of Product	M&V Plan	Comprehensive Product Evaluation Plans
Residential Home Energy Audit		Indirect	As an indirect product, no savings are claimed. 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.	
<b>Pilot Products</b>				
Central AC Tune-up Pilot		Direct Pilot/Prescriptive	Data collected by AC contractor from Tune-up is directly sent to third party (FDSi) for quality assurance on test results and field work. FDSi reports program results and data to Public Service. Public Service uses data to evaluate Pilot Program. Customer opinion research conducted with participants to measure customer satisfaction.	
Energy Feedback Pilot		Residential Pilot/Market Transformation	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 <sup>[1]</sup> .	
ENERGY STAR Retailer Incentive Pilot		Residential Pilot/Market Transformation	The product performance is measured by our third party contractor using pre-determined deemed technical assumptions and post-promotion retailer sales data. Customer data is not available but the participating retailers are required to submit monthly sales data reports.	
In-Home Smart Device Pilot		Indirect/Market Transformation	EM&V will be primarily done through our third-part contractor by collecting and verifying customer survey and load data to determine the pilots potential as a product. In addition, this Market Transformation behavior product will use relevant E,M&V plan guidelines as set forth in the California Evaluation Framework <sup>[1]</sup> .	
SmartGridCity Pricing Pilot		Indirect/Market Transformation	EM&V will be primarily done through our third-part contractor by collecting and verifying customer survey and load data to determine the pilots potential as a product. In addition, this Market Transformation behavior product will use relevant E,M&V plan guidelines as set forth in the California Evaluation Framework <sup>[1]</sup> .	
<sup>[1]</sup> TecMarket Works Framework Team, California Evaluation Framework, June 2004, p. 245-268.				

## **Benefit-Cost Analyses**

The following section provides the detailed benefit-cost analyses for the electric and gas DSM portfolio as well as for each program. To calculate the benefit-cost analyses the planning assumptions, provided in the next section of this Plan, are used to estimate the energy consumption impacts and other measure-specific factors.

A key for the benefit-cost analyses is provided below for reference, followed by the benefit-cost analysis for the electric and gas DSM portfolio and the Programs.

## ELECTRIC BENEFIT-COST ANALYSIS KEY

Net Present Electric Benefit-Cost Analysis for All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified Total Resource Cost Test (\$Total)
<b>Benefits</b>				
<b>System Benefits (Avoided Costs)</b>				
Generation Capacity		A1	A1	A1
Transmission & Distribution Capacity		A2	A2	A2
Marginal Energy		A3	A3	A3
Avoided Emissions (CO <sub>2</sub> , SO <sub>x</sub> )		A4	A4	A4
Subtotal		A	A	A5
Non-Energy Benefits Adder (x%)				A6
Subtotal		A	A	AA
<b>Other Benefits</b>				
Bill Reduction - Electric	B1			
Participant Rebates and Incentives	B2			B3
Incremental Capital Savings	B4			B5
Incremental O&M Savings	B6			B7
Subtotal	B			BB
<b>Total Benefits</b>	F1	F2	F3	F4
<b>Costs</b>				
<b>Utility Project Costs</b>				
Program Planning & Design		C1	C1	C1
Administration & Program Delivery		C2	C2	C2
Advertising/Promotion/Customer Ed		C3	C3	C3
Participant Rebates and Incentives		C4	C4	C4
Equipment & Installation		C5	C5	C5
Measurement and Verification		C6	C6	C6
Subtotal		C	C	C
<b>Utility Revenue Reduction</b>				
Revenue Reduction - Electric			D1	
Subtotal			D	
<b>Participant Costs</b>				
Incremental Capital Costs	E1			E2
Incremental O&M Costs	E3			E4
Subtotal	E			EE
<b>Total Costs</b>	G1	G2	G3	G4
<b>Net Benefit (Cost)</b>	H1	H2	H3	H4
<b>Benefit/Cost Ratio</b>	I1	I2	I3	I4

### Explanation of Inputs

A1	Generation Avoided (Net)
A2	Transmission and Distribution Avoided (Net)
A3	Marginal Energy Reduced (Net)
A4	Emissions Avoided (Net)
A5	Total System Benefits
A6	NEB * A5
A	A1 + A2 + A3 + A4
AA	A5 + A6
B1	Participant bill savings from program (Gross)
B2	Rebates and Incentives Received by Participants (Gross)
B3	Rebates and Incentives Received by Participants and Vendors (Gross)
B4	Incremental Capital Savings (Gross)
B5	Incremental Capital Savings (Net)
B6	Incremental O&M Savings (Gross, Escalated by 1.9% with 7.74% Discount)
B7	Incremental O&M Savings (Net, Escalated by 1.9% with 7.74% Discount)
B	B1 + B2 + B4 + B6
BB	B3 + B5 + B7
D1	Lost Electric revenues from program (Net)
D	D1
C1	Program Planning and Design Costs (Gross)
C2	Administration & Program Delivery Costs (Gross)
C3	Advertising/Promotion/Customer Ed Costs (Gross)
C4	Participant (Rebates & Incentives) Costs (Gross)
C5	Equipment & Installation Costs (Gross)
C6	Measurement and Verification Costs (Gross)
C	C1 + C2 + C3 + C4 + C5 + C6
E1	Incremental Capital Costs (Gross)
E2	Incremental Capital Costs (Net)
E3	Incremental O&M Costs (Gross, Escalated by 1.9% with 7.74% Discount)
E4	Incremental O&M Costs (Net, Escalated by 1.9% with 7.74% Discount)
E	E1 + E3
EE	E2 + E4
F1	B
F2	A
F3	A
F4	AA + BB
G1	E
G2	C
G3	D + C
G4	C + EE
H1	F1 - G1
H2	F2 - G2
H3	F3 - G3
H4	F4 - G4
I1	F1 / G1
I2	F2 / G2
I3	F3 / G3
I4	F4 / G4

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

## GAS BENEFIT-COST ANALYSIS KEY

Gas Benefit-Cost Analysis per One Dth/Yr

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified Total Resource Cost Test (\$Total)
<b>Benefits</b>				
<b>System Benefits (Avoided Costs)</b>				
Commodity Cost Reduction		A1	A1	A1
Variable O&M Savings		A2	A2	A2
Demand Savings		A3	A3	A3
Subtotal		A	A	A4
Emissions and Non-Energy Benefits (5% Adder)				A5
Subtotal		A	A	AA
<b>Other Benefits</b>				
Bill Reduction - Gas	B1			
Participant Rebates and Incentives	B2			B3
Incremental Capital Savings	B4			B5
Incremental O&M Savings	B6			B7
Subtotal	B			BB
Subtotal	F1	F2	F3	F4
<b>Costs</b>				
<b>Utility Project Costs</b>				
Program Planning & Design		C1	C1	C1
Administration & Program Delivery		C2	C2	C2
Advertising/Promotion/Customer Ed		C3	C3	C3
Participant Rebates and Incentives		C4	C4	C4
Equipment & Installation		C5	C5	C5
Measurement and Verification		C6	C6	C6
Subtotal		C	C	C
<b>Utility Revenue Reduction</b>				
Revenue Reduction - Gas			D1	
Subtotal			D	
<b>Participant Costs</b>				
Incremental Capital Costs	E1			E2
Incremental O&M Costs	E3			E4
Subtotal	E			EE
Subtotal	G1	G2	G3	G4
<b>Net Benefit (Cost)</b>				
Net Benefit (Cost)	H1	H2	H3	H4
<b>Benefit/Cost Ratio</b>				
Benefit/Cost Ratio	I1	I2	I3	I4

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

### Explanation of Inputs

A1		Reduced Commodity (Net)
A2		Variable O&M Savings (Net)
A3		Reduced System Capacity (Net)
A4	A1 + A2 + A3	Total System Benefits (Net)
A5	NEB * A4	Emissions and Non-Energy Benefits Adder (5%)
A	A1 + A2 + A3	Total System Benefits
AA	A4 + A5	Total System Benefits with NEB Adder
B1		Participant bill savings from program (Gross)
B2		Rebates and Incentives Received by Participants (Gross)
B3		Rebates and Incentives Received by Participants and Vendors (Gross)
B4		Incremental Capital Savings (Gross)
B5		Incremental Capital Savings (Net)
B6		Incremental O&M Savings (Gross, Escalated by 1.9% with 7.72% Discount)
B7		Incremental O&M Savings (Net, Escalated by 1.9% with 7.72% Discount)
B	B1 + B2 + B4 + B6	Total Other Benefits (Participant Test)
BB	B3 + B5 + B7	Total Other Benefits (Modified TRC Test)
D1		Lost Gas revenues from program (Net)
D		Total Lost Gas revenues from program (Net)
C1		Program Planning and Design Costs (Gross)
C2		Administration & Program Delivery Costs (Gross)
C3		Advertising/Promotion/Customer Ed Costs (Gross)
C4		Participant (Rebates & Incentives) Costs (Gross)
C5		Equipment & Installation Costs (Gross)
C6		Measurement and Verification Costs (Gross)
C	C1 + C2 + C3 + C4 + C5 + C6	Total Utility Program Costs (Gross)
E1		Incremental Capital Costs (Gross)
E2		Incremental Capital Costs (Net)
E3		Incremental O&M Costs (Gross, Escalated by 1.9% with 7.72% Discount)
E4		Incremental O&M Costs (Net, Escalated by 1.9% with 7.72% Discount)
E	E1 + E3	Total Participant Costs (Gross)
EE	E2 + E4	Total Participant Costs (Net)
F1	B	Total Benefits in Participant Test
F2	A	Total Benefits in Utility Test
F3	A	Total Benefits in Rate Impact Test
F4	AA + BB	Total Benefits in Modified TRC Test
G1	E	Total Costs in Participant Test
G2	C	Total Costs in Utility Test
G3	D + C	Total Costs in Rate Impact Test
G4	C + EE	Total Costs in Modified TRC Test
H1	F1 - G1	Net Benefits (Costs) in Participant Test
H2	F2 - G2	Net Benefits (Costs) in Utility Test
H3	F3 - G3	Net Benefits (Costs) in Rate Impact Test
H4	F4 - G4	Net Benefits (Costs) in Modified TRC Test
I1	F1 / G1	Participant Test Ratio
I2	F2 / G2	Utility Test Ratio
I3	F3 / G3	Rate Impact Test Ratio
I4	F4 / G4	Modified Total Resource Cost Test Ratio

**DSM PORTFOLIO - ELECTRIC**

**2011 ELECTRIC**

**GOAL**

2011 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
<b>Benefits</b>				
<b>System Benefits (Avoided Costs)</b>				
Generation Capacity	N/A	\$107,035,851	\$107,035,851	\$107,035,851
Transmission & Distribution Capx	N/A	\$22,662,587	\$22,662,587	\$22,662,587
Marginal Energy	N/A	\$98,313,615	\$98,313,615	\$98,313,615
Avoided Emissions (CO2, SOx)	N/A	N/A	N/A	\$27,488,834
Subtotal				\$255,500,886
Non-Energy Benefits Adder (10.2%)				\$26,031,778
Subtotal	N/A	\$228,012,052	\$228,012,052	\$281,532,665
<b>Other Benefits</b>				
Bill Reduction - Electric	\$151,703,346	N/A	N/A	N/A
Participant Rebates and Incentives	\$33,740,729	N/A	N/A	\$33,740,729
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$13,410,829	N/A	N/A	\$11,493,289
Subtotal	\$198,854,904	N/A	N/A	\$45,234,018
<b>Total Benefits</b>	<b>\$198,854,904</b>	<b>\$228,012,052</b>	<b>\$228,012,052</b>	<b>\$326,766,683</b>
<b>Costs</b>				
<b>Utility Project Costs</b>				
Program Planning & Design	N/A	\$1,914,506	\$1,914,506	\$1,914,506
Administration & Program Delivery	N/A	\$15,362,018	\$15,362,018	\$15,362,018
Advertising/Promotion/Customer I	N/A	\$9,576,416	\$9,576,416	\$9,576,416
Participant Rebates and Incentives	N/A	\$33,740,729	\$33,740,729	\$33,740,729
Equipment & Installation	N/A	\$4,826,363	\$4,826,363	\$4,826,363
Measurement and Verification	N/A	\$3,113,902	\$3,113,902	\$3,113,902
Subtotal	N/A	\$68,533,933	\$68,533,933	\$68,533,933
<b>Utility Revenue Reduction</b>				
Revenue Reduction - Electric	N/A	N/A	\$130,725,757	N/A
Subtotal	N/A	N/A	\$130,725,757	N/A
<b>Participant Costs</b>				
Incremental Capital Costs	\$63,719,152	N/A	N/A	\$55,388,618
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$63,719,152	N/A	N/A	\$55,388,618
<b>Total Costs</b>	<b>\$63,719,152</b>	<b>\$68,533,933</b>	<b>\$199,259,691</b>	<b>\$123,922,552</b>

Net Benefit (Cost)	\$135,135,752	\$159,478,119	\$28,752,361	\$202,844,131
Benefit/Cost Ratio	3.12	3.33	1.14	2.64

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	32.41%
Gross Load Factor at Customer	E	13.79%
Net-to-Gross (Energy)	F	88.6%
Net-to-Gross (Demand)	G	89.3%
Transmission Loss Factor (Energy)	H	7.034%
Transmission Loss Factor (Demand)	I	7.477%
<b>Installation Rate (Energy)</b>	<b>J</b>	<b>97.9%</b>
<b>Installation Rate (Demand)</b>	<b>K</b>	<b>99.6%</b>
MTRC Net Benefit (Cost)	L	\$893
MTRC Non-Energy Benefit Adder	M	\$115
Net coincident kW Saved at Generator	$(G \times C \times K) \times D / (1 - I)$	0.3116 kW
Gross Annual kWh Saved at Customer	$(B \times E \times C)$	1,208 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times C \times J))$	1,048 kWh
Net Annual kWh Saved at Generator	$(F \times (B \times E \times C \times J)) / (1 - H)$	1,127 kWh

Program Summary per Participant

Gross kW Saved at Customer	P	0.41 kW
Net coincident kW Saved at Generator	$(G \times P \times K) \times D / (1 - I)$	0.13 kW
Gross Annual kWh Saved at Customer	$(B \times E \times P)$	498 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J))$	432 kWh
Net Annual kWh Saved at Generator	$(F \times (B \times E \times P \times J)) / (1 - H)$	465 kWh

Program Summary All Participants

Total Participants	Q	550,300
<b>Total Budget</b>	R	<b>\$68,533,933</b>
Gross kW Saved at Customer	$(Q \times P)$	227,064 kW
<b>Net coincident kW Saved at Generator</b>	$((G \times P \times K) \times D / (1 - I)) \times Q$	<b>70,762 kW</b>
Gross Annual kWh Saved at Customer	$(B \times E \times P) \times Q$	274,206,399 kWh
<b>Gross Installed Annual kWh Saved at Customer</b>	$(B \times E \times P \times J) \times Q$	<b>268,368,477 kWh</b>
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J)) \times Q$	237,906,027 kWh
<b>Net Annual kWh Saved at Generator</b>	$((F \times (B \times E \times P \times J)) / (1 - H)) \times Q$	<b>255,907,639 kWh</b>
TRC Net Benefits with Adder	$(Q \times P \times L)$	\$202,844,131
TRC Net Benefits without Adder	$(Q \times P \times (L - M))$	\$176,812,352

Utility Program Cost per kWh Lifetime

\$0.0193

Utility Program Cost per kW at Gen

\$969

<b>BUSINESS PROGRAM TOTAL</b>	<b>2011</b>	<b>ELECTRIC</b>	<b>GOAL</b>
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2011 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
<b>Benefits</b>				
<b>System Benefits (Avoided Costs)</b>				
Generation Capacity	N/A	\$61,585,093	\$61,585,093	\$61,585,093
Transmission & Distribution Capx	N/A	\$12,990,968	\$12,990,968	\$12,990,968
Marginal Energy	N/A	\$76,607,993	\$76,607,993	\$76,607,993
Avoided Emissions (CO2, SOx)	N/A	N/A	N/A	\$22,751,143
Subtotal				\$173,935,197
Non-Energy Benefits Adder (10%)				\$17,393,520
Subtotal	N/A	\$151,184,054	\$151,184,054	\$191,328,717
<b>Other Benefits</b>				
Bill Reduction - Electric	\$99,392,490	N/A	N/A	N/A
Participant Rebates and Incentives	\$21,302,265	N/A	N/A	\$21,302,265
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$12,444,170	N/A	N/A	\$10,937,901
Subtotal	\$133,138,925	N/A	N/A	\$32,240,166
<b>Total Benefits</b>	<b>\$133,138,925</b>	<b>\$151,184,054</b>	<b>\$151,184,054</b>	<b>\$223,568,882</b>
<b>Costs</b>				
<b>Utility Project Costs</b>				
Program Planning & Design	N/A	\$880,302	\$880,302	\$880,302
Administration & Program Delivery	N/A	\$9,466,352	\$9,466,352	\$9,466,352
Advertising/Promotion/Customer I	N/A	\$2,935,488	\$2,935,488	\$2,935,488
Participant Rebates and Incentives	N/A	\$21,302,265	\$21,302,265	\$21,302,265
Equipment & Installation	N/A	\$0	\$0	\$0
Measurement and Verification	N/A	\$1,750,123	\$1,750,123	\$1,750,123
Subtotal	N/A	\$36,334,530	\$36,334,530	\$36,334,530
<b>Utility Revenue Reduction</b>				
Revenue Reduction - Electric	N/A	N/A	\$86,944,997	N/A
Subtotal	N/A	N/A	\$86,944,997	N/A
<b>Participant Costs</b>				
Incremental Capital Costs	\$53,003,736	N/A	N/A	\$46,014,126
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$53,003,736	N/A	N/A	\$46,014,126
<b>Total Costs</b>	<b>\$53,003,736</b>	<b>\$36,334,530</b>	<b>\$123,279,527</b>	<b>\$82,348,656</b>

Net Benefit (Cost)	\$80,135,189	\$114,849,524	\$27,904,527	\$141,220,226
Benefit/Cost Ratio	2.51	4.16	1.23	2.71

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	17 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	82.29%
Gross Load Factor at Customer	E	42.30%
Net-to-Gross (Energy)	F	87.8%
Net-to-Gross (Demand)	G	86.7%
Transmission Loss Factor (Energy)	H	6.640%
Transmission Loss Factor (Demand)	I	6.640%
<b>Installation Rate (Energy)</b>	<b>J</b>	<b>100.0%</b>
<b>Installation Rate (Demand)</b>	<b>K</b>	<b>100.0%</b>
MTRC Net Benefit (Cost)	L	\$3,044
MTRC Non-Energy Benefit Adder	M	\$375
Net coincident kW Saved at Generator	$(G \times C \times K) \times D / (1 - I)$	0.7640 kW
Gross Annual kWh Saved at Customer	$(B \times E \times C)$	3,706 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times C \times J))$	3,254 kWh
Net Annual kWh Saved at Generator	$(F \times (B \times E \times C \times J)) / (1 - H)$	3,485 kWh

Program Summary per Participant

Gross kW Saved at Customer	P	14.97 kW
Net coincident kW Saved at Generator	$(G \times P \times K) \times D / (1 - I)$	11.44 kW
Gross Annual kWh Saved at Customer	$(B \times E \times P)$	55,482 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J))$	48,718 kWh
Net Annual kWh Saved at Generator	$(F \times (B \times E \times P \times J)) / (1 - H)$	52,182 kWh

Program Summary All Participants

Total Participants	Q	3,099
<b>Total Budget</b>	<b>R</b>	<b>\$36,334,530</b>
Gross kW Saved at Customer	$(Q \times P)$	46,397 kW
<b>Net coincident kW Saved at Generator</b>	$((G \times P \times K) \times D / (1 - I)) \times Q$	<b>35,447 kW</b>
Gross Annual kWh Saved at Customer	$(B \times E \times P) \times Q$	171,931,006 kWh
<b>Gross Installed Annual kWh Saved at Customer</b>	$(B \times E \times P \times J) \times Q$	<b>171,931,006 kWh</b>
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J)) \times Q$	150,969,094 kWh
<b>Net Annual kWh Saved at Generator</b>	$((F \times (B \times E \times P \times J)) / (1 - H)) \times Q$	<b>161,706,399 kWh</b>
TRC Net Benefits with Adder	$(Q \times P \times L)$	\$141,220,226
TRC Net Benefits without Adder	$(Q \times P \times (L - M))$	\$123,826,706

Utility Program Cost per kWh Lifetime	<b>\$0.0129</b>
Utility Program Cost per kW at Gen	<b>\$1,025</b>

<b>RESIDENTIAL PROGRAM TOTAL</b>	<b>2011 ELECTRIC</b>	<b>GOAL</b>
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2011 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
<b>Benefits</b>				
<b>System Benefits (Avoided Costs)</b>				
Generation Capacity	N/A	\$42,881,515	\$42,881,515	\$42,881,515
Transmission & Distribution Capx	N/A	\$9,123,083	\$9,123,083	\$9,123,083
Marginal Energy	N/A	\$14,760,228	\$14,760,228	\$14,760,228
Avoided Emissions (CO2, SOx)	N/A	N/A	N/A	\$3,086,109
Subtotal				\$69,850,935
Non-Energy Benefits Adder (10%)				\$6,985,094
Subtotal	N/A	\$66,764,826	\$66,764,826	\$76,836,029
<b>Other Benefits</b>				
Bill Reduction - Electric	\$34,987,733	N/A	N/A	N/A
Participant Rebates and Incentives	\$10,352,507	N/A	N/A	\$10,352,507
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$350,138	N/A	N/A	\$227,444
Subtotal	\$45,690,378	N/A	N/A	\$10,579,951
<b>Total Benefits</b>	<b>\$45,690,378</b>	<b>\$66,764,826</b>	<b>\$66,764,826</b>	<b>\$87,415,980</b>
<b>Costs</b>				
<b>Utility Project Costs</b>				
Program Planning & Design	N/A	\$42,112	\$42,112	\$42,112
Administration & Program Delivery	N/A	\$2,534,196	\$2,534,196	\$2,534,196
Advertising/Promotion/Customer I	N/A	\$3,331,776	\$3,331,776	\$3,331,776
Participant Rebates and Incentives	N/A	\$10,352,507	\$10,352,507	\$10,352,507
Equipment & Installation	N/A	\$4,806,363	\$4,806,363	\$4,806,363
Measurement and Verification	N/A	\$645,817	\$645,817	\$645,817
Subtotal	N/A	\$21,712,770	\$21,712,770	\$21,712,770
<b>Utility Revenue Reduction</b>				
Revenue Reduction - Electric	N/A	N/A	\$30,176,062	N/A
Subtotal	N/A	N/A	\$30,176,062	N/A
<b>Participant Costs</b>				
Incremental Capital Costs	\$6,801,644	N/A	N/A	\$6,261,569
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$6,801,644	N/A	N/A	\$6,261,569
<b>Total Costs</b>	<b>\$6,801,644</b>	<b>\$21,712,770</b>	<b>\$51,888,833</b>	<b>\$27,974,339</b>

Net Benefit (Cost)	\$38,888,734	\$45,052,056	\$14,875,994	\$59,441,641
Benefit/Cost Ratio	6.72	3.07	1.29	3.12

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	8 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	22.98%
Gross Load Factor at Customer	E	5.54%
Net-to-Gross (Energy)	F	89.5%
Net-to-Gross (Demand)	G	92.5%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
<b>Installation Rate (Energy)</b>	<b>J</b>	<b>96.2%</b>
<b>Installation Rate (Demand)</b>	<b>K</b>	<b>99.6%</b>
MTRC Net Benefit (Cost)	L	\$412
MTRC Non-Energy Benefit Adder	M	\$48
Net coincident kW Saved at Generator	$(G \times C \times K) \times D / (1 - I)$	0.2293 kW
Gross Annual kWh Saved at Customer	$(B \times E \times C)$	486 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times C \times J))$	418 kWh
Net Annual kWh Saved at Generator	$(F \times (B \times E \times C \times J)) / (1 - H)$	453 kWh

Program Summary per Participant

Gross kW Saved at Customer	P	0.36 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	$(B \times E \times P)$	177 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J))$	153 kWh
Net Annual kWh Saved at Generator	$(F \times (B \times E \times P \times J)) / (1 - H)$	165 kWh

Program Summary All Participants

Total Participants	Q	395,166
<b>Total Budget</b>	R	<b>\$21,712,770</b>
Gross kW Saved at Customer	$(Q \times P)$	144,151 kW
<b>Net coincident kW Saved at Generator</b>	$((G \times P \times K) \times D / (1 - I)) \times Q$	<b>33,055 kW</b>
Gross Annual kWh Saved at Customer	$(B \times E \times P) \times Q$	70,016,240 kWh
<b>Gross Installed Annual kWh Saved at Customer</b>	$(B \times E \times P \times J) \times Q$	<b>67,359,699 kWh</b>
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J)) \times Q$	60,281,069 kWh
<b>Net Annual kWh Saved at Generator</b>	$((F \times (B \times E \times P \times J)) / (1 - H)) \times Q$	<b>65,302,859 kWh</b>
TRC Net Benefits with Adder	$(Q \times P \times L)$	\$59,441,641
TRC Net Benefits without Adder	$(Q \times P \times (L - M))$	\$52,456,547

Utility Program Cost per kWh Lifetime

\$0.0435

Utility Program Cost per kW at Gen

\$657

<b>LOW-INCOME PROGRAM TOTAL</b>				
2011 Net Present Cost Benefit Summary Analysis For All Participants				
	Participant	Utility	Rate	Modified
	Test	Test	Impact	TRC
	(\$Total)	(\$Total)	(\$Total)	(\$Total)
<b>Benefits</b>				
<b>System Benefits (Avoided Costs)</b>				
Generation Capacity	N/A	\$820,387	\$820,387	\$820,387
Transmission & Distribution Capacity	N/A	\$176,387	\$176,387	\$176,387
Marginal Energy	N/A	\$3,138,076	\$3,138,076	\$3,138,076
Avoided Emissions (CO2, SOx)	N/A	N/A	N/A	\$682,047
Subtotal				\$4,816,897
Non-Energy Benefits Adder (20%)				\$963,379
Subtotal	N/A	\$4,134,850	\$4,134,850	\$5,780,277
<b>Other Benefits</b>				
Bill Reduction - Electric	\$7,987,403	N/A	N/A	N/A
Participant Rebates and Incentives	\$1,456,897	N/A	N/A	\$1,456,897
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$282,082	N/A	N/A	\$145,894
Subtotal	\$9,726,382	N/A	N/A	\$1,602,791
<b>Total Benefits</b>	<b>\$9,726,382</b>	<b>\$4,134,850</b>	<b>\$4,134,850</b>	<b>\$7,383,067</b>
<b>Costs</b>				
<b>Utility Project Costs</b>				
Program Planning & Design	N/A	\$6,672	\$6,672	\$6,672
Administration & Program Delivery	N/A	\$540,627	\$540,627	\$540,627
Advertising/Promotion/Customer Ed	N/A	\$291,130	\$291,130	\$291,130
Participant Rebates and Incentives	N/A	\$1,456,897	\$1,456,897	\$1,456,897
Equipment & Installation	N/A	\$0	\$0	\$0
Measurement and Verification	N/A	\$82,098	\$82,098	\$82,098
Subtotal	N/A	\$2,377,425	\$2,377,425	\$2,377,425
<b>Utility Revenue Reduction</b>				
Revenue Reduction - Electric	N/A	N/A	\$6,508,041	N/A
Subtotal	N/A	N/A	\$6,508,041	N/A
<b>Participant Costs</b>				
Incremental Capital Costs	\$772,441	N/A	N/A	\$754,563
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$772,441	N/A	N/A	\$754,563
<b>Total Costs</b>	<b>\$772,441</b>	<b>\$2,377,425</b>	<b>\$8,885,465</b>	<b>\$3,131,988</b>
<b>Net Benefit (Cost)</b>	<b>\$8,953,941</b>	<b>\$1,757,426</b>	<b>(\$4,750,615)</b>	<b>\$4,251,079</b>
<b>Benefit/Cost Ratio</b>	<b>12.59</b>	<b>1.74</b>	<b>0.47</b>	<b>2.36</b>

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

<b>2011 ELECTRIC</b>			<b>GOAL</b>
<b>Input Summary and Totals</b>			
<b>Program Inputs per Customer kW</b>			
Lifetime (Weighted on Generator kWh)	A		8 years
Annual Hours	B		8760
Gross Customer kW	C		1 kW
Generator Peak Coincidence Factor	D		3.20%
Gross Load Factor at Customer	E		5.79%
Net-to-Gross (Energy)	F		98.9%
Net-to-Gross (Demand)	G		98.6%
Transmission Loss Factor (Energy)	H		7.690%
Transmission Loss Factor (Demand)	I		7.690%
<b>Installation Rate (Energy)</b>	<b>J</b>		<b>81.4%</b>
<b>Installation Rate (Demand)</b>	<b>K</b>		<b>87.1%</b>
MTRC Net Benefit (Cost)	L		\$144
MTRC Non-Energy Benefit Adder	M		\$33
Net coincident kW Saved at Generator	$(G \times C \times K) \times D / (1 - I)$		0.0298 kW
Gross Annual kWh Saved at Customer	$(B \times E \times C)$		507 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times C \times J))$		408 kWh
Net Annual kWh Saved at Generator	$(F \times (B \times E \times C \times J)) / (1 - H)$		442 kWh
<b>Program Summary per Participant</b>			
Gross kW Saved at Customer	P		2.52 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	$(B \times E \times P)$		1,278 kWh
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J))$		1,028 kWh
Net Annual kWh Saved at Generator	$(F \times (B \times E \times P \times J)) / (1 - H)$		1,114 kWh
<b>Program Summary All Participants</b>			
Total Participants	Q		11,730
<b>Total Budget</b>	R		<b>\$2,377,425</b>
Gross kW Saved at Customer	$(Q \times P)$		29,574 kW
<b>Net coincident kW Saved at Generator</b>	$((G \times P \times K) \times D / (1 - I)) \times Q$		<b>881 kW</b>
Gross Annual kWh Saved at Customer	$(B \times E \times P) \times Q$		14,989,232 kWh
<b>Gross Installed Annual kWh Saved at Customer</b>	$(B \times E \times P \times J) \times Q$		<b>12,197,308 kWh</b>
Net Annual kWh Saved at Customer	$(F \times (B \times E \times P \times J)) \times Q$		12,063,915 kWh
<b>Net Annual kWh Saved at Generator</b>	$((F \times (B \times E \times P \times J)) / (1 - H)) \times Q$		<b>13,068,915 kWh</b>
<b>TRC Net Benefits with Adder</b>	$(Q \times P \times L)$		<b>\$4,251,079</b>
<b>TRC Net Benefits without Adder</b>	$(Q \times P \times (L - M))$		<b>\$3,287,700</b>
<b>Utility Program Cost per kWh Lifetime</b>			
<b>\$0.0224</b>			
<b>Utility Program Cost per kW at Gen</b>			
<b>\$2,698</b>			

<b>DSM PORTFOLIO - GAS</b>	<b>2011</b>	<b>GAS</b>	<b>GOAL</b>
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**2011 Net Present Cost Benefit Summary Analysis For All Participants**

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
<b>Benefits</b>				
<b>System Benefits (Avoided Costs)</b>				
Commodity Cost Reduction	N/A	\$22,724,181	\$22,724,181	\$22,724,181
Variable O&M Savings	N/A	\$150,771	\$150,771	\$150,771
Demand Savings	N/A	\$1,699,794	\$1,699,794	\$1,699,794
Subtotal				\$24,574,746
Emissions Non-Energy Benefits Adder (5%)				\$1,228,737
Subtotal	N/A	\$24,574,746	\$24,574,746	\$25,803,483
<b>Other Benefits</b>				
Bill Reduction - Gas	\$34,463,503	N/A	N/A	N/A
Participant Rebates and Incentives	\$7,392,921	N/A	N/A	\$7,392,921
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$3,962,408	N/A	N/A	\$2,323,395
Subtotal	\$45,818,832	N/A	N/A	\$9,716,316
<b>Total Benefits</b>	<b>\$45,818,832</b>	<b>\$24,574,746</b>	<b>\$24,574,746</b>	<b>\$35,519,799</b>
<b>Costs</b>				
<b>Utility Project Costs</b>				
Program Planning & Design	N/A	\$508,876	\$508,876	\$508,876
Administration & Program Delivery	N/A	\$3,956,397	\$3,956,397	\$3,956,397
Advertising/Promotion/Customer Ed	N/A	\$2,341,433	\$2,341,433	\$2,341,433
Participant Rebates and Incentives	N/A	\$7,392,921	\$7,392,921	\$7,392,921
Equipment & Installation	N/A	\$10,000	\$10,000	\$10,000
Measurement and Verification	N/A	\$1,597,547	\$1,597,547	\$1,597,547
Subtotal	N/A	\$15,807,175	\$15,807,175	\$15,807,175
<b>Utility Revenue Reduction</b>				
Revenue Reduction - Gas	N/A	N/A	\$29,308,828	N/A
Subtotal	N/A	N/A	\$29,308,828	N/A
<b>Participant Costs</b>				
Incremental Capital Costs	\$16,320,788	N/A	N/A	\$14,856,180
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$16,320,788	N/A	N/A	\$14,856,180
<b>Total Costs</b>	<b>\$16,320,788</b>	<b>\$15,807,175</b>	<b>\$45,116,002</b>	<b>\$30,663,354</b>
<b>Net Benefit (Cost)</b>	<b>\$29,498,044</b>	<b>\$8,767,571</b>	<b>(\$20,541,256)</b>	<b>\$4,856,445</b>
<b>Benefit/Cost Ratio</b>	<b>2.81</b>	<b>1.55</b>	<b>0.54</b>	<b>1.16</b>

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

<b>Input Summary and Totals</b>		
<b>Program Assumptions:</b>		
Lifetime (Weighted on Dth)	A	13.87 years
Net-to-Gross (Weighted on Dth)	B	91.50%
Install Rate (Weighted on Dth)	C	93.9%

<b>Program Totals:</b>		
Participants	D	164,464
Average Net Dth/Yr Saved	E	2.24
<b>Total Dth/Yr Saved</b>	<b>F</b>	<b>368,227</b>
Utility Costs per Net Dth/Yr	G	\$42.93
Net Benefit (Cost) per Gross Dth/Yr	H	\$13.19
Non-Energy Benefits Adder per Gross Dth/Yr	I	\$3.34
<b>Annual Dth/\$M</b>	(\$1M / G)	<b>23,295</b>
<b>Total Utility Budget</b>	(G x F)	<b>\$15,807,175</b>
<b>Total MTRC Net Benefits with Adder</b>	(F x H)	<b>\$4,856,445</b>
<b>Total MTRC Net Benefits without Adder</b>	(H - I) x F	<b>\$3,627,708</b>
<b>Utility Program Cost per Net Dth Lifetime</b>	(G / A)	<b>\$3.10</b>

**BUSINESS PROGRAM TOTAL**

2011 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
<b>Benefits</b>				
<b>System Benefits (Avoided Costs)</b>				
Commodity Cost Reduction	N/A	\$6,179,106	\$6,179,106	\$6,179,106
Variable O&M Savings	N/A	\$40,286	\$40,286	\$40,286
Demand Savings	N/A	\$454,189	\$454,189	\$454,189
Subtotal				\$6,673,581
Emissions Non-Energy Benefits Adder (5%)				\$333,679
Subtotal	N/A	\$6,673,581	\$6,673,581	\$7,007,260
<b>Other Benefits</b>				
Bill Reduction - Gas	\$8,666,535	N/A	N/A	N/A
Participant Rebates and Incentives	\$1,309,786	N/A	N/A	\$1,309,786
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$0	N/A	N/A	\$0
Subtotal	\$9,976,321	N/A	N/A	\$1,309,786
<b>Total Benefits</b>	<b>\$9,976,321</b>	<b>\$6,673,581</b>	<b>\$6,673,581</b>	<b>\$8,317,046</b>

**Costs****Utility Project Costs**

Program Planning & Design	N/A	\$116,215	\$116,215	\$116,215
Administration & Program Delivery	N/A	\$773,371	\$773,371	\$773,371
Advertising/Promotion/Customer Ed	N/A	\$381,848	\$381,848	\$381,848
Participant Rebates and Incentives	N/A	\$1,309,786	\$1,309,786	\$1,309,786
Equipment & Installation	N/A	\$0	\$0	\$0
Measurement and Verification	N/A	\$114,113	\$114,113	\$114,113
Subtotal	N/A	\$2,695,332	\$2,695,332	\$2,695,332

**Utility Revenue Reduction**

Revenue Reduction - Gas	N/A	N/A	\$8,207,282	N/A
Subtotal	N/A	N/A	\$8,207,282	N/A

**Participant Costs**

Incremental Capital Costs	\$3,739,402	N/A	N/A	\$3,564,535
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$3,739,402	N/A	N/A	\$3,564,535

<b>Total Costs</b>	<b>\$3,739,402</b>	<b>\$2,695,332</b>	<b>\$10,902,614</b>	<b>\$6,259,867</b>
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<b>Net Benefit (Cost)</b>	<b>\$6,236,919</b>	<b>\$3,978,249</b>	<b>(\$4,229,033)</b>	<b>\$2,057,180</b>
<b>Benefit/Cost Ratio</b>	<b>2.67</b>	<b>2.48</b>	<b>0.61</b>	<b>1.33</b>

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

**2011****GAS****GOAL****Input Summary and Totals**

<b>Program Assumptions:</b>		
Lifetime (Weighted on Dth)	A	16.66 years
Net-to-Gross (Weighted on Dth)	B	95.07%
Install Rate (Weighted on Dth)	C	100.0%

**Program Totals:**

Participants	D	312
Average Net Dth/Yr Saved	E	271.59
<b>Total Dth/Yr Saved</b>	F	<b>84,735</b>
Utility Costs per Net Dth/Yr	G	\$31.81
Net Benefit (Cost) per Gross Dth/Yr	H	\$24.28
Non-Energy Benefits Adder per Gross Dth/Yr	I	\$3.94
<b>Annual Dth/\$M</b>	( $1M / G$ )	<b>31,438</b>
<b>Total Utility Budget</b>	( $G \times F$ )	<b>\$2,695,332</b>
<b>Total MTRC Net Benefits with Adder</b>	( $F \times H$ )	<b>\$2,057,180</b>
<b>Total MTRC Net Benefits without Adder</b>	( $H - I$ ) $\times$ F	<b>\$1,723,501</b>
<b>Utility Program Cost per Net Dth Lifetime</b>	( $G / A$ )	<b>\$1.91</b>

**RESIDENTIAL PROGRAM TOTAL**

2011 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
<b>Benefits</b>				
<b>System Benefits (Avoided Costs)</b>				
Commodity Cost Reduction	N/A	\$11,635,350	\$11,635,350	\$11,635,350
Variable O&M Savings	N/A	\$77,054	\$77,054	\$77,054
Demand Savings	N/A	\$868,702	\$868,702	\$868,702
Subtotal				\$12,581,106
Emissions Non-Energy Benefits Adder (5%)				\$629,055
Subtotal	N/A	\$12,581,106	\$12,581,106	\$13,210,161
<b>Other Benefits</b>				
Bill Reduction - Gas	\$18,420,022	N/A	N/A	N/A
Participant Rebates and Incentives	\$2,703,438	N/A	N/A	\$2,703,438
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$2,029,556	N/A	N/A	\$1,167,188
Subtotal	\$23,153,016	N/A	N/A	\$3,870,626
<b>Total Benefits</b>	<b>\$23,153,016</b>	<b>\$12,581,106</b>	<b>\$12,581,106</b>	<b>\$17,080,787</b>

**Costs**

<b>Utility Project Costs</b>				
Program Planning & Design	N/A	\$17,377	\$17,377	\$17,377
Administration & Program Delivery	N/A	\$1,171,631	\$1,171,631	\$1,171,631
Advertising/Promotion/Customer Ed	N/A	\$644,512	\$644,512	\$644,512
Participant Rebates and Incentives	N/A	\$2,703,438	\$2,703,438	\$2,703,438
Equipment & Installation	N/A	\$0	\$0	\$0
Measurement and Verification	N/A	\$600,501	\$600,501	\$600,501
Subtotal	N/A	\$5,137,459	\$5,137,459	\$5,137,459
<b>Utility Revenue Reduction</b>				
Revenue Reduction - Gas	N/A	N/A	\$14,823,559	N/A
Subtotal	N/A	N/A	\$14,823,559	N/A
<b>Participant Costs</b>				
Incremental Capital Costs	\$9,351,689	N/A	N/A	\$8,077,466
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$9,351,689	N/A	N/A	\$8,077,466
<b>Total Costs</b>	<b>\$9,351,689</b>	<b>\$5,137,459</b>	<b>\$19,961,017</b>	<b>\$13,214,925</b>

<b>Net Benefit (Cost)</b>	<b>\$13,801,327</b>	<b>\$7,443,647</b>	<b>(\$7,379,912)</b>	<b>\$3,865,862</b>
<b>Benefit/Cost Ratio</b>	<b>2.48</b>	<b>2.45</b>	<b>0.63</b>	<b>1.29</b>

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

**2011 GAS**
**GOAL**
**Input Summary and Totals**

<b>Program Assumptions:</b>		
Lifetime (Weighted on Dth)	A	15.30 years
Net-to-Gross (Weighted on Dth)	B	86.66%
Install Rate (Weighted on Dth)	C	93.7%

**Program Totals:**

Participants	D	58,211
Average Net Dth/Yr Saved	E	2.93
<b>Total Dth/Yr Saved</b>	<b>F</b>	<b>170,279</b>
Utility Costs per Net Dth/Yr	G	\$30.17
Net Benefit (Cost) per Gross Dth/Yr	H	\$22.70
Non-Energy Benefits Adder per Gross Dth/Yr	I	\$3.69
<b>Annual Dth/\$M</b>	<b>(1M / G)</b>	<b>33,145</b>
<b>Total Utility Budget</b>	<b>(G x F)</b>	<b>\$5,137,459</b>
<b>Total MTRC Net Benefits with Adder</b>	<b>(F x H)</b>	<b>\$3,865,862</b>
<b>Total MTRC Net Benefits without Adder</b>	<b>(H - I) x F</b>	<b>\$3,236,806</b>
<b>Utility Program Cost per Net Dth Lifetime</b>	<b>(G / A)</b>	<b>\$1.97</b>

**LOW-INCOME PROGRAM TOTAL**

2011 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test (\$Total)	Utility Test (\$Total)	Rate Impact Test (\$Total)	Modified TRC Test (\$Total)
<b>Benefits</b>				
<b>System Benefits (Avoided Costs)</b>				
Commodity Cost Reduction	N/A	\$4,713,333	\$4,713,333	\$4,713,333
Variable O&M Savings	N/A	\$31,647	\$31,647	\$31,647
Demand Savings	N/A	\$356,788	\$356,788	\$356,788
Subtotal				\$5,101,768
Emissions Non-Energy Benefits Adder (5%)				\$255,088
Subtotal	N/A	\$5,101,768	\$5,101,768	\$5,356,856
<b>Other Benefits</b>				
Bill Reduction - Gas	\$7,114,870	N/A	N/A	N/A
Participant Rebates and Incentives	\$3,229,697	N/A	N/A	\$3,229,697
Incremental Capital Savings	\$0	N/A	N/A	\$0
Incremental O&M Savings	\$1,932,852	N/A	N/A	\$1,156,207
Subtotal	\$12,277,419	N/A	N/A	\$4,385,904
<b>Total Benefits</b>	<b>\$12,277,419</b>	<b>\$5,101,768</b>	<b>\$5,101,768</b>	<b>\$9,742,760</b>
<b>Costs</b>				
<b>Utility Project Costs</b>				
Program Planning & Design	N/A	\$6,672	\$6,672	\$6,672
Administration & Program Delivery	N/A	\$653,130	\$653,130	\$653,130
Advertising/Promotion/Customer Ed	N/A	\$354,904	\$354,904	\$354,904
Participant Rebates and Incentives	N/A	\$3,229,697	\$3,229,697	\$3,229,697
Equipment & Installation	N/A	\$0	\$0	\$0
Measurement and Verification	N/A	\$159,143	\$159,143	\$159,143
Subtotal	N/A	\$4,403,546	\$4,403,546	\$4,403,546
<b>Utility Revenue Reduction</b>				
Revenue Reduction - Gas	N/A	N/A	\$6,015,911	N/A
Subtotal	N/A	N/A	\$6,015,911	N/A
<b>Participant Costs</b>				
Incremental Capital Costs	\$3,229,697	N/A	N/A	\$3,214,179
Incremental O&M Costs	\$0	N/A	N/A	\$0
Subtotal	\$3,229,697	N/A	N/A	\$3,214,179
<b>Total Costs</b>	<b>\$3,229,697</b>	<b>\$4,403,546</b>	<b>\$10,419,457</b>	<b>\$7,617,725</b>
<b>Net Benefit (Cost)</b>	<b>\$9,047,722</b>	<b>\$698,222</b>	<b>(\$5,317,689)</b>	<b>\$2,125,035</b>
<b>Benefit/Cost Ratio</b>	<b>3.80</b>	<b>1.16</b>	<b>0.49</b>	<b>1.28</b>

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2011

GAS

GOAL

Input Summary and Totals

<b>Program Assumptions:</b>		
Lifetime (Weighted on Dth)	A	13.59 years
Net-to-Gross (Weighted on Dth)	B	99.70%
Install Rate (Weighted on Dth)	C	87.2%

**Program Totals:**

Participants	D	17,288
Average Net Dth/Yr Saved	E	4.48
<b>Total Dth/Yr Saved</b>	F	<b>77,528</b>
Utility Costs per Net Dth/Yr	G	\$56.80
Net Benefit (Cost) per Gross Dth/Yr	H	\$27.41
Non-Energy Benefits Adder per Gross Dth/Yr	I	\$3.29
<b>Annual Dth/\$M</b>	( $1M / G$ )	<b>17,606</b>
<b>Total Utility Budget</b>	( $G \times F$ )	<b>\$4,403,546</b>
<b>Total MTRC Net Benefits with Adder</b>	( $F \times H$ )	<b>\$2,125,035</b>
<b>Total MTRC Net Benefits without Adder</b>	( $H - I$ ) $\times$ F	<b>\$1,869,947</b>
<b>Utility Program Cost per Net Dth Lifetime</b>	( $G / A$ )	<b>\$4.18</b>

## Planning Assumptions

The following section contains the planning assumptions for each type of measure in each product proposed in this Plan. The planning assumptions are used to estimate the energy consumption impacts and other measure-specific factors in order to calculate the benefit-cost analyses. The planning impacts are derived by applying the anticipated participation for each DSM measure to the detailed technical assumptions for that measure, which are contained within the Technical Reference Manual deemed savings electronic files that will be provided as part of the overall Plan filing. The impacts from each of the measures are aggregated and inputted into the benefit-cost model for the program level analysis.

Assumed installation rates for certain energy efficiency products have been shown to be non-randomly less than 100%. These products, such as showerheads and faucet aerators, are more prone than others to low install rates. This is because customers may be less apt to install products when they are inexpensive and where the product does not require skilled labor to perform the installation. The assumed installation rates are based on the product's 2009 M&V results and/or from a comprehensive product evaluation result, and are considered when developing product goals and budgets. By considering an assumed installation rate in the goal setting process, Public Service hedges against the risk that products will not meet goals due to M&V results. To determine forecasted net savings, the gross savings are first reduced by the product's NTG factor, and then reduced by the installation rate. When Public Service calculates actual 2011 savings, actual verified installation rates will be used.

A Planning Assumptions Key is provided below for reference, followed by the electric and gas assumptions.

### Planning Assumptions Key

Column Label	Column Description
Type of Measure	Product name and individual measures
High Efficiency Product Description / Rating	High efficiency product description
Efficient Product Consumption (electric) Dth/yr H.E. Consumption (gas)	Annual consumption of high efficiency product in either watts (electric) or Dth/yr (gas)
Baseline Product Description / Rating	Baseline product description
Baseline Product Consumption (electric) Dth/yr Baseline consumption (gas)	Annual consumption of baseline product in either watts (electric) Dth/yr (gas)
Life of Product (years)	High efficiency product lifetime
Hours of Operation per Year	Annual hours of operation of product
Rebate Amount	Average dollar amount of rebate given to participants
Average Baseline Product Cost	Average cost to acquire baseline product
Incremental Cost of Efficient Product	Additional cost over baseline cost to acquire high efficiency product
Rebate as a % of Incremental Cost	Percent of incremental cost that is equal to the rebate amount

<b>Column Label</b>	<b>Column Description</b>
Incremental Cost Payback Period w/o Rebate	Payback period expressed in years after a participant acquires the high efficiency product with the cost not reduced by the rebate amount
Incremental Cost Payback Period w/ Rebate	Payback period expressed in years after a participant acquires the high efficiency product with the cost reduced by the rebate amount
Annual Customer kWh/Dth Savings	Annual kWh or Dth savings customer realizes after implementing high efficiency product
Customer kW Savings	Annual kW savings customer realizes after implementing high efficiency product
Generator Peak kW Savings	Annual kW savings utility realizes on annual peak day after customer implements high efficiency product
Total O&M Savings	Amount customer saves in operation and maintenance expenses after implementing high efficiency product
Energy O&M Savings	Amount of non-electric fuel represented in Total O&M Savings that is subtracted from it to derive the non-energy portion of O&M savings.
Coincidence Factor	Percent of consumption of high efficiency product on annual peak day
Participants 2011	Total participants in program in 2011
Units 2011	Total # of each measure implemented by participants in program in 2011
NTG	Net-to-gross percentage
Assumed Installation Rate	Assumed percentage of units of high efficiency measures that will be installed

Electric Planning Assumptions																							
Type of Measure	Electric	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (years)	Hours of Operation per Year	Retailer Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Retire as a % of Incremental Cost Period w/ Retire	Incremental Cost Period w/ Retire	Annual Customer kWh Savings	Customer kW Savings	Generator Peak kW Savings	Total O&M Savings	Energy O&M Savings	Conductance Factor	Participants 2011	Units 2011	NTG (%)	Assumed Inhabit Rate (%)	
<b>BUSINESS</b>																							
<b>Compressed Air Efficiency</b>																							
<b>Compressed Air Efficiency - Total</b>																							
Average Study - Efficiency		Leaks & Waste Found and Repaired	135,771	Existing System in with Leaks & Waste that have not been repaired	146,395	5	7,824	\$6,251	\$0	\$7,227	86%	1.7	83,125	10.62	9.97	\$0.00	\$0.00	87.6%	21	21	87%	100%	
Average Custom Project		New Equipment	97,619	Old or less efficient systems or equipment	146,395	20	5,882	\$11,577	\$15,657	\$56,457	21%	3.4	286,925	48.78	51.06	\$0.00	\$0.00	97.7%	9	9	87%	100%	
VFD compressors <50HP - NEW		VFD Compressor	12,733	Modulation or load no-load with less than 300 gal of storage	19,322	20	3,774	\$4,383	\$0	\$18,939	23%	10.6	24,867	6.59	6.27	\$0.00	\$0.00	88.8%	24	21	87%	100%	
No Air Loss Drain Valves		No-Air Loss Drains	0	Electronic Solenoid/Trapped Drains	530	20	6,920	\$200	\$125	\$448	45%	2.3	3,667	0.53	0.50	\$0.00	\$0.00	88.0%	21	35	87%	100%	
<b>Cooling Efficiency</b>																							
<b>Cooling Efficiency - Total</b>																							
RoofTop Units less than 5.4 tons		RTU size 3 tons, 15.4 SEER, 13.1 EER	2,748	RTU size 3 tons, 9.7 SEER, 8.245 EER	4,366	20	886	\$378,348.00	\$4,500	\$600	63% 80%	2.1	0-8 0.4	1,434	1.62	1.56	\$0.00	\$0.00	90.0%	6.2	5	75%	100%
RoofTop Units 5.5-11.3 tons		RTU size 11.5 tons, 13.8 SEER, 11.6 EER	11,897	RTU size 11.5 tons, 11.8823/9411765 SEER, 10.1 EER	13,663	20	867	\$864-\$1,093	\$13,500	\$2,500	34% 44%	7.9	6-5 4.4	1,532	1.77	1.70	\$0.00	\$0.00	90.0%	36 46	60 66	75%	100%
RoofTop Units 11.4-18.9 tons		RTU size 14.7 tons, 11.2 SEER, 9.5 EER	15,339	RTU size 14.7 tons, 13.5 SEER, 11.5 EER	18,568	20	878	\$1-147-\$1,470	\$22,500	\$3,750	31% 39%	6.4	4-5 3.8	2,836	3.23	3.11	\$0.00	\$0.00	90.0%	36 45	60 65	75%	100%
RoofTop Units 20-63.3 tons		RTU size 31 tons, 14 SEER, 11.9 EER	31,261	RTU size 31 tons, 9.5 SEER, 9.3 EER	40,000	20	1,504	\$4-164-\$5,270	\$45,000	\$7,500	66% 70%	4.3	4-4 3.3	13,142	8.74	8.42	\$0.00	\$0.00	90.0%	46 59	66 72	75%	100%
RoofTop Units greater than 63.3 tons		RTU size 125.1 tons, 11.3 SEER, 9.6 EER	156,375	RTU size 125.1 tons, 9.2 SEER, 9 EER	186,800	20	3,037	\$7-566-\$9,383	\$187,500	\$31,250	29% 30%	12.1	6-3 8.5	31,664	10.43	10.05	\$0.00	\$0.00	90.0%	60 65	66 72	75%	100%
Split Systems less than 5.4 tons		Split System size 2.9 tons, 15.5 SEER, 13.2 EER	2,636	Split System size 2.9 tons, 10 SEER, 8.5 EER	4,094	20	885	\$208 \$406	\$5,100	\$600	34% 68%	2.3	4-4 0.7	1,289	1.46	1.41	\$0.00	\$0.00	90.0%	10	49 14	75%	100%
Condensing Units > 5.4 tons		Condensing Units size 24.6 tons, 13.2 SEER, 11.2 EER	26,357	Condensing Units size 24.6 tons, 11.2 SEER, 10.1 EER	29,228	20	1,453	\$89.2 \$1,845	\$25,000	\$2,500	32% 74%	4.4	3-8 1.2	4,170	2.67	2.77	\$0.00	\$0.00	90.0%	30	41	75%	100%
Water-source Heat Pumps		Condensing Units size 2.9 tons, 16.1 SEER, 14.5 EER	2,400	Condensing Units size 2.9 tons, 12 SEER, 12 EER	2,900	20	1,481	\$389 \$493	\$4,500	\$750	62% 66%	7.5	3-8 2.6	740	0.50	0.48	\$0.00	\$0.00	90.0%	6 8	60 65	75%	100%
PTAC		Condensing Units size 0.7 tons, 13.9 SEER, 11.8 EER	712	Condensing Units size 0.7 tons, 10.7 SEER, 9.1 EER	923	20	891	\$67 \$74	\$1,125	\$188	34% 39%	4.9	3-4 3.0	188	0.21	0.20	\$0.00	\$0.00	90.0%	6.2	60 65	75%	100%
scrollscrew chiller < 150 tons		Chiller size 77.1 tons, 0.61 full load kW/t, 0.55 IPLV	47,031	Chiller size 77.1 tons, 0.79 full load kW/t, 0.78 IPLV	60,917	20	1,293	\$5-139-\$5,372	\$75,000	\$12,500	44% 43%	4.7	2.7	17,957	13.89	13.39	\$0.00	\$0.00	90.0%	1	2	75%	100%
scrollscrew chiller 150 to 300 tons		Chiller size 225 tons, 0.61 full load kW/t, 0.55 IPLV	137,250	Chiller size 225 tons, 0.72 full load kW/t, 0.71 IPLV	181,448	20	1,504	\$9-484-\$1,018	\$96,000	\$16,000	66% 63%	3.3	4-3 1.2	36,382	24.20	23.33	\$0.00	\$0.00	90.0%	1	2	75%	100%
Centrifugal Chiller's < 150 tons		Chiller size 125 tons, 0.60 full load kW/t, 0.58 IPLV	75,000	Chiller size 125 tons, 0.65 full load kW/t, 0.65 IPLV	81,375	20	1,396	\$6-498-\$3,181	\$75,000	\$12,500	27% 30%	10.0	7-3 7.0	8,697	6.38	6.15	\$0.00	\$0.00	90.0%	6	7	75%	100%
Centrifugal Chiller's 150-300 tons		Chiller size 200 tons, 0.55 full load kW/t, 0.51 IPLV	109,361	Chiller size 200 tons, 0.63 full load kW/t, 0.63 IPLV	126,702	20	1,389	\$6-977-\$8,972	\$120,000	\$20,000	42% 45%	5.9	3-4 3.2	24,255	17.34	16.72	\$0.00	\$0.00	90.0%	8	9	75%	100%
Cooling Stadies		Customer has Study	0	No Study	0	0	0	\$2,001	\$0	\$2,668	75%		0	0.00	0.00	\$0.00	\$0.00	0.0%	7	7	75%	100%	
Centrifugal Chiller's > 300 tons		Chiller size 929.4 tons, 0.50 full load kW/t, 0.47 IPLV	460,894	Chiller size 929.4 tons, 0.58 full load kW/t, 0.58 IPLV	535,695	20	1,301	\$35-460-\$38,287	\$540,000	\$90,000	38% 43%	6.2	3-8 3.6	97,314	74.80	72.11	\$0.00	\$0.00	90.0%	15	15	75%	100%

Electric Planning Assumptions																								
Type of Measure	ELECTRIC	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of (Years)	Hours of Operation per Year	Rate Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Rate as a % of Incremental Cost	Incremental Cost Period w/ Rate	Incremental Cost Break Period w/ Rate	Annual Customer kWh Savings	Customer kW Savings	Generator Peak kW Savings	Total O&M Savings	Energy O&M Savings	Confidence Factor	Participants 2011	Units 2011	NTS (%)	Assured Retail Rate (%)	
Air-Cooled Chillers - avg. capacity 250 tons		Air-cooled chiller average capacity 250 tons, 1.15 kW/ton	277,972	Air-cooled chiller average capacity 250 tons, 1.26 kW/ton	289,743	20	1,044	\$2,969-\$4,446	\$250,000	\$8,608	33%-52%	2.2	4-11	21,689	20.77	20.02	\$0.00	\$0.00	90.0%	13	13	75%	100%	
Advanced Evaporative Cooling (Indirect or Hybrid) replacing DX Roof Top Unit < 5.4 tons		Indirect or Hybrid Evaporative Cooler	3,300	DX RTU size 3.7 tons, 10.5 SEER, 8.5 EER	7,482	20	555	\$2,578	\$4,500	\$15,513	17%	21.8	18.2	2,320	4.18	4.03	\$4.03	-\$328.33	90.0%	1	5	75%	100%	
Advanced Evaporative Cooling (Indirect or Hybrid) replacing DX Roof Top Unit 5.5 to 11.5 tons		Indirect or Hybrid Evaporative Cooler	6,500	DX RTU size 10 tons, 10.5 SEER, 8.9 EER	16,854	20	786	\$7,031	\$13,500	\$25,730	27%	14.0	10.2	8,136	10.35	9.98	\$9.98	-\$890.00	90.0%	3	15	75%	100%	
Advanced Evaporative Cooling (Indirect or Hybrid) replacing DX Roof Top Unit 11.6 to 19.5 tons		Indirect or Hybrid Evaporative Cooler	8,000	DX RTU size 15.6 tons, 11.2 SEER, 9.5 EER	27,789	20	937	\$9,375	\$22,500	\$27,178	34%	7.5	4.9	18,537	19.79	19.08	\$19.08	-\$1,186.67	90.0%	1	3	75%	100%	
Advanced Evaporative Cooling (Indirect or Hybrid) replacing DX Roof Top Unit 20 to 63.3 tons		Indirect or Hybrid Evaporative Cooler	16,000	DX RTU size 30.7 tons, 10.9 SEER, 9.3 EER	55,484	20	895	\$18,750	\$45,000	\$49,356	38%	6.9	4.3	35,355	39.48	38.06	\$38.06	-\$2,373.33	90.0%	1	1	75%	100%	
Custom Cooling		Varies by project	177,155	varies by project	241,815	20	2,998	\$25,864	\$133,759	\$52,429	41%	3.9	2.3	193,672	64.66	11.67	\$0.00	\$0.00	16.9%	16	16	87%	100%	
Custom Efficiency - total																								
Custom Efficiency		New Equipment	67,033	Old or less efficient systems or equipment	108,573	18	4,498	\$16,616	\$19,091	\$98,357	17%	8.1	6.7	186,650	41.54	36.77	\$4,754.75	\$2,377.38	82.6%	50	50	87%	100%	
Custom Efficiency														0	0.00	0.00								
Data Center Efficiency																								
Data Center Efficiency - Existing																								
Localized Data Center - avg 1,000 sq ft with 250 servers		High Efficiency HVAC and Server Equipment, Server Virtualization	0	Standard Installation Practices	62,773	20	8,760	\$23,709	\$0	\$61,161	29%	3.2	2.3	519,234	59.27	53.53	-\$13,000.00	\$0.00	84.5%	3	3	90%	100%	
Implementation			0	Do nothing	0	0	0	\$11,250	\$0	\$15,000	75%			0	0.00	0.00	\$0.00	\$0.00	84.5%	3	3	90%	100%	
Mid-tier Data Center - avg 5,000 sq ft with 1250 servers		High Efficiency HVAC and Server Equipment, Server Virtualization	3,500	Standard Installation Practices	62,773	20	8,760	\$23,709	\$0	\$61,161	29%	3.2	2.3	519,234	59.27	53.53	-\$13,000.00	\$0.00	84.5%	3	3	90%	100%	
Implementation			0	Do nothing	0	0	0	\$11,250	\$0	\$15,000	75%			0	0.00	0.00	\$0.00	\$0.00	84.5%	3	3	90%	100%	
Enterprise-class Data Center - avg 10,000sq ft with 2500 servers		High Efficiency HVAC and Server Equipment, Server Virtualization	0	Standard Installation Practices	313,867	20	8,760	\$117,030	\$0	\$160,806	73%	1.3	0.4	2,662,962	292.58	264.72	-\$13,000.00	\$0.00	84.5%	1	1	90%	100%	
Implementation			0	Do nothing	0	0	0	\$15,000	\$0	\$20,000	75%			0	0.00	0.00	\$0.00	\$0.00	84.5%	3	3	90%	100%	
Implementation			0	Do nothing	0	0	0	\$22,500	\$0	\$30,000	75%			0	0.00	0.00	\$0.00	\$0.00	84.5%	3	3	90%	100%	
Data Center Efficiency - New Construction			42,582	Do nothing	62,773	20	8,760	\$23,406	\$0	\$61,612	89%	1.0	0.1	5,125,924	585.15	529.43	-\$13,000.00	\$0.00	84.5%	0	0	90%	100%	
Localized Data Center - avg 1,000 sq ft with 250 servers		High Efficiency HVAC and Server Equipment, Server Virtualization	0	Standard Installation Practices	0	0	0	\$11,250	\$0	\$15,000	75%			0	0.00	0.00	\$0.00	\$0.00	84.5%	0	0	90%	100%	
Implementation			0	Do nothing	0	0	0	\$23,406	\$0	\$78,677	30%	3.2	2.2	512,592	58.52	52.94	-\$13,000.00	\$0.00	84.5%	0	0	90%	100%	
Mid-tier Data Center - avg 5,000 sq ft with 1250 servers		High Efficiency HVAC and Server Equipment, Server Virtualization	0	Standard Installation Practices	0	0	0	\$15,000	\$0	\$20,000	75%			0	0.00	0.00	\$0.00	\$0.00	84.5%	0	0	90%	100%	
Implementation			0	Do nothing	0	0	0	\$17,030	\$0	\$153,386	76%	1.2	0.3	2,662,962	292.58	264.72	-\$13,000.00	\$0.00	84.5%	0	0	90%	100%	
Implementation			0	Do nothing	0	0	0	\$15,000	\$0	\$20,000	75%			0	0.00	0.00	\$0.00	\$0.00	84.5%	0	0	90%	100%	

Electric Planning Assumptions

Type of Measure	Electric	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (Years)	Hours of Operation per Year	Rateable Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Period w/ Rebate	Incremental Cost Period w/ Rebate	Annual Customer kWh Savings	Customer kW Savings	Generator Peak kW Savings	Total O&M Savings	Energy O&M Savings	Confidence Factor	Participants 2011	Units 2011	NTG (%)	Assured Bill Rate (%)
Enterprise-class Data Center - avg 10,000sq ft with 2500 servers		High Efficiency HVAC and Server Equipment, Server Virtualization	0	Standard Installation Practices	0	0	0	\$22,500	\$0	\$30,000	75%	1.0	0.1	0	0.00	0.00	\$0.00	\$0.00	84.5%	1	1	90%	100%
Study		0	0	0	0	0	0	\$22,500	\$0	\$30,000	75%	1.0	0.1	0	0.00	0.00	\$0.00	\$0.00	84.5%	1	1	90%	100%
Implementation		0	42,582	Do nothing	627,733	20	8,760	\$234,080	\$0	\$246,771	95%	1.0	0.1	5,125,924	585.15	529.43	-\$13,000,000	\$0.00	84.5%	0	0	90%	100%
<b>Energy Management Systems - total</b>																							
Average Project		Install new or Add to Existing EMS	2,829,501	No or very old EMS system	2,947,940	10	8,529	\$6,566-\$14,917	\$7,296	\$32,666	34% 46%	4.2	2.6 2.3	157,274	18.44	1.88	\$4,769.90	\$0.00	9.5%	42 50	42 50	87%	100%
<b>Lighting Efficiency</b>																							
<b>Lighting Efficiency - total</b>																							
T8 Ballasts 4 ft. or less, 1 and 2 Lamp		T8 1 and 2 Lamp systems	48	T12 1 and 2 Lamp systems, Incandescent	77	18	3,141	\$13	\$0	\$42	31%	5.8	4.0	92	0.03	0.03	-\$0.74	-\$0.74	84.6%	60	26,614	84%	100%
T8 Ballasts 4 ft. or less, 3 and 4 Lamp		T8 Lighting Systems	109	T12 3 and 4 Lamp systems	162	18	3,141	\$22	\$0	\$35	40%	4.1	2.5	167	0.05	0.05	-\$1.35	-\$1.35	84.6%	86	22,586-\$28,979	84%	100%
T8 Ballasts Length > 4 ft. and <= 8 ft., 1 Lamp		T8 1 and 2 Lamp systems	75	T12 8 Ft 1 Lamp systems	97	18	3,141	\$13	\$0	\$36	23%	10.2	7.9	69	0.02	0.02	-\$0.56	-\$0.56	84.6%	4	2,345-\$2,099	84%	100%
T8 Ballasts Length > 4 ft. and <= 8 ft., 2 Lamp		T8 Lighting Systems	122	T12 8 Ft 2 Lamp systems	159	18	3,141	\$22	\$0	\$36	39%	6.0	3.7	118	0.04	0.03	-\$0.95	-\$0.95	84.6%	2	666,738	84%	100%
T8 to T8 Dimming		T8 with less lamps	62	T8 with more lamps	102	18	3,141	\$12	\$0	\$55	22%	5.5	4.3	126	0.04	0.04	-\$1.02	-\$1.02	84.6%	10	3396,442.8	84%	100%
T8 Optimization 1 and 2 Lamp		T8 Lighting Systems	70	T12 Fluorescents	135	18	3,141	\$17	\$0	\$37	46%	2.3	1.2	202	0.06	0.06	-\$1.64	-\$1.64	84.6%	58	42,486-\$76,644	84%	100%
T8 Optimization 3 and 4 Lamp		T8 Lighting Systems	121	T12 Fluorescents	194	18	3,141	\$26	\$0	\$32	50%	2.8	1.4	228	0.07	0.07	-\$1.85	-\$1.85	84.6%	40	2444-\$76,644	84%	100%
T5 Ballasts 1 and 2 Lamp		T5 Lighting Systems	65	T12 Fluorescents	81	18	3,141	\$13	\$0	\$46	28%	11.7	8.4	49	0.02	0.01	-\$0.40	-\$0.40	84.6%	3	2,414-\$2,805	84%	100%
T5 Ballasts 3 and 4 Lamp		T5 Lighting Systems	143	T12 Fluorescents	162	18	3,141	\$16	\$0	\$39	23%	14.6	11.2	59	0.02	0.02	-\$0.48	-\$0.48	84.6%	1	36,46	84%	100%
CFL Screw-in < 19W		Screw-in CFL	17	Incandescent	72	5	3,141	\$1	\$1	\$3	33%	0.2	0.1	174	0.06	0.05	-\$1.41	-\$1.41	84.6%	60	6000-\$7,864	84%	100%
CFL Screw-in 19 to 32W		Screw-in CFL	32	Incandescent	129	5	3,141	\$2	\$1	\$7	30%	0.3	0.2	306	0.10	0.09	-\$2.48	-\$2.48	84.6%	75	7,664-\$9,374	84%	100%
CFL Screw-in 33 to 100W		Screw-in CFL	54	Incandescent	194	5	3,141	\$3	\$1	\$16	19%	0.5	0.4	439	0.14	0.13	-\$3.55	-\$3.55	84.6%	5	209,265	84%	100%
CFL Pin-Based < 19W		Pin-Based CFL	20	Incandescent	83	18	3,141	\$25	\$0	\$38	65%	2.4	0.8	198	0.06	0.06	-\$1.60	-\$1.60	84.6%	5	209,265	84%	100%
CFL Pin-Based 19 to 32W		Pin-Based CFL	43	Incandescent	154	18	3,141	\$30	\$0	\$76	39%	2.7	1.7	349	0.11	0.10	-\$2.82	-\$2.82	84.6%	5	100,133	84%	100%
CFL Pin-Based 33 to 100W		Pin-Based CFL	72	Incandescent	266	18	3,141	\$35	\$0	\$103	34%	1.9	1.3	669	0.21	0.19	-\$5.42	-\$5.42	84.6%	6	299,265	84%	100%
Industrial Multi-CFL		Handwired or Modular Multi-CFL	99	Mercury Vapor, High Pressure Sodium, Metal Halide	313	18	3,141	\$45	\$0	\$98	46%	1.8	1.0	675	0.21	0.19	-\$5.46	-\$5.46	84.6%	2	89,110	84%	100%
HID, 151 to 250W		Metal Halide	291	Mercury Vapor, High Pressure Sodium	423	18	3,141	\$30	\$0	\$161	19%	4.9	4.0	412	0.13	0.12	-\$3.33	-\$3.33	84.6%	1	39,52	84%	100%
HID, 251 to 1000W		Metal Halide	590	Mercury Vapor, High Pressure Sodium	1,397	18	3,141	\$45	\$0	\$253	18%	1.2	1.0	2,534	0.61	0.73	-\$20.51	-\$20.51	84.6%	4	61,91	84%	100%
Pulse-Start Metal Halide, <= 175W		Pulse Start Metal Halide	231	Metal Halide	323	18	3,141	\$25	\$0	\$161	16%	7.0	5.9	288	0.08	0.08	-\$2.33	-\$2.33	84.6%	1	39,52	84%	100%
Pulse-Start Metal Halide, 175W, 319W		Pulse Start Metal Halide	258	Metal Halide	376	18	3,141	\$50	\$0	\$185	27%	6.2	4.5	373	0.12	0.11	-\$3.02	-\$3.02	84.6%	1	414,147	84%	100%
Pulse-Start Metal Halide, 320W, 749W		Pulse Start Metal Halide	488	Metal Halide	590	18	3,141	\$45	\$0	\$283	16%	11.1	9.3	320	0.10	0.09	-\$2.59	-\$2.59	84.6%	2	199,185	84%	100%
Pulse-Start Metal Halide, 750W+		Pulse Start Metal Halide	1,053	Metal Halide	1,393	18	3,141	\$140	\$0	\$381	37%	4.5	2.8	1,068	0.34	0.31	-\$8.64	-\$8.64	84.6%	3	89,110	84%	100%

Electric Planning Assumptions

Type of Measure	Electric	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (Years)	Hours of Operation per Year	Revenue Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Period w/ Rebate	Incremental Cost Period w/ Rebate	Annual Customer kWh Savings	Customer MW Savings	Generator Peak MW Savings	Total O&M Savings	Energy/O&M Savings	Confidence Factor	Participants 2011	Units 2011	NTG (%)	Assumed Rate (%)
Parking Garages	Fluorescent	Fluorescent	97	150W Metal Halide or 175W Metal Halide	179	18	8,760	\$50	\$0	\$182	27%	5.2	3.8	720	0.08	0.07	\$0.00	\$0.00	84.6%	1	83.44	84%	100%
High Bay Fluorescents replacing 150, 175, 250 Watt HID	High Bay Fluorescent <= 200 Watts	HID: 150, 175, 250W Lamp	158	HID: 320, 350, 400W Lamp	362	18	3,141	\$65	\$0	\$169	50%	3.3	1.6	641	0.20	0.18	-\$5.18	-\$5.18	84.6%	39	2,620-3,390	84%	100%
High Bay Fluorescents replacing 320, 350, 400 Watt HID	High Bay Fluorescent <= 300 Watts	HID: 750W Lamp	345	HID: 750W Lamp	592	18	3,141	\$110	\$0	\$268	41%	4.3	2.5	776	0.25	0.22	-\$6.28	-\$6.28	84.6%	110	6,243-8,247	84%	100%
High Bay Fluorescents replacing 750 Watt HID	High Bay Fluorescent <= 610 Watts	HID: 1000W Lamp	613	HID: 1000W Lamp	1,099	18	3,141	\$200	\$0	\$347	58%	2.8	1.2	1,528	0.49	0.44	-\$12.36	-\$12.36	84.6%	41	1,463-1,544	84%	100%
High Bay Fluorescents replacing 1000 Watt HID	High Bay Fluorescent <= 900 Watts	HID: 1000W Lamp	878	HID: 1000W Lamp	1,397	18	3,141	\$210	\$0	\$524	40%	4.0	2.4	1,831	0.52	0.47	-\$13.19	-\$13.19	84.6%	25	667-812	84%	100%
Wall mount occupancy sensor	Lighting System with Occupancy Sensor	Lighting System without Occupancy Sensor	192	Lighting System without Occupancy Sensor	275	18	3,141	\$30	\$0	\$55	55%	2.7	1.2	259	0.08	0.07	-\$2.09	-\$2.09	84.6%	9	1,381-1,832	84%	100%
Ceiling mount occupancy sensor	Lighting System with Occupancy Sensor	Lighting System without Occupancy Sensor	192	Lighting System without Occupancy Sensor	275	18	3,141	\$50	\$0	\$125	40%	6.0	3.6	259	0.08	0.07	-\$2.09	-\$2.09	84.6%	8	1,335-1,772	84%	100%
Photocell	Lighting System with Photocell	Lighting System without Photocell	178	Lighting System without Photocell	275	18	3,141	\$30	\$0	\$65	46%	2.7	1.4	304	0.10	0.09	-\$2.46	-\$2.46	84.6%	4	566-738	84%	100%
Exit sign retrofit and replacement	LED	Incandescent	2	Incandescent	45	18	3,141	\$15	\$0	\$80	19%	7.4	6.0	135	0.04	0.04	-\$1.09	-\$1.09	84.6%	6	1,668-2,214	84%	100%
Low Voltage 18 4' lamps	T8 25W and 28W Lamps	T8 32W Lamps	28	T8 32W Lamps	35	8	3,141	\$1	\$2	\$2	50%	1.1	0.6	22	0.01	0.01	-\$0.18	-\$0.18	84.6%	11	20,018-26,570	84%	100%
Integrated 25W Ceramic Metal Halide	Ceramic Metal Halide	Incandescent	32	Incandescent	97	7	3,141	\$25	\$0	\$57	44%	3.5	2.0	203	0.06	0.06	-\$1.64	-\$1.64	84.6%	3	566-738	84%	100%
Ceramic Metal Halide <=150W	Ceramic Metal Halide	Incandescent	41	Incandescent	166	18	3,141	\$55	\$0	\$202	27%	6.4	4.7	393	0.13	0.11	-\$3.18	-\$3.18	84.6%	1	66-110	84%	100%
Ceramic Metal Halide 151-280W	Ceramic Metal Halide	Incandescent	217	Incandescent	647	18	3,141	\$60	\$0	\$222	27%	2.1	1.5	1,348	0.43	0.39	-\$10.91	-\$10.91	84.6%	2	66-74	84%	100%
Ceramic Metal Halide 251W	Ceramic Metal Halide	Incandescent	505	Incandescent	590	18	3,141	\$75	\$0	\$295	25%	13.9	10.4	255	0.08	0.08	-\$2.14	-\$2.14	84.6%	1	28-32	84%	100%
Interior LED Lighting - Retrofit; Lamp Replacement; Pin-based or Screw-In lamps	LED lamp	Incandescent or Halogen lamp	6	Incandescent or Halogen lamp	59	13	3,389	\$20	\$6	\$34	59%	2.4	1.0	183	0.05	0.05	-\$1.14	-\$1.14	80.5%	2	60-80	84%	100%
LED Interior Lamp < 5W	LED lamp	Incandescent or Halogen lamp	8	Incandescent or Halogen lamp	52	13	3,389	\$22	\$5	\$40	55%	3.5	1.6	149	0.04	0.04	-\$0.92	-\$0.92	90.5%	2	60-80	84%	100%
LED Interior Lamp 6W - 10W	LED lamp	Incandescent or Halogen lamp	17	Incandescent or Halogen lamp	117	13	3,389	\$35	\$5	\$65	54%	2.5	1.1	340	0.10	0.10	-\$2.11	-\$2.11	90.5%	2	60-80	84%	100%
LED Interior Lamp 11W - 20W	LED lamp	Incandescent or Halogen lamp	15	Incandescent or Halogen lamp	52	20	3,389	\$100	\$0	\$193	52%	20.5	9.9	123	0.04	0.04	-\$0.77	-\$0.77	90.5%	2	60-80	84%	100%
LED Interior Fixture Retrofit < 15W	LED Downlight Luminaire	Incandescent Luminaire	28	Incandescent Luminaire	78	20	3,389	\$100	\$0	\$199	50%	15.5	7.7	168	0.05	0.05	-\$1.04	-\$1.04	90.5%	2	60-80	84%	100%
LED Interior Fixture Retrofit 16W - 25W	LED Downlight Luminaire	Incandescent Luminaire	38	Incandescent Luminaire	97	20	3,389	\$125	\$0	\$272	46%	17.9	9.7	199	0.06	0.06	-\$1.24	-\$1.24	90.5%	2	60-80	84%	100%
LED Interior Fixture Retrofit 26W - 35W	LED Downlight Luminaire	Incandescent Luminaire	56	Incandescent Luminaire	129	20	3,389	\$125	\$0	\$272	46%	14.3	7.7	250	0.07	0.07	-\$1.55	-\$1.55	90.5%	2	60-80	84%	100%
LED Interior Fixture Retrofit 36W - 50W	LED Downlight Luminaire	Incandescent Luminaire	42	Incandescent Luminaire	273	20	3,389	\$275	\$0	\$668	41%	11.2	6.6	773	0.23	0.00	\$0.00	\$0.00	0.0%	10	460-199	84%	100%
LED Canopy or Softlighting 51W - 100W; Retrofit - total	LED	Metal Halide	71	Metal Halide	365	20	3,338	\$275	\$0	\$628	44%	8.3	4.7	984	0.29	0.00	\$0.00	\$0.00	0.0%	10	460-199	84%	100%
LED Canopy or Softlighting 100W - 150W; Retrofit - total	LED	Metal Halide	130	Metal Halide	368	20	3,338	\$275	\$0	\$707	39%	11.5	7.1	794	0.24	0.00	\$0.00	\$0.00	0.0%	4	60-80	84%	100%
LED Refrigerated Cases - Retrofit - total	LED Strip lighting	T8 or T12 Fluorescent	51	T8 or T12 Fluorescent	127	20	6,491	\$100	\$0	\$171	58%	6.4	2.7	491	0.08	0.08	\$0.00	\$0.00	94.0%	6	600-756	84%	100%
Lighting New Construction CFL Screw-In < 19W NC	Screw-In CFL	Incandescent	17	Incandescent	72	5	3,141	\$1	\$1	\$2	50%	0.1	0.1	174	0.06	0.05	-\$1.41	-\$1.41	84.6%	5	50	84%	100%
CFL Screw-In 19 to 32W NC	Screw-In CFL	Incandescent	32	Incandescent	129	5	3,141	\$2	\$2	\$4	48%	0.2	0.1	306	0.10	0.09	-\$2.48	-\$2.48	84.6%	5	50	84%	100%

Electric Planning Assumptions																							
Type of Measure	Electric	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (years)	Hours of Operation per Year	Retailer Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Retailer as a % of Incremental Cost	Incremental Cost Period w/o Rebate	Incremental Cost Period w/ Rebate	Annual Customer Savings	Customer Peak kW Savings	Generator Peak kW Savings	Total O&M Savings	Energy O&M Savings	Concordance Factor	Participants 2011	Units 2011	NTG (%)	Assumed Install Rate (%)
CFL Screw-in 33 to 100W	NC	Screw-in CFL	54	Incandescent	194	5	3,141	\$3	\$3	\$13	23%	0.4	0.3	439	0.14	0.13	-\$3.55	-\$3.55	84.6%	5	50	84%	100%
CFL Pin-Based <19W/NC	NC	Pin-Based CFL	20	Incandescent	63	18	3,141	\$10	\$18	\$20	50%	1.3	0.6	198	0.08	0.06	-\$1.60	-\$1.60	84.6%	5	50	84%	100%
CFL Pin-Based 19 to 32W	NC	Pin-Based CFL	43	Incandescent	154	18	3,141	\$15	\$36	\$40	36%	1.4	0.9	349	0.11	0.10	-\$2.82	-\$2.82	84.6%	5	50	84%	100%
CFL Pin-Based 33 to 100W	NC	Pin-Based CFL	72	Incandescent	286	18	3,141	\$20	\$53	\$50	40%	0.9	0.6	689	0.21	0.19	-\$5.42	-\$5.42	84.6%	20	400	84%	100%
Pulse-Start Metal Halide, 175W-319W	NC	Pulse Start Metal Halide	274	High Pressure Sodium, Metal Halide	376	18	3,141	\$8	\$191	\$30	27%	1.2	0.9	323	0.10	0.09	-\$2.61	-\$2.61	84.6%	2	139	84%	100%
Pulse-Start Metal Halide, 320W-749W	NC	Pulse Start Metal Halide	508	Sodium, Mercury Vapor, Metal Halide	590	18	3,141	\$12	\$253	\$30	40%	1.5	0.9	258	0.08	0.07	-\$2.09	-\$2.09	84.6%	1	145	84%	100%
Pulse-Start Metal Halide, 750W+	NC	750W Pulse Start Metal Halide	1,053	1000W Metal Halide	1,393	18	3,141	\$18	\$351	\$70	26%	0.8	0.6	1,068	0.34	0.31	-\$8.64	-\$8.64	84.6%	1	6	84%	100%
High Bay Fluorescents <= 300 Watts	NC	High Bay Fluorescents <= 300 Watts	308	Metal Halide	592	18	3,141	\$12	\$180	\$102	12%	1.4	1.3	892	0.28	0.26	-\$7.22	-\$7.22	84.6%	34	1,668	84%	100%
High Bay Fluorescents <= 610 Watts	NC	High Bay Fluorescents <= 610 Watts	535	Metal Halide	1,098	18	3,137	\$40	\$291	\$132	30%	0.9	0.7	1,766	0.56	0.51	-\$14.30	-\$14.30	84.6%	38	945	84%	100%
High Bay Fluorescents <= 900 Watts	NC	High Bay Fluorescents <= 900 Watts	878	Metal Halide	1,397	18	3,141	\$50	\$355	\$169	30%	1.3	0.9	1,530	0.52	0.47	-\$13.19	-\$13.19	84.6%	4	83	84%	100%
Low Voltage T8	NC	Low Voltage T8 Lamps	28	Standard T8 32 watt lamps	35	8	3,141	\$1	\$2	\$2	50%	1.1	0.6	22	0.01	0.01	-\$0.18	-\$0.18	84.6%	3	5,561	84%	100%
Integrated 25W Ceramic Metal Halide	NC	Ceramic Metal Halide	25	Incandescent	97	7	3,141	\$12	\$12	\$45	27%	2.5	1.8	226	0.07	0.07	-\$1.83	-\$1.83	84.6%	1	139	84%	100%
Ceramic Metal Halide <=150W	NC	Ceramic Metal Halide <= 150 Watts	66	Incandescent	235	18	3,141	\$25	\$59	\$145	17%	3.4	2.8	529	0.17	0.15	-\$1.83	-\$1.83	84.6%	1	83	84%	100%
Ceramic Metal Halide 151-250W	NC	Ceramic Metal Halide 151 to 250 Watts	300	Metal Halide	483	18	3,141	\$15	\$192	\$98	15%	2.1	1.8	575	0.18	0.17	-\$4.65	-\$4.65	84.6%	1	56	84%	100%
Ceramic Metal Halide 251W+	NC	Ceramic Metal Halide	505	Metal Halide	590	18	3,141	\$20	\$253	\$42	48%	2.0	1.0	265	0.08	0.08	-\$2.14	-\$2.14	84.6%	1	28	84%	100%
Interior LED Lighting - New Construction; Lamp Installation; Pin-based or Screw-in lamps																							
LED Interior Lamp < 5W	NC	LED Lamp	6	Incandescent or Halogen lamp	59	13	3,389	\$20	\$8	\$34	59%	2.4	1.0	183	0.05	0.05	-\$1.14	-\$1.14	90.5%	2	60	84%	100%
LED Interior Lamp 6W-10W	NC	LED Lamp	8	Incandescent or Halogen lamp	52	13	3,389	\$22	\$5	\$40	55%	3.5	1.6	149	0.04	0.04	-\$0.92	-\$0.92	90.5%	2	60	84%	100%
LED Interior Lamp 11W-20W	NC	LED Lamp	17	Incandescent or Halogen lamp	117	13	3,389	\$35	\$5	\$65	54%	2.5	1.1	340	0.10	0.10	-\$2.11	-\$2.11	90.5%	2	60	84%	100%
Interior LED Luminaires New Construction																							
LED Interior Fixture NC < 15W	NC	LED Downlight Luminaire	15	Incandescent Luminaire	52	20	3,389	\$50	\$50	\$123	40%	13.1	7.8	123	0.04	0.04	-\$0.77	-\$0.77	90.5%	2	60	84%	100%
LED Interior Fixture NC 15W - 25W	NC	LED Downlight Luminaire	28	Incandescent Luminaire	78	20	3,389	\$50	\$50	\$129	39%	10.1	6.2	168	0.05	0.05	-\$1.04	-\$1.04	90.5%	2	60	84%	100%
LED Interior Fixture NC 26W - 35W	NC	LED Downlight Luminaire	38	Incandescent Luminaire	97	20	3,389	\$75	\$50	\$202	37%	13.3	8.4	199	0.06	0.06	-\$1.24	-\$1.24	90.5%	2	60	84%	100%
LED Interior Fixture NC 36W - 50W	NC	LED Downlight Luminaire	56	Incandescent Luminaire	128	20	3,389	\$75	\$50	\$202	37%	10.6	6.7	250	0.07	0.07	-\$1.55	-\$1.55	90.5%	2	60	84%	100%
Other LED Measures - Total																							
LED Canopy or Soffit lighting 25W - 50W, NC - total	NC	LED	43	Metal Halide	263	20	3,338	\$150	\$192	\$448	33%	7.9	5.3	733	0.22	0.00	\$0.00	\$0.00	0.0%	6	30	84%	100%
LED Canopy or Soffit lighting 51W - 100W, NC - total	NC	LED	74	Metal Halide	395	20	3,338	\$150	\$282	\$315	48%	3.8	2.0	1,071	0.32	0.00	\$0.00	\$0.00	0.0%	4	60	84%	100%
LED Canopy or Soffit lighting 100W - 150W, NC - total	NC	LED	130	Metal Halide	368	20	3,338	\$150	\$253	\$420	36%	6.9	4.4	794	0.24	0.00	\$0.00	\$0.00	0.0%	2	30	84%	100%
LED Refrigerated Cases - New Construction	NC	LED Strip lighting	38	T8 or T12 Fluorescent	126	20	6,491	\$70	\$38	\$136	52%	4.3	2.1	575	0.09	0.09	\$0.00	\$0.00	94.0%	2	200	84%	100%
Custom Lighting	NC	High Efficiency Lighting	28,513	Existing Lower Efficiency Lighting	52,670	17	3,528	\$17,049	\$0	\$76,420	22%	12.0	9.3	85,237	24.16	21.99	-\$613.83	-\$613.83	84.6%	24	24	84%	100%

Electric Planning Assumptions																							
Type of Measure	ELECTRIC	High Efficiency/ Product Description/ Rating	Efficient Product Consumption	Baseline Product Description/ Rating	Baseline Product Consumption	Life of Product (years)	Hour of Operation per Year	Rebate Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Period w/ Rebate	Incremental Cost Payback Period w/ Rebate	Annual kWh Savings	Customer kW Savings	Generator Peak kW Savings	Total O&M Savings	Energy/O&M Savings	Conductance Factor	Participants 2011	Units 2011	NTG (%)	Assumed Install Rate (%)
Lighting Redesign Implementation		Improved Light Levels	109,526	Excessive Light Levels or	222,643	18	6,511	\$45,247	\$0	\$150,150	29%	3.9	2.8	736,506	113.12	102.50	-\$2,874.31	-\$2,874.31	84.8%	6	8	96%	100%
Lighting Redesign Study		0	0	0	0	0	0	\$3,750	\$0	\$7,500	50%			0	0.00	0.00	\$0.00	\$0.00	0.0%	0	15	96%	100%
<b>Motor &amp; Drive Efficiency</b>																							
<b>Motor &amp; Drive Efficiency - total</b>																							
NEMA Premium Plan A - Replacement Motors (1-500HP)		NEMA Premium Efficient Motors	16,772	Earlier than or EFACT Efficient Motors	17,002	20	3,484	\$99	\$0	\$194	51%	3.2	1.6	799	0.23	0.19	\$0.00	\$0.00	76.0%	178	178	87%	100%
NEMA Premium Plan B - Replacement Motors (1-500HP)		NEMA Premium Efficient Motors	18,693	Earlier than or EFACT Efficient Motors	19,179	20	3,747	\$1,077	\$0	\$1,766	61%	13.5	5.2	1,821	0.49	0.41	\$0.00	\$0.00	76.0%	328	328	87%	100%
Enhanced NEMA Premium Plan A - New Motors (1-500HP)		Enhanced NEMA Premium Efficient Motors	20,744	EFACT Efficient Motors	21,194	20	3,300	\$185	\$0	\$520	36%	4.5	2.9	1,487	0.45	0.38	\$0.00	\$0.00	76.0%	32	32	87%	100%
Enhanced NEMA Premium Plan B - Replacement Motors (1-500HP)		Enhanced NEMA Premium Efficient Motors	20,744	Earlier than or EFACT Efficient Motors	21,441	20	3,300	\$1,189	\$0	\$3,434	35%	19.2	12.6	2,301	0.70	0.58	\$0.00	\$0.00	76.0%	60	60	87%	100%
ASD's (1-200HP)		Equipment coupled with a ASD/VFD	18,492	Equipment without an ASD/VFD	27,601	20	4,399	\$3,363	\$0	\$6,850	49%	2.6	1.3	40,068	9.11	7.61	\$0.00	\$0.00	76.0%	500	500	87%	100%
Custom Motors (<501HP) / ASD's (<201HP)		New Equipment	287,525	Old or less efficient systems or equipment	359,753	20	6,347	\$13,085	\$11,250	\$82,073	18%	3.2	2.7	458,424	72.23	68.36	\$0.00	\$0.00	88.4%	2	2	87%	100%
<b>New Construction</b>																							
<b>New Construction - total</b>																							
EPA - Basic Track		More efficient building over code	308,116	Building built at code	446,644	20	3,488	\$55,371	\$0	\$121,534	48%	3.4	1.8	482,863	138.43	137.60	\$10,510.00	\$0.00	92.8%	24	24	79%	100%
EPA - Enhanced Modeling Track		More efficient building over code	477,579	Building built at code	682,143	20	3,488	\$85,826	\$0	\$189,378	48%	3.2	1.8	748,422	121.51	120.78	\$10,510.00	\$0.00	92.8%	21	21	79%	100%
Energy Efficient Buildings		More efficient building over code	142,138	Building built at code	205,997	20	3,644	\$25,544	\$0	\$36,797	69%	2.2	0.7	232,698	63.86	63.48	\$0.00	\$0.00	92.8%	15	15	93%	100%
<b>Process Efficiency</b>																							
<b>Process Efficiency - total</b>																							
Process Efficiency		New Equipment	1,160,000	Old or less efficient systems or equipment	1,561,531	19	5,224	\$224,859	\$308,896	\$1,057,789	21%	8.3	6.6	2,097,600	401.53	355.38	\$210,635.03	\$136,273.36	82.6%	4	4	87%	100%
<b>Recommissioning</b>																							
<b>Recommissioning - total</b>																							
Recommissioning - Implementation		Optimized Building Systems	695,005	Existing Building System - Not Tuned or Optimized	746,765	7	5,313	\$3,419	\$0	\$27,244	13%	1.7	1.4	274,981	51.76	29.28	\$4,905.96	\$4,905.96	52.6%	16	16	100%	100%
Recommissioning - Studies		0	0	0	0	0	0	\$16,582	\$0	\$22,109	75%			0	0.00	0.00	\$0.00	\$0.00	0.0%	35	35	100%	100%
Refrigeration Recommisioning		Optimized Refrigeration Systems	229,252	Existing Refrigeration Systems - Not Tuned or Optimized	245,593	7	8,206	\$3,352	\$0	\$10,000	34%	1.5	1.0	134,096	16.34	6.54	\$0.00	\$0.00	37.3%	2	2	100%	100%
<b>Segment Efficiency</b>																							
<b>Segment Efficiency - total</b>																							
CRE Prescriptive Lighting		New Equipment	45,704	Old or less efficient equipment	53,770	18	3,084	\$3,839	\$0	\$8,204	47%	4.1	2.2	24,874	8.07	7.32	\$0.00	\$0.00	84.6%	36	36	94%	100%
CRE Prescriptive Motors/Drives		New Equipment	64,332	Old or less efficient equipment wo ASDs/VFDs	82,356	20	5,246	\$9,661	\$0	\$14,321	67%	2.5	0.8	94,558	18.02	12.79	\$0.00	\$0.00	66.2%	13	13	87%	100%
CRE Prescriptive Cooling		New higher efficiency	61,809	Old or less efficient	67,139	20	2,424	\$3,027	\$0	\$17,461	17%	14.3	11.8	12,919	5.33	3.74	\$0.00	\$0.00	65.6%	7	7	75%	100%
CRE Custom Lighting		New equipment	973,362	Old or less efficient equipment	1,024,592	16	3,084	\$26,639	\$0	\$33,530	79%	2.6	0.5	157,982	51.23	46.51	\$0.00	\$0.00	84.6%	5	5	84%	100%

Electric Planning Assumptions																								
Type of Measure	ELECTRIC	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (Years)	Hours of Operation per Year	Rebate Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Rebate as % of Incremental Cost	Incremental Cost Per Unit w/o Rebate	Incremental Cost Per Unit w/ Rebate	Annual Customer Savings	Customer kW Savings	Generator Peak kW Savings	Total O&M Savings	Energy O&M Savings	Conductance Factor	Participates 2011	Units 2011	NTG (%)	Assumed Install (%)	
CRE Custom Motors/Drives		New equipment/install ASDs/VFDs	1,157,797	Old or less efficient equipment or ASDs/VFDs	1,218,733	20	5,246	\$31,687	\$0	\$44,267	72%	2.3	0.7	319,698	60.94	43.23	\$0.00	\$0.00	68.2%	1	1	1	97%	100%
CRE Custom Cooling		New Higher Efficiency Equipment	1,171,445	Old or less efficient equipment	1,233,100	20	2,424	\$32,081	\$0	\$51,042	63%	3.6	1.3	149,446	61.66	43.31	\$0.00	\$0.00	65.6%	1	1	1	87%	100%
CRE Custom EMS		Install EMS	306,714	No EMS	322,857	10	8,345	\$8,394	\$0	\$38,314	21%	5.9	4.6	134,712	16.14	0.27	\$0.00	\$0.00	1.6%	2	2	2	87%	100%
CRE Custom Custom		New higher efficiency	284,050	Old or less efficient	299,000	19	4,889	\$7,774	\$0	\$42,111	18%	9.2	7.5	73,091	14.95	12.35	\$0.00	\$0.00	77.1%	1	1	1	87%	100%
CRE Reconmissioning - total		Optimized Building Systems	295,921	Existing Building Systems - Not Tuned or Optimized	332,495	7	6,133	\$19,019	\$0	\$22,436	85%	1.8	0.3	224,311	36.57	17.63	\$0.00	\$0.00	45.0%	13	13	13	100%	100%
CRE Studies-TOTAL																								
Preliminary Report			0		0	0	0	\$0	\$0	\$0,755	0%			0	0.00	0.00	\$0.00	\$0.00	0.0%	40	40	40	100%	100%
Investigative Study			0		0	0	0	\$20,000	\$0	\$40,434	49%			0	0.00	0.00	\$0.00	\$0.00	0.0%	5	5	5	100%	100%
Self-Directed Custom Efficiency																								
Self-Direct - total																								
Self-Direct		New Equipment	100,216	Old or less efficient systems or equipment	206,449	17	4,245	\$56,084	\$6,329	\$84,341	66%	2.8	0.9	450,982	106.23	105.80	\$123,57	\$0.00	93.0%	13	13	13	91%	100%
Small Business Lighting		More efficient lighting	42,997	Less efficient lighting	50,000	20	3,084	\$3,002	\$0	\$5,003	60%	2.9	1.1	21,597	7.00	6.34	\$0.00	\$0.00	64.5%	200	200	200	100%	100%
Small Business Lighting - total																								
Standard Offer																								
Standard Offer - total																								
Standard Offer		New Equipment	42,242	Old or less efficient systems or equipment	116,653	15	2,166	\$26,660	\$42,155	\$43,413	61%	2.6	1.0	161,143	74.41	79.43	\$164,28	\$0.00	99.7%	30	30	30	88%	100%
TEA (Study)			0		0	0	0	\$12,800	\$0	\$25,600	50%			0	0.00	0.00	\$0.00	\$0.00	0.0%	30	30	30	88%	100%
RESIDENTIAL																								
Energy Efficient Showerheads																								
Energy Efficient Showerhead - total																								
Provide Energy Efficient Showerhead - 1.5 GPM		1.5 GPM	2,700	2.5 GPM	4,500	6	140	\$3	\$0	\$3	100%	0.1	0.0	232	1.80	0.00	\$7.39	\$0.00	0.0%	5,231	5,812	100%	65%	
ENERGY STAR New Homes																								
ENERGY STAR New Homes - total																								
CHL-Quantity of 20 CFL bulbs (Required)		High efficiency 20 CFL bulbs	380	baseline is 20 incandescent bulbs	1,305	8	975	\$40	\$0	\$71	58%	0.9	0.4	901	0.93	0.08	\$0.00	\$0.00	8.0%	23	25	25	97%	100%
ENERGY STAR Clothes Washer		ENERGY STAR Clothes washer	143	standard clothes washer	209	11	392	\$5	\$300	\$18	25%	8.2	6.2	26	0.07	0.00	\$1.90	\$0.00	4.5%	23	25	25	97%	100%
ENERGY STAR Dishwasher		0.65 Energy Factor - recommended	870	0.46 Energy Factor - Standard	1,229	11	215	\$2	\$545	\$5	33%	0.8	0.5	77	0.36	0.01	\$0.22	\$0.00	2.5%	23	25	25	97%	100%
ENERGY STAR Refrigerator		ENERGY STAR Refrigerator	60	standard refrigerator	71	13	8,760	\$10	\$1,070	\$30	33%	3.7	2.5	93	0.01	0.01	\$0.00	\$0.00	100.0%	23	25	25	97%	100%
HERS 73		82%+ Energy Factor (ACH = 4.6)	208	Baseline Home	222	18	8,760	\$36	\$0	\$62	56%	6.0	2.5	120	0.01	0.01	\$0.00	\$0.00	100.0%	448	480	480	92%	100%
HERS 71		HERS 73 + .55 EF Water H/W	208	Baseline Home	222	18	8,760	\$36	\$0	\$128	29%	12.4	9.0	120	0.01	0.01	\$0.00	\$0.00	100.0%	448	480	480	92%	100%
HERS 65		HERS 71 + advanced air sealing (ACH = 1.5, and duct sealing DB = 75 cfm @ 25 pa)	195	Baseline Home	222	18	8,760	\$139	\$0	\$155	89%	7.8	0.8	231	0.03	0.03	\$0.00	\$0.00	100.0%	59	63	63	92%	100%
HERS 64		HERS 65 + SEER 15 AC	178	Baseline Home	222	18	8,760	\$139	\$0	\$87	38%	11.0	6.9	387	0.04	0.05	\$0.00	\$0.00	100.0%	58	62	62	92%	100%

Electric Planting Assumptions																							
Type of Measure	ELECTRIC	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (years)	Hours of Operation per Year	Rebate Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Coal Period w/o Rebate	Incremental Coal Period w/ Rebate	Annual Customer kWh Savings	Customer kW Savings	Generator Peak kW Savings	Total O&M Savings	Energy/O&M Savings	Confidence Factor	Participants 2011	Units 2011	NTG (%)	Assumed Rate (%)
HERS 63		HERS 63 + 95% ECM Incentive	142	Baseline Home	222	18	8,760	\$139	\$0	\$434	32%	7.3	4.9	695	0.08	0.09	\$0.00	\$0.00	100.0%	59	63	92%	100%
HERS 58		HERS 58 + 90 EF water hr	142	Baseline Home	222	18	8,760	\$218	\$0	\$487	45%	8.2	4.5	695	0.08	0.09	\$0.00	\$0.00	100.0%	235	252	92%	100%
HERS 57		HERS 58 + R21 ABQW, R44 ceiling	142	Baseline Home	222	18	8,760	\$218	\$0	\$674	32%	11.2	7.6	699	0.08	0.09	\$0.00	\$0.00	100.0%	0	0	92%	100%
HERS 52		HERS 58 + R24 ICF foundation and above grade walls, R10 under slab, R50 attic.	144	Baseline Home	222	18	8,760	\$396	\$0	\$1,286	31%	21.6	14.8	682	0.08	0.08	\$0.00	\$0.00	100.0%	0	0	92%	100%
HERS 45		HERS 52 + geothermal system	358	Baseline Home	222	18	8,760	\$0	\$0	\$2,307	0%	-22.4	-22.4	-1,196	-0.14	-0.15	\$0.00	\$0.00	100.0%	0	0	92%	100%
HERS 45 - adjusted for fuel switching		HERS 52 + geothermal system	144	Baseline Home	222	18	8,760	\$793	\$0	\$2,307	34%	39.4	25.8	682	0.08	0.08	\$0.00	\$0.00	100.0%	0	0	92%	100%
<b>Evaporative Cooling Rebate</b>																							
<b>Standard Evaporative Cooler alternative 1.5 ton Window Unit (Tier 1)</b>																							
		Standard Evaporative Cooler ~ 1.5 tons	93	Standard Window AC 1.5 tons	1,837	10	422	\$200	\$726	-\$115	-175%	-1.8	-5.0	735	1.74	1.82	-\$5.13	\$0.00	85.9%	2,345	2,345	60%	100%
<b>High Efficiency Evaporative alternative to 1.5 ton Standard Window AC (Tier 2)</b>																							
		High Eff. Evaporative Cooler ~ 1.5 tons	352	Standard Window AC 1.5 tons	1,837	10	422	\$500	\$726	\$394	127%	7.3	-2.0	628	1.48	1.38	-\$3.38	\$0.00	86.0%	650	650	100%	100%
<b>High Efficiency Evaporative Replacing Refrigerated Air-Implementation ~ 3.3 ton (Tier 3)</b>																							
		Integrated HVAC with Hi Eff. Evap System	548	Conv. Furn. SEER 13 New Remod Home 3 ton	3,220	10	422	\$1,000	\$8,300	\$1,036	97%	10.7	0.4	1,127	2.67	2.49	-\$6.77	\$0.00	85.9%	5	5	100%	100%
<b>High Efficiency Air Conditioning</b>																							
<b>High Efficiency Air Conditioning - total</b>																							
<b>Installed in New Homes</b>																							
		3 Ton 14.5 SEER: 12 EER, wo Quality Installation	3,000	3T SEER 13 EER 11.8 wo Quality Installation	3,220	14	919	\$250	\$4,329	\$521	48%	30.0	15.6	202	0.22	0.21	\$0.00	\$0.00	89.9%	0	0	89%	100%
		3 Ton 15 SEER: 12.5 EER, wo Quality Installation	2,880	3T SEER 13 wo Quality Installation	3,220	14	766	\$350	\$4,329	\$693	51%	31.0	15.3	261	0.34	0.33	\$0.00	\$0.00	89.9%	1	1	89%	100%
		3 Ton 16 SEER: 13 EER, wo Quality Installation	2,769	3T SEER 13 wo Quality Installation	3,220	14	813	\$500	\$4,329	\$1,040	46%	33.0	17.1	366	0.45	0.44	\$0.00	\$0.00	89.9%	2	2	89%	100%
<b>Quality Install - New Homes</b>																							
		3 T Units wo Quality Installation	2,238	3T Units wo Quality Installation	3,220	7	607	\$100	\$0	\$200	50%	3.9	2.0	596	0.98	0.96	\$0.00	\$0.00	89.9%	1	1	89%	100%
		3 T Units wo Quality Installation	2,085	3T Units wo Quality Installation	3,000	7	584	\$100	\$0	\$200	50%	4.4	2.2	534	0.91	0.89	\$0.00	\$0.00	89.9%	0	0	89%	100%
		3 T Units wo Quality Installation	2,002	3T Units wo Quality Installation	2,880	7	588	\$100	\$0	\$200	50%	4.5	2.3	518	0.88	0.86	\$0.00	\$0.00	89.9%	1	1	89%	100%
		3 T Units wo Quality Installation	1,925	3T Units wo Quality Installation	2,769	7	573	\$100	\$0	\$200	50%	4.8	2.4	484	0.84	0.82	\$0.00	\$0.00	89.9%	2	2	89%	100%
<b>Installed in Existing Homes</b>																							
		3 Ton 14.5 SEER: 12 EER, wo Quality Installation	3,000	3T SEER 13 wo Quality Installation	3,220	14	919	\$250	\$4,329	\$521	48%	30.0	15.6	202	0.22	0.21	\$0.00	\$0.00	89.9%	6	6	89%	100%
		3 Ton 15 SEER: 12.5 EER, wo Quality Installation	2,880	3T SEER 13 wo Quality Installation	3,220	14	766	\$350	\$4,329	\$693	51%	31.0	15.3	261	0.34	0.33	\$0.00	\$0.00	89.9%	29	29	89%	100%

Electric Planning Assumptions																								
Type of Measure	ELECTRIC	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (years)	Hour of Operation per Year	Rebate Amount	Average Baseline Product Cost	Incremental Cost of Product	Rebate as a % of Incremental Cost	Incremental Cost Period w/ Rebate	Incremental Cost Period w/ Rebate	Annual Customer kWh Savings	Customer kW Savings	Generator Peak kW Savings	Total DSM Savings	Energy DSM Savings	Confidence Factor	Participants 2011	Units 2011	NTG (%)	Assured Install Rate (%)	
Install High Efficiency ENERGY STAR AC CEE Tier 3		3 Ton 16 SEER, 13 EER, w/ Quality Installation	2,769	3T SEER 13 w/ Quality Installation	3,220	14	813	\$500	\$4,329	\$1,040	48%	33.0	17.1	386	0.45	0.44	\$0.00	\$0.00	89.9%	77	77	89%	100%	
Quality Install - Exist Homes																								
Plan A																								
Provide Quality Installation of new AC in exist home - AC 3 T 14.5 SEER		3 T Units with Quality Installation	2,325	3T Units w/ Quality Installation	3,220	7	607	\$100	\$0	\$200	50%	4.3	2.1	543	0.89	0.87	\$0.00	\$0.00	89.9%	34	34	89%	100%	
Provide Quality Install of new AC in exist home - AC 3 T 14.5 SEER		3 T Units with Quality Installation	2,166	3T Units w/ Quality Installation	3,000	7	584	\$100	\$0	\$200	50%	4.8	2.4	487	0.83	0.81	\$1.00	\$0.00	89.9%	6	6	89%	100%	
Provide Quality Installation of new AC in exist home - AC 3 T 15 SEER		3 T Units with Quality Installation	2,080	3T Units w/ Quality Installation	2,880	7	588	\$100	\$0	\$200	50%	4.9	2.5	471	0.80	0.78	\$2.00	\$0.00	89.9%	29	29	89%	100%	
Provide Quality Installation of new AC in exist home - AC 3 T 15 SEER		3 T Units with Quality Installation	2,000	3T Units w/ Quality Installation	2,769	7	573	\$100	\$0	\$200	50%	5.3	2.6	441	0.77	0.75	\$3.00	\$0.00	89.9%	77	77	89%	100%	
Plan B - Early Retirement																								
Install High Efficiency ENERGY STAR AC CEE Tier 1 w/ Quality Installation		3 Ton 14 SEER, 11.76 EER, w/ Quality Installation	2,210	3T SEER 10 EER 9.2 w/ Quality Installation	3,913	7	722	\$600	\$3,949	\$999	60%	9.5	3.8	1,230	1.70	1.68	\$0.00	\$0.00	89.9%	350	350	89%	100%	
Install High Efficiency ENERGY STAR AC CEE Tier 1 w/ Quality Installation		3 Ton 14.5 SEER, 12 EER, w/ Quality Installation	2,166	3 T SEER 10 EER 9.2 w/ Quality Installation	3,913	7	730	\$850	\$3,949	\$1,154	74%	10.5	2.8	1,275	1.75	1.70	\$0.00	\$0.00	89.9%	60	60	89%	100%	
Install High Efficiency ENERGY STAR AC CEE Tier 2 w/ Quality Installation		3 Ton 15 SEER, 12.5 EER, w/ Quality Installation	2,080	3 T SEER 10 EER 9.2 w/ Quality Installation	3,913	7	718	\$950	\$3,949	\$1,308	73%	11.6	3.2	1,317	1.83	1.79	\$0.00	\$0.00	89.9%	300	300	89%	100%	
Install High Efficiency ENERGY STAR AC CEE Tier 3 w/ Quality Installation		3 Ton 16 SEER, 13 EER, w/ Quality Installation	2,000	3 T SEER 10 EER 9.2 w/ Quality Installation	3,913	7	728	\$1,100	\$3,949	\$1,616	68%	13.5	4.3	1,393	1.91	1.86	\$0.00	\$0.00	89.9%	790	790	89%	100%	
Tune Up Systems																								
Refire & Air Flow Tune Up & Ground Source Heat Pump		3 T 10 SEER 9.2 EER avg unit with Tune Up	2,080	3 T 10 SEER 9.2 EER avg unit without Tune Up	3,913	7	588	\$182	\$0	\$250	73%	2.7	0.7	1,078	1.83	1.35	\$0.00	\$0.00	68.0%	0	0	89%	100%	
Installation of new GSHP in NEW HOME (3220 Sq Ft) for COOLING		Installation of 6 Ton capacity with 2.5 ton load, closed loop, 14.1 EER GSHP	1,291	Installation of 2.7 Ton 13 SEER AC w/ 2.5 ton load	2,902	20	900	\$601	\$4,582	\$1,990	31%	15.5	10.7	1,450	1.61	0.72	\$0.00	\$0.00	41.5%	5	5	100%	100%	
Installation of new GSHP EXISTING HOME (1440 Sq Ft) for COOLING		Installation of 3.4 ton capacity closed loop, 14.1 EER GSHP with 2.0 ton load	992	Installation of 2.7 Ton 13 SEER AC w/ 2.0 ton load	2,322	20	701	\$341	\$4,385	\$657	52%	8.2	3.9	932	1.33	0.85	\$0.00	\$0.00	58.1%	5	5	100%	100%	
Installation of new GSHP 6 Ton 3.3 COP in NEW HOME (3220 Sq Ft) for HEATING		Installation of 6 Ton capacity, 3.3 COP closed loop, GSHP for 6 ton load	6,317	Installation of ducted elec resistance h/g	21,169	20	859	\$1,203	\$1,866	\$8,412	14%	7.7	6.6	12,765	14.85	0.00	\$0.00	\$0.00	0.0%	5	5	100%	100%	
Installation of new GSHP 3.4 T 3.3 COP in EXISTING HOME (1440 Sq Ft) for HEATING		Installation of 3.4 Ton capacity, 3.3 COP closed loop, GSHP for 3.4 ton load	3,634	Installation of ducted elec resistance h/g	11,908	20	1,409	\$683	\$1,866	\$2,863	24%	2.9	2.2	11,657	8.27	0.00	\$0.00	\$0.00	0.0%	5	5	100%	100%	
Home Lighting & Recycling																								
Home Lighting & Recycling - total																								
Residential Home Lighting		Average CFL Wattage Purchased in program	16	Average equivalent incandescent wattage purchased in program	56	9	917	\$1	\$1	\$3	48%	0.9	0.5	37	0.04	0.00	\$0.00	\$0.00	8.0%	279,660-322,284	4,448,800-1,289,135	100%-90%	99%	
Residential Home Lighting - Business Customers		Average CFL Wattage Purchased in program	16	Average equivalent incandescent wattage purchased in program	56	3	3,141	\$1	\$1	\$3	48%	0.3	0.1	126	0.04	0.04	\$0.00	\$0.00	84.6%	47,860-20,571	74,400-82,285	100%-90%	99%	

Electric Planting Assumptions																							
Type of Measure	ELECTRIC	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (Years)	Hours of Operation per Year	Rebate Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Per Unit of Rebate	Incremental Product Rebate	Annual Customer kWh Savings	Customer kW Savings	Generator Peak kW Savings	Total O&M Savings	Energy O&M Savings	Confidence Factor	Participants 2011	Units 2011	NTG (%)	Assumed Rate (%)
<b>Home Performance with ENERGY STAR</b>																							
<b>Heating Effects</b>																							
Attic insulation & bypass sealing (R-19 to R-40) Elec		R-40 insulation or higher	15,423	average home estimated to have R-19 existing	16,383	20	787	\$225	\$0	\$588	38%	9.1	5.6	756	0.96	0.00	\$0.00	\$0.00	0.0%	1	3	94%	100%
Resistorless Attic Insulation & Bypass Sealing (R-19 to R-40) Air Source HP		R-40 insulation or higher	7,746	average home estimated to have R-19 existing	8,192	20	967	\$225	\$0	\$588	38%	15.9	9.8	431	0.45	0.00	\$0.00	\$0.00	0.0%	0	1	94%	100%
Attic insulation & bypass sealing (R-19 to R-40) Ground Source HP		R-40 insulation or higher	3,871	average home estimated to have R-19 existing	4,098	20	943	\$225	\$0	\$588	38%	32.3	19.9	212	0.22	0.00	\$0.00	\$0.00	0.0%	0	1	94%	100%
Air sealing & weather-stripping Elec Resistance		25% reduction in air changes per hour - 0.45 ACH	14,450	Energy Gauge Default 0.60 ACH	16,383	10	787	\$150	\$0	\$272	55%	2.1	0.9	1,521	1.93	0.00	\$0.00	\$0.00	0.0%	1	3	94%	100%
Air sealing & weather-stripping ASHP		25% reduction in air changes per hour - 0.45 ACH	7,253	Energy Gauge Default 0.60 ACH	8,192	10	967	\$150	\$0	\$272	55%	3.5	1.6	908	0.94	0.00	\$0.00	\$0.00	0.0%	0	1	94%	100%
Air sealing & weather-stripping GSHP		25% reduction in air changes per hour - 0.45 ACH	3,625	Energy Gauge Default 0.60 ACH	4,098	10	943	\$150	\$0	\$272	55%	7.1	3.2	444	0.47	0.00	\$0.00	\$0.00	0.0%	0	1	94%	100%
Wall insulation; sub-sliding or cavity Elec Resistance		R-11 insulation	16,303	Baseline assumes R-0 in wall cavities as existing level	25,446	20	787	\$325	\$0	\$2,080	16%	3.4	2.9	7,131	9.08	0.00	\$0.00	\$0.00	0.0%	0	2	94%	100%
Wall insulation; sub-sliding or cavity ASHP		R-11 insulation	8,192	Baseline assumes R-0 in wall cavities as existing level	12,459	20	967	\$325	\$0	\$2,080	16%	5.9	4.9	4,127	4.27	0.00	\$0.00	\$0.00	0.0%	0	0	94%	100%
Wall insulation; sub-sliding or cavity GSHP		R-11 insulation	4,096	Baseline assumes R-0 in wall cavities as existing level	6,413	20	943	\$325	\$0	\$2,080	16%	11.1	9.3	2,185	2.32	0.00	\$0.00	\$0.00	0.0%	0	0	94%	100%
<b>Other Measures</b>																							
CFLs (Quantity of 20)-- Required		High Efficiency CFL (20 bulbs)	380	Incandescent bulbs existing unit vintage from 7.18 years old	1,305	9	901	\$40	\$0	\$63	63%	0.9	0.3	833	0.93	0.08	\$0.00	\$0.00	8.0%	22	100	94%	100%
Refrigerator Recycling		removal of second refrigerator	0	existing unit vintage from 7.18 years old	150	7	7,361	\$35	\$0	\$0	0.0%	0.0	-0.4	1,102	0.15	0.16	\$0.00	\$0.00	100.0%	0	0	94%	100%
ENERGY STAR Refrigerator		ENERGY STAR Refrigerator	60	standard refrigerator	71	13	8,760	\$15	\$1,070	\$30	50%	3.7	1.8	93	0.01	0.01	\$0.00	\$0.00	100.0%	13	57	94%	100%
ECM Furnace Fan Efficiency		ECM Furnace Fan (variable speed motor)	150	typical permanent split capacitor motor	400	18	2,484	\$130	\$0	\$400	33%	7.5	5.1	621	0.25	0.00	\$0.00	\$0.00	0.0%	6	27	94%	100%
Dishwasher - Electric Water Heater		0.65 Energy Factor - Recommended	1,538	0.46 Energy Factor - Federal Minimum Standard	2,174	11	215	\$15	\$545	\$30	50%	2.6	1.3	137	0.64	0.02	\$1.94	\$0.00	2.5%	0	1	94%	100%
Clothes Washer - Electric		ENERGY STAR Recommended	2,269	standard clothes washer	3,243	11	200	\$10	\$300	\$200	5%	11.9	11.3	195	0.97	0.02	\$26.66	\$0.00	1.6%	0	2	94%	100%
Dishwasher - Gas Water Heater		0.65 Energy Factor - Recommended	870	ENERGY STAR Standard	1,229	11	215	\$12	\$430	\$24	50%	3.6	1.8	77	0.36	0.01	\$1.30	\$0.00	2.5%	13	57	94%	100%
Clothes Washer - Gas Water Heater		ENERGY STAR Recommended	291	ENERGY STAR Standard clothes washer	410	11	200	\$7	\$198	\$132	5%	59.7	56.7	26	0.13	0.00	\$17.63	\$0.00	1.6%	16	72	94%	100%
<b>COOLING EFFECTS</b>																							
Attic insulation & bypass sealing (R-19 to R-40) Elec AC		R-40 insulation or higher	1,869	average home estimated to have R-19 existing	2,005	20	628	\$0	\$0	Incl With Htg	-	-	-	85	0.14	0.12	\$0.00	\$0.00	80.9%	9	41	94%	100%
Attic insulation & bypass sealing (R-19 to R-40) ASHP		R-40 insulation or higher	1,871	average home estimated to have R-19 existing	2,005	20	628	\$0	\$0	Incl With Htg	-	-	-	84	0.13	0.12	\$0.00	\$0.00	80.9%	0	1	94%	100%
Attic insulation & bypass sealing (R-19 to R-40) Ground Source HP		R-40 insulation or higher	1,055	average home estimated to have R-19 existing	1,146	20	628	\$0	\$0	Incl With Htg	-	-	-	51	0.08	0.07	\$0.00	\$0.00	80.9%	0	1	94%	100%
Air sealing & weather-stripping Elec AC		25% reduction in air changes per hour - 0.45 ACH	1,997	Energy Gauge Default 0.60 ACH	2,005	10	628	\$0	\$0	Incl With Htg	-	-	-	5	0.01	0.01	\$0.00	\$0.00	80.9%	9	41	94%	100%

Electric Planning Assumptions																							
Type of Measure	ELECTRIC	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (Years)	Hours of Operation per Year	Rebate Amount	Average Baseline Product Cost	Incremental Cost of Equipment or Incremental Cost	Rebate as a % of Incremental Cost	Incremental Cost Period w/o Rebate	Incremental Cost Break Period w/ Rebate	Annual Customer kWh Savings	Customer kW Savings	Generator Peak kW Savings	Total DSM Savings	Energy DSM Savings	Confidence Factor	Participants 2011	Units 2011	NTG (%)	Assumed Install Rate (%)
Air sealing & weather-stripping ASHP		25% reduction in air changes per hour - 0.45 ACH	1,997	Energy Gauge Default 0.60 ACH	2,005	10	628	\$0	\$0	Incl with Htg	-	-	-	5	0.01	0.01	\$0.00	\$0.00	80.9%	0	1	94%	100%
Air sealing & weather-stripping GSHP		25% reduction in air changes per hour - 0.45 ACH	1,142	Energy Gauge Default 0.60 ACH	1,146	10	628	\$0	\$0	Incl with Htg	-	-	-	3	0.00	0.00	\$0.00	\$0.00	80.9%	0	1	94%	100%
Wall insulation, sub-siding or cavity Elec Resistance		R-11 insulation	2,005	Baseline assumes R-19 existing level	2,591	20	628	\$0	\$0	Incl with Htg	-	-	-	368	0.59	0.51	\$0.00	\$0.00	80.9%	7	31	94%	100%
Wall insulation, sub-siding or cavity ASHP		R-11 insulation	2,005	Baseline assumes R-19 existing level	2,591	20	628	\$0	\$0	Incl with Htg	-	-	-	368	0.59	0.51	\$0.00	\$0.00	80.9%	0	0	94%	100%
Wall insulation, sub-siding or cavity GSHP		R-11 insulation	1,146	Baseline assumes R-19 existing level	1,532	20	628	\$0	\$0	Incl with Htg	-	-	-	242	0.39	0.34	\$0.00	\$0.00	80.9%	0	0	94%	100%
<b>Insulation Rebate</b>																							
<b>Heating Effects</b>																							
Attic insulation & bypass sealing (R-19 to R-40) Elec Resistance		R-40 insulation or higher	15,423	average home estimated to have R-19 existing	16,383	20	797	\$118	\$0	\$588	20%	9.1	7.2	756	0.96	0.00	\$0.00	\$0.00	0.0%	11	9	89%	100%
Attic insulation & bypass sealing (R-19 to R-40) Air Source HP		R-40 insulation or higher	7,746	average home estimated to have R-19 existing	8,192	20	967	\$118	\$0	\$588	20%	15.9	12.7	431	0.45	0.00	\$0.00	\$0.00	0.0%	22	16	89%	100%
Attic insulation & bypass sealing (R-19 to R-40) Ground Source HP		R-40 insulation or higher	3,871	average home estimated to have R-19 existing	4,096	20	943	\$118	\$0	\$588	20%	32.3	25.8	212	0.22	0.00	\$0.00	\$0.00	0.0%	11	9	89%	100%
Air sealing & weather-stripping Elec Resistance		25% reduction in air changes per hour - 0.45 ACH	14,450	Energy Gauge Default 0.60 ACH	16,383	20	787	\$54	\$0	\$272	20%	2.1	1.7	1,521	1.93	0.00	\$0.00	\$0.00	0.0%	2	2	89%	100%
Air sealing & weather-stripping ASHP		25% reduction in air changes per hour - 0.45 ACH	7,253	Energy Gauge Default 0.60 ACH	8,192	20	967	\$54	\$0	\$272	20%	3.5	2.8	908	0.94	0.00	\$0.00	\$0.00	0.0%	4	3	89%	100%
Air sealing & weather-stripping GSHP		25% reduction in air changes per hour - 0.45 ACH	3,625	Energy Gauge Default 0.60 ACH	4,096	20	943	\$54	\$0	\$272	20%	7.1	5.7	444	0.47	0.00	\$0.00	\$0.00	0.0%	2	2	89%	100%
Wall insulation, sub-siding or cavity Elec Resistance		R-11 insulation	16,383	Baseline assumes R-0 in wall cavities as existing level	25,446	20	797	\$300	\$0	\$2,080	14%	3.4	2.9	7,131	9.06	0.00	\$0.00	\$0.00	0.0%	4	3	89%	100%
Wall insulation, sub-siding or cavity ASHP		R-11 insulation	8,192	Baseline assumes R-0 in wall cavities as existing level	12,459	20	967	\$300	\$0	\$2,080	14%	5.9	5.0	4,127	4.27	0.00	\$0.00	\$0.00	0.0%	6	5	89%	100%
Wall insulation, sub-siding or cavity GSHP		R-11 insulation	4,096	Baseline assumes R-0 in wall cavities as existing level	6,413	20	943	\$300	\$0	\$2,080	14%	11.1	9.5	2,185	2.32	0.00	\$0.00	\$0.00	0.0%	4	3	89%	100%
<b>COOLING EFFECTS</b>																							
Attic insulation & bypass sealing (R-19 to R-40) Elec AC		R-40 insulation or higher	1,989	average home estimated to have R-19 existing	2,005	20	628	\$0	\$0	\$0	-	0.0	0.0	85	0.14	0.12	\$0.00	\$0.00	80.9%	801	666	89%	100%
Attic insulation & bypass sealing (R-19 to R-40) ASHP		R-40 insulation or higher	1,871	average home estimated to have R-19 existing	2,005	20	628	\$0	\$0	\$0	-	0.0	0.0	84	0.13	0.12	\$0.00	\$0.00	80.9%	22	18	89%	100%
Attic insulation & bypass sealing (R-19 to R-40) Ground Source HP		R-40 insulation or higher	1,065	average home estimated to have R-19 existing	1,146	20	628	\$0	\$0	\$0	-	0.0	0.0	51	0.08	0.07	\$0.00	\$0.00	80.9%	11	9	89%	100%
Air sealing & weather-stripping Elec AC		25% reduction in air changes per hour - 0.45 ACH	1,997	Energy Gauge Default 0.60 ACH	2,005	10	628	\$0	\$0	\$0	-	0.0	0.0	5	0.01	0.01	\$0.00	\$0.00	80.9%	142	118	89%	100%
Air sealing & weather-stripping ASHP		25% reduction in air changes per hour - 0.45 ACH	1,997	Energy Gauge Default 0.60 ACH	2,005	10	628	\$0	\$0	\$0	-	0.0	0.0	5	0.01	0.01	\$0.00	\$0.00	80.9%	4	3	89%	100%

Electric Planning Assumptions

Type of Measure	ELECTRIC	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (Years)	Hours of Operation Per Year	Rebate Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Period w/o Rebate	Incremental Cost Period w/ Rebate	Annual kWh Savings	Customer kW Savings	Generator Peak kW Savings	Total kWh Savings	Energy kWh Savings	Coincidence Factor	Participants 2011	Units 2011	NTG (%)	Assumed Install Rate (%)
Air sealing & weather-stripping GSH-IP		25% reduction in air changes per hour - 0.45 ACH	1,142	Energy Gauge Default 0.80 ACH	1,146	10	628	\$0	\$0	\$0	100%	0.0	0.0	3	0.00	0.00	\$0.00	\$0.00	80.9%	2	2	89%	100%
Wall Insulation, sub-siding or cavity AS-IP		R-11 insulation	2,005	Baseline assumes R 0 in wall cavities as existing level	2,561	20	628	\$0	\$0	\$0	0.0	0.0	0.0	368	0.59	0.51	\$0.00	\$0.00	80.9%	221	184	89%	100%
Wall Insulation, sub-siding or cavity AS-IP		R-11 insulation	2,005	Baseline assumes R 0 in wall cavities as existing level	2,591	20	628	\$0	\$0	\$0	0.0	0.0	0.0	368	0.59	0.51	\$0.00	\$0.00	80.9%	6	5	89%	100%
Wall Insulation, sub-siding or cavity GSHP		R-11 insulation	1,146	Baseline assumes R 0 in wall cavities as existing level	1,532	20	628	\$0	\$0	\$0	0.0	0.0	0.0	242	0.39	0.34	\$0.00	\$0.00	80.9%	4	3	89%	100%
Refrigerator Recycling		Refrigerator Recycling - removal of second refrigerator	0	existing unit vintage from 7-18 years old	139	7	7,361	\$50	\$0	\$0	0.0	-0.6	1,025	0.14	0.15	\$0.00	\$0.00	100.0%	1,500	1,500	61%	100%	
School Education Kits		School Education Kits - total																					
Replace incandescent lamps with CFLs		High efficiency CFL lighting (2 bulbs, 13W, 1.18W)	31	baseline is 2 (1.60W & 1.75 W)	135	7	1,210	\$6	\$0	\$6	100%	0.6	0.0	126	0.10	0.01	\$0.00	\$0.00	8.0%	14,091	18,318	100%	66%
Provide low flow shower heads for electric HW		Low Flow Shower head - 1.5 GPM	2,700	Federal Minimum Standard flow rate 2.5 GPM	4,500	6	140	\$13	\$0	\$13	100%	0.6	0.0	292	1.80	0.00	\$7.39	\$0.00	0.0%	2,114	2,748	100%	48%
Provide low flow faucet aerators for electric HW		1.5 GPM flow rate aerator	3,041	Federal Minimum Standard flow rate 2.2 GPM	4,500	5	92	\$5	\$0	\$5	100%	0.4	0.0	135	1.46	0.00	\$3.83	\$0.00	0.0%	2,114	2,748	100%	46%
Saver Switch		Saver Switch - total																					
Residential - New Installation Average Customer- AC only - Smart Switch		Utility Load Control for control period	0	No Control, No Switch	3,000	15	5	\$0	\$0	\$0	0.0	0.0	0.0	14	3.00	1.03	\$0.00	\$0.00	31.7%	19,500	19,500	100%	100%
Water Heating Rebate - total		Water Heating Rebate - total																					
Heat Pump Water Heaters - Natural Gas Heated Home		Heat Pump Water Heater Energy Factor (EF) = 2.19	2,190	Elec Reas EF =0.9106	4,500	13	1,073	\$450	\$650	\$1,150	39%	5.4	3.3	2,478	2.31	0.31	\$0.00	-\$40.66	12.2%	48,180	48,180	100%	100%
Heat Pump Water Heaters - Electric Resistance Heated Home - 8% Home		Heat Pump Water Heater Energy Factor (EF) = 2.19	3,159	Elec Reas EF =0.9106	4,500	13	1,073	\$450	\$650	\$1,150	39%	0.3	5.7	1,439	1.34	0.18	\$0.00	\$0.00	12.2%	4,10	4,10	100%	100%
Heat Pump Water Heaters - Air Source Heat Pump Heating 1%		Heat Pump Water Heater Energy Factor (EF) = 2.19	2,676	Elec Reas EF =0.9106	4,500	13	1,073	\$450	\$650	\$1,150	38%	6.8	4.2	1,956	1.82	0.24	\$0.00	\$0.00	12.2%	4,10	4,10	100%	100%
LOW-INCOME																							
Energy Savings Kit - total		Energy Savings Kit - total																					
Replace 6 incandescent lamps with CFLs		ES CFLs lighting (6 bulbs 4 - 13W, 2 - 20W)	92	6 incandescent bulbs (4 - 60W & 2 - 75 W)	390	8	1,180	\$7	\$0	\$7	100%	0.2	0.0	351	0.30	0.03	\$0.00	\$0.00	8.0%	5,500	22,000	100%	77%
Provide low flow shower heads for electric HW		Low Flow Shower head - 1.5 GPM	2,700	Federal Minimum Standard flow rate 2.5 GPM	4,500	6	140	\$2	\$0	\$2	100%	0.1	0.0	252	1.80	0.00	\$7.39	\$0.00	0.0%	825	3,300	100%	55%
Provide low flow faucet aerators for electric HW		1.5 GPM flow rate aerator	3,047	Federal Minimum Standard flow rate 2.2 GPM	4,500	5	92	\$2	\$0	\$2	100%	0.1	0.0	134	1.45	0.00	\$3.84	\$0.00	0.0%	825	3,300	100%	49%
Provide low flow faucet aerators for electric HW		1.0 GPM flow rate aerator	2,031	Federal Minimum Standard flow rate 2.2 GPM	4,500	5	92	\$2	\$0	\$2	100%	0.1	0.0	228	2.47	0.00	\$6.58	\$0.00	0.0%	825	3,300	100%	49%

Type of Measure		High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (years)	Hours of Operation per Year	Rebate Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Period w/o Rebate	Incremental Cost Period w/ Rebate	Annual Customer kWh Savings	Customer kW Savings	Generator Peak kW Savings	TOTAL kWh Savings	Energy kWh Savings	Confidence Factor	Participants 2011	Units 2011	NTG (%)	Assumed Rate (%)
<b>Multi-Family Weatherization</b>																							
<b>Multi-Family Weatherization - total</b>																							
Refrigerator Replacements	2008 ENERGY STAR standard refrigerator	55	existing unit vintage from 7-18 years old	134	7	7,381	\$561	\$420	\$141	399%	2.8	-8.4	584	0.08	0.09	\$0.00	\$0.00	\$0.00	100.0%	186	166	100%	100%
Compact Fluorescent Lighting Package -10	High efficiency CFL lighting	190	baseline is incandescent bulbs	653	7	1,105	\$37	\$0	\$37	100%	0.8	0.0	511	0.46	0.04	\$0.00	\$0.00	\$0.00	8.0%	722	722	100%	100%
<b>Non-Profit Weatherization</b>																							
<b>Non-Profit Weatherization - total</b>																							
Refrigerator Replacements	2008 ENERGY STAR standard refrigerator	55	existing unit vintage from 7-18 years old	134	7	7,381	\$561	\$420	\$141	399%	2.8	-8.4	584	0.08	0.09	\$0.00	\$0.00	\$0.00	100.0%	98	380	100%	100%
Compact Fluorescent Lighting Package 10 lamps	High efficiency CFL lighting	190	baseline is incandescent bulbs	653	7	1,105	\$46	\$0	\$46	100%	1.0	0.0	511	0.46	0.04	\$0.00	\$0.00	\$0.00	8.0%	224	872	100%	100%
<b>Single-Family Weatherization</b>																							
<b>Single-Family Weatherization - total</b>																							
Refrigerator Replacements	2008 ENERGY STAR standard refrigerator	55	existing unit vintage from 7-18 years old	134	7	7,381	\$631	\$420	\$141	448%	2.8	-8.8	584	0.08	0.09	\$0.00	\$0.00	\$0.00	100.0%	449	928	96%	100%
Compact Fluorescent Lighting Package 16 lamps	High efficiency CFL lighting 16 bulbs	304	baseline is 16 incandescent bulbs	1,044	8	1,016	\$48	\$0	\$48	100%	0.7	0.0	752	0.74	0.06	\$0.00	\$0.00	\$0.00	8.0%	2,016	4,163	96%	100%
Ceiling R-11 to R-38	DOE recommend level of insulation for CO Climate Zones R-38	9,030	Estimated existing level = R 11	9,898	20	2,126	\$715	\$0	\$715	100%	4.5	0.0	1,843	0.87	0.00	\$0.00	\$0.00	\$0.00	0.0%	57	118	96%	100%
Wall R-3 to R-11	Assuming 2x4 construction, up to R-13 insulation can fit in wall cavity	8,821	No insulation in wall cavity	10,873	20	2,126	\$670	\$0	\$670	100%	1.8	0.0	4,362	2.05	0.00	\$0.00	\$0.00	\$0.00	0.0%	23	48	96%	100%
<b>Indirect Products and Services Planning &amp; Research</b>																							
<b>Central AC Tune-up Pilot</b>																							
<b>Central AC Tune-up Pilot - total</b>																							
Central AC Tune Up	Tuned CAC SEER 10	3,569	Untuned CAC SEER 10.3 Ton	3,913	7	705	\$150	\$0	\$175	86%	8.4	1.2	243	0.34	0.25	\$0.00	\$0.00	\$0.00	68.0%	1,000	1,000	100%	100%
<b>Energy Feedback Pilot</b>																							
<b>Energy Feedback Pilot - total</b>																							
Monthly FBH	Aware use	823	Normal use	839	1	8,780	\$0	\$0	\$0	0.0	0.0	0.0	138	0.02	0.00	\$0.00	\$0.00	\$0.00	14.0%	25,000	25,000	100%	100%
Monthly & Web	Aware use	823	Normal use	839	1	8,780	\$0	\$0	\$0	0.0	0.0	0.0	138	0.02	0.00	\$0.00	\$0.00	\$0.00	14.0%	25,000	25,000	100%	100%
<b>ENERGY STAR Retailer Incentive Pilot</b>																							
<b>ENERGY STAR Retailer Incentive Pilot - total</b>																							
ENERGY STAR TV-4.0	ENERGY STAR rated TV-4.0	416	ENERGY STAR-3.0	208	16	2,476	\$0	\$790	\$30	0%	4.6	4.6	290	0.09	0.03	\$0.00	\$0.00	\$0.00	28.3%	36,000	36,000	74%	100%
ENERGY STAR TV 5.0	ENERGY STAR TV-5.0	81	ENERGY STAR TV-5.0	208	15	2,476	\$0	\$700	\$262	0%	14.4	14.4	314	0.13	0.04	\$0.00	\$0.00	\$0.00	28.3%	2,000	2,000	95%	100%
ENERGY STAR Clothes Washer	ENERGY STAR Clothes Washer CEE Tier 3	111	ENERGY STAR Clothes Washer CEE Tier 3	505	10	392	\$0	\$750	\$200	0%	15.1	15.1	154	0.39	0.02	\$13.28	\$3.07	\$3.07	4.5%	3,600	3,600	50%	100%
ENERGY STAR Dishwasher	0-76 Energy Factor - recommended ENERGY STAR	605	0-46 Energy Factor	688	10	216	\$0	\$660	\$66	0%	26.2	26.2	30	0.18	0.00	\$8.62	\$6.80	\$6.80	2.6%	3,600	3,600	78%	100%
ENERGY STAR Ceiling Fan	ENERGY STAR Ceiling Fan	91	standard-ceiling fan	215	10	1,480	\$0	\$190	\$88	0%	6.6	6.6	180	0.42	0.01	\$0.00	\$0.00	\$0.00	8.0%	0	0	98%	100%
ENERGY STAR CEE Tier 1 Dishwasher	0.80 Energy Factor - CEE Tier 1 Avg	525	0.66 Energy Factor	698	10	215	\$0	\$386	\$37	0%	12.2	12.2	35	0.16	0.00	\$8.43	\$6.90	\$6.90	2.5%	4,000	4,000	78%	100%
ENERGY STAR Computer Monitors	30% Better than Energy Star	4	ENERGY Star	6	9	8,760	\$0	\$194	\$9	0%	6.4	6.4	15	0.00	0.00	\$0.00	\$0.00	\$0.00	100.0%	5,000	5,000	65%	100%

Electric Planning Assumptions

Electric Planting Assumptions																						
Type of Measure	High Efficiency Product Description / Rating	Efficient Product Consumption	Baseline Product Description / Rating	Baseline Product Consumption	Life of Product (years)	Hours of Operation per Year	Rebate Amount	Average Baseline Product Cost	Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Period w/o Rebate	Incremental Cost Period w/ Rebate	Annual Customer kWh Savings	Customer kW Savings	Generator Peak kW Savings	Total O&M Savings	Energy O&M Savings	Confidence Factor	Participants 2011	Units 2011	NTG (%)	Assumed Inflat Rate (%)
ENERGY STAR Room AC	ENERGY STAR 10,000 Btu/hr 10.8 EER room units	926	standard 10,000 Btu/hr 9.8 EER room unit	1,020	9	628	\$0	\$270	\$30	0%	5.9	5.9	59	0.09	0.08	\$0.00	\$0.00	75.0%	3,600-2,500	3,600-2,500	80%	100%
ENERGY STAR Refrigerator	ENERGY STAR Refrigerator	57	Federal minimum refrigerator	71	13	8,760	\$0	\$1,070	\$30	0%	2.8	2.8	125	0.01	0.02	\$0.00	\$0.00	100.0%	3,600-8,000	3,600-8,000	65%	100%

Gas Planning Assumptions																			
Type of Measure	NATURAL GAS	High Efficiency Product Description / Rating	Dth/yr H.E. consumption	Baseline Product Description / Rating	Dth/yr Baseline consumption	Life of Product (Years)	Average Hours of Operation per yr	Average Rebate Amount	Average Baseline Product Cost	Average Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost/ Payback Period with Rebate	Incremental Cost/ Payback Period with Rebate	Average Annual Customer Dth Savings	Participants	Units	MTG (%)	Assumed Installation Rate (%)	
<b>BUSINESS</b>																			
<b>Heating Efficiency</b>																			
<b>New Boiler - Plan A - total</b>																			
Non-condensing Hot Water Boiler, New - Total																			
Non-condensing Boiler, 175 MBTUH; for space heating only																			
Non-condensing Boiler, 500 MBTUH; for space heating only																			
Non-condensing Boiler, 1 MMBTUH; for both space and water heating																			
Non-condensing Boiler, 2 MMBTUH; for both space and water heating																			
Non-condensing Boiler, 4 MMBTUH; for both space and water heating																			
Condensing Hot Water Boiler, New - total																			
Condensing Boiler, 175 MBTUH; for space heating only																			
Condensing Boiler, 500 MBTUH; for space heating only																			
Condensing Boiler, 1MMBTUH; for both water & space heating																			
Condensing Boiler, 2MMBTUH; for both water & space heating																			
Condensing Boiler, 4 MMBTUH; for both space and water heating																			
Condensing Hot Water Boiler, Replacement																			
Condensing Hot Water Boiler, Replacement																			
Condensing Boiler, 175 MBTUH; for space heating only																			
Condensing Boiler, 500 MBTUH; for space heating only																			
Condensing Boiler, 1MMBTUH; for both water & space heating																			
Condensing Boiler, 2MMBTUH; for both water & space heating																			
Condensing Boiler, 4 MMBTUH; for both space and water heating																			
Commercial Hot Water Heater - total																			
Commercial Water Heater - Condensing; 125 MBTUH																			
Commercial Water Heater - Condensing; 180 MBTUH																			
Commercial Water Heater - Condensing; 199 MBTUH																			
Commercial Water Heater - Condensing; 300 MBTUH																			
Commercial Tankless Water Heater - Condensing; 150 MBTUH																			
Commercial Tankless Water Heater - Condensing; 189.9 MBTUH																			
Pipe Insulation - total																			
Insulation - Hot Water System																			
Insulation - Steam System																			

Gas Planning Assumptions																			
Type of Measure	NATURAL GAS	High Efficiency Product Description / Rating	Dth/Yr H.E. consumption	Baseline Product Description / Rating	Dth/Yr Baseline consumption	Life of Product (Years)	Average Hours of Operation per yr	Average Rebate Amount	Average Baseline Product Cost	Average Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost / Payback Period w/o Rebate	Incremental Cost / Payback Period with Rebate	Average Annual Customer Dth Savings	Participants	Units	NTG (%)	Assumed Installation Rate (%)	
<b>Boiler Tune up</b>																			
C&I Gas Boiler - Tune-Up assumed a 1-HW boiler at 80% eff, 175 MBtu		Boiler Tune-up - 2% additive improvement in efficiency. Boiler now at 80% efficiency	253	Existing boiler at 78% efficiency	259	2	0	\$250	\$0	\$1,000	25%	\$20.11	\$15.08	6	8	12	97%	100%	
C&I Gas Boiler - Tune-Up assumed a 1-HW boiler at 80% eff, 500 MBtu		Boiler Tune-up - 2% additive improvement in efficiency. Boiler now at 80% efficiency	721	Existing boiler at 78% efficiency	740	2	0	\$250	\$0	\$1,000	25%	\$7.04	\$5.28	18	12	18	97%	100%	
C&I Gas Boiler - Tune-Up assumed a 1-HW boiler at 80% eff, 1 MMBtu		Boiler Tune-up - 2% additive improvement in efficiency. Boiler now at 80% efficiency	1,443	Existing boiler at 78% efficiency	1,480	2	0	\$250	\$0	\$1,000	25%	\$3.52	\$2.64	37	15	24	97%	100%	
C&I Gas Boiler - Tune-Up assumed a 1-HW boiler at 80% eff, 2 MMBtu		Boiler Tune-up - 2% additive improvement in efficiency. Boiler now at 80% efficiency	2,886	Existing boiler at 78% efficiency	2,960	2	0	\$250	\$0	\$1,000	25%	\$1.76	\$1.32	74	10	15	97%	100%	
<b>Outdoor Air Reset</b>																			
C&I Gas Boiler - Outdoor Air Reset assumed a 1-HW boiler at 80% eff, 175 MBtu		83% Efficient Boiler	243	80% Efficient existing boiler	253	20	0	\$250	\$0	\$1,000	25%	\$14.27	\$10.70	9	0	5	97%	100%	
C&I Gas Boiler - Outdoor Air Reset assumed a 1-HW boiler at 80% eff, 500 MBtu		83% Efficient Boiler	695	80% Efficient existing boiler	721	20	0	\$250	\$0	\$1,000	25%	\$4.99	\$3.75	26	0	10	97%	100%	
C&I Gas Boiler - Outdoor Air Reset assumed a 1-HW boiler at 80% eff, 1 MMBtu		83% Efficient Boiler	1,391	80% Efficient existing boiler	1,443	20	0	\$250	\$0	\$1,000	25%	\$2.50	\$1.87	52	0	5	97%	100%	
C&I Gas Boiler - Outdoor Air Reset assumed a 1-HW boiler at 80% eff, 2 MMBtu		83% Efficient Boiler	2,782	80% Efficient existing boiler	2,886	20	0	\$250	\$0	\$1,000	25%	\$1.25	\$0.94	104	0	1	97%	100%	
<b>Stack Dampers</b>																			
C&I Gas Boiler - Stack Dampers assumed a 1-HW boiler at 80% eff, 175 MBtu		81% Efficient Boiler	249	80% Efficient existing boiler	253	20	0	\$125	\$0	\$500	25%	\$20.89	\$15.66	3	0	5	97%	100%	
C&I Gas Boiler - Stack Dampers assumed a 1-HW boiler at 80% eff, 500 MBtu		81% Efficient Boiler	713	80% Efficient existing boiler	721	20	0	\$125	\$0	\$500	25%	\$7.31	\$5.48	9	0	2	97%	100%	
C&I Gas Boiler - Stack Dampers assumed a 1-HW boiler at 80% eff, 1 MMBtu		81% Efficient Boiler	1,425	80% Efficient existing boiler	1,443	20	0	\$250	\$0	\$1,000	25%	\$7.31	\$5.48	18	0	1	97%	100%	
C&I Gas Boiler - Stack Dampers assumed a 1-HW boiler at 80% eff, 2 MMBtu		81% Efficient Boiler	2,850	80% Efficient existing boiler	2,886	20	0	\$250	\$0	\$1,000	25%	\$3.66	\$2.74	36	0	1	97%	100%	
<b>Modulating Burner Controls</b>																			
C&I Gas Boiler - Modulating Burner Controls ->5 to 1 turn down assumed a 1-HW boiler at 80% eff, 175 MBtu		83% Efficient Boiler	243	80% Efficient existing boiler	253	20	0	\$952	\$0	\$3,808	25%	\$54.33	\$40.75	9	0	3	97%	100%	
C&I Gas Boiler - Modulating Burner Controls ->5 to 1 turn down assumed a 1-HW boiler at 80% eff, 500 MBtu		83% Efficient Boiler	695	80% Efficient existing boiler	721	20	0	\$952	\$0	\$3,808	25%	\$19.02	\$14.26	26	0	2	97%	100%	
C&I Gas Boiler - Modulating Burner Controls ->5 to 1 turn down assumed a 1-HW boiler at 80% eff, 1 MMBtu		83% Efficient Boiler	1,391	80% Efficient existing boiler	1,443	20	0	\$2,106	\$0	\$8,422	25%	\$21.03	\$15.77	52	0	1	97%	100%	

Gas Planning Assumptions																		
Type of Measure	NATURAL GAS	High Efficiency Product Description / Rating	Dth/yr H E consumption	Baseline Product Description / Rating	Dth/yr Baseline consumption	Life of Product (Years)	Average Hours of Operation per yr	Average Rebate Amount	Average Baseline Product Cost	Average Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Payback Period w/o Rebate	Incremental Cost Payback Period With Rebate	Average Annual Customer Savings	Participants	Units	NTG (%)	Assumed Installation Rate (%)
C&I Gas Boiler - Modulating Burner Control, >=5 to 1 lum down assumed a 1-HW boiler at 80% eff. 2 MMBtu		83% Efficient Boiler	2,782	80% Efficient existing boiler	2,886	20	0	\$2,106	\$0	\$8,422	25%	\$10.51	\$7.89	104	0	1	97%	100%
O2 Trim Control																		
C&I Gas Boiler - O2 Trim Control assumed a 1-HW boiler at 80% eff. 175 MMBtu		82% Efficient Boiler	246	80% Efficient existing boiler	253	20	0	\$3,975	\$0	\$15,500	25%	\$327.74	\$245.80	6	0	0	97%	100%
C&I Gas Boiler - O2 Trim Control assumed a 1-HW boiler at 80% eff. 500 MMBtu		82% Efficient Boiler	704	80% Efficient existing boiler	721	20	0	\$3,975	\$0	\$15,500	25%	\$114.71	\$86.03	18	0	0	97%	100%
C&I Gas Boiler - O2 Trim Control assumed a 1-HW boiler at 80% eff. 1 MMBtu		82% Efficient Boiler	1,408	80% Efficient existing boiler	1,443	20	0	\$3,975	\$0	\$15,500	25%	\$57.35	\$43.02	35	0	0	97%	100%
C&I Gas Boiler - O2 Trim Control assumed a 1-HW boiler at 80% eff. 2 MMBtu		82% Efficient Boiler	2,816	80% Efficient existing boiler	2,886	20	0	\$3,975	\$0	\$15,500	25%	\$28.68	\$21.51	70	0	0	97%	100%
Steam Traps																		
C&I Gas Boiler - Steam Traps - Low Pressure - average of 10 and 15 PSI		New Steam Traps	2,441	Existing Boiler, malfunctioning steam traps	2,481	10	0	\$50	\$0	\$200	25%	\$0.65	\$0.49	40	0	1	97%	100%
C&I Gas Boiler - Steam Traps - High Pressure - average of 50 PSI and 65 PSI		New Steam Traps	2,392	Existing Boiler, malfunctioning steam traps	2,481	4	0	\$50	\$0	\$200	25%	\$0.29	\$0.22	89	0	1	97%	100%
Boiler Efficiency Studies			0		0	0	0	\$3,000	\$0	\$6,000	50%			0	0	0	97%	100%
Commercial Furnace Efficiency																		
Furnaces (avg size=90,000 Btu/h)		93% Efficient Furnace	72	78% Efficient Furnace	85	15	950	\$94	\$668	\$626	11%	\$7.81	\$6.92	14	50	90	77%	100%
Custom Efficiency																		
Custom Efficiency - total																		
Average Project		Varies by project	19,689	Varies by project	20,725	18	0	\$7,254	\$0	\$34,436	21%	\$4.33	\$3.42	1,036	10	10	93%	100%
Energy Management Systems																		
Energy Management Systems - total																		
Average Project		Adding EMS system to Existing building	9,173	No or very old EMS system	9,656	10	0	\$3,865	\$0	\$8,463	46%	\$2.28	\$1.24	483	5	5	93%	100%
New Construction																		
New Construction - total																		
Energy Design Assistance - total																		
EDA: Basic Track		More efficient building over code	3,199	Building built at code	4,637	20	0	\$10,062	\$0	\$74,084	14%	\$6.71	\$5.80	1,437	6	6	99%	100%
EDA: Enhanced Modeling Track		More efficient building over code	4,959	Building built at code	6,955	20	0	\$10,062	\$0	\$102,981	10%	\$6.71	\$6.06	1,996	4	4	99%	100%
Energy Efficient Buildings		More efficient building over code	614	Building built at code	988	20	0	\$1,066	\$0	\$8,939	12%	\$3.08	\$2.70	374	3	3	97%	100%
Process Efficiency																		
Process Efficiency - total																		
Reverse Osmosis treatment		RO system	2,993	Existing system	7,522	20	8,400	\$9,056	\$0	\$113,000	8%	\$3.25	\$2.99	4,528	0	0	93%	100%
Steam Traps		New Steam Traps	2,416	Existing Boiler, malfunctioning steam traps	2,481	7	0	\$50	\$0	\$200	25%	\$0.40	\$0.30	65	2	50	93%	100%
Boiler Efficiency		New Boiler	2,117	Existing Boiler	2,389	20	0	\$1,532	\$7,848	\$7,197	21%	\$3.45	\$2.71	272	1	5	93%	100%
Recommissioning																		
Recommissioning - total																		

Gas Planning Assumptions

Type of Measure	NATURAL GAS	High Efficiency Product Description / Rating	Dth/yr HE consumption	Baseline Product Description / Rating	Dth/yr Baseline consumption	Life of Product (years)	Average Hours of Operation per yr	Average Rebate Amount	Average Baseline Product Cost	Average Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Payback Period w/o Rebate	Incremental Cost Payback Period with Rebate	Average Annual Customer Dth Savings	Participants	Units	NTG (%)	Assumed Installation Rate (%)
Recommissioning - Studies		Optimized Building Systems	0	Existing Building System - Not Tuned or Optimized	0	7	0	\$2,486	\$0	\$3,315	75%	\$1.69	\$0.78	0	8	8	100%	100%
Recommissioning - Implementation		Optimized Building Systems	58,041	Existing Building System - Not Tuned or Optimized	60,240	7	0	\$15,391	\$0	\$28,527	54%	\$1.69	\$0.78	2,199	1	1	100%	100%
<b>Segment Efficiency</b>																		
<b>Segment Efficiency - total</b>																		
<b>CRE Prescriptive - total</b>																		
CRE Boilers		Existing Boiler Efficiency	2,117	Boiler of lower efficiency	2,389	20	1,890	\$1,904	\$7,948	\$7,197	26%	\$3.45	\$2.53	272	1	1	97%	100%
<b>CRE Custom - total</b>		Install EMS	3,254	No EMS	3,648	10	1,000	\$769	\$0	\$16,920	5%	\$5.59	\$5.34	394	1	1	93%	100%
CRE Custom Custom		Improved equipment or process	16,301	Old or less efficient equipment	17,159	18	1,000	\$1,434	\$0	\$4,498	32%	\$0.68	\$0.47	858	1	1	93%	100%
CRE Recommissioning		Optimized Building Systems	58,041	Existing Building Systems - Not Tuned or Optimized	60,240	7	1,000	\$4,398	\$0	\$28,527	15%	\$1.69	\$1.43	2,199	1	1	100%	100%
<b>CRE Studies - total</b>																		
Preliminary Report			0		0	0	0	\$0	\$0	\$263	0%			0	5	5	88%	100%
Investigative Study			0		0	0	0	\$500	\$0	\$1,467	34%			0	0	0	88%	100%
<b>Standard Offer</b>																		
<b>Standard Offer - total</b>		New Equipment	27,050	Old or less efficient systems or equipment	27,093	9	0	\$371	\$0	\$1,114	33%	\$3.43	\$2.28	42	30	30	93%	100%
<b>RESIDENTIAL</b>																		
<b>Energy Efficient Showerheads</b>																		
<b>Energy Efficient Showerheads - total</b>																		
Provide Energy Efficient Showerhead - 1.5 GPM		1.5 GPM	2	2.5 GPM	3	6	82	\$3	\$0	\$3	100%	\$0.22	\$0.00	1	26,658	29,620	100%	65%
<b>ENERGY STAR New Homes</b>																		
<b>ENERGY STAR New Homes - total</b>																		
HERS 73		92% + Furnace Airsealing (ACH = 4.6)	82	Baseline Home	106	18	0	\$324	\$0	\$653	58%	\$2.67	\$1.13	24	463	480	92%	100%
HERS 71		HERS 73 + 65 EF water htr	80	Baseline Home	106	18	0	\$324	\$0	\$1,166	28%	\$5.05	\$3.65	26	463	480	92%	100%
HERS 65		HERS 71 + advanced air sealing (ACH = 1.5, and duct sealing DB = 75 dh @ 25 ps)	66	Baseline Home	106	18	0	\$1,261	\$0	\$1,413	89%	\$3.99	\$0.43	40	61	63	92%	100%
HERS 64		HERS 65 + SEER 15 AC	66	Baseline Home	106	18	0	\$1,261	\$0	\$3,333	38%	\$9.42	\$5.85	40	60	62	92%	100%
HERS 63		HERS 64 + 95% ECM furnace	65	Baseline Home	106	18	0	\$1,261	\$0	\$3,941	32%	\$10.73	\$7.29	41	61	63	92%	100%
HERS 58		HERS 63 + tankless gas, 90 EF water htr	60	Baseline Home	106	18	0	\$1,982	\$0	\$4,431	45%	\$10.75	\$5.84	46	243	252	92%	100%
HERS 57		HERS 58 + R21 ABGW, R44 ceiling	59	Baseline Home	106	18	0	\$1,982	\$0	\$6,132	32%	\$14.53	\$9.83	47	0	0	92%	100%
HERS 52		HERS 58 + R24 ICF foundation and above grade walls, R10 under slab, R50 attic	44	Baseline Home	106	18	0	\$3,604	\$0	\$11,512	31%	\$20.77	\$14.27	62	0	0	92%	100%

Gas Planning Assumptions																		
Type of Measure	NATURAL GAS	High Efficiency Product Description / Rating	Dth/yr H.E. consumption	Baseline Product Description / Rating	Dth/yr Baseline consumption	Life of Product (years)	Average Hours of Operation per yr	Average Rebate Amount	Average Baseline Product Cost	Average Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost/Payback Period w/o Rebate	Incremental Cost/Payback Period with Rebate	Average Annual Customer Dth Savings	Participants	Units	NTG (%)	Assumed Installation Rate (%)
HERS 45		HERS 52 + geothermal system	13	Baseline Home	106	18	0	\$0	\$0	\$20,971	0%	\$25.36	\$25.36	93	0	0	92%	100%
HERS 45 Adjusted for fuel switching		HERS 52 + geothermal system	27	Baseline Home	106	18	0	\$7,207	\$0	\$20,971	34%	\$29.92	\$19.63	78	0	0	92%	100%
Clothes Washer		ENERGY STAR Qualified Unit	2	Non-ENERGY STAR Unit	3	11	392	\$45	\$300	\$182	29%	\$23.11	\$17.33	1	24	25	64%	100%
Dish Washer		ENERGY STAR Qualified Unit	1	Non-ENERGY STAR Unit	2	11	215	\$8	\$545	\$25	33%	\$2.19	\$1.46	1	24	25	64%	100%
<b>Heating System Rebate</b>																		
<b>Heating System Rebate - total</b>																		
Furnace AFUE 78 to 92		92 AFUE ENERGY STAR	55	78 AFUE is Federal Standard baseline efficiency for gas furnaces	64	18	2,126	\$80	\$770	\$450	18%	\$5.13	\$4.22	10	343	343	77%	100%
Furnace AFUE 78 to 94		94 AFUE ENERGY STAR	54	Standard baseline efficiency for gas furnaces	64	18	2,126	\$120	\$770	\$505	24%	\$5.14	\$3.92	11	6,067	6,067	77%	100%
New 84% boiler		84 AFUE High Efficiency Unit	61	80 AFUE is Federal baseline efficiency for boilers	64	18	2,126	\$100	\$2,520	\$440	23%	\$16.41	\$12.68	3	90	90	77%	100%
<b>Home Performance with ENERGY STAR - total</b>																		
<b>Attic Insulation &amp; Bypass sealing (Required)</b>																		
		Addition of attic insulation to R-40	79	R-19 average baseline existing level of insulation based on market study	85	20	1,036	\$225	\$0	\$698	38%	\$11.15	\$6.88	6	21	97	94%	100%
Air sealing & weather-stripping (Required)		25% reduction in ACH 0.60 to 0.45 ACH	71	Default ACH for an existing Home in Energy Gauge has 0.60 ACH	79	10	1,036	\$150	\$0	\$272	55%	\$4.11	\$1.84	7	21	97	94%	100%
Wall insulation; sub-siding or cavity		R-11 insulation in wall cavity (assuming retrofit wall is 2x4 construction R-13 is max that could fit, given existing wall with interior discrepancies, R-11 is assumed actual level)	71	For this measure the baseline must have no existing wall cavity insulation	104	20	1,036	\$325	\$0	\$2,150	15%	\$7.45	\$6.32	32	16	73	94%	100%
Setback thermostat		ENERGY STAR Programmable thermostat (assume 1 degree set back during heating, and 1 degree increase during cooling)	68	standard programmable thermostat - not ENERGY STAR	71	5	1,036	\$15	\$0	\$50	30%	\$1.55	\$1.09	4	5	23	94%	100%
New HE furnace 92 AFUE		ENERGY STAR recommend 92 AFUE	63	78 AFUE is Federal Standard baseline efficiency for gas furnaces	71	18	1,036	\$120	\$770	\$390	31%	\$5.59	\$3.87	8	2	7	94%	100%

Gas Planning Assumptions

Type of Measure	NATURAL GAS	High Efficiency Product Description / Rating	Dth/yr HE consumption	Baseline Product Description / Rating	Dth/yr Baseline consumption	Life of Product (years)	Average Hour of Operation per yr	Average Rebate Amount	Average Baseline Product Cost	Average Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Payback Period w/o Rebate	Incremental Cost Payback Period with Rebate	Average Annual Customer Dth Savings	Participants	Units	NTG (%)	Assumed Installation Rate (%)
New HE furnace 94 AFUE		94 AFUE	62	78 AFUE is Federal Standard baseline efficiency for gas furnaces	71	18	1,036	\$160	\$770	\$400	40%	\$5.08	\$3.05	9	4	17	94%	100%
New HE Boiler AFUE 84		84 AFUE	68	80 AFUE is Federal Standard for gas boilers	71	18	1,036	\$120	\$2,754	\$481	25%	\$17.93	\$13.45	3	1	3	94%	100%
Tankless hot water heater 82%		0.82 EF Tankless Hot Water Heater ENERGY STAR Standard	65	for 40 gallon tank .59 EF is IECC code	71	20	95	\$50	\$640	\$750	7%	\$14.22	\$13.27	6	1	5	94%	100%
Power vented hot water heater		0.65 EF Hot Water Heater	69	for 40 gallon tank .59 EF is IECC code	71	15	463	\$100	\$640	\$175	57%	\$9.32	\$4.00	2	1	3	94%	100%
Dishwasher-Natural Gas Water Heating Savings		0.65 Energy Factor - ENERGY STAR Recommended	6	0.48 Energy Factor - Federal Minimum Standard	19	11	215	\$3	\$115	\$6	50%	\$0.06	\$0.03	13	13	57	94%	97%
Clothes Washer -Natural Gas Water Heating Savings		ENERGY STAR Clothes washer	21	Federal Minimum standard clothes washer	30	11	200	\$3	\$63	\$42	8%	\$0.53	\$0.49	9	16	72	94%	97%
<b>Insulation Rebates</b>																		
<b>Insulation Rebates - total</b>																		
Attic insulation & bypass sealing (R-19 to R-40)		R-40 Insulation or higher	79	average home estimated to have R-19 existing based on study	85	20	2,126	\$118	\$0	\$588	20%	\$11.15	\$8.91	6	2,023	1,682	89%	100%
Air sealing & weather-stripping		25% reduction in air changes per hour - 0.45 ACH	71	Energy Gauge Default 0.60 ACH	79	10	2,126	\$54	\$0	\$272	20%	\$4.11	\$3.30	7	366	296	89%	100%
Wall insulation; sub-siding or cavity		R-11 insulation	85	Baseline assumes R-0 in wall cavities as existing level	117	20	2,126	\$300	\$0	\$2,080	14%	\$7.20	\$6.16	32	556	462	89%	100%
<b>School Education Kits</b>																		
<b>School Education Kits - total</b>																		
Provide shower head in gas HW Heater homes		Low Flow Shower head - 1.5 GPM	2	Federal Minimum Standard flow rate 2.5 GPM	3	6	82	\$13	\$0	\$13	100%	\$1.11	\$0.00	1	9,159	15,570	100%	48%
Provide faucet Aerator in gas HW Heater homes		1.5 GPM flow rate aerator	1	Federal Minimum Standard flow rate 2.2 GPM	2	5	54	\$5	\$0	\$5	100%	\$0.83	\$0.00	1	9,159	15,570	100%	46%
<b>Water Heating Rebate</b>																		
<b>Water Heating Rebate - total</b>																		
0.62 EF Hot Water Heater		0.62 EF Hot Water Heater ENERGY STAR Standard	19	for 40 gallon tank .59 EF is IECC code	20	15	463	\$25	\$640	\$55	45%	\$5.71	\$3.11	1	800	800	90%	100%
0.66 EF Hot Water Heater		0.65 EF Hot Water Heater	18	for 40 gallon tank .59 EF is IECC code	20	15	463	\$70	\$640	\$175	40%	\$9.52	\$5.71	2	200	200	90%	100%
0.67 EF Hot Water Heater		0.67 EF Hot Water Heater ENERGY STAR Standard in 2010	17	for 40 gallon tank .59 EF is IECC code	20	15	463	\$90	\$640	\$230	39%	\$9.67	\$5.88	3	200	200	90%	100%
0.82 EF Tankless Hot Water Heater		0.82 EF Tankless Hot Water Heater ENERGY STAR Standard	14	for 40 gallon tank .59 EF is IECC code	20	20	463	\$50	\$640	\$750	7%	\$14.20	\$13.25	6	1,100	1,100	90%	100%

Gas Planning Assumptions																		
Type of Measure	NATURAL GAS	High Efficiency Product Description / Rating	Dth/Yr H.E. consumption	Baseline Product Description / Rating	Dth/Yr Baseline consumption	Life of Product (years)	Average Hours of Operation per yr	Average Rebate Amount	Average Baseline Product Cost	Average Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Payback Period w/o Rebate	Incremental Cost Payback Period with Rebate	Average Annual Customer Dth Savings	Participants	Units	NTG (%)	Assumed Installation Rate (%)
<b>LOW-INCOME</b>																		
<b>Energy Savings Kit - total</b>																		
Provide 1.5 GPM shower head in gas HW Heater homes		Low Flow Shower head - 1.5 GPM	2	Federal Minimum Standard flow rate 2.5 GPM	3	6	82	\$2	\$0	\$2	100%	\$0.20	\$0.00	1	4,675	18,700	100%	55%
Provide 1.5 GPM faucet Aerator in gas HW Heater homes		1.5 GPM flow rate aerator	1	Federal Minimum Standard flow rate 2.2 GPM	2	5	54	\$2	\$0	\$2	100%	\$0.26	\$0.00	1	4,675	18,700	100%	49%
Provide 1.0 GPM faucet Aerator in gas HW Heater homes		1.0 GPM flow rate aerator	1	Federal Minimum Standard flow rate 2.2 GPM	2	5	54	\$2	\$1	\$2	100%	\$0.15	\$0.00	1	4,675	18,700	100%	49%
<b>Multi-Family Weatherization</b>																		
<b>Multi-Family Weatherization - total</b>																		
Ceiling R-11 to R-38 (AC w/Gas heat) - Not Modeled - used Arkansas Deemed Savings, most northern weather zone		Upgrade ceiling insulation levels to DOE recommended levels for Weather Zone	82	R11	90	20	2,126	\$715	\$0	\$715	100%	\$10.12	\$0.00	8	173	173	97%	100%
Wall R-3 to R-11		Upgrade wall insulation levels to DOE recommended levels for Weather Zone	80	R3 Empty cavity	99	20	2,126	\$560	\$0	\$560	100%	\$3.35	\$0.00	19	147	147	97%	100%
Boiler Efficiency Burner Modifications		Install excess air trim control to produce between 2 and 5% efficiency improvement.	79	Boiler with 50% to 100% excess air	90	15	2,126	\$2,751	\$0	\$2,751	100%	\$27.72	\$0.00	11	45	45	97%	100%
Single pane window plus storm		Add storm window to single paned glass	79	Single pane	90	20	2,126	\$816	\$0	\$816	100%	\$8.37	\$0.00	11	57	57	97%	100%
ACH leakage 0.8 to 0.6		Reduce air infiltration .6 ACH	87	.8 ACH	90	10	2,126	\$272	\$0	\$272	100%	\$8.95	\$0.00	3	518	518	97%	100%
<b>Non-Profit Energy Efficiency</b>																		
<b>Non-Profit Energy Efficiency - total</b>																		
Ceiling R-11 to R-38 (AC w/Gas heat) - Not Modeled - used Arkansas Deemed Savings, most northern weather zone		Upgrade ceiling insulation levels to DOE recommended levels for Weather Zone	82	R 11	90	20	2,126	\$715	\$0	\$715	100%	\$10.12	\$0.00	8	307	307	100%	100%
Wall R-3 to R-11		Fill wall cavity with insulation	80	R 3 empty cavity	99	20	2,126	\$560	\$0	\$560	100%	\$3.35	\$0.00	19	115	115	100%	100%
Boiler Efficiency Burner Modifications		Install excess air trim control to produce between 2 and 5% efficiency improvement.	79	Boiler with 50% to 100% excess air	90	15	2,126	\$2,751	\$0	\$2,751	100%	\$27.72	\$0.00	11	50	50	100%	100%
Single pane window plus storm		Add storm window to single paned glass	79	single pane	90	20	2,126	\$816	\$0	\$816	100%	\$8.37	\$0.00	11	66	66	100%	100%
Reduce air infiltration		ACH leakage 0.8 to 0.6	87	ACH = .8	90	10	2,126	\$272	\$0	\$272	100%	\$8.95	\$0.00	3	330	330	100%	100%
<b>Single Family Weatherization</b>																		
<b>Single Family Weatherization - total</b>																		
														0				

Gas Planning Assumptions																		
Type of Measure	NATURAL GAS	High Efficiency Product Description / Rating	Dth/yr H.E. consumption	Baseline Product Description / Rating	Dth/yr Baseline consumption	Life of Product (years)	Average Hours of Operation per yr	Average Rebate Amount	Average Baseline Product Cost	Average Incremental Cost of Efficient Product	Rebate as a % of Incremental Cost	Incremental Cost Payback Period w/o Rebate	Incremental Cost Payback Period with Rebate	Average Annual Customer Dth Savings	Participants	Units	NTG (%)	Assumed Installation Rate (%)
Ceiling R-11 to R-38		DOE recommend level of insulation for CO Climate Zones R-38	82	Estimated existing level = R 11	90	20	2,126	\$715	\$0	\$715	100%	\$10.12	\$0.00	8	759	1,567	100%	100%
Wall R-3 to R-11		Assuming 2x4 construction, up to R-13 insulation can fit in wall cavity ENERGY STAR recommend R2 AFUE	80	No insulation in wall cavity	99	20	2,126	\$670	\$0	\$670	100%	\$4.01	\$0.00	19	308	637	100%	100%
Replace Furnace AFUE 78 to 92			79	78% efficiency measured	90	18	2,126	\$623	\$2,000	\$623	100%	\$6.28	\$0.00	11	387	800	100%	100%
<b>Indirect Products and Services</b>																		
<b>Planning &amp; Research</b>																		
<b>Energy Feedback Pilot</b>																		
Monthly FDBK		Aware use	79	Normal use	79	1	8,750	\$0	\$0	\$0		\$0.00	\$0.00	1	25,000	25,000	100%	100%
Monthly & Web FDBK		Aware use	79	Normal use	79	1	8,750	\$0	\$0	\$0		\$0.00	\$0.00	1	25,000	25,000	100%	100%

➤ **Appendix A – List of Acronyms**

<b>Acronym</b>	<b>Meaning</b>
ACEEE	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
CEE (Minnesota)	Center for Energy and the Environment
CEE (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**

2011 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 table below shows the 2011 Products ranking.

<b>Colorado 2011 DSM Products</b>	<b>Product Ranking</b>
Residential: Home Lighting	1
Low-Income: Energy Savings Kit	2
Residential: Energy Efficiency Showerheads	3
Residential: School Education Kits	4
Indirect: Customer Behavioral Change- Residential	5
Business: Lighting Efficiency	6
Business: Motors and Drives Efficiency	7
Business: Cooling Efficiency	8
Residential: Insulation Rebate	9
Low-Income: Single Family Weatherization	10
Residential: Evaporative Cooling Rebate	11
Residential: Savers Switch (load management)	12
Business: New Construction	13
Business: Energy Management Systems	14
Residential: Water Heater Efficiency	15
Residential: Refrigerator Recycling	16
Residential: High Efficiency Air Conditioning	17
Residential: Heating Efficiency	18
Residential: ENERGY STAR New Homes	19
Business: Custom Efficiency	20
Business: Small Business Lighting	21
Indirect: Home Energy Audits	22
Business: Standard Offer	23
Business: Segment Efficiency	24
Indirect: Customer Behavioral Change-Business	25
Low-Income: Multi-Family Weatherization	26
Business: Heating Efficiency	27
Business: Compressed Air Efficiency	28
Business: Process Efficiency	29
Business: Self-Direct Custom Efficiency	30
Business: Recommissioning	31
Residential: Home Performance with ENERGY STAR	32
Indirect: Energy Analysis	33
Business: Data Center Efficiency	34
Low-Income: Non-Profit Weatherization	35



## 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 2011 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 to model and evaluate 2009 All-Source Solicitation bids noted in the August 2009 compliance filing (120-Day Report) for the company’s 2007 Resource Plan (docket no. 07A-447E). These costs reflect an increase of 16.3% to include an appropriate estimate of planning reserves.

Year	\$/kW-yr	Year	\$/kW-yr
2011	\$155	2021	\$198
2012	\$158	2022	\$203
2013	\$162	2023	\$208
2014	\$167	2024	\$213
2015	\$171	2025	\$218
2016	\$175	2026	\$224
2017	\$179	2027	\$230
2018	\$184	2028	\$235
2019	\$188	2029	\$241
2020	\$193	2030	\$247

#### **2. Estimated Annual Avoided Transmission and Distribution Capacity Costs (Source: Public Service Resource Planning)**

The 2011 start value reflects the value of \$30.60 filed in the 2009/2010 plan escalated one year at the then-current escalation rate of 1.99% for 2010 and then escalated at the current 1.9% escalation rate for the start value of \$31.80 in 2011. The current escalation rate used is the Company’s corporate general escalation factor updated by Corporate Finance in May 2010.

Year	\$/kW-yr
2011	\$31.80
2012+	Escalated at 1.9%

**3. Estimated Annual Avoided Marginal Energy Costs (Source: Public Service Resource Planning and Quantitative Risk Services)**

These marginal energy cost estimates were updated in April of 2010 when the Company completed its 2010 sales forecast that includes new load forecasts. This sales forecast information, along with forecast fuel prices and other relevant inputs as of April of 2010 was input into the Company’s forecasting tool, ProSym®, to derive the marginal unit cost to provide electricity based on fuel and operating and maintenance costs on an hourly basis. These hourly costs are then applied against the energy savings profile of each measure to determine the marginal avoided energy costs. Over the planning period in this plan, the fuels consumed by the marginal units is roughly half gas, half coal and a small percentage of purchased power. As such, a fluctuation in the price of either gas or coal can have a significant effect on these marginal energy prices. The following table outlines the annual average and maximum values of the hourly marginal cost analysis.

Year	Avg \$/kWh	Max \$/kWh	Year	Avg \$/kWh	Max \$/kWh
2011	\$0.036	\$0.081	2021	\$0.053	\$0.121
2012	\$0.029	\$0.083	2022	\$0.056	\$0.137
2013	\$0.030	\$0.074	2023	\$0.063	\$0.169
2014	\$0.034	\$0.085	2024	\$0.065	\$0.317
2015	\$0.035	\$0.089	2025	\$0.072	\$0.187
2016	\$0.040	\$0.093	2026	\$0.054	\$0.292
2017	\$0.044	\$0.136	2027	\$0.057	\$0.235
2018	\$0.044	\$0.155	2028	\$0.064	\$0.324
2019	\$0.047	\$0.114	2029	\$0.044	\$0.148
2020	\$0.051	\$0.152	2030	\$0.045	\$0.152

**4. Estimated Annual Avoided Emissions Costs (includes CO<sub>2</sub>) (Source: Public Service Resource Planning)**

The following table reflects the avoided CO<sub>2</sub> costs from the average MWh avoided by this DSM plan. There are no longer SO<sub>x</sub> avoided costs included in the avoided emissions estimates. A value of \$20 per ton, starting in 2014, was applied to the CO<sub>2</sub> emissions output avoided by DSM as determined by the units on margin as filed in the Company’s 2007 Resource Plan (docket no 07A-447E) and current expansion plan updated for the company’s RES compliance filing (docket no. 09A-772E) alternate scenario. This resulted in the average \$/MWh of avoided emissions shown in the following table:

Year	Avg \$/MWh	Year	Avg \$/MWh
2011	\$0.00	2021	\$21.67
2012	\$0.00	2022	\$22.09
2013	\$0.00	2023	\$22.22
2014	\$14.67	2024	\$23.67
2015	\$15.10	2025	\$24.29
2016	\$15.65	2026	\$26.09
2017	\$16.67	2027	\$28.04

2018	\$17.71	2028	\$30.79
2019	\$18.96	2029	\$33.33
2020	\$20.07	2030	\$36.06

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 gas price forecast as of April 2010 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
2011	\$5.50	2021	\$8.90
2012	\$5.91	2022	\$9.27
2013	\$6.16	2023	\$9.42
2014	\$6.49	2024	\$9.57
2015	\$6.94	2025	\$9.91
2016	\$7.41	2026	\$10.21
2017	\$7.77	2027	\$10.43
2018	\$8.11	2028	\$10.74
2019	\$8.34	2029	\$11.11
2020	\$8.56	2030	\$11.40

**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
2011-2030	\$0.05

**3. 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
2011-2030	\$56.37

## ➤ Appendix D – Budget Categories

The following chart indicates how projected DSM expenditures are divided between the budget categories.

<b>Budget Category</b>	<b>Components</b>
Product Planning & Design	<ul style="list-style-type: none"> <li>• Labor for product development and product managers.</li> <li>• Expenditures related to product development, product planning and design.</li> </ul>
Administration & Product Delivery	<ul style="list-style-type: none"> <li>• Labor for product managers, sales representatives, call center, rebate processing, technical consulting, and other fulfillment activities associated with delivering a product directly to the customer.</li> <li>• Labor for installation contractors, vendors, technical consultants, fulfillment contractors and alternative providers that Xcel Energy contracts with to provide DSM services.</li> <li>• Project fulfillment, implementation and program support activities associated with delivering a program directly to the customer.</li> </ul>
Advertising, Promotions & Customer Education	<ul style="list-style-type: none"> <li>• Labor for communication staff and others.</li> <li>• TV, radio, newspaper and print media; direct promotion and sales support materials; postage, promotional events; contracted outbound telephone sales.</li> <li>• Customer education through seminars, pamphlets, videos, and computer games.</li> </ul>
Incentives	<ul style="list-style-type: none"> <li>• Customer rebates, finance interest subsidies, subsidies for engineering studies, trade incentives, and incentives given in the form of subsidized products or equipment.</li> </ul>
Equipment & Installation	<ul style="list-style-type: none"> <li>• The costs to purchase energy efficient equipment and to install efficient equipment at the customer site.</li> </ul>
Measurement & Verification	<ul style="list-style-type: none"> <li>• Labor for market research and load research.</li> <li>• Labor product development staff, product development external consultants, product development research activities.</li> <li>• Customer surveys, program evaluation expenses.</li> </ul>

## ➤ **Appendix E - Technical Reference Manual**

The Technical Reference Manual section contains the deemed savings technical assumption electronic files that are provided as part of the overall 2011 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 2011 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.