

## ➤ Cooling Efficiency – Summary of 60-Day Notice

Public Service Company of Colorado proposes this 60-Day Notice to make the following change to its Cooling Efficiency Product to expand upon its current rebate offerings. The changes to this product are a result of a proposal that was received in response to the Request For Proposal (RFP) for Innovative Technology identified in the CO Stipulation and Settlement Agreement in Docket No. 11A-631EG.

*“Additionally, in order to help address the energy savings shortfall for 2013, the Company agrees to issue a Request for Proposals during the first quarter of 2012 intended to solicit program proposals for achieving electric energy savings during 2013 by means of innovative program ideas for niche markets or market where the company is under serving a customer segment. Program ideas brought forward during the Settlement discussions may utilize this avenue for inclusion the DSM Plan. The company commits to bring forward one or more new programs if, after Company review, it appears that such programs are likely to be cost effective and will help the Company meet its 2013 energy savings goal. New programs may be implemented as either pilot of full scale programs, and will be added to the DSM portfolio by means of the 60-day notice process.”<sup>1</sup>*

We will add a new Direct-Evaporative Pre-cooling for Air-Cooled Condensers (DEPACC) measure to Public Service Company’s Cooling Efficiency Product. The measure will focus on retrofits for existing commercial rooftop units (RTUs). The DEPACC installation uses advanced evaporation technology to take advantage of the latent heat capacity of hot dry air to improve reliability, affordability and comfort of existing air conditioning equipment. The evaporative pre-condensing system attaches a membrane filter device upstream of the refrigerant condensing coil of any 10 ton or greater cooling system providing lower temperature refrigerant condensing air. This decreases the required work of the compressor and increases the effective capacity of the air cooling system. Marketing of the measure will be managed by a third-party consultant and Public Service will provide a prescriptive rebate of \$100 per ton of cooling for the installation. The rebate will be capped at 60% of total project cost and will be consistent with the existing terms and conditions of the current Public Service Company prescriptive measure incentives and measure.

Public Service is not proposing an increase to its 2013 filed and approved budget or goals. However, we are anticipating 50 participants will participate in this measure and will contribute 2,788 net generator kW of demand savings and 2,465,098 kWh of electric savings. The forecasted spend amount for this new measure is \$1,102,500. It will be accommodated within the 2013 budget flexibility.

The Modified Total Resource Cost (MTRC) for this measure is higher than we typically see because of the high coincidence of energy savings during times of peak energy use. This increases the benefits of this measure's energy savings, which is reflected in the high

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<sup>1</sup> Stipulation and Settlement Agreement, Docket No. 11A-631EG, page 10.

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MTRC score of 4.05. While the measure is more expensive on a per kWh basis than the filed DSM portfolio it is still very cost-effective, with strong energy savings at a relatively low cost. RIM scores for the measure are close to neutral.

Following this summary, is a red-lined copy of the Cooling Efficiency Product write-up from the Public Service 2012-2013 Colorado DSM Plan reflecting the addition of the new measure. Additionally, we are posting the deemed savings sheets for this new measure which can be found on our DSM Website at the following link:

[http://www.xcelenergy.com/About\\_Us/Rates\\_&\\_Regulations/Regulatory\\_Filings/CO\\_DSM](http://www.xcelenergy.com/About_Us/Rates_&_Regulations/Regulatory_Filings/CO_DSM)

## ➤ **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 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 receive rebates to help buy down the initial capital cost and shorten the payback period. The new equipment also provides better reliability and lower maintenance costs, as well as lower utility bills from energy savings. Public Service reviewed and adopted best practices for DSM product development and product structure from across the country. The Company also used the guidelines of the IECC International Energy Conservation Code 2009 for equipment definitions, standard formulas, and minimum recommended efficiencies. These sources along with Public Service's historical experience allowed the Company to develop influential prescriptive rebates that encourage the most efficient choice of equipment in the majority of equipment categories. 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 \$650 while the 11.8 EER receives \$1050.

One of the program's prescriptive measures, Direct-Evaporative Pre-cooling for Air-Cooled Condensers (DEPACC), is administered and delivered by a third party. This process is transparent to the customer.

The net-to-gross (NTG) was increased for 2012/2013 from .75 to .80. This was based on the recommendations from a 2010 Process and Impact Evaluation that expected an upward effect on the NTG after the removal of VAV boxes and Cooling towers from the 2010 prescriptive products. Both measures experienced high free-ridership during the 2007-2009 program years.

## **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 (2011) goal which saw an increase in all rebate levels and the introduction of two new prescriptive rebates. Additional factors included feedback from trade partners, 2010 and 2011 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.

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**

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. The Direct-Evaporative Pre-cooling for Air-Cooled Condensers (DEPACC) measure is not available as a prescriptive rebate for dedicated data center facilities. They must go through the Custom program offering due to the customized nature of this measure's use in this type of facility. 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 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.

Specifically to the new DEPACC measure, a third-party consultant, will oversee all product management activities and execute upon the same marketing strategy/process described in Public Service's 2012/2013 DSM Plan utilizing many of the same key messages and tactics. The third-party consultant plans to work with manufacturers, trade allies, end-use equipment vendors, energy services companies and account managers to expand the reach and efficacy of the marketing plan and its implementation. The third-party consultant also plans to employ social media and other forms of innovative electronic marketing to create awareness, interest and desire to move business customers to act.

The market for the DEPACC measure consists of all non-residential markets and is likely to target certain segments, including but not limited to commercial, institutional, healthcare, industrial and education customers located in Public Service electric service territory in Colorado. The third-party administrator plans to focus on the Front Range of Colorado and I-70 and I-25 business corridors.

#### **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. Public Service has been hosting these meetings for the last two years and has 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 qualifying efficiencies. The rebate structure by component is listed below:

EQUIPMENT		MINIMUM TO QUALIFY	REBATE
PTACs		11.0 EER	\$65/ton + \$5/ton for every 0.1 EER above min
Water-Source Heat Pumps		14.0 EER	\$65/ton + \$5/ton for every 0.1 EER above min
Rooftop AC Units	< 65,000 BTUH (<5.4 tons)	15.0 SEER	\$65/ton + \$5/ton for every 0.1 SEER above min
	65,000 - 135,000 (5.5 - 11.3 tons)	11.5 EER	\$65/ton + \$5/ton for every 0.1 EER above min
	135,000 - 240,000 (11.4 - 19.9 tons)	11.5 EER	
	240,000 - 760,000 (20 - 63.3 tons)	10.6 EER	
	> 760,000 (> 63.3 tons)	9.9 EER	
<u>Direct Evaporative Pre-cooling for Air-Cooled Condensers (DEPACC)</u>	<u>≥120,000 BTUH</u> <u>(≥10 tons)</u>	<u>Must have a minimum of</u> <u>85% media saturation</u>	<u>\$100/ton of installed cooling</u>
Condensing Units	>65,000 BTUH (>5.4 tons)	11.5 EER	\$65/ton + \$5/ton for every 0.1 EER above min
Split Systems	< 65,000 BTUH and < 5.4 tons	17.0 SEER	\$65/ton + \$5/ton for every 0.1 EER above min
Air Cooled Chillers		11.0 EER 12.9 SEER	\$8/ton + \$2.00/ton per FLV + \$1.50/ton per IPLV for every 0.1 EER above min
Chillers - Scroll or Rotary Screw	< 150 Tons	.759 FLV kW/ton .599 IPLV kW/ton	\$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
	≥150 tons and < 300 tons	.632 FLV kW/ton .532 IPLV kW/ton	\$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
Chillers - Centrifugal	All sizes	Must improve upon IECC 2009 baseline by .016 kW/ton	\$15/ton + \$2/ton per FLV + \$1.5/ton per IPLV for every 0.01 kW/ton below max
Advanced Evaporative Cooling (Indirect or Hybrid) - (replacing or installing in lieu of DX Roof Top Unit)	All sizes	Must have a minimum of 85% media saturation	\$750 per 1,600 CFM

<b>Plate and Frame Heat Exchangers</b>	All sizes	Only for water-cooled chiller and cooling tower systems without air side economizers installed	up to \$300/ton, based on wet bulb onset temperature
<b>VSD's on Chillers</b>	All sizes	Determined by existing chiller performance specifications and Manufacturers VSD performance specifications	\$1.50/ton per IPLV for every 0.01 kW/ton below max

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

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