



Xcel Energy Colorado DSM Roundtable Discussion

December 1, 2011
1:00pm to 4:00pm
1800 Larimer, Room 03G01

Welcome and Introductions

Contact Info: Suzanne Doyle
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Agenda

- 1:00 – 1:05 Welcome, Introductions (Doyle)
- 1:05 – 1:15 Program Evaluations Updates (Doyle)
- 1:15 – 1:45 Regulatory Updates (Cowan)
- 1:45 – 2:15 DSM Program Highlights (White, Warman, Hueser)
- 2:15 – 2:30 **Break**
- 2:30 – 3:00 EEBC Presentation
- 3:00 – 3:30 Product Development (Schwain, Goggin)
- 3:30 – 3:45 Wrap-up/Open Discussion

Program Evaluations Update

**Presented By:
Suzanne Doyle**

DSM Process & Impact Evaluations 2011

Final report revisions are currently underway for all four Residential and Business evaluation reports. Targeted final draft completion dates are as follows.

- **Business - Conducted by Tetra Tech MA, Inc.**
 - Heating Efficiency: 11/23/2011
 - Self Direct Custom Efficiency: 11/23/2011

- **Residential – Conducted by The Cadmus Group**
 - Showerhead Program: ~11/30/11
 - Low Income Single Family Weatherization Program: ~11/30/2011

DSM Program Evaluations – 2012/2013

■ 2012:

- Residential – Home Performance
- Residential – High Efficiency AC
- Business – Process Efficiency

■ 2013:

- Residential – Low Income Energy Savings Kits
- Business – Compressed Air
- Business - Segment Efficiency

Notes: Swap Home Performance and Low Income.

Per Settlement, Residential Home Lighting & Business Lighting in 2015.

Regulatory Update

Presented by:

Neil Cowan

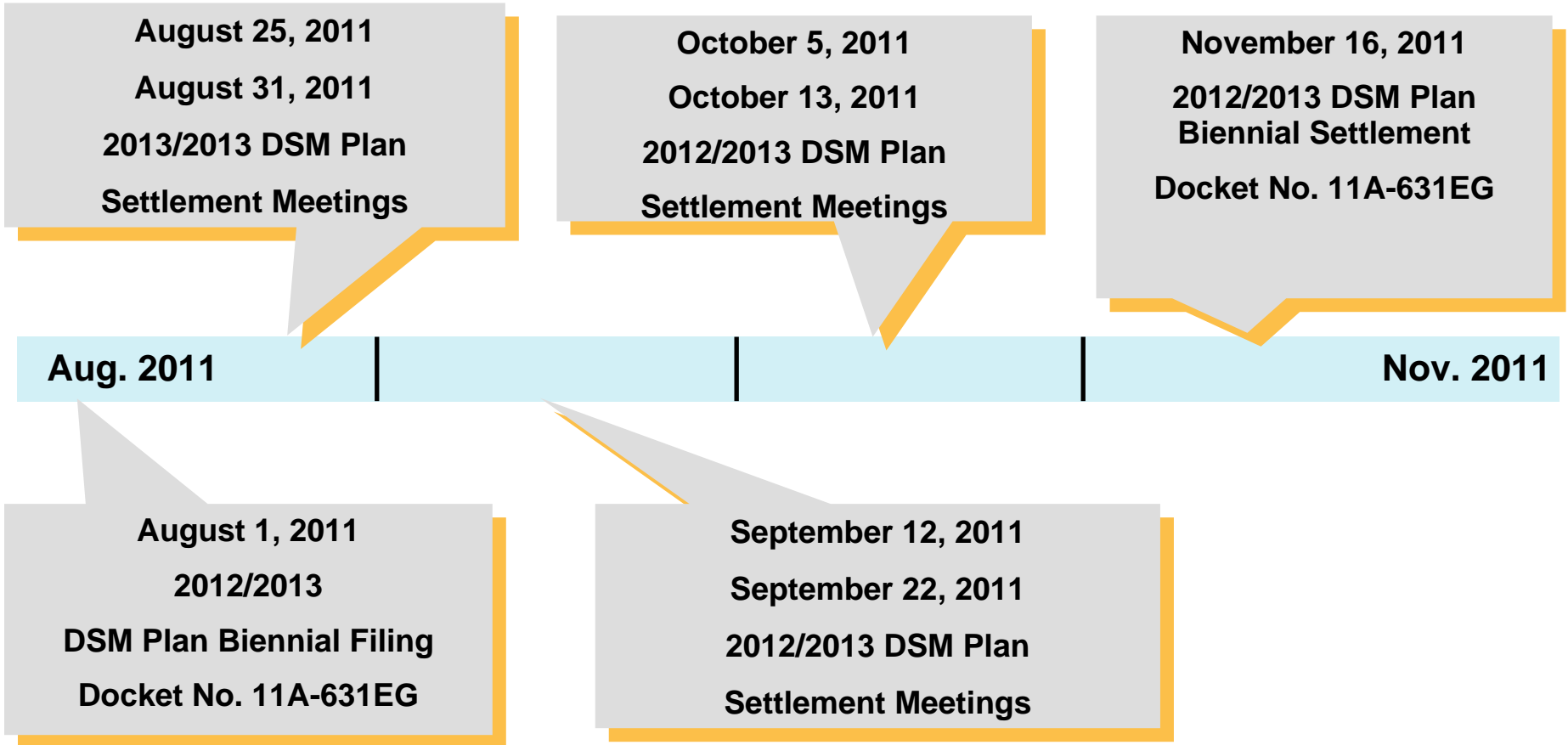
Compliance information is available
at Xcel Energy's DSM Website:

http://www.xcelenergy.com/About_Us/Rates_&_Regulations/Regulatory_Filings/CO_DSM

2011 60/90-Day Notices

| Notification Date | Product | Type of Notice |
|-------------------|--------------------------------------|-------------------------------------|
| Feb. 4, 2011 | ENERGY STAR Retailer Incentive Pilot | Product Changes |
| Feb. 8, 2011 | Energy Management Systems | Product Changes |
| Mar. 30, 2011 | ENERGY STAR New Homes | Informational |
| Mar. 31, 2011 | Insulation Rebates | Informational |
| Apr. 22, 2011 | Compressed Air | Added Measures |
| May 3, 2011 | Cooling Efficiency | Added Measures |
| May 25, 2011 | Computer Efficiency | New Product |
| Jun. 15, 2011 | Lighting Efficiency | Product Changes |
| Jul. 6, 2011 | Home Performance with ENERGY STAR | Informational |
| Jul. 27, 2011 | Cooling Efficiency | Added Measures |
| Aug. 1, 2011 | Recommissioning | Informational |
| | Motor & Drive Efficiency | Informational |
| | Central A/C Tune-Up | 90-Day Notice - Product Termination |
| Aug. 2, 2011 | Evaporative Cooling | Informational |

Timeline of Recent Filings



2012/2013 DSM Plan Settlement

Docket No. 11A-631EG

| Proposed Products | Expenditures (\$) | Energy Savings (Gen kWh or Dth) | Incremental Demand Savings (Gen kW) |
|--------------------------------|---------------------|--|--|
| 2012 | | | |
| Electric Efficiency | 57,024,322 | 320,049,336 | 57,748 |
| Saver's Switch | 13,326,964 | 697,183 | 20,865 |
| Electric Indirect and Pilots | 6,902,097 | 8,560,821 | 684 |
| ISOC/EnerNOC | 31,495 | 0 | 16,200 |
| Total 2012 Electric DSM | \$77,284,877 | 329,307,341 | 95,497 |
| Gas Conservation | 11,269,176 | 411,296 | --- |
| Gas Indirect and Pilots | 1,949,157 | 23,758 | --- |
| Total 2012 Gas DSM | \$13,218,332 | 435,054 | --- |
| 2012 Total | \$90,503,209 | 329,307,341 kWh 435,054 Dth | 95,497 kW |

2012/2013 DSM Plan Settlement

Docket No. 11A-631EG

| Proposed Products | Expenditures (\$) | Energy Savings (Gen kWh or Dth) | Incremental Demand Savings (Gen kW) |
|--------------------------------|---------------------|--|--|
| 2013 | | | |
| Electric Conservation | 61,763,841 | 327,423,334 | 65,755 |
| Saver's Switch | 14,075,362 | 697,183 | 20,865 |
| ISOC Marketing and Admin. | 32,581 | 0 | 1,300 |
| Third-Party Demand Response | 0 | 0 | 0 |
| Electric Indirect and Pilots | 7,161,999 | 17,121,642 | 0 |
| Total 2013 Electric DSM | \$83,033,783 | 345,242,160 | 87,920 |
| Gas Conservation | 11,297,800 | 404,551 | --- |
| Gas Indirect and Pilots | 1,986,561 | 23,758 | --- |
| Total 2013 Gas DSM | \$13,284,361 | 428,309 | --- |
| 2013 Total | \$96,318,144 | 345,242,160 kWh 428,309 Dth | 87,920 kW |

■ Program Specific Changes and Additions

- Insulation Rebate Program
- Home Performance with Energy Star
- Residential Home Lighting
- Electric Vehicles
- Energy Efficiency Financing
- Energy Star New Homes
- Waste to Energy Projects

■ Plan Modifications to Address Shortfall 2013

- Energy Feedback Pilot
- Showerhead Program
- Refrigerator Recycling
- RFP for Innovative Technology
- Low Income Single Family Weatherization
- Air Conditioner Tune-Ups

DSM Program Highlights

Presented By:

Shawn White

Kate Warman

David Hueser

DSM Program Overview

Shawn White



Portfolio Overview

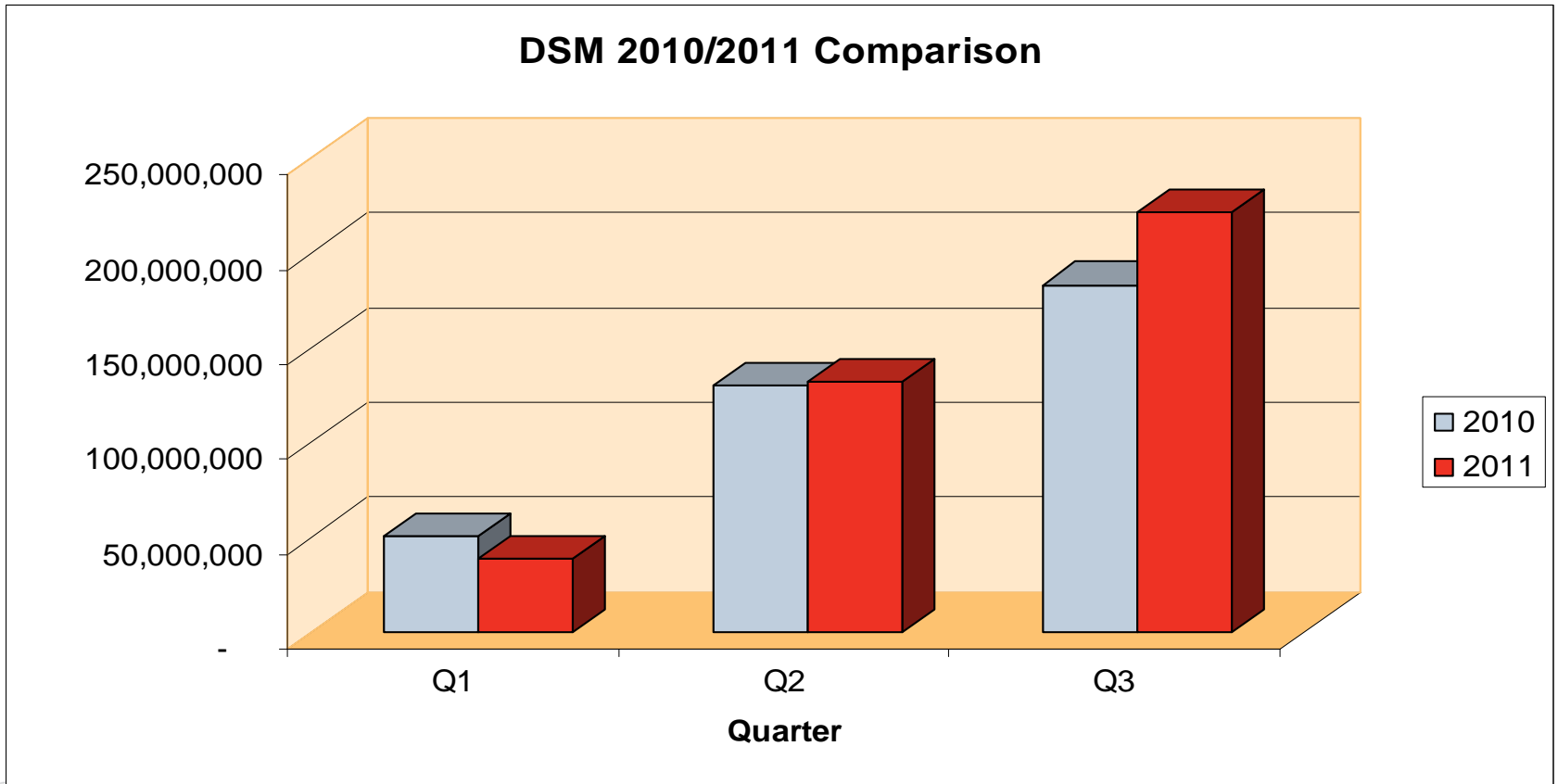
■ Electric

- 221.52 GWh YTD (86.6% of Y/E Target)
- \$38.9 M (56.8% of Budget)

■ Gas

- 340,743 Dth (92.5% of Y/E Target)
- \$12.0 M (76.2% of Budget)

2010/2011 Comparison



Residential and Low-Income Program Highlights

Kate Warman

Portfolio Overview

■ Electric

- 102.63 GWh YTD (131% of Y/E Target)
- \$13.3 M (55% of Budget)

■ Gas

- 295,396 Dth (119% of Y/E Target)
- \$8.7 M (91% of Budget)



High Efficiency Air Conditioning

- **30% more installs over 2010**
 - Marketing and advertising enhancements
 - Audit recommendations

- **Increased contractor participation**
 - Customers asking about rebates
 - Using rebates as sales leverage

- **Quality Installation improving**
 - Customers asking about Xcel Energy rebate
 - Required training

Home Lighting

- **Achieved filed goal of 55.7 GWh in July**
- **Achievement through 9/30/11:**
 - 81 GWh, \$2.4 million spent, 1.7 million bulbs sold
- **Launched LED test in September to determine prospective rebate amounts, education needed and sales potential.**
- **LED bulbs are still very costly, priced \$25 - \$50 each.**
- **Offering \$10 incentives on LED “A-line” and reflector bulbs.**
- **Incentives offered at Home Depot, Lowes and Sam’s Club.**
- **50 LED units sold through September 30th.**

Refrigerator Recycling

■ Increased Participation

- Radio
- General awareness campaigns
- Word of mouth

■ Incentive Increase

- From \$35 to \$50

■ 2012-2015 RFP

Non-Profit Weatherization

■ Achievements

- Made goal in Q3 735,674 kWh
- 27 projects through Q3 (14 in Q3)
- Doubled the number of projects in 2010

■ Participation

- Process improvements
- Average project increase

Business Energy Efficiency Program Highlights

David Hueser

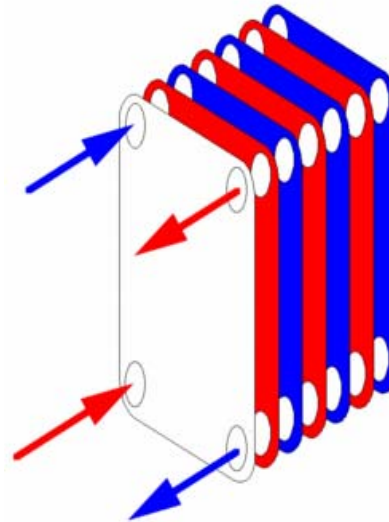


Product Updates

- **Cooling Efficiency – New Measures Added**
 - **Product modification – via 60-Day Notice effective August 28, 2011 – expands available prescriptive rebates**
 - Plate & Frame Heat Exchangers (PFHE) on chillers
 - Variable Speed Drive (VSD) retrofits for existing chillers
 - **PSCo targets business customers with existing chillers, pays up to \$300/ton for PFHE and \$1.5/.01 IPLV improvement per VSD.**
 - **New measures included in 2012-13 DSM Biennial filing. Rebate for PFHE increases to \$400/ton**

Plate & Frame Heat Exchanger

- Retrofit to existing chiller systems without air side economizers
- This type of heat exchanger uses metal plates to transfer heat between two fluids.
- Well-suited for transferring heat between medium- and low-pressure fluids



Schematic conceptual diagram of a plate and frame heat exchanger



An interchangeable plate heat exchanger

- Key customer benefit: easier for customers to use prescriptive rebates rather than going through the Custom Efficiency program

Variable Speed Drive (VSD)

- **Add prescriptive rebates for retrofitting centrifugal chillers with a VSD**
- **Rebate is \$1.50 per IPLV 0.01 kW/ton improvement over the chiller's IPLV without the VSD**
- **Applicable to all states within our service territory**
- **Key customer benefit: ease of participation with prescriptive rebates vs. time and effort in Custom Efficiency program**



Product Update

■ Recommissioning

- Expected to achieve electric goal and already exceeded gas goal
- Study provider interest in the program has increased
- New list of required measures is helping to identify more savings for the customer
- Our recommissioning calculator tool has been adopted positively by study providers



Product Update

■ Energy Management Systems (EMS)

- Successfully implemented SWEEP's suggestion around rebates - Marketed as a rebate bonus.
- Essentially achieved its full year kWh goal (98%), and is on track to achieve 160% of its full year Dth goal.
- Has achieved 350% of its kW goal, as we are finding more opportunities with peak savings.
- We expect participation in-line with the full-year goal.
- We continue improvement in expense management. Full year expenses will be less than budgeted.

Break

energy efficiency business coalition
energy modeling committee
{Xcel roundtable 12.1.2011}



Founded in 2007 with the goal of increasing the Business Potential of the Energy Efficiency Industry

EEBC serves as the coherent voice of the industry at:
Colorado Public Utilities Commission
Colorado Governor's Energy Office
The General Assembly and Legislators
Xcel Energy, and other Colorado utilities

EEBC is a Non-profit 501 (c.) (6) organization

EEBC is a coalition of leading businesses collaborating to develop a profitable and sustainable energy efficient market. We provide our member companies real and impactful access to policy makers in the public and private sector. We keep members informed on relevant issues and topics that will affect their businesses

Energy Efficiency Business Coalition.
14062 Denver West Parkway, Bldg 52,
3rd Floor, Suite 300
Golden, CO 80401
Tel 720-445-3728
www.eebco.org

{about the energy modeling committee}



- Formed in November 2010 in partnership with the EEBC
- Prior committee partnered with SWEEP
- Represents 9 Colorado energy engineering firms
- Represent approximately 340 Colorado employees
- Represent approximately \$52 million in annual revenue in Colorado

{new construction rebate summary}



| Incentives | EEB Program < 50,000 sf | EDA Program >50,000 sf | Self Direct Program > 2 MW load |
|--------------------|----------------------------|---------------------------|------------------------------------|
| per kW | \$400 | \$400 | Either \$525 |
| per kWh | \$0 | \$0.04 | Or \$0.10 |
| per Dth | \$7 | \$7 | \$0 |
| modeling provided? | no | yes | no |



- EDA recently received increased incentive thereby giving EEB a disadvantage
- There are inefficiencies and duplication in the process when going through EDA
- There is more free ridership in the EDA than in the EEB
- There is potential for a conflict of interest through selling additional services after EDA



- Eliminate the recommended maximum square footage parameters for consumers to participate in EEB
- Increase the rebate/incentive to participants in the EEB product to the equivalent \$/kW as the Self-Direct Product, if the participant brings in a consultant in the design phase of the construction project to perform energy modeling

{benefits of revisions}



- Increase overall participants in the New Construction Product
- More modeling of smaller buildings may encourage better accuracy and innovation
- Reduced inefficiency and duplication in the consulting process
- Significantly reduced free-ridership
- The program would reflect actual practices of rebate assignment practices
- May encourage more energy design firms to actively advertise the New Construction Product



Example Projects: Total Rebate & Modeling Costs Under Each Program

| Project | Size (Sq. Ft.) | EDA Program | EEB - Current | EEB – Enhanced |
|---|----------------|------------------|------------------|------------------|
| Metro State Center for Student Success | 152,000 | \$198,170 | \$136,062 | \$168,812 |
| Byron G. Rogers Federal Office Building | 494,000 | \$581,192 | \$440,383 | \$548,758 |
| Central Park Recreation Center | 56,786 | \$150,813 | \$94,742 | \$100,492 |
| Denver Traffic Operations and Training Center | 50,356 | \$158,930 | \$99,288 | \$125,288 |
| Central Platte Campus Fleet Maintenance | 39,300 | \$91,877 | \$56,258 | \$66,383 |
| Central Platte Campus Office Warehouse | 29,056 | \$73,449 | \$39,677 | \$47,427 |
| Denver Museum of Nature and Science–Education & Collections Facility | 123,137 | \$186,146 | \$113,417 | \$137,167 |
| Stapleton Library | 28,490 | \$115,038 | \$77,600 | \$98,100 |
| Green Valley Ranch Library | 23,852 | \$105,183 | \$66,421 | \$80,796 |



Calculations: Denver of Nature Science – Education & Collections Facility

| Building Size: 123,137 sq. ft. | EDA Program | EEB - Current | EEB - Enhanced |
|-------------------------------------|------------------|------------------|------------------|
| Electric Demand Incentive | \$400 | \$400 | \$525 |
| Electric Usage Incentive \$/kWh | \$0.04 | \$- | \$- |
| Gas Usage Incentive \$/Dth | \$7 | \$7 | \$7 |
| Electric Demand Saved kW | 190 | 190 | 190 |
| Electric Usage Saved kWh | 1,068,237 | 1,068,237 | 1,068,237 |
| Gas Usage Saved Dth | 3,631 | 3,631 | 3,631 |
| Electric Demand Rebate | \$76,000 | \$76,000 | \$99,750 |
| Electric Usage Rebate | \$42,729 | \$- | \$- |
| Gas Usage Rebate | \$25,417 | \$25,417 | \$25,417 |
| Total Rebate | \$144,146 | \$101,417 | \$125,167 |
| Modeling Cost | \$30,000 | \$- | \$- |
| Design Team Stipend | \$10,000 | \$- | \$- |
| Total Cost to Xcel | \$184,146 | \$101,417 | \$125,167 |
| Free Ridership | 80% | 0% | 0% |
| DSM Goal Achieved (kW Saved) | 38 | 190 | 190 |



energy efficiency business coalition
energy modeling committee

DSM Product Development Update

Presented by:

Kevin Schwain and Pat Goggin

DSM Website provides program idea submission forms at:

http://www.xcelenergy.com/About_Us/Rates_&_Regulations/Regulatory_Filings/CO_DSM_Plan

Product Development Team

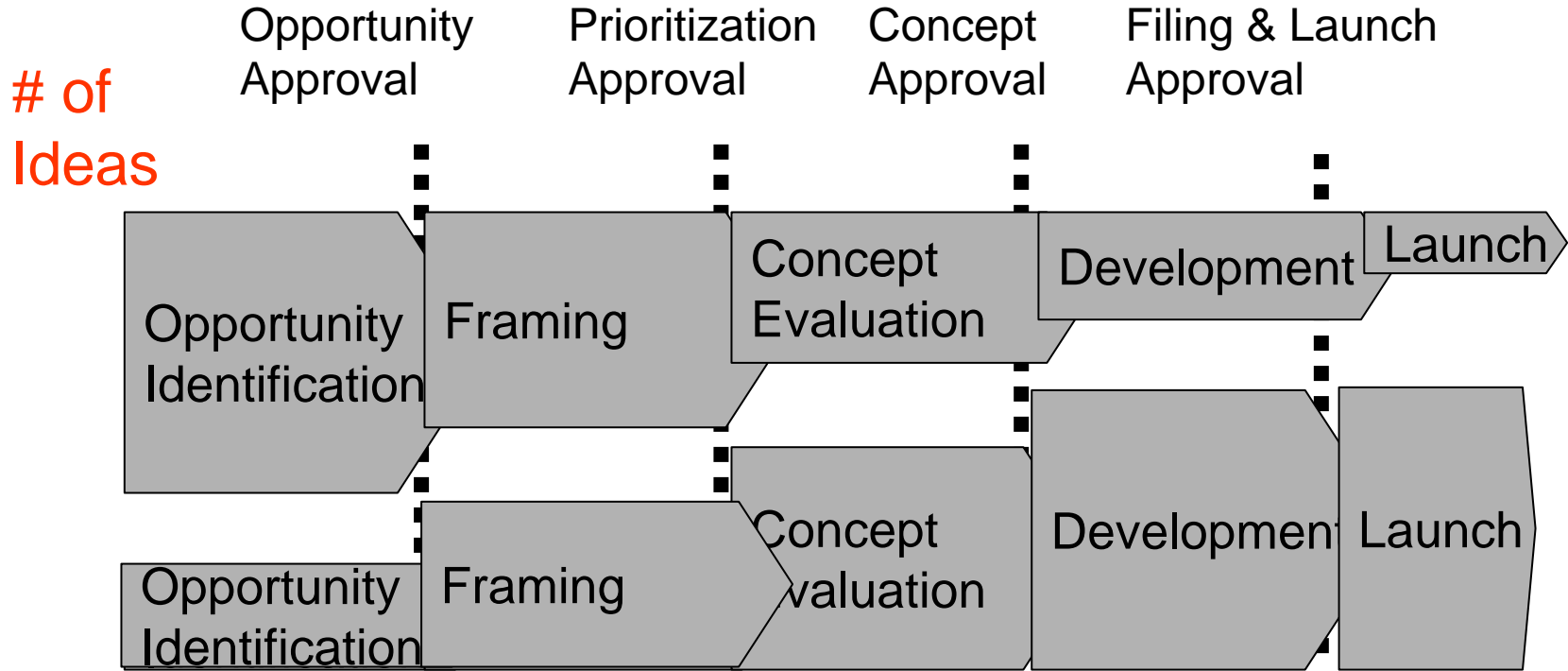
- **10 Resources able to flex across across 4 Platforms**
 - Energy Efficiency
 - Renewable Energy
 - Load Management
 - Customer Choice
- Manager: Kevin Schwain, 612-330-5961
- Energy Efficiency Lead: Pat Goggin, 303-294-2370

Product Development Process

- **Comprehensive review and alignment of EE and Non-EE PD processes**
 - PD Process Overview
 - Clearer definition of stages and gates by PD platform
- **Prioritized list of EE ideas**
- **Framing list more focused**
- **Process more in-line with industry best practices**

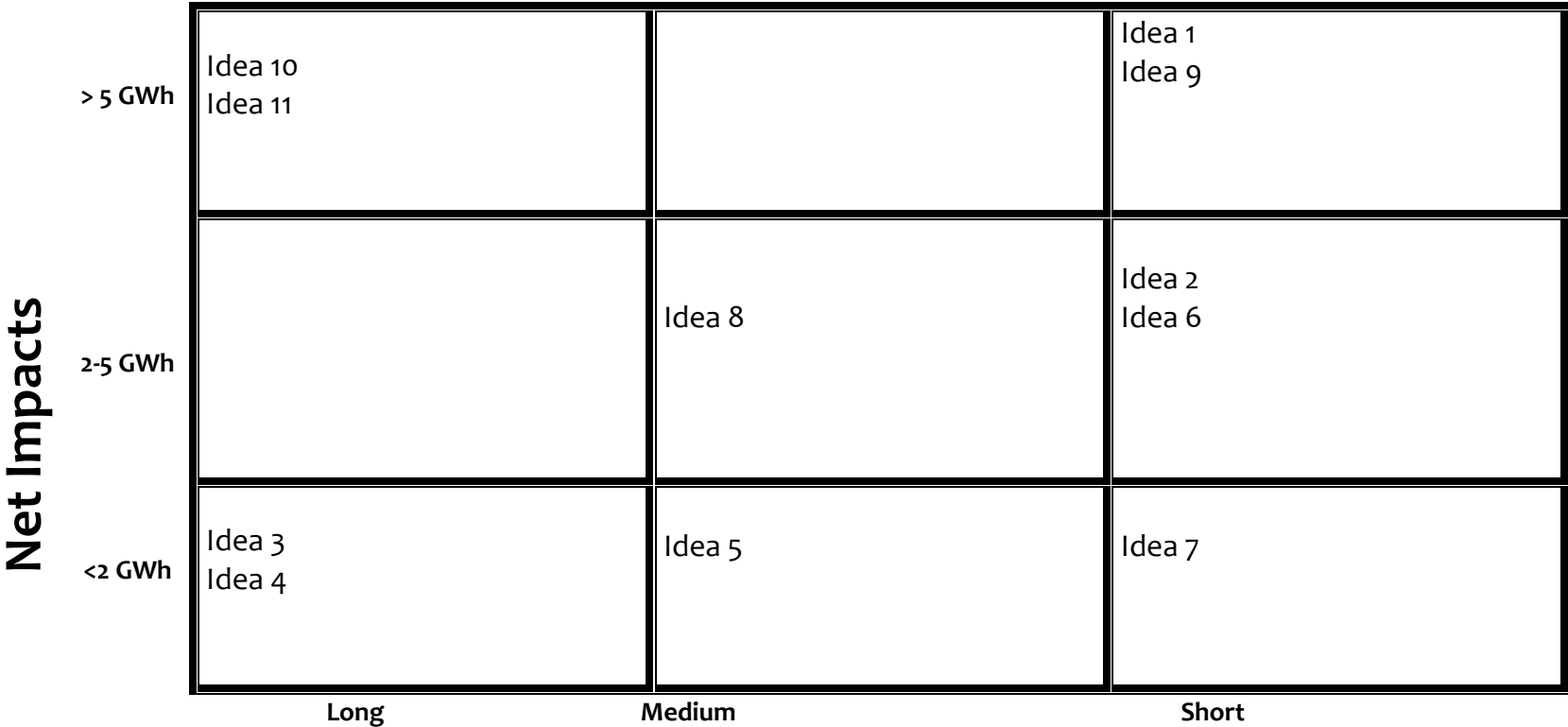


Why Prioritize?



Level of Effort

High Priority Potential Map



Time to Development

High Priority Development Opportunities - Framing

CO Settlement Work for PD

| Settlement Task | Deliverable | Time Period |
|---|---|-------------|
| Energy Feedback | Determine pilot cost effectiveness and add 50,000 customers to the pilot | Q1-Q4, 2012 |
| Refrigerator Recycling | 60 Day Notice to add in first quarter, 2012 | Q1, 2012 |
| RFP for Innovative Technology | RFP for innovative programs in 2013 Proposal evaluation and selection 60 Day Notice to add successful programs | Q1-Q4, 2012 |
| RFP for C&R AC Tune Up | RFP for combined residential and small commercial AC tune up program Evaluation of successful proposal 60 Day Notice to add new program | Q1-Q3, 2012 |
| Demand reduction potential from load management, demand response interruptible services and electric vehicles | Application Seeking Approval of demand response goals for 2014-2020 | Q1, 2012 |
| Energy Efficiency Financing | Application Seeking Approval for an EE Financing program | Q1-Q2, 2012 |
| Waste to Energy Projects | Application and/or advice letter to implement a renewables program for "Eligible Energy Resources" on customer premises in addition to photovoltaic systems | Q1-Q2, 2012 |

DSM Roundtable Ideation Submissions – 3rd Quarter

- **Received request June 29, 2011 - T.J. Aubin, American Mechanical Services**
 - Economizer Optimization and Adjustment, provide for the inspection and testing for proper operation of rooftop units (RTUs)
 - On-Bill Financing, offer low interest financing for energy efficiency improvements for small commercial buildings

Economizer Optimization and Adjustment

■ Product Description

- Provide for the inspection and testing for proper operation of rooftop units (RTUs)
- Include the following services
 - Quality assurance check of refrigerant charge
 - Recalibration of economizer
 - Recalibration of thermostat schedules and set points
 - Sensor testing, calibration and replacement
 - Replacement of bad sensors, controllers and linkages

Economizer Optimization and Adjustment

■ Situation Analysis

- **Field studies found that more than half of outside air economizers on RTUs are not providing optimal savings due to**
 - Failed dampers or controls
 - Incorrect settings for changeover
 - Improper type of controls installed
- **Puget Sound Energy reports:**
 - 64% of units had economizers that had failed or required adjustment; estimated savings potential from 14 – 40%
 - 58% of units had problems with thermostats
 - 60% of units had airflow that was out of range
 - 40% of units had problematic sensors

Economizer Optimization and Adjustment

■ Cost Benefit Analysis

■ Assumptions

- Inspection and repair – \$300 (3 hours work at \$100/hr)
- 25% energy savings
- Rebate at 50% of incremental cost (\$150)

■ **Simple payback before rebate: 2.4 months**

■ **MTRC = 1.28**

■ **Next Steps: Market research and framing prioritization; reconfirm inspection and repair costs**

On Bill Financing

■ Product Description

- Provide On Bill Financing (OBF) through Xcel Energy for energy efficient upgrades for buildings less than 200,000 SF with a max of 200 kW demand for up to \$100,000 at 0% interest.

On Bill Financing

- **Energy Efficiency Financing is addressed in the Stipulation and Settlement Agreement for the CO 2012-2013 DSM Biennial Plan:**
 - “The Company agrees it will work with interested stakeholders between now and June 1, 2012 to develop a program to support financing of energy efficiency retrofits by residential and small business customers. If during this time, a cost effective model for such a program can be developed for Public Service’s territory and the Company receives interest from third party entities to support implementation; the Company shall file an application for approval of such a program with the Commission with the objective of implementing it beginning January 1, 2013. The financing program would be implemented in partnership with other entities such as banks, state government, or local governments. It is agreed to by the parties that the financing mechanism will not be an on-bill payment mechanism or include a lost loan pool supported by Xcel Energy ratepayers.”

Plan B RTUs

2011 CO Settlement Requirement

... 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...

- **Xcel Energy received pricing information from the EEBC on 9/27/11**

Plan B RTUs

■ Assumptions

- 7 year measure life
- Baseline equipment cost based on RTU purchased 7 years in the future in today's dollars
- Rebate at 50% of incremental cost
- **Simple payback before rebate: 1.9 years**
- **MTRC = 3.08**
- **Next Steps: Continue PD process**

New Products in Development for potential 60-day Notice or 2012/2013 Filing

| Commercial | Status | Potential Filing |
|--|---------------------------|-------------------------|
| Computer Efficiency | Launched | |
| Plate & Frame Heat Exchangers | Launched | |
| LED Wall Pack fixtures | Development | 2012 60 Day |
| Commercial Food Service Equipment | Development | 2012 60 Day |
| Lighting Fixture Reduction | Concept Evaluation | 2012 60 Day |
| Commercial Efficiency Pilot | Concept Evaluation | 2012 60 Day |
| Plan “B” RTUs | Concept Evaluation | 2012 60 Day |
| Building Tune-up | Framing | 2012 60 Day |

New Products in Development for potential 60-day Notice or 2012/2013 Filing

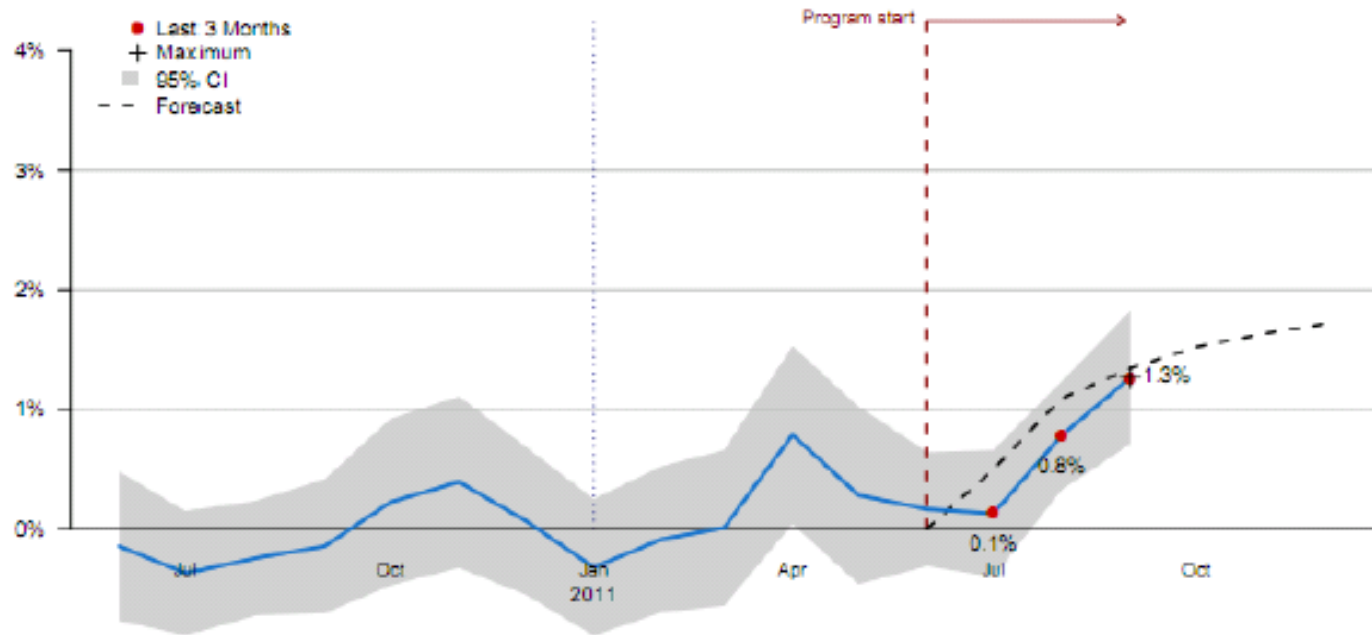
| Industrial | Status | Potential Filing |
|--|---------------------------|---------------------------|
| Plan A VSD Air Compressors | Launched | |
| VSDs on Chillers | Launched | |
| Efficient Small Motors - ECMs | Development | 2012/2013 Biennial |
| Turn Key Services | Development | 2012 60 Day |
| Low loss filters (mist eliminators) | Concept Evaluation | 2012 60 Day |
| Prescriptive Refrigerated Case Efficiency Anti-Sweat Heater Controls Zero Energy Glass Doors w/o Anti-Sweat Heaters | Concept Evaluation | 2012 60 Day |

New Products in Development for potential 60-day Notice or 2012/2013 Settlement

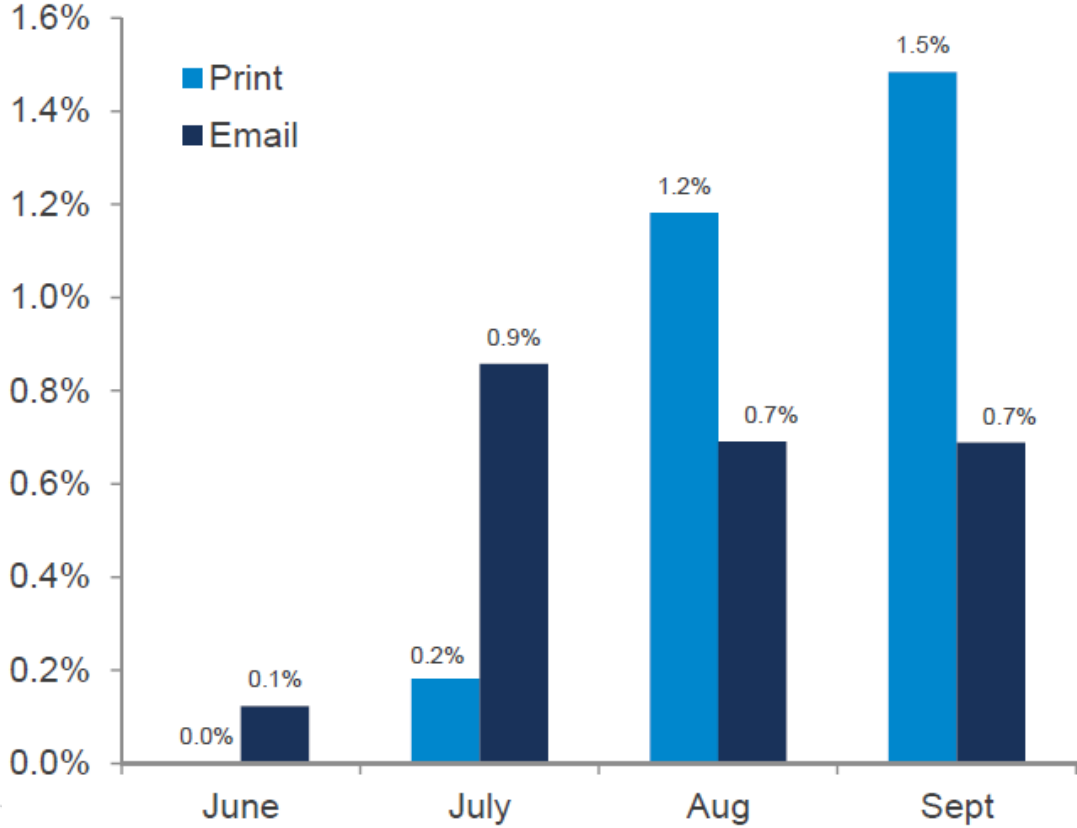
| Residential | Status | Potential Filing |
|---|--|-------------------------|
| A/C Tune-Up Residential/Small Commercial | RFP Pending (Settlement) | 2012 60 Day |
| EC motors for furnaces | Concept Evaluation | 2012 60 Day |
| Residential Multi-family | Concept Evaluation | 2012 60 Day |
| Prescriptive rebates for Condensing boilers & outdoor resets | Concept Evaluation | 2012 60 Day |
| Primary Refrigerator Rebate | Concept Evaluation (Settlement) | 2012 60 Day |
| Freezer Rebate | Concept Evaluation (Settlement) | 2012 60 Day |

Savings Have Ramped up Quickly

% Savings per Month



Measurable Savings from Both Print and Email Participants



New Ideas?

■ CO Roundtable Ideas

- Submit complete Roundtable Idea Form at least 90 days prior to a CO Roundtable Meeting in order for an analysis to be presented at that meeting.
- Incomplete Idea Forms will be returned to submitter for completion
- 90 Day window starts when form is complete

■ Roundtable Idea Form:

<http://www.xcelenergy.com/staticfiles/xcel/Regulatory/Regulatory%20PDFs/RushCODSMPProductDevelopmentIdeaForm.pdf>

- 2012 Opportunity Identification meeting in January (internal meeting)

Wrap-up / Open Discussion

Upcoming Roundtable Schedule:

Q4: February 16, 2012

