



# Colorado DSM Roundtable

**August 21, 2013**

1:00 – 4:00 pm

1800 Larimer St., Room 03G01  
Denver, CO 80202



# Welcome and Introductions

**Shawn White**


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# Agenda

- 1:00 – 1:05 p.m. Welcome and Introductions
  - 1:05 – 1:30 p.m. **2014 Plan & Regulatory Update**
  - 1:30 – 1:50 p.m. **DSM Program Highlights**
  - 1:50 – 2:30 p.m. **Product Development**
  - 2:30 – 2:45 p.m. Break
  - 2:45 – 3:15 p.m. **Energy Modeling Applications (NREL)**
  - 3:15 – 4:00 p.m. **Strategic Issues**
- 



# Regulatory Update

■ Presented by Shawn White

*Compliance information available on Xcel Energy's DSM website:*

[http://www.xcelenergy.com/About Us/Rates & Regulations/Regulatory Filings/CO DSM](http://www.xcelenergy.com/About_Us/Rates_&_Regulations/Regulatory_Filings/CO_DSM)



# 2014 DSM Plan – Overview

- Filed: 7/1/2013
- Continuation of 2012-13 DSM Plan with no significant policy or program changes
- Contains most of the programs in place from prior years; with some enhancements
- Plan designed to meet 2014 goals:
  - ◆ 384.5 GWh of electric energy savings; TRC 1.88
  - ◆ 86.4 MW of electric demand reduction; and
  - ◆ 623,543 dekatherms of natural gas savings; TRC 1.49
- Electric DSM budget: \$87.8 million
- Gas DSM budget: \$12.3 million

# 2014 DSM Plan – Goals by Segment

Customer Segment		Budget (\$ million)	Savings		Participants
			Gen kW / Dth	Gen kWh	
Business	Electric	\$47.3	40,852	242,350,496	8,969
	Gas	\$1.6	128,224	-	1,522
Residential	Electric	\$31.1	36,312	99,458,284	915,317
	Gas	\$5.3	244,306	-	69,939
Low-Income	Electric	\$2.9	1,029	8,169,590	17,517
	Gas	\$3.3	86,272	-	17,515
Indirect	Electric	\$6.2	8,189	34,479,365	166,349
	Gas	\$2.0	164,741	-	165,439

# 2014 DSM Plan – Program Updates

## ■ Measures Added:

- ◆ Building Tune Up Measure – Recommissioning
- ◆ Bathroom and Kitchen Aerators – Energy Efficient Showerheads
- ◆ Anti-Sweat Heater Controls – Cooling Efficiency
- ◆ Electronically Commutated Motors For Furnace Fans – Heating System Rebates
- ◆ Online Energy Feedback – Energy Feedback Pilot
- ◆ Bathroom & Kitchen Aerators, & Energy Efficient Showerheads – School Ed. Kits
- ◆ LED Parking Garage Retrofit & New Const. – Lighting Efficiency & Sm. Business Lighting

## ■ Measures Removed:

- ◆ Separate Rebates for Plan B Boilers – Heating Efficiency
- ◆ Indirect Evap. Cooling measure removed as prescriptive; submitted as Custom Product
- ◆ Standard Tank Water Heater Rebates 0.65 & 0.62 Energy Factor – Water Heater Rebate
- ◆ Furnace Rebates w/ Less than 96% Annual FUE – Heating System Rebates

# 2014 DSM Plan – Contracts and Pilots

## ■ Pilots (continuing):

- ◆ Energy Feedback Pilot (Residential)\*
- ◆ Community Energy Efficiency Planning Pilot
- ◆ Electric Vehicle Charging Station Pilot
- ◆ In-Home Smart Device Pilot

## ■ Pilots (new):

- ◆ Energy Feedback Pilot (Business)\*





## 2014 DSM Plan – Summary

- **DSM programs & products steady; changes made pursuant to 60/90-day notice process**
- **Anticipate PUC approval before end of 2013**
- **No interruption of programs is anticipated**
- **Over 50 products available to customers**
- **Plan targets to benefit over 1 million Colorado customers in 2014 through energy savings**

# Past 60-Day Notices

Program Notice Description	Notification Date	Comments Due	Implemented
Lighting Efficiency 2013	2/27/2013	03/29/2013	4/30/2013
Standard Offer – ***90 Day Notice***	3/19/2013	4/19/2013	5/22/2013
Process Efficiency Product Eval	4/17/2013	N/A	N/A
Low-Income Energy Savings Kits Product Eval	4/17/2013	N/A	N/A
High Efficiency Air Conditioning Product Eval	4/17/2013	N/A	N/A
Data Center Efficiency	5/22/2013	6/24/2013	6/25/2013
Cooling Efficiency – RTU Early Retirement	5/22/2013	6/24/2013	6/25/2013
High Efficiency A/C	5/22/2013	6/24/2013	6/25/2013
Motor & Drive Efficiency	5/22/2013	6/24/2013	6/25/2013
Compressed Air Efficiency	5/22/2013	6/24/2013	6/25/2013
Heating Efficiency	5/22/2013	6/24/2013	6/25/2013
Heating System Rebates	5/22/2013	6/24/2013	6/25/2013
Energy Efficient Showerheads	5/22/2013	6/24/2013	6/25/2013
Home Performance w/ENERGY STAR	5/22/2013	6/24/2013	6/25/2013
Commercial Refrigeration	6/17/2013	7/17/2013	7/18/2013



# DSM Program Evaluations

**2013:**

- ◆ **Colorado Technical Assumption & NTG Review**
  - ◆ **Segment Efficiency**
  - ◆ **Compressed Air**
  - ◆ **Home Performance**
- 
- **Comprehensive Program Evaluations Proposed for 2014:**
    - ◆ **Energy Management Systems**
    - ◆ **Low Income Multi-Family Weatherization**

# Future DSM Filings / Meetings

- **November 13, 2013**  
Q4 DSM Roundtable Meeting
- **February 19, 2014**  
Q1 DSM Roundtable Meeting
- **Apr 1, 2014**  
DSM Annual Status Report
- **July 1, 2014**  
2015/16 Colorado DSM Plan





# DSM Program Highlights

- Presented by Bill Conrad, David Hueser, and Jennifer Elling



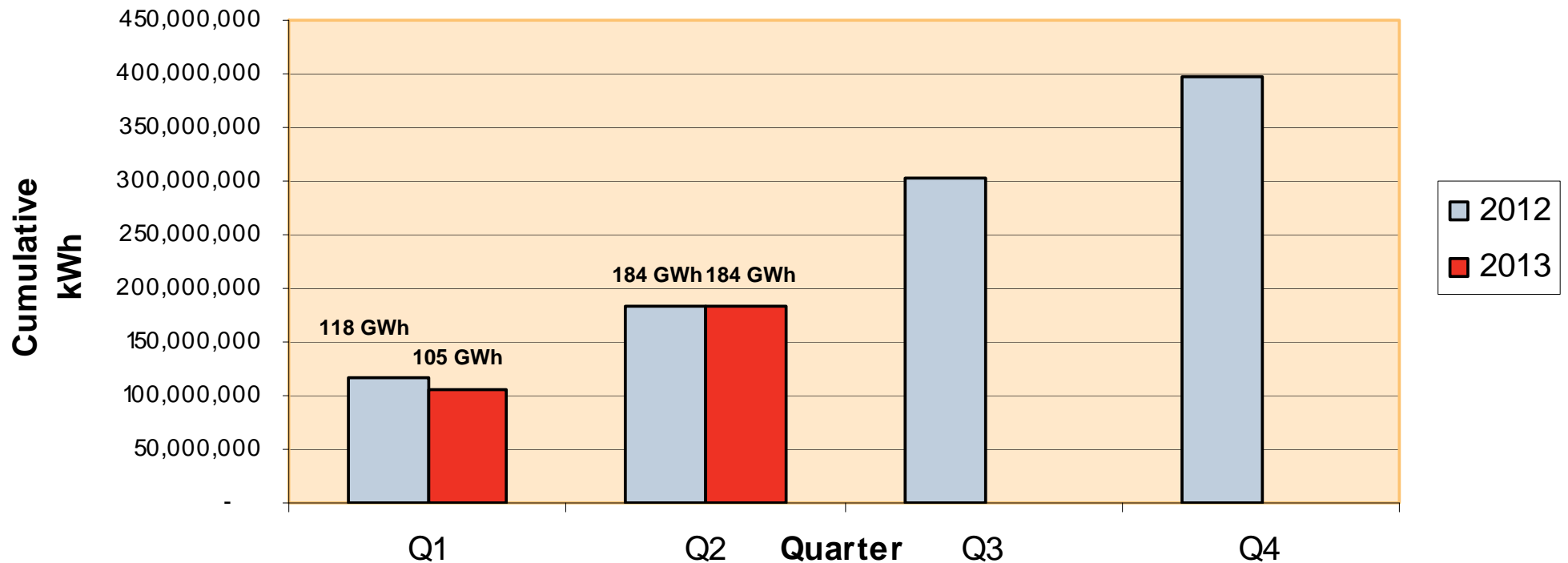
# Second Quarter 2013 DSM Achievements

## Total DSM Portfolio

- 2013 Electric Targets: 87.9 MW; 356 GWh; \$86M
- Q2 2013 Achievements: 33.7 MW; 183.9 GWh; \$33M
  
- 2013 Gas Goals: 428,310 Dth; \$13.3M
- Q2 2013 Achievements: 162,205 Dth; \$4.8M

# Q2 2013 actual electric energy savings (kWh) is 52% of 2013 goal, back on pace with 2012

**Colorado DSM Portfolio 2012/2013 Cumulative Electric Achievement, Quarterly Comparison**





# 2014 filed Residential program changes

## Program adjustments due to cost-benefit challenges



- **High Efficiency A/C – program largely unchanged in 2014**
  - ◆ 68% Net To Gross vs. 89% in 2012-13 per program evaluation
  - ◆ 2014 cost-benefit .93 as kW/kWh savings/participant decreased
- **Residential Heating Systems – reducing 2014 budget**
  - ◆ Increase minimum furnace AFUE to 96% in 2014 vs. 92% in 2012-13 for rebate eligibility, to reduce program costs
  - ◆ 2014 cost-benefit .78 as incremental costs and baselines increased, and gas prices remain relatively low
  - ◆ Adding ECM motors electric measure in 2014
- **Residential Water Heaters – reducing 2014 budget**
  - ◆ Increase minimum Energy Factor to .67 in 2014 vs. .62 in 2012-13 for rebate eligibility, to reduce program costs
  - ◆ Keep tankless gas WH (passing) and electric heat pump (not passing)
  - ◆ 2014 gas cost-benefit .42 as incremental costs increased





# Residential Pool Pumps

## Product launched April 29, 2013

### ■ Program updates

- ◆ Currently have 10 product partners
- ◆ Ecova, 3rd Party implementer responsible for marketing
  - Focus: supporting partners existing channels
  - Mailer: combined with partner's monthly invoice
  - Coming in Q3: DM for July & August. Partner promotion.
- ◆ Ecova provided personalized product & calibration training
- ◆ Initial challenge: partners behind opening pools due to weather, little time for product.

### ■ 2013 progress

- ◆ No completed rebate applications through Q2.
- ◆ Expect applications in 2H 2013 as traction builds

# Home Lighting

## On track to meet the 2013 goals



### ■ 2013 Progress

- ◆ 53.3 GWh savings through Q2; if trend continues, will exceed 2013 goal
- ◆ Fall promotions planned for CFL twists and specialties, and LED bulbs

### ■ 2014 Plans

- ◆ Home Lighting baseline changes for 60 watt equivalent bulbs. Since incandescent bulbs are still readily available, using a blended incandescent/halogen baseline.
- ◆ Placing more emphasis in promotions on CFL specialty and LED bulbs than previous years

### ■ Program Evaluation

- ◆ In June 2013, Michaels Energy conducted a benchmarking review of several programs, including Home Lighting, to inform the 2014 DSM Plan
- ◆ A Home Lighting evaluation is planned for 2015 – 2016

# Evaporative Cooling

**2013 participation lower than last year**

**Increased promotions through end of cooling season**

## ■ **Program participation**

- ◆ 2013 mid-year achievement slightly trailing 2012, partly due to cooler summer temperatures
- ◆ Participation driven by consumer retail advertising and retailer point of purchase collateral, which continues to work well
- ◆ Radio advertising for awareness building

## ■ **Increased advertising**

- ◆ Increased internal/external communications for employee & contractor awareness
- ◆ Contractor promotion with Denver Broncos to stimulate increased participation with higher tier, whole house systems



# New Product: Commercial Refrigeration Efficiency

- Product selected from 2012 Innovative Technology RFP responses
- Product Design:
  - ◆ Offers on-site assessments, free direct installation of low-cost measures, refrigeration maintenance and prescriptive refrigeration rebates to commercial customers
- 60-Day Notice posted 6/17/2013. Product forecasted to achieve 4.6 GWh in 2013
- Included in 2014 CO DSM Plan
- Third party implementer: Franklin Energy



## Self Directed Custom Efficiency

- Underperforming YTD
- 2013 forecasting less than goal
- Promotion initiated to boost pipeline for future years
- Standard Offer projects moving over



# Heating Efficiency



## 2014 Plan changes

### Boilers:

- Plan B Boiler measure removed: starting Jan 1, 2014
  - Applications accepted through March 31, 2014. Plan B boilers submitted after this date are eligible for Plan A rebates.
  - Plan A-1 85% minimum efficiency remains the same and Plan A-2 92% minimum efficiency remain the same

### Water Heaters:

- Rebate updated to scale with size (\$200 per 100,000 BTUH) of water heaters versus set rebate per unit (\$350/unit). Change also aligns with Minnesota. Update posted mid-year via 60-day notice.

**Pipe Insulation:** more pipe diameters were added to include larger pipe sizes



## Lighting Efficiency: Midstream for screw-in LED

- Xcel Energy is evaluating moving screw-in LED from downstream to midstream incentives
- Incentives are provided at the point of sale from the distributor
- Currently looking at these three measures:

ENERGY STAR <sup>®</sup> -Qualified Interior LED Lamps**		
5W or less	Replace Incandescent or Halogen lamps with an ENERGY STAR-qualified LED that uses 3–6 times less energy (e.g., a 20W LED lamp replace a 60W–120W incandescent).	\$7.00/lamp
Greater than 5W to 10W		\$12.00/lamp
Greater than 10W to 20W		\$15.00/lamp



# Lighting Efficiency: Midstream for screw-in LED

- **What are the benefits?**
  - ◆ **Opportunity to increase achievement**
  - ◆ **Opportunity to increase LED screw-in sales**
  - ◆ **Opportunity to reduce program costs**





# DSM Product Development Update

- Presented by Kevin Schwain, Pat Goggin and Andre Gouin

*Program ideas can be submitted on Xcel Energy's DSM website at:*

[http://www.xcelenergy.com/About Us/Rates & Regulations/Regulatory Filings/CO DSM](http://www.xcelenergy.com/About_Us/Rates_&_Regulations/Regulatory_Filings/CO_DSM)



# Product Development Team

- **Cover Multiple States and Platforms**
  - ◆ **Leverage Development Resources across States**
  - ◆ **Efficiency, Renewables, Demand Response, Transportation**
  
- **They're here!**
  - ◆ **Better understand CO specific needs**
  - ◆ **Please feel free to meet them in person**



## 2014 New Products

- Included what was ready in the 2014 Plan
- Filling the pipeline
- Improving our process to identify the best opportunities and concepts
- Your input is welcome



# DSM Roundtable Concept Submissions

## ■ Western Cooling Control

- ◆ Received verbally from SWEEP
- ◆ Researched and developed a possible prescriptive savings methodology

# Western Cooling Control – 1<sup>st</sup> Cut

## ■ Description

- ◆ Retrofit device for resident A/C units that increases cooling capacity by running fan after compressor cycle ends

## ■ Initial Cost-Benefit Analysis

- ◆ Simple Payback before Rebate = 2.9 years
- ◆ MTRC = 1.72

## ■ Next Steps

- ◆ Recommend full evaluation of technology via Product Development process for 2014 60 Day Notice



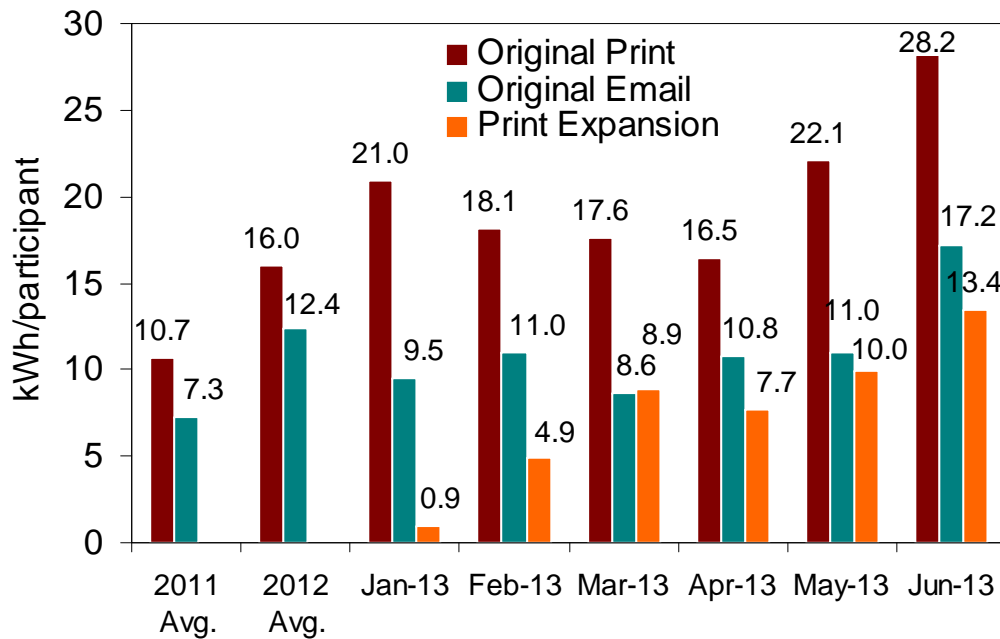
# Pilots

- **Energy Feedback**
- **Codes Support**

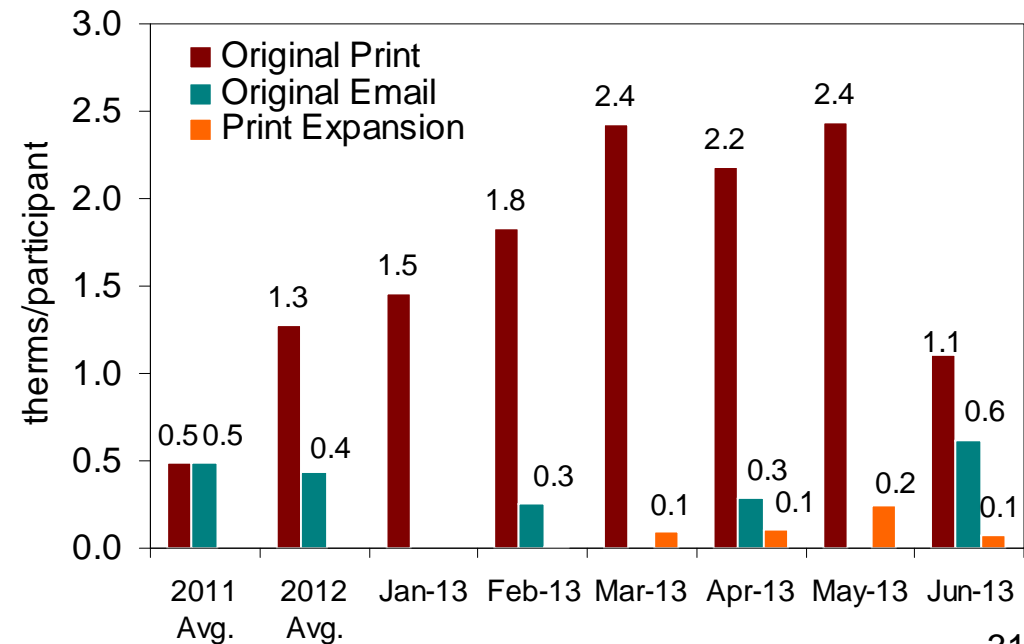
# Energy Feedback Pilot 2013 Results YTD

- ❑ Savings from original print pilot continue to show year over year growth
- ❑ Email savings may have reached a plateau
- ❑ Savings from the print expansion group have shown a strong ramp up.

### Electric Savings – 7.3 GWh ytd



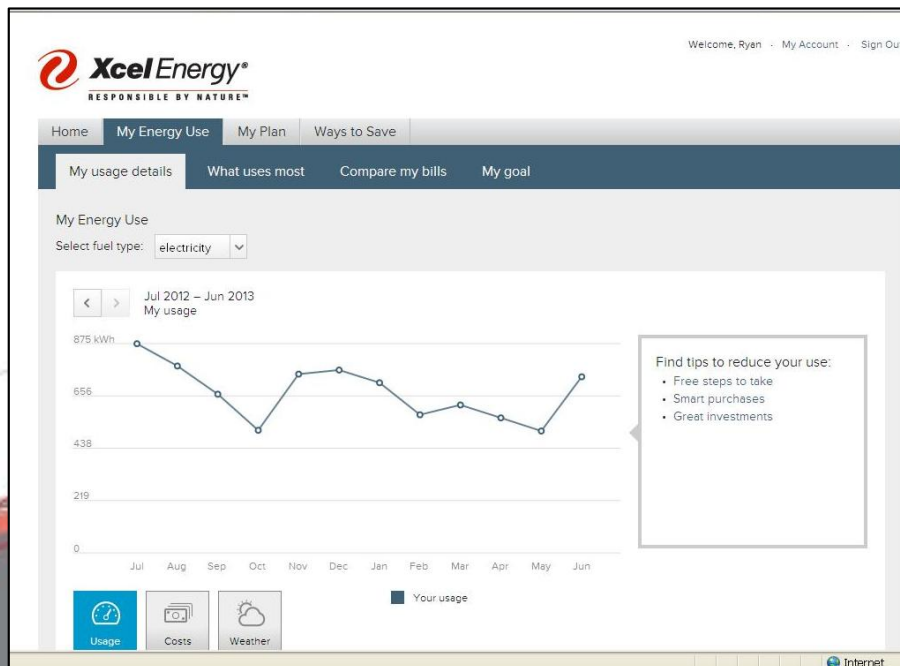
### Gas Savings – 42,000 Dth ytd



# Energy Feedback Pilot Plans for 2014

- Filed to continue pilot for a 3<sup>rd</sup> year
  - Refill print/email participants lost to attrition
- NEW OFFERING: Online energy feedback portal**
  - Integrated into MyAccount
  - Available to all PSCo residential customer (opt-in by visiting MyAccount)
  - Similar functionality (peer comparisons, savings tips, usage data)

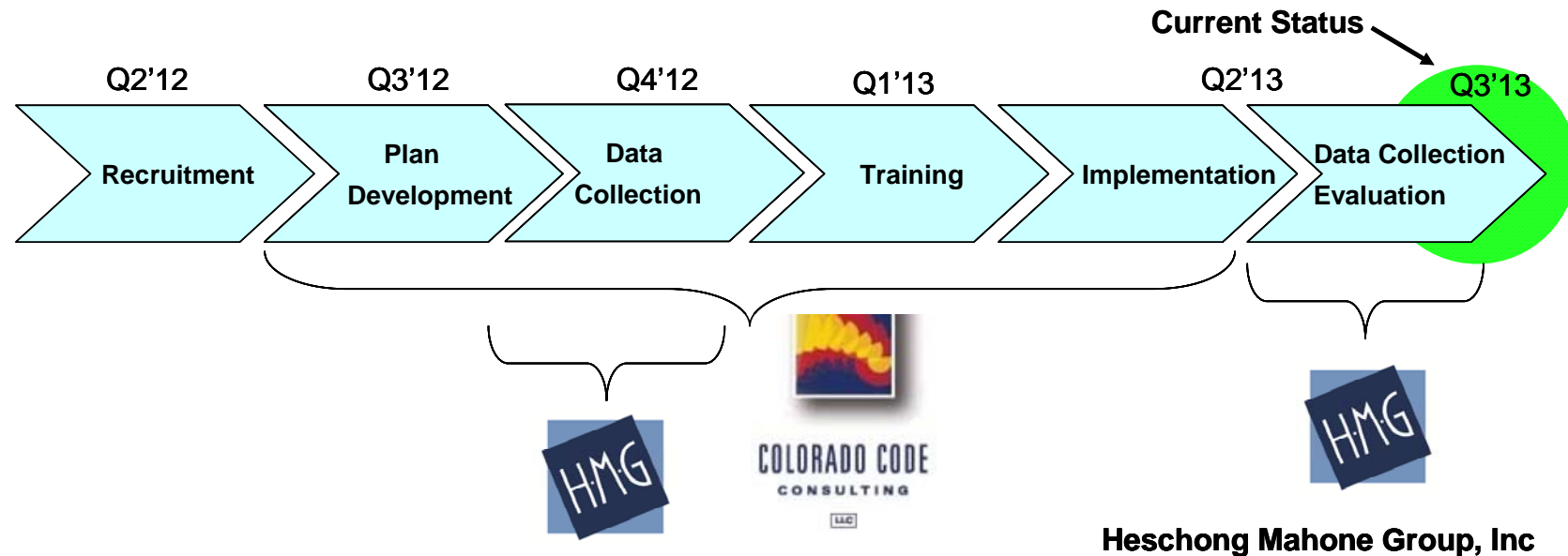
## Online Portal



2014 Forecast	Participants (avg. annual)	Net Gen Electric (GWh)	Net Gas (Dth)
Print	77,000	22.3	115,200
Email	19,000	2.4	7,700
Online	22,000	4.2	18,400



# Code Support Pilot



## Status:

- Training completed in 3 participating jurisdictions
- Impact potential, methodology evaluation completed
- Results to be published

# Pilot Findings

- **Slight compliance improvement observed: ~5%**
- **Very high (existing) baseline compliance: >90%**
  - ◆ **High compliance found in CO Energy Office's Study**
- **Minimal opportunity to improve compliance = limited DSM energy savings potential (<1GWh/yr)**

Jurisdiction	Pre-Training		Post-Training		Compliance Delta	kWh Savings/home	Therm Savings / Home
	Number of Sites	Weighted Overall Compliance Rate	Number of Sites	Weighted Overall Compliance Rate			
Jurisdiction A	13	90.50%	13	95.30%	4.80%	18.9	5.0
Jurisdiction B	13	87.00%	9	92.80%	5.80%	22.9	6.1
Jurisdiction C	6	96.30%	11	93.70%	-2.60%	(10.2)	(2.7)
Average						20.9	5.6

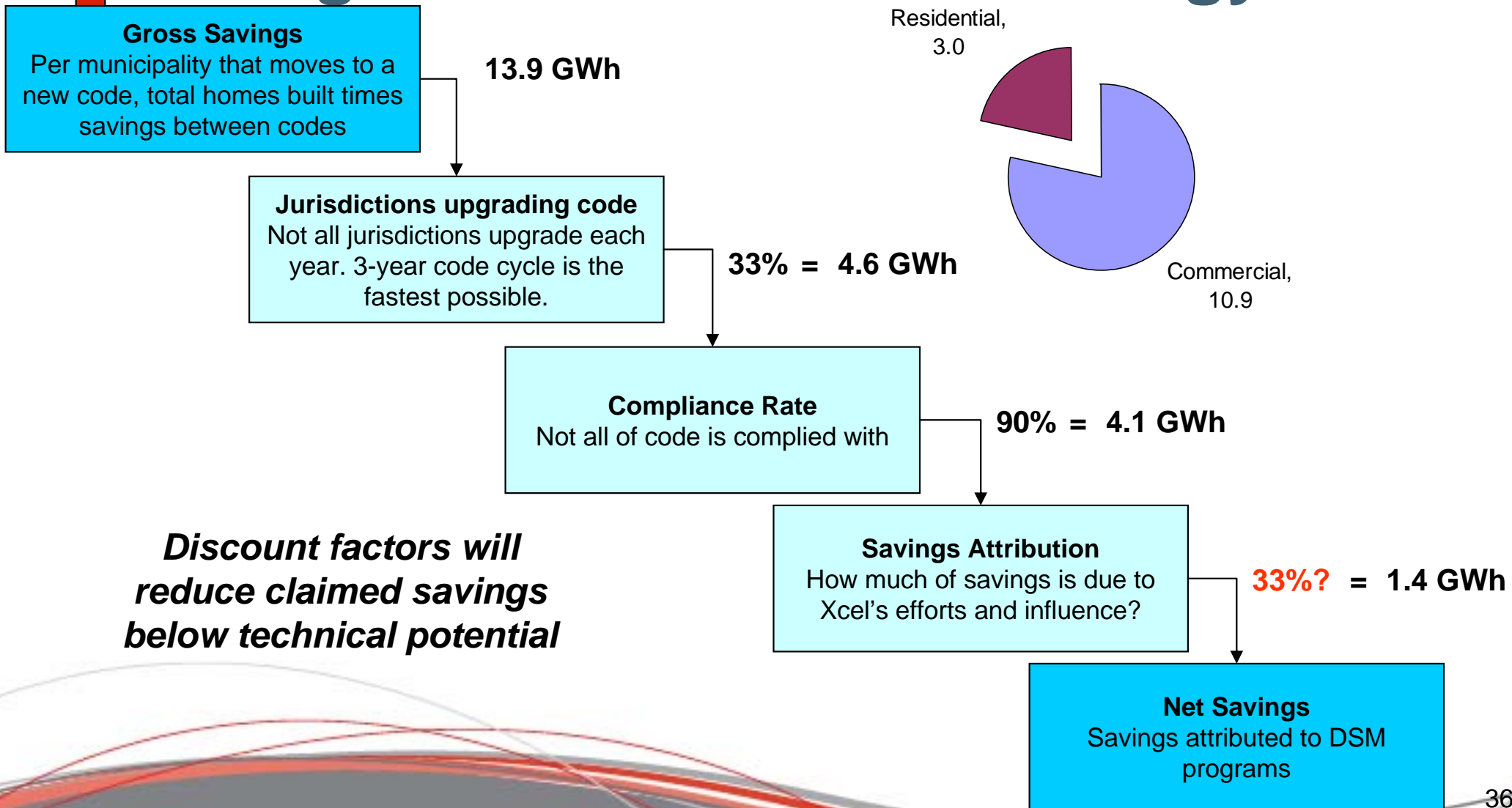
# What did we learn?

## *Our original questions*

- Q: Will a tailored approach to code training/technical support help jurisdictions adopt new codes? Additional energy savings quantifiable?**
- Q: Will a tailored approach help improve and accelerate code compliance? Can we quantify additional energy savings?**
- Q: Can the DOE Building Energy Codes Program (BECP) protocol be used cost-effectively to evaluate the Code Support pilot?**
- Q: Can we attribute savings to this pilot?**

***Takeaway:*** Pilot results do not support a Compliance-based program

# Savings Attribution Methodology



**Takeaway:** Code Upgrades potential small; rely on undefined attribution mechanism



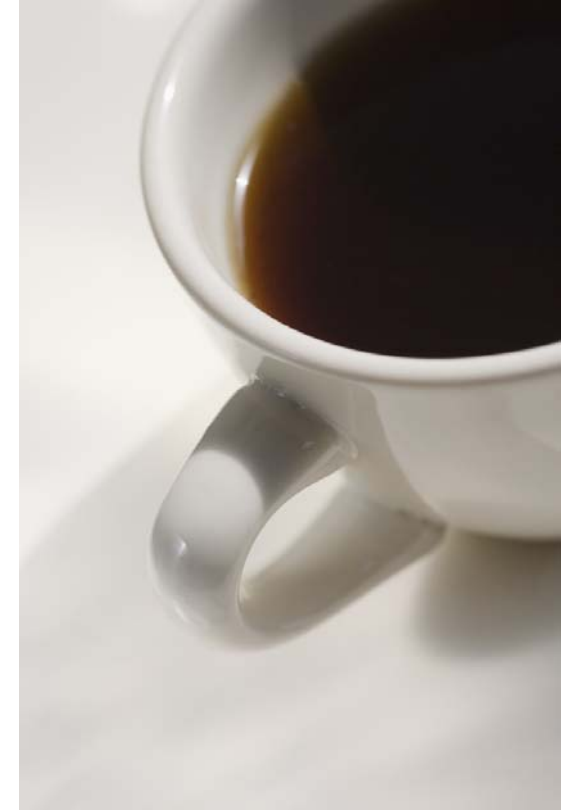
# Recommended Next Steps

- **End the Xcel Building Code pilot by September**
  - ◆ Compliance program not viable given high baseline compliance
- **Continue compliance support via builder training offered through our DSM new construction programs**
  - ◆ Working with designers/builders drives savings
- **Investigate feasibility of applying compliance results to new construction baseline**
  - ◆ Leverage infrastructure of an existing DSM program
- **Collaboration with CEO may be best path forward**



# Break

■ 2:30 – 2:45 p.m.





# Strategic Issues

■ Presented by Deb Sundin

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[http://www.xcelenergy.com/About Us/Rates & Regulations/Regulatory Filings/CO DSM](http://www.xcelenergy.com/About_Us/Rates_&_Regulations/Regulatory_Filings/CO_DSM)





# Strategic Issues Filing: Overview

- Filed: 6/17/2013
- Last filed strategic issues docket in 2010
- Next strategic issues filing anticipated in 2016
- Filing adjusts DSM goals in response to shifting market dynamics
- Requests the PUC:
  - ◆ Re-examine emerging DSM strategic issues
  - ◆ Approve modifications to electric EE and DR goals (2015-2020)
  - ◆ Approve proposed non-traditional EE programs
  - ◆ Adjust the Company's incentive mechanism



# Energy Efficiency Long-Term Goals

- Re-examined DSM potential impacting goals:
  - ◆ Erosion of savings from traditional equipment-based EE programs
    - New lighting standards - 30% more efficient bulbs (per EISA 2007)
    - Tighter building energy codes
  - ◆ General decline in energy savings potential
  - ◆ Flattening of electricity sales due to slow-down in economy
- Based on updated *Colorado DSM Market Potential Assessment* by KEMA, June 2013 (Exhibit JAP-1)
- Treatment of CHP as renewable energy rather vs. energy efficiency

# Proposed DSM Goals, 2015-2020

**Table DS-2: Energy Efficiency – Energy Savings Goals**

Energy (GWh) Goal	2015	2016	2017	2018	2019	2020	Total
Traditional Energy Efficiency	309	280	282	276	250	242	1,639
Unidentified Emerging Technologies	-	-	-	-	25	34	59
Behavioral	28	28	28	-	-	-	85
LED Street Lighting	12	12	12	12	12	-	60
<b>TOTAL</b>	<b>349</b>	<b>321</b>	<b>322</b>	<b>288</b>	<b>288</b>	<b>276</b>	<b>1,842</b>

**Table DS-3: Energy Efficiency – Demand Savings Goals**

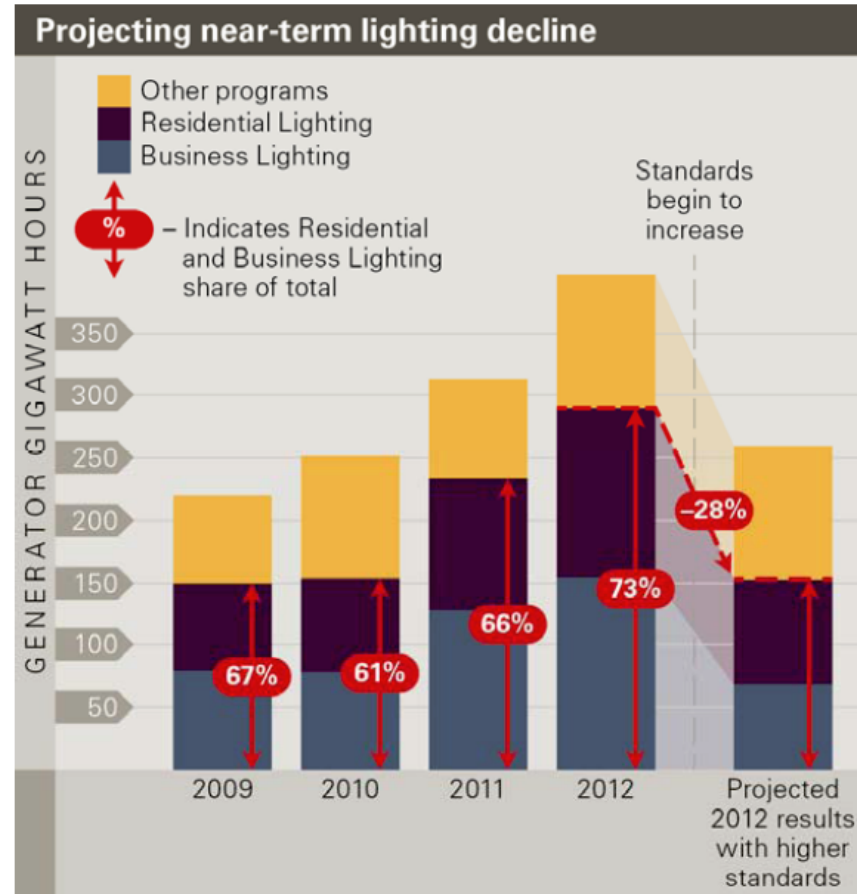
Demand (MW) Goal	2015	2016	2017	2018	2019	2020	Total
Traditional Energy Efficiency	66	62	60	58	54	52	361
Unidentified Emerging Technologies	-	-	-	-	4	6	10
Behavioral	7	7	7	-	-	-	21
LED Street Lighting	-	-	-	-	-	-	0
<b>TOTAL</b>	<b>73</b>	<b>69</b>	<b>67</b>	<b>58</b>	<b>58</b>	<b>58</b>	<b>382</b>

- Reflects 75% customer incentive scenario (plus 10% additional)
- Request to use in next PSCo Resource Plan in place bidding

**Table 4: DVO – Collective Energy & Demand Goals**

2015-2020 Goal	Energy (GWh)	Demand (MW)
DVO	506	56

# Lighting Energy Standards Impact to DSM



# Non-Traditional Energy Efficiency

## ■ Behavioral Change

- ◆ Programs that educate/influence customers to use less energy
- ◆ Pilot started 2011; expand to 500,000 customers in 2015 if approved; run for only three years
- ◆ New approaches:
  - Web-based information
  - Expansion of program to Business customers
  - Project-specific options for mid-/large-sized customers
- ◆ Work with industry experts to develop M&V methodology
- ◆ Finalize methodology for accounting / measuring savings
- ◆ \$19M cost over 3 years for 85 GWh and 21 MW of savings

# Non-Traditional Energy Efficiency

*continued*

## ■ LED Street Lighting

- ◆ Company-owned / customer-maintained (to match DSM model)
- ◆ Company tentatively plans to file a 2014 program if PUC approves as DSM (if pilot is successful)
- ◆ \$32M/yr over 5 years for 60 GWh in savings

# Non-Traditional Energy Efficiency

*continued*

## ■ **Distribution Voltage Optimization (“DVO”)**

- ◆ Centralized control and two-way communication optimizes voltage along the feeder to decrease customer energy use by ~1.8%
- ◆ Participation in EPRI Green Circuits pilot found voltage could be lowered ~2.5%
- ◆ System benefits; improved power factors; reduced fuel consumption
- ◆ Customers benefit with utility investment in distribution system
- ◆ PSCo has completed two pilots confirming results

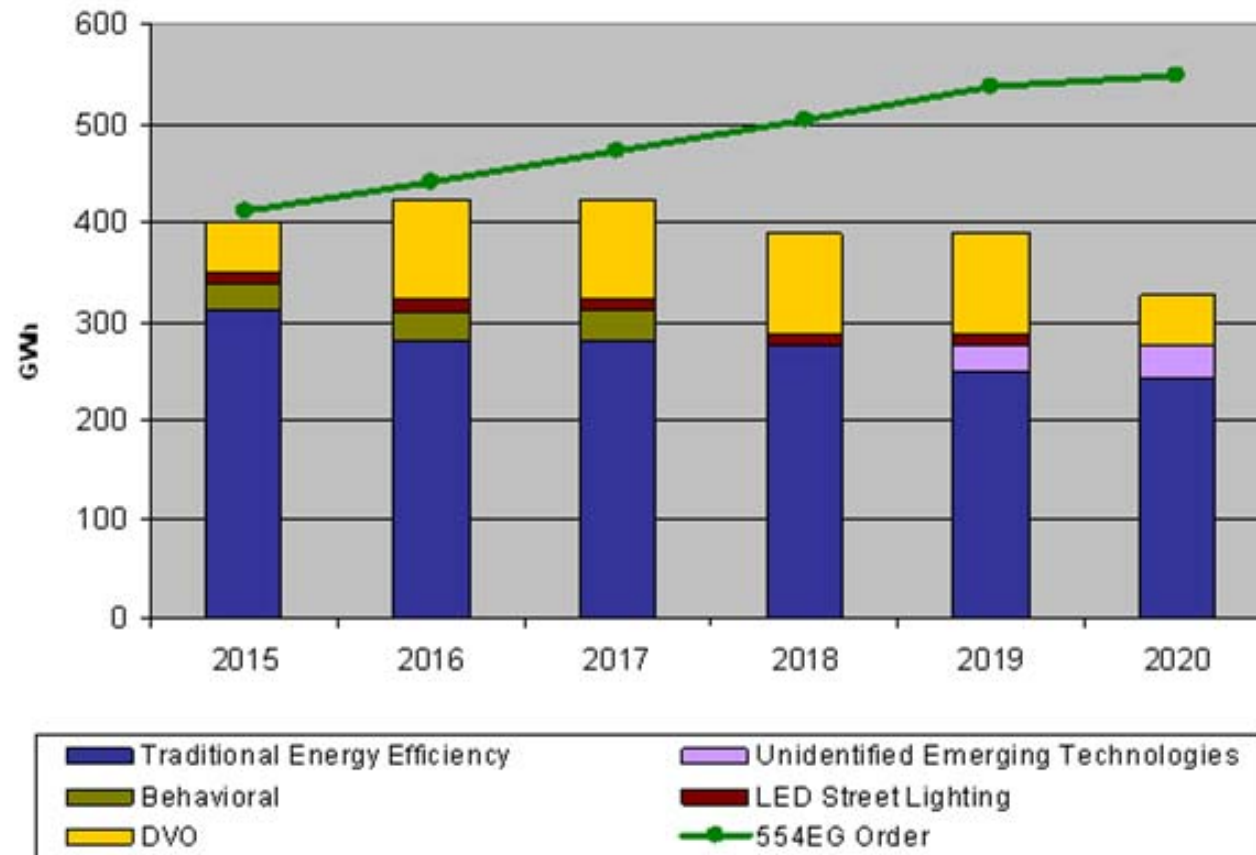
## ■ *Proposed:*

- ◆ Implement 2015 through mid-2020
- ◆ \$95M cost over 6 years for 506 GWh and 56 MW of savings
- ◆ Collective 2020 goal; with annual goals at the discretion of Company
- ◆ Recovery of capital and O&M expenses through DSMCA as a “bridge” until base rates can be set to recover 100% of the costs
- ◆ Performance Incentive of 2% incremental net economic benefits



# Energy Goals

*Proposed vs. Existing (10A-554EG)*





# Demand Response

- Proposed 2015-2020 goals that are 94MW above current levels set in the resource plan
- Used to reduce energy use during periods of peak demand (i.e. hot summer days)
- Current programs include:
  - ◆ Saver's Switch
  - ◆ C&I Interruptible Service Option Credit (ISOC)
  - ◆ Peak Savings
- Does not propose any changes to existing programs

# Demand Response Goals

**Table 5: Cumulative Demand Response – Demand Savings Goals**

MW	2015	2016	2017	2018	2019	2020
<b>Total System Controllable Load (DR)</b>	<b>528</b>	<b>537</b>	<b>555</b>	<b>575</b>	<b>598</b>	<b>623</b>



## DSM Budget

- Historical spend is \$45M-65M/yr for goals of 150-350GWh
- Recent budgets close to \$75M for 400GWh/yr
- Expect future budgets may increase up to \$100M-\$130M/year

# Current Incentive Mechanism

- **Current incentive mechanism has two components:**
  1. Annual lump-sum **Disincentive Offset**
    - \$3.2M/yr for achievement of 80%-99.9% of goal
    - \$5.0M/yr for achievement of 100% of goal
  2. **Performance Incentive**
    - Based on Modified TRC Test
    - Company retains a portion (sliding scale, 1-12%) of attributable net economic benefits

# Recommended Incentive Mechanism

## ■ Recommend continuing:

- ◆ Use of Modified TRC Test as cost-effectiveness measure
- ◆ Link between retained benefits and program performance

## ■ Recommend altering:

- ◆ Disincentive Offset
- ◆ Performance Incentive

# Gas DSM Policy

- **Forward-looking; requests guidance for future filings**
  - ◆ Low gas commodity prices are causing gas DSM programs to be minimally cost effective
  - ◆ Requests guidance on annual spending levels
    - Currently maintaining \$12M/yr
    - Minimum required spend (per statute) is just over \$7M/yr
  - ◆ Discuss different cost benefit tests with respect to Gas DSM
- **Changes require legislation (cost-benefit test) and adjustment to existing gas DSM regulatory rules**



# Summary

## *Strategic Issues*

- Continue broad portfolio of programs available for all customers that balances long-term energy savings with near-term costs
- Proposed goals result that more closely align with potential for energy efficiency and historic achievement
- Goals in this docket proposed to be utilized in 2015 ERP
- Final order from Commission expected in 1<sup>st</sup> quarter 2014



# Final Q&A

