Xcel Energy
Colorado DSM Roundtable Discussion

May 15, 2013
1:00pm to 4:00pm

1800 Larimer, Room 03G01
Welcome and Introductions

Contact Info: Suzanne Doyle
Manager, DSM Regulatory Strategy & Planning
Office: 612-330-5518
E-mail: suzanne.galster@xcelenergy.com
Agenda

1:00 – 1:05  Welcome, Introductions
1:05 – 1:30  Regulatory Update
1:30 – 2:30  DSM Program Highlights
2:30 – 2:45  Break
2:45 – 3:45  Product Development
3:45 – 4:00  Wrap-up/Open Discussion
Regulatory Update

Presented by:
Suzanne Doyle

Compliance information is available at Xcel Energy’s DSM Website:
http://www.xcelenergy.com/About_Us/Rates_&_Regulations/Regulatory_Filings/CO_DSM
Recent Filings – Q1 2013

2012 DSM Annual Status Report – Filed 4/1/2013

### Electric DSM

<table>
<thead>
<tr>
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<th>Goal</th>
<th>Actual</th>
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<tbody>
<tr>
<td>Energy Savings</td>
<td>329.3 GWh</td>
<td>400.7 GWh</td>
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<td>Demand Savings</td>
<td>79.3 MW</td>
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<tr>
<td>Budget</td>
<td>$77.3M</td>
<td>$79.4M</td>
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Net Benefits: $219.6M  
Financial Incentive: $22.7M  
TRC: 2.38

### Gas DSM

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<tr>
<td>Budget</td>
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<td>$12.5M</td>
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Net Benefits: $5.7M  
Financial Incentive: $1.1M  
TRC: 1.18
## Past 60-day Notices:

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<th>Program Notice Description</th>
<th>Notification Date</th>
<th>Comments Due</th>
<th>Date Implemented</th>
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<td>1/25/2013</td>
<td>02/25/2013</td>
<td>02/26/2013</td>
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<td>1/2/2013</td>
<td>02/02/2013</td>
<td>02/02/2013</td>
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<td>Community Energy Planning</td>
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<td>01/19/2013</td>
<td>01/20/2013</td>
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<td>Residential Pool Pump</td>
<td>12/18/2012</td>
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## 60/90-Day Notices (Cont…)

### Current 60 or 90-Day Notices:

<table>
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<th>Notification Date</th>
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<th>Date Implemented</th>
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<td>Low-Income Energy Savings Kits Product Evaluation</td>
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<td>N/A</td>
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<tr>
<td>High Efficiency Air Conditioning Product Evaluation</td>
<td>04/17/2013</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Standard Offer – 90 Day notice (End product)</td>
<td>03/19/2013</td>
<td>4/19/2013</td>
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</table>
Upcoming 60-Day Notices

- **Calculator Updates:**
  - Home Performance w/Energy Star
  - Energy Efficient Showerheads
  - Heating System Rebates
  - Heating Efficiency
  - Compressed Air Efficiency
  - Motor & Drive Efficiency
  - High Efficiency A/C

- **Other Notices:**
  - Data Center Efficiency (NTG clarification)
  - Commercial Refrigeration Efficiency (New product)
  - Cooling Efficiency (RTU early retirement)
Future DSM Filings (2013)

- June 14, 2013: *DSM Strategic Issues* (2015 and beyond)
  - Major Topics:
    - Energy Efficiency Goals
    - Incentive Mechanism
    - Demand Response goals

- July 1, 2013: 2014 DSM Plan
  - Goal:
    - Electric – 384 GWh
    - Gas – Still Evaluating
  - New Measures - Product Development
DSM Program Evaluations 2013

Residential:
- Home Performance (Process & Impact)

Business:
- CO Segment Efficiency (Process Only)
- CO Compressed Air (Process & Impact for Prescriptive)
  - Small number of Custom-Compressed Air participants to be interviewed (ie. < 15) for Process information
DSM Program Highlights

Presented By:
Kim Spickard & David Hueser
Portfolio Achievements Update,
DSM Program Overview,
Business Energy Efficiency
Program Highlights

Presented By:
Kim Spickard
First Quarter 2013 DSM Achievements
Total DSM Portfolio

- 2013 Electric Targets: 82.3 MW; 345.2 GWh; $83M
- Q1 2013 Achievements: 17.2 MW; 104.7 GWh; $14.8M

- 2013 Gas Goals: 428,310 Dth; $13.3M
- Q1 2013 Achievements: 91,046 Dth; $1.7M
Q1 2013 actual electric energy savings (kWh) is 30% of 2013 goal, slightly behind 2012 pace.

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

- Q1 2013: 105 GWh
- Q2 2013: 118 GWh
- Q3 2012: 250 GWh
- Q4 2012: 400 GWh

Cumulative kWh vs. Quarter
Direct Evaporative Pre-Cooling (DEPCACC)

- The Direct Evaporative Pre Cooling Measure was launched on February 26th.
- Cypress Ltd, has started marketing efforts and trade seminars.
- Cypress Ltd, has launched a website: www.precoolandsave.com
- The website directs customers to Xcelenergy.com to download an application.
- Prescriptive rebates of $100/ton for RTU’s and Split Systems
- Air Cooled chillers will be custom until 2014
Lighting Efficiency

- T-12 to T-8 Rebates discontinued
- Direct mail campaign to remind customers and vendors of the pending May 1 deadline for T12 to T8 rebates
- Several Prescriptive LED rebates reduced due to lower market pricing
- Tiered rebates for exterior LED fixtures
- Lighting Occupancy Sensor rebates lowered due to lower market pricing
Lighting Optimization Rebates

- Lamp removal in T8 systems
  - T8 to T8
  - $12/fixture
- NEW: T12 to T8 1- to 2-lamp installation
  - $10 per fixture*
- NEW: T12 to T8 3-lamp installation
  - $12 per fixture*

* Requires an electronic ballast and complete removal of lamps, ballasts, and sockets
New Exterior Lighting Measures

- LED wall packs for Exterior and Parking Garage installations (do not require Energy Star qualification)
- Energy Star Qualified LED Screw-In Downlights
- Bi-level Stairwell Fixtures with Integrated Sensors.
Standard Offer

- Program Being Discontinued
  - Directly competes with other, more cost-effective, products
  - Has failed to consistently meet MTRC
  - Has failed to make kW, kWh and participation goals
- Active preapproved projects have until 12/31/13 to submit all paperwork to be rebated under the Standard Offer Program
Residential and Low-Income Program Highlights

Presented By:
David Hueser
Program updated in 2012 to improve performance and cost effectiveness; 2013 off to a good start

- **Program updates**
  - Three required measures, down from five
  - Air sealing, attic insulation, efficient lighting required if recommended in audit, and not previously completed.
  - Incorporated new Insulation requirements (air sealing, test in/out, CAZ check)
  - Concierge pilot not rolled out in 2013

- **2013 progress**
  - 93 applications through Q1 2013, accounting for 85,595 net kWh (19% of goal) and 2,626 net Dth (22% of goal)

Photos: Coleman, Philips, Home Depot
Residential Water Heaters (E&G)

Program not cost-effective in 2012 on low natural gas prices and low savings per unit vs. 2012 goal

- Considerations for 2014 CO DSM Plan
  - Remove less-efficient gas measures
  - Gas storage: focus solely on .67 EF and above
  - Gas tankless: 0.82 EF Tankless units were cost effective in 2012. Keep in 2014.
  - Electric heat pump: reduce program costs

- Technical changes
  - Avoided costs, administration, incremental costs

- 2014 Customer and Contractor outreach
  - Scale down costs; maintain general awareness

Photo: GE
Low Income Non-Profit Energy Efficiency (NEEP)

Partner with Energy Outreach Colorado (EOC)
- NEEP provides funds – supplemental to federal weatherization grants – for electric and gas equipment and process improvements
- EOC identifies non-profit organizations serving low-income individuals: shelters, safe houses, residential treatment centers.

Technical assumptions
- Custom Efficiency model analysis for each project
- Cumulative NEEP electric and gas cost & benefits tracked

2013 Goals, Budgets
- 1.8 GWh on $930K electric budget
- 6,970 Dth on $628K gas budget
DSM Product Development Update

Presented by:
Pat Goggin and Andre Gouin

DSM Website provides program idea submission forms at:
http://www.xcelenergy.com/About_Us/Rates___Regulations/Regulatory_Filings/CO_DSM
Product Development Team

- 10 Resources able to flex across 4 Platforms
  - Energy Efficiency
  - Renewable Energy
  - Demand Response
  - Transportation
- Manager: Kevin Schwain, 612-330-5961
- Colorado Team Lead: Pat Goggin, 303-294-2370
- Pilot Lead: Andre Gouin, 303-294-2975
2012/13 Plan Settlement Development Update
Innovative Technology RFP Update

- Selected 3 to fill 2013 gap
  - Pool Pump Efficiency
    1.9 GWh | residential segment | Launched
  - Cooling Efficiency – Evaporative Pre-cooling for Air-Cooled Condensers measure
    2.5 GWh | business segment | Launched
  - Refrigeration Efficiency
    Final technical assumptions approved
    9.1 GWh | business segment | Ready to Post
Waste to Energy Projects

Purpose:
- To implement a program applicable to Eligible Energy Resources installed on customer premises.

2013 Activities:
- Program is most appropriately addressed in RES Plan
- Filed Advice Letter April 1st 2013
  - Net Metering tariff revised to clarify eligibility
  - Propose programs for eligible energy resources in 2014 RES Plan
Pilot & Study Update
Energy Feedback Pilot

- Successfully expanded to an additional 50k participants in January
- Continue to see strong savings from original pilot group
- Preliminary expansion savings available in second quarter 2013

2013 Cumulative Savings

2.4 GWh
19,600 DTh
IHSD Pilot – 1st year savings evaluation

Background

The In-Home Smart Device Pilot is designed to test how residential customers respond to various control strategies and energy consumption information delivered to their homes through in-home energy management devices. Participants are expected to lower their energy consumption when provided with the tools to monitor and track their energy usage. The goals of the pilot include:

- Determining the impact on residential energy consumption
- Determining the persistence of these savings over a two year pilot
- Determining if a deemed savings amount can be determined
Xcel In-Home Smart Device Pilot – preliminary evaluation of 1st year energy savings

While it appears that there may be energy savings resulting from the presence of devices, the differences are not statistically significant.

This analysis of the In-Home Smart Device (IHSD) pilot covers impacts for the period June 1, 2012 through September 30, 2012. It includes analysis of the customers with IHSDs outside of Boulder (in Centennial and Westminster, collectively referred to as “Denver”) and those 33 customers with IHSDs in Boulder that are not participants in the pricing Pilot, but are on the standard residential rate.
Xcel In-Home Smart Device Pilot - preliminary evaluation of 1st year demand savings

The load reductions were statistically significant on all but the last event day, which was the one mild day with a high of only 77 degrees.
These types of installations are complex, require Customers to be available for the appointment and pose unique challenges for the Company such as electrical permits, and legacy electrical issues. Selection and installation of devices should not be driven by utilities but rather by Customers purchasing certified devices from retailers with rebates offered for these devices.

50% of devices are not controllable. Customer participation in these events may increase with a financial incentive or penalty. Without this Customers can easily opt out or disable their systems.

The 2012 Customer survey was a key driver in developing the 2013 outreach plan. The primary vehicle for outreach activities was email, however direct interaction with Customers for e.g. calls to/from call center reps remains the most effective method of outreach.

IHSD Control Events - [http://youtu.be/Q23qEaelzz4](http://youtu.be/Q23qEaelzz4)
IHSD General Usage - [http://youtu.be/IzKmPByexBM](http://youtu.be/IzKmPByexBM)
Xcel In-Home Smart Device Pilot – summary of 2012 customer survey

**Customer Survey Results**

- Nearly 90 percent of participants were satisfied with the In Home Device pilot program
- 89% responded that they are satisfied with their ‘In–Home’ devices
- although customer satisfaction with the devices and the IHD program were high, only 43 percent of participants would likely purchase an IHD system on their own

**Survey results**

- How satisfied are you with the In Home Device pilot program so far?

- How much would you be willing to pay for an In Home Device system?
Customer Survey Results

- Customers generally found the energy usage information provided on the Home Base or web portal helpful (80%)
- 45% of Customers believe they have saved energy and/or money

Survey results

Have you saved energy and/or money by using the In Home Device system?

- Yes 45%
- No
- I'm not sure 47%

How helpful to you is the energy usage information provided on your Home Base or on your web portal dashboard?

- Extremely helpful
- Somewhat helpful
- Neutral
- Somewhat unhelpful
- Very unhelpful

0% 5% 10% 15% 20% 25%
Building Code Support Pilot

Status:
- Training completed in 3 participating jurisdictions
- Impact potential, methodology evaluation close to completion
- Readout of findings at the next Roundtable
Determine demand response opportunity available through control of electric vehicle charging stations and better understand:

- Customer’s willingness to allow interruption of charging
- Available load coincidence with peak demand

**Status**

*Pilot is progressing with phased approach, control events will begin this summer*

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**Phase I**
Charging Station

**Phase II**
Load Control Relay

**Phase III**
OEM Controls

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<th>2013</th>
<th>2014</th>
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<tr>
<td>Q1</td>
<td>Q2</td>
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<tr>
<td>Recruit &amp; Install… Monitor &amp; Control…….. Evaluate</td>
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<tr>
<td>Research and Investigation</td>
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Recruit & Install… Monitor & Control.. Evaluate
Impact Evaluation of the Whole House Energy Efficiency and Comfort Study

Presented by:
Jim Bradford, President
Mesa Point Energy
Project Description

Whole House Energy Efficiency Study (WHEC)

- An analysis of energy savings (kWh & therms), cost effectiveness and pay back
- Involved Implementation of a comprehensive package of energy savings technologies in 10 Front Range homes
- Provides the opportunity to acquire data from homes that have undergone a comprehensive energy efficiency retrofit
- Projects were installed in the fourth quarter of 2010
# Project Homes

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<th>Town</th>
<th>Square footage</th>
<th>Year built</th>
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<td>Denver</td>
<td>2,214</td>
<td>1984</td>
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<td>2</td>
<td>Centennial</td>
<td>1,755</td>
<td>1982</td>
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<td>3</td>
<td>Westminster</td>
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<td>4</td>
<td>Boulder</td>
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<td>10</td>
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## WHEC Project Scope of Work

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<th>Home 3</th>
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<td>Heating System</td>
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Evaluation Methodology

1. Utility bill based analysis
   – Raw data analysis provided for comparison
   – Weather corrected data analysis

   \[ \text{Savings} = (Baseline \ use - Post \ install \ Use) \]

Comparing TRM and bill-based findings

<table>
<thead>
<tr>
<th></th>
<th>kWh</th>
<th>Therms</th>
<th>CO₂ electric</th>
<th>CO₂ natural gas</th>
<th>CO₂ (lbs) total</th>
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<tr>
<td>Raw savings</td>
<td>(14,224)</td>
<td>3,682</td>
<td>(22,773)</td>
<td>43,074</td>
<td>20,301</td>
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<td>Regressed Savings</td>
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<td>3,595</td>
<td>(23,115)</td>
<td>42,064</td>
<td>18,948</td>
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<td>(7,911)</td>
<td>6,499</td>
<td>(12,666)</td>
<td>76,041</td>
<td>63,375</td>
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Example – House 5

### Therms per HDD

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<th>Intercept</th>
<th>R square</th>
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<tr>
<td>Pre</td>
<td>0.11</td>
<td>13.27</td>
<td>0.96</td>
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<tr>
<td>Post</td>
<td>0.08</td>
<td>-10.97</td>
<td>0.96</td>
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### kWh per CDD

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<th>Intercept</th>
<th>R square</th>
</tr>
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<td>4.20</td>
<td>801.20</td>
<td>0.95</td>
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<tr>
<td>Post</td>
<td>1.36</td>
<td>1071.98</td>
<td>0.75</td>
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House 5 example

Retrofit characteristics

- Standard measures: insulation, duct sealing, 95% furnace, 15 SEER AC replacing 10 SEER unit, CFLs, Poor Man’s HRV

- Added measures: Solar DHW with natural gas backup

- In this case, actual building performance was not well predicted by TRM
## Annualized Usage and Weather by Year

<table>
<thead>
<tr>
<th>Cal Year</th>
<th>Therms</th>
<th>HDD</th>
<th>Therm Cost</th>
<th>kWh</th>
<th>CDD</th>
<th>kWh Cost</th>
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<td>2009</td>
<td>979</td>
<td>6,772</td>
<td>$760.02</td>
<td>12,220</td>
<td>715</td>
<td>$1,147.81</td>
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<tr>
<td>2010</td>
<td>784</td>
<td>6,182</td>
<td>$600.73</td>
<td>13,888</td>
<td>1,026</td>
<td>$1,603.68</td>
</tr>
<tr>
<td>2011</td>
<td>443</td>
<td>6,587</td>
<td>$407.33</td>
<td>14,334</td>
<td>1,002</td>
<td>$1,584.84</td>
</tr>
<tr>
<td>2012</td>
<td>285</td>
<td>5,494</td>
<td>$311.39</td>
<td>14,336</td>
<td>1,288</td>
<td>$1,572.64</td>
</tr>
<tr>
<td>TMY pre</td>
<td>887</td>
<td>6,480</td>
<td>$738.34</td>
<td>12,926</td>
<td>788</td>
<td>$1,385.32</td>
</tr>
<tr>
<td>TMY post</td>
<td>384</td>
<td>6,306</td>
<td>$319.90</td>
<td>13,937</td>
<td>788</td>
<td>$1,493.68</td>
</tr>
<tr>
<td>Savings</td>
<td>503</td>
<td></td>
<td>$418.44</td>
<td>(1,011)</td>
<td></td>
<td>$(108.36)</td>
</tr>
</tbody>
</table>
# Summary results

<table>
<thead>
<tr>
<th>House</th>
<th>kWh Savings</th>
<th>$ kWh Savings</th>
<th>Therm Savings</th>
<th>$ Therm Savings</th>
<th>Total $ savings</th>
<th>project cost</th>
<th>Simple Payback (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>651.62</td>
<td>$70</td>
<td>166.56</td>
<td>$144</td>
<td>$215</td>
<td>$18,500</td>
<td>86</td>
</tr>
<tr>
<td>2</td>
<td>583.87</td>
<td>$66</td>
<td>287.60</td>
<td>$215</td>
<td>$281</td>
<td>$18,500</td>
<td>66</td>
</tr>
<tr>
<td>3</td>
<td>(2,269.96)</td>
<td>-$266</td>
<td>731.31</td>
<td>$881</td>
<td>$615</td>
<td>$40,500</td>
<td>66</td>
</tr>
<tr>
<td>4</td>
<td>(393.86)</td>
<td>-$48</td>
<td>195.22</td>
<td>$193</td>
<td>$145</td>
<td>$29,000</td>
<td>200</td>
</tr>
<tr>
<td>5</td>
<td>(1,011.08)</td>
<td>-$108</td>
<td>502.72</td>
<td>$418</td>
<td>$310</td>
<td>$27,000</td>
<td>87</td>
</tr>
<tr>
<td>6</td>
<td>-</td>
<td>$0</td>
<td>-</td>
<td>$0</td>
<td>$0</td>
<td>$27,000</td>
<td>Not in sample: PV was added</td>
</tr>
<tr>
<td>7</td>
<td>(1,563.94)</td>
<td>-$181</td>
<td>188.15</td>
<td>$159</td>
<td>-$22</td>
<td>$23,500</td>
<td>no payback</td>
</tr>
<tr>
<td>8</td>
<td>(1,549.44)</td>
<td>-$180</td>
<td>386.33</td>
<td>$367</td>
<td>$187</td>
<td>$24,000</td>
<td>128</td>
</tr>
<tr>
<td>9</td>
<td>(7,877.83)</td>
<td>-$908</td>
<td>548.34</td>
<td>$472</td>
<td>-$436</td>
<td>$20,300</td>
<td>no payback</td>
</tr>
<tr>
<td>10</td>
<td>(1,007.46)</td>
<td>-$114</td>
<td>588.97</td>
<td>$471</td>
<td>$357</td>
<td>$19,800</td>
<td>55</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>(14,438.07)</strong></td>
<td><strong>-$1,669</strong></td>
<td><strong>3,595.20</strong></td>
<td><strong>$3,323</strong></td>
<td><strong>$1,653</strong></td>
<td><strong>$248,100</strong></td>
<td><strong>150</strong></td>
</tr>
<tr>
<td><strong>EEBC Admin costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$61,297</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Admin as % total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>25%</strong></td>
<td></td>
</tr>
<tr>
<td><strong>GT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$309,397</strong></td>
<td><strong>187</strong></td>
</tr>
</tbody>
</table>
## Homes and main measure overview

<table>
<thead>
<tr>
<th>House</th>
<th>Baseline AC</th>
<th>Post-install</th>
<th>TRM / Analysis approximates Billing?</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH1</td>
<td>Yes</td>
<td>14 SEER</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>TH2</td>
<td>Yes</td>
<td>14 SEER</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>TH3</td>
<td>Yes/Disconn</td>
<td>GSHP</td>
<td>Yes</td>
<td>Adding AC causes large increase in electric use</td>
</tr>
<tr>
<td>TH4</td>
<td>Window</td>
<td>14 SEER</td>
<td>Yes</td>
<td>Replacement of window AC with central AC may have increased conditioned space area</td>
</tr>
<tr>
<td>TH5</td>
<td>Yes (10 SEER)</td>
<td>14 SEER</td>
<td>No</td>
<td>Unexplained increase in electric use likely due to occupant usage or baseline issues.</td>
</tr>
<tr>
<td>TH6</td>
<td>Yes</td>
<td>14 SEER</td>
<td>Yes</td>
<td>Savings not considered</td>
</tr>
<tr>
<td>TH7</td>
<td>WHEC, Humid</td>
<td>Coolerado</td>
<td>No</td>
<td>Evaporative to Coolorado cooling doesn't change cooling efficiency. Rebound, change in occupant usage</td>
</tr>
<tr>
<td>TH8</td>
<td>Yes, 12 SEER</td>
<td>Coolerado, ASHP DHW</td>
<td>No</td>
<td>ASHP HP increases electric use.</td>
</tr>
<tr>
<td>TH9</td>
<td>WHEC</td>
<td>ASHP</td>
<td>Yes</td>
<td>Change from evaporative to AC increases energy use, rebound</td>
</tr>
<tr>
<td>TH10</td>
<td>Yes, 10 SEER</td>
<td>ASHP</td>
<td>Yes</td>
<td>ASHP HP increases electric use. This property likely using ASHP as leading heat source</td>
</tr>
</tbody>
</table>
# Measure overview

<table>
<thead>
<tr>
<th>Measure</th>
<th>Type</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation</td>
<td>Attic and Walls</td>
<td>Pre and post conditions unclear. Economics a strong function of site conditions</td>
</tr>
<tr>
<td></td>
<td>Air Sealing</td>
<td>By blower door testing. Resulted in approximately 30% reduction in ACH</td>
</tr>
<tr>
<td>Duct Sealing</td>
<td>Standard</td>
<td>Difficult to quantify savings, field conditions unclear</td>
</tr>
<tr>
<td>Heating System</td>
<td>ES 95% 2stage Gas</td>
<td>Reasonable measure in most cases. Baseline efficiency not fully documented</td>
</tr>
<tr>
<td></td>
<td>GSHP</td>
<td>Economics difficult compared to high efficiency furnace</td>
</tr>
<tr>
<td>Air Conditioning</td>
<td>Central A/C 14 SEER</td>
<td>Scope included the addition of cooling, making economics difficult</td>
</tr>
<tr>
<td></td>
<td>Air Source Heat Pump</td>
<td>Economics may be difficult compared to high efficiency furnace</td>
</tr>
<tr>
<td></td>
<td>Evap - Coolerado</td>
<td>Replacement of conventional evaporative cooling does not provide energy benefit</td>
</tr>
<tr>
<td>Water Heating</td>
<td>Gas Tankless</td>
<td>A popular measure</td>
</tr>
<tr>
<td></td>
<td>SolarWH w backup</td>
<td>Economics of measure not clear</td>
</tr>
<tr>
<td></td>
<td>Sealed Combustion</td>
<td>Economics may be difficult considering higher price</td>
</tr>
<tr>
<td></td>
<td>ASHP Water Heater</td>
<td>May be difficult to compete against natural gas DHW heat. Operation not clear</td>
</tr>
<tr>
<td>Lighting</td>
<td>CFL 100%</td>
<td>Scope unclear and likely variable</td>
</tr>
<tr>
<td>Windows</td>
<td>High Efficiency Windows</td>
<td>Inclusion of incremental costs only would improve</td>
</tr>
<tr>
<td>Ventilation</td>
<td>&quot;Poor Man's&quot; HRV</td>
<td>Savings value hard to quantify and unclear</td>
</tr>
</tbody>
</table>
Improve economics

- Payment of incremental cost (or other reduced incentive) may improve payback 4x or more
- More selective measures and buildings may improve payback 2x or more
- Gas prices did not increase as may have been anticipated during program design. Actual price per therm went down 10-20%
- Comfort improvements have high value to homeowner, but can't be quantified
Lessons learned

- Program design, engineering and execution are critical to success
- Measure selection is important
- Advanced measures and systems don’t automatically create favorable economics
- Setting baseline, refining EM&V and program tracking are all important
- Future energy prices can affect project performance
Questions?
Ongoing Development Update
Product Development Process

Opportunity Identification

# of Ideas

Prioritization Approval

Concept Approval

Filing & Launch Approval

Opportunity Identification

Framing

Concept Evaluation

Development

Launch

Opportunity Identification

Framing

Concept Evaluation

Development

Launch

Level of Effort per Idea
### 2014 New Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Heating</td>
<td>ECM Fan Motors</td>
</tr>
<tr>
<td>Compressed Air</td>
<td>Cycling Dryer</td>
</tr>
<tr>
<td></td>
<td>Dewpoint Demand Controls</td>
</tr>
<tr>
<td></td>
<td>Mist Eliminators</td>
</tr>
<tr>
<td>Business Lighting</td>
<td>LED Troffers</td>
</tr>
<tr>
<td></td>
<td>Parking Garage LEDs</td>
</tr>
<tr>
<td>Recommissioning</td>
<td>Building Tune-up</td>
</tr>
</tbody>
</table>
Photocells for LED Wall Packs
- No incremental savings - Existing Tech
  Assumptions assume no night operation

Heat Pump Water Heaters – Residential
- Already a measure in Water Heating Product

Mid-Market Prescriptive
Retrocommissioning Program
- Already under development (Building Tune Up)
- 3rd Party Admin costs reduce cost effectiveness
DSM Roundtable Ideation Submissions – 1\textsuperscript{st} Quarter

- Multi-Family Program
  - Already under development

- Small Business Direct Install
  - Duplicates Small Business Lighting Product

Product Development Opportunity Identification Form is not an open RFP for 3\textsuperscript{rd} Party Implementation proposals.
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:
Wrap-up / Open Discussion

Upcoming Roundtable Schedule:

August 21, 2013
November 13, 2013