

# Q1-2017 Colorado DSM Roundtable

May 16, 2017



# AGENDA

- 1:00 – 1:15 p.m. Welcome and DSM Regulatory Updates
- 1:15 – 2:30 p.m. DSM Programs: Q1-2017
  - » Q1 Achievement Update
  - » Business Programs
  - » Building Tune Up Update
  - » Residential and Low-Income Programs
  - » ESNH & Net Zero Homes Update
- 2:30 – 2:45 p.m. -- *Networking Break* –
- 2:45 – 3:00 p.m. DSM Product Development: Q1-2017
- 3:00 – 3:15 p.m. Quick to Market Update: Q1-2017
- 3:15 – 4:00 p.m. DSM Pilot Updates: Q1-2017
  - » Smart Thermostat Pilot Update

# DSM Regulatory Updates Q1-2017

Mike Pascucci  
DSM Regulatory

# 60/90-Day Notices

- High Efficiency Air Conditioning
  - *Posted: March 7, 2017*
  - *Implemented: April 6, 2017*
- DSM Plan Corrections
  - *Posted: March 7, 2017*
  - *Implemented: April 6, 2017*
- Residential Demand Response
  - *Posted: April 4, 2017*
- Small Business Lighting Evaluation
  - *Posted: April 13, 2017*
- Computer Efficiency Evaluation
  - *Posted: April 13, 2017*

# DSM Regulatory Update

- **2017 Strategic Issues**
  - Filing by July 1, 2017
- **Next Roundtable – Save the Date!**
  - Q2-2017 DSM Roundtable Meeting:  
Tuesday, August 15, 2017

# DSM Achievements Q1-2017

Donna Beaman,  
Manager, Customer Solutions

# 2017 Q1 Achievement Highlights

## Electric Portfolio

- 107 GWh (25% of GWh Target)
- 18 MW (22% of Target)
- \$21.5M (22% of Budget)

## Business Programs

- 62.4 GWh (24% of Target)
- Small Bus Lighting 12.2GWh (46% of Target)

## Residential / LI Programs

- 44.2 GWh (29% of Target)
- ENERGY STAR New Homes – 25% of Target
- Home Lighting – 33% of Target
- Residential Heating – 32% of Target

## Gas Portfolio

- 88,110 Net Dth (14% of Dth Target)
- \$2.4M Spend (18% of Budget)

## Business Programs

- 16,640 Net Dth (8% of Target)
- EMS 5,222 Dth (59% of Target)

## Residential / LI Programs

- 71,386 Net Dth (20% of Target)
- Energy Star Homes – 24% of Target
- Insulation & Air Sealing – 34% of Target
- Water Heating – 58% of Target

# Marketing Campaigns & Outreach

## Business

- Commercial Financing re-launch:
  - 6 webinars for trade partners 15-20 attendees per session
- Energy Efficiency Partner Awards
  - AI Unser racing 80+ attendees
  - Top 25 commercial trade partners recognized
- Energize Denver Benchmarking Workshops
  - 4 workshops per month, 50+ attendees per session
  - Overview of Denver Ordinance
  - Energy Star Portfolio Manager Acct. set-up
  - Xcel Energy Data Upload benchmarking tool
- Annual Contractors Expo
  - Glenwood Springs with CLEER, CORE and Garfield County
  - Exhibit and sponsorship 125 attendees
- USGBC Panel Discussion at 1800 Larimer
  - Moderator for panel on building transparency and benchmarking
  - 75 attendees

## Residential

- Home Lighting: in Q1 launched a new advertising campaign consisting of TV, radio and signage.
- Home Performance with ENERGY STAR and Insulation/Air Sealing: \$200 Q1 bonus for air sealing, insulation measures
- Home Energy Squad: Q1 company lunch & learns, HOA outreach, new mover campaign, referrals
- ENERGY STAR New Homes: in Q1 completed 3 “Selling High Performance” homes training sessions primarily target realtors, builders and builder’s sales agents.
- Trade Relations 2017 DSM Plan launch communications summarizing changes, additions; HE Audits/Home Performance/Insulation collaboration
- Low Income Single Family Weatherization: CARE material development and distribution



# DSM Business Program Q1-2017 Highlights

Kim Spickard  
Team Lead, Customer Solutions

# Midstream Cooling

## **XCEL ENERGY RECOGNIZED FOR LEADERSHIP IN ROOFTOP UNIT EFFICIENCY**

**DENVER** (April 26, 2017) – Xcel Energy was recently recognized by the U.S. Department of Energy on behalf of the Better Building's Alliance's Advanced Rooftop Unit Campaign for being the utility with the highest number of high-efficiency rooftop unit or RTU installations through an efficiency program by a supporting partner.

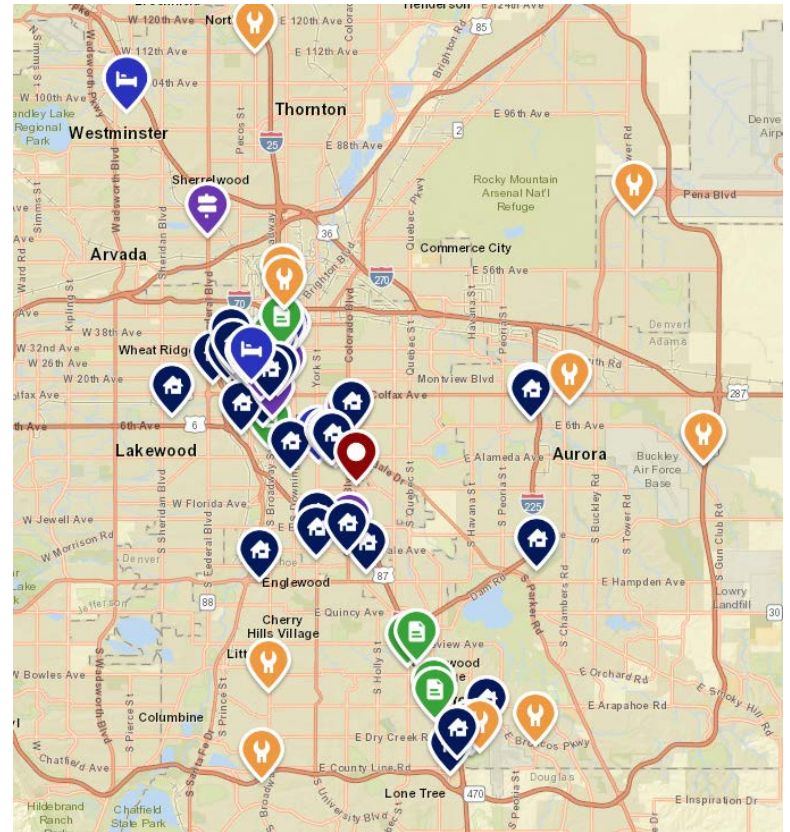
Xcel Energy's program installed 2,484 high-efficiency RTUs in Colorado in 2016, resulting in an estimated savings of 2.3 million kWh, worth \$230,000 annually.

# New Construction - Colorado

## Colorado Economy

- Colorado employment base expected to increase by 2.1% in 2017
  - 3 fastest growing “supersectors”:
    - Natural Resources and Construction
    - Education and Health Services
    - Leisure and Hospitality
- Unemployment rate forecasted to average at 3.8% in 2017

## Current Crane Watch (5/8/17)



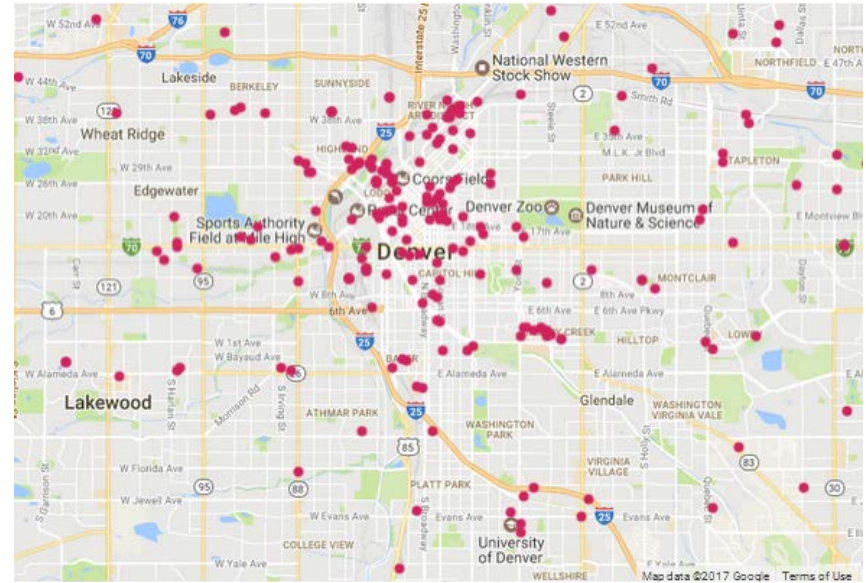
Crane watch source: <http://www.bizjournals.com/denver/maps/crane-watch>

Source: Metro Denver Economic Development Corporation; Denver Metro Chamber of Commerce. (2017). 2017 Economic Forecast for Metro Denver. Denver: Development Research Partners.

# Business New Construction Program - CO

## Overview

- Currently 404 active projects in program
  - Energy Design Assistance: 344
  - Energy Efficient Buildings: 60
- Largest 3 Building Types:
  - Multifamily (162 projects)
  - Office (66 projects)
  - School/University (43 projects)
- Not all new construction projects go through program



Above: Screenshot from Energy Design Assistance Project Tracker (EDAPT)

# Small Building Tune-Up Update

Stephanie Doyle  
Program Manager, Customer Solutions

# Small Building Tune-Up Overview

- Offered as a part of the Recommissioning product
- Designed to assist small building customers improve the efficiency of their building operations
- Available to customers with buildings of 5,000 – 50,000 square feet, for a fixed cost
- Consists of two-step process: onsite audit and implementation
- Onsite audit includes assessment of mechanical systems, quick fix of low- and no-cost measures, a written report with recommendations
- Customers can earn rebates that cover up to 60% of the cost of completing the recommended updates

# Historical Data

	2015	2016	2017
Audits	7	9	1
Implementation	0	2	TBD

- Limited up-take on the audits
- Even less up-take on implementation rebates
- Some customers have earned prescriptive rebates following the audit

# Focus for Current Offering

- Franklin Energy Services is the new implementer as of January 1
- Preparing promotion to launch during the second quarter
- Promotion intended to encourage more customers to participate in audit
  - Will include focus on implementation after audit
- Additional efforts to follow up on previous audits to determine if recommended work has been completed



# Changing Offering

- Evaluated two potential changes to the current model
  - Adding an additional implementer using current model
  - Opening the offering similar to the larger Recommissioning model
- Adding an additional implementer could add \$15,000 to \$25,000 in additional administrative expenses
  - Dependent on number of audits conducted
- Opening the offering could add expense to the customer
  - Customers pay for full study cost, apply for studying funding

# Impacts of Change

- Recommissioning product was not cost-effective in 2016
  - Adding any additional expense will continue to hurt the product
- Implementation rates across the Recommissioning product have gone down
  - Too early to tell if new implementer will achieve stronger conversion rates from audit to implementation

# DSM Residential & Low-Income Program Q1-2017 Highlights

David Hueser,  
Team Lead, Customer Solutions

# 2017/18 DSM Plan Settlement Modifications, Revised November 17, 2016, Residential Products with Electric & Gas savings impacts

Modifications focused on improving cost-effectiveness and increasing participation

Residential Product	Product changes, additions	Progress and Next Steps
ENERGY STAR New Homes	Summarize trade survey research, interest in Net Zero Energy	If cost-effective, post 60-day notice to add measures and/or policies
Evaporative Cooling	Increase budget, forecast for 65 MW EE demand reduction	Revised budget \$495K in '17 and \$423K in '18, mainly rebates, trade incentives
High Efficiency Air Conditioning	New equipment installation focus	If additional mini-split tiers are cost-effective, add via 60-day notice
Home Energy Squad	Add smart thermostats if pilot is successful	More joint marketing efforts in '17 and '18; electric goals up 10%
Home Performance	Increase funding if cost-effective	Electric cost effective in '16 – 1.19 Gas not cost effective in '16 – .87
Home Lighting & Recycling	Ramp down lamp promotions in stores on the border of service territory	Explore cost-sharing of lamp discount incentives with neighboring utilities, CEO
Residential Heating	Increase incentives mid-year if trailing goal	Electric savings 2X 2016's pace Gas savings +30% vs. Q1 2016
Water Heating	Investigate more cost-effective product delivery	In progress; Report results of investigation, plan in Q1 2018

# ENERGY STAR® New Homes (E&G savings)

Housing demand remains strong while inventory is low;  
Median Minneapolis home price \$224,000 – up 17 percent  
since the housing bust in 2008; Median Denver home price  
\$330,000 – up 71 percent in the same period

- Q1 2017 Colorado ESNH achievement:
  - 993 homes completed program requirements
  - On track to exceed YE energy savings targets
  - 50% of all homes earned ENERGY STAR certification/bonus rebate
  - Implemented higher rebate levels for 2012 IECC or higher jurisdictions
  - Completed 3 Selling High Performance (SHP) home training sessions, more to come throughout the year
- 21% of homes completed under 2012 IECC or higher
  - 159 homes: 2012 IECC
  - 51 homes: 2015 IECC
- “More than half of all U.S. homebuilders are expected to offer solar PV energy systems as an option in new single-family homes by 2016, up from just 12 percent in 2013.”  
Green Multifamily and Single Family Homes: Growth in a Recovering Market, McGraw Hill, NAHB, 2014



Plan: by LC Home, Fort Collins



Plan: by Thrive Builders, Denver

# Residential Home Performance with ENERGY STAR®

## Achievement 2016 Q1 vs. 2017 Q1

Savings	2016	2017
kW	14	75
kWh	8,563	73,592
Dth	1,738	4,401
Projects Completed	26	74

Higher 2017 participation and savings:

- Q1 bonus on high efficiency heaters, attic and/or wall insulation.
- Air-sealing requirement aligned with standalone insulation at 20% reduction.

### 2017 Program Management Progress

Quality Control Inspections (40 annual goal):

- 10 completed for 25%

Trade partner Mentoring (236 hours annual goal)

- 46.25 hours for 20%

Advising ( 350 annual goal)

- 88 enrollments for 25%
- Conversion rate of **57.48%**

### Marketing

- Met with Boulder Energy Smart and Denver Energy Challenge to talk about co-marketing efforts in the second half of the year.

# Home Energy Squad (E&G)

- 186 Q1 2017 visits higher than pace in 2016, but lower than expected
- LED lighting offers expanding: beyond A-19 to LED reflectors, globes, candles
- More joint marketing efforts in 2017 including communities
- Additional tactics: lunch & learns brought to willing companies



**Xcel Energy**  
(303) 446-7910

- **2-hour** visit in the home for \$75 trip charge
- Choice of complimentary efficiency upgrades
- Ability to purchase other efficiency upgrades

What to  
expect  
from the  
visit

## The Steps

1. An energy-efficiency technician will arrive at the home at the appointment start time.
2. The energy technician will confirm customer's priorities, and then begin installations.
3. The energy technician may ask a customer questions during the process.
4. At the end of 2 hours the energy technician will finalize installations and continue on to the next Xcel Energy customer.
5. The service will follow-up with a customer survey within 1-2 weeks after the visit.





# Multifamily Buildings (E&G)

- Transitioned from DSM Pilot to Business Program effective 3/1/17
- Although 2016 savings achievement fell short of goal, both electric and natural gas products were cost-effective per the 2016 Annual Status Report
- Building and serving 2017 pipeline and expanding product reach
- In 2017 aiming to close more “stage 3” common area projects





## Low-Income Non-Profit (Electric & Gas)

Energy Outreach Colorado (EOC) offers facility energy efficiency grants for non-profit organizations serving low-income individuals and families – enabling non-profits to allocate more to community services

- Product expects to meet/exceed 2017 goals for demand (kW) and energy (kWh):
  - Electric measures concentrate on common-area lighting retrofits, cooling, appliances
  - Continuing to target Electric-only facilities
- Most common natural gas-savings measures are boilers, insulation & air sealing.
- Recently treated facilities stretch the service territory beyond the Front Range to the Western Slope, Alamosa, Evergreen, etc.



Photo: The Salvation Army



# ESNH Builder's Survey Zero Energy Ready Homes

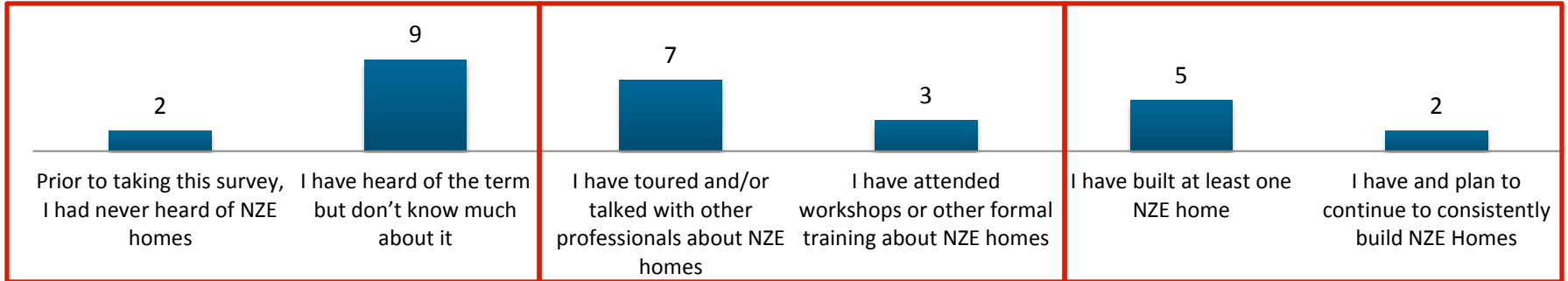
Natalie Minton,  
Customer Insights

# Methodology

- **Sample Population:** Builder participants of the ENERGY STAR New Home program
- **Sample:** 20 completes, 8 partial completes, & 100 invitations
- **Location of Survey:** Colorado
- **Time of survey:** September 2016

# Varied levels of awareness and existing plans to implement NZE Home Strategies

**Familiarity with NZE Homes**  
(n = 28)

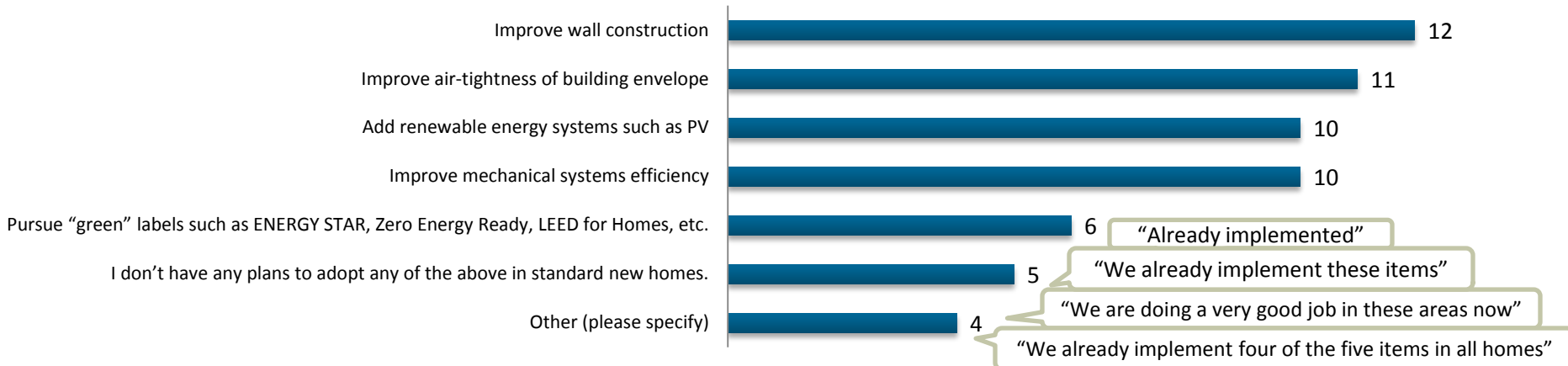


39% - Low Awareness

36% - Some Awareness

25% - Highly Engaged

**Plans to implement over the next 1 to 3 years, in response to customer demands**  
(n = 21)

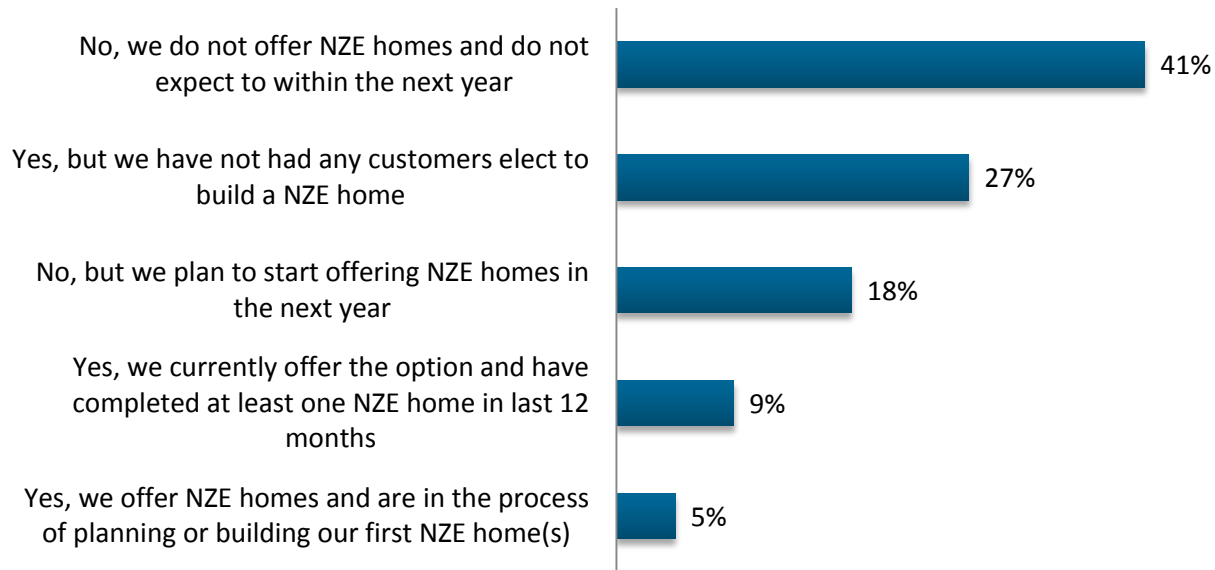


Q. Which of these statements best describes your familiarity with NZE homes?

Q. In order to respond to customer demands, which of the following does your organization have plans to implement over the next 1 to 3 years? Please check all that apply.

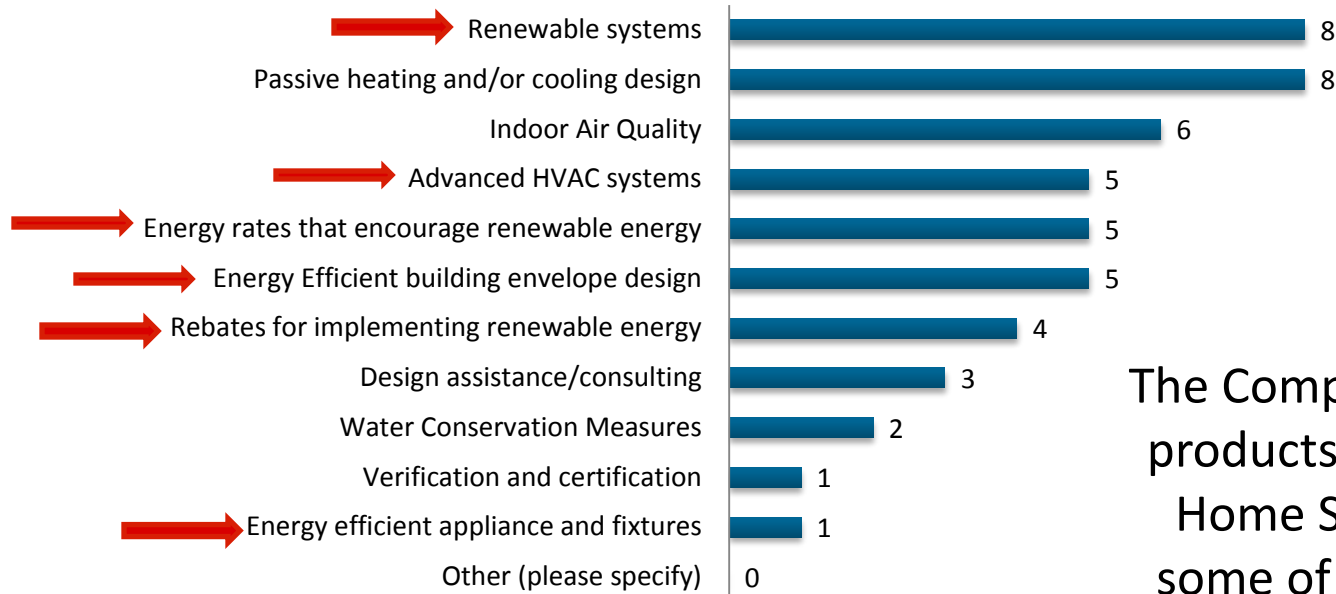
# Many respondents indicated that they either offer NZE Homes as an option now, or plan to in the next year


## Do you offer NZE Homes as an option for your customers in CO? (n = 22)



# Most Challenging NZE Home Strategies to Implement

**NZE Home Strategies  
Most Challenging to Implement  
(n = 22)**



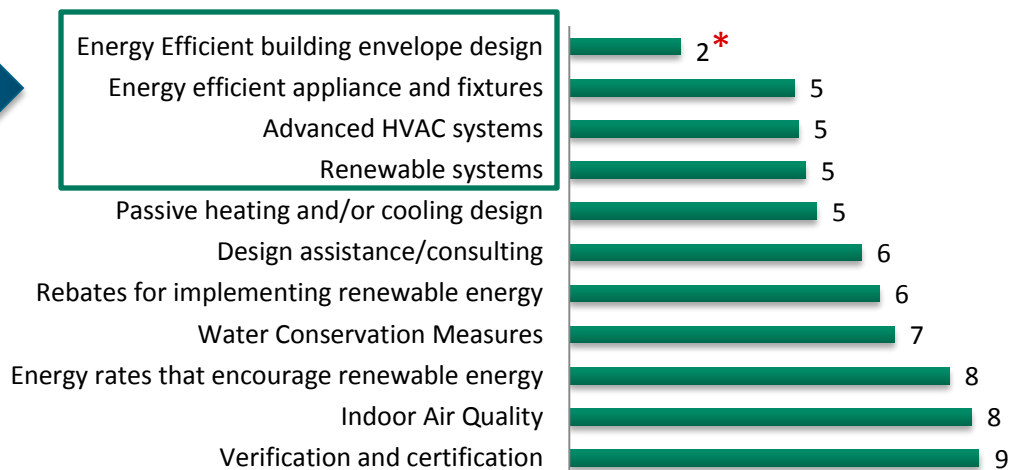
The Company currently offers products around several NZE Home Strategies, especially some of those that are most difficult for builders to  implement

*Q. In your opinion, which of the following NZE home strategies seems most challenging to implement?  
Please select up to three answers.*

Alignment within Industry  
for customer desirability  
and cost savings

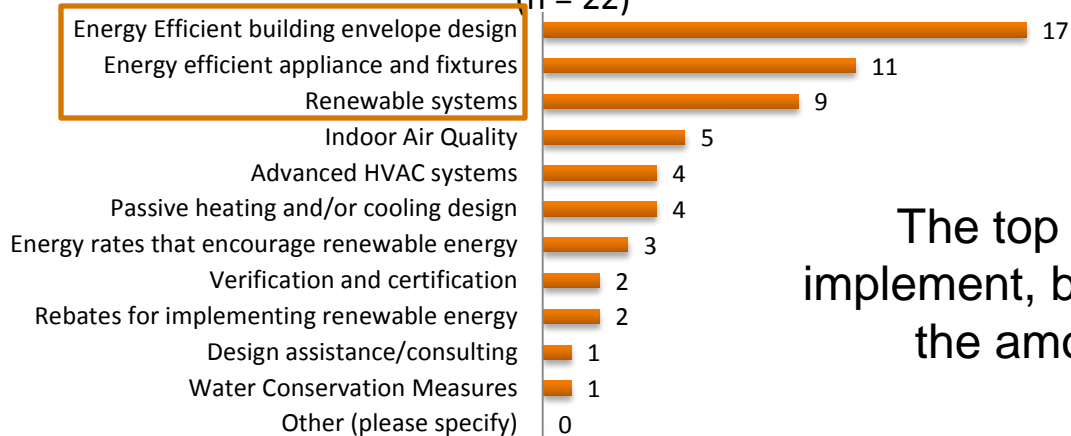


### NZE Home Strategies Most Cost Savings Over Time (n = 13)



### NZE Home Strategies Most Desirable for Customers\*

(n = 22)



\*Ranking question, (1 – Most Cost Savings, 11 – Least Cost Savings)

The top four strategies might be difficult to implement, but they were also ranked highly in the amount of cost savings and customer desirability

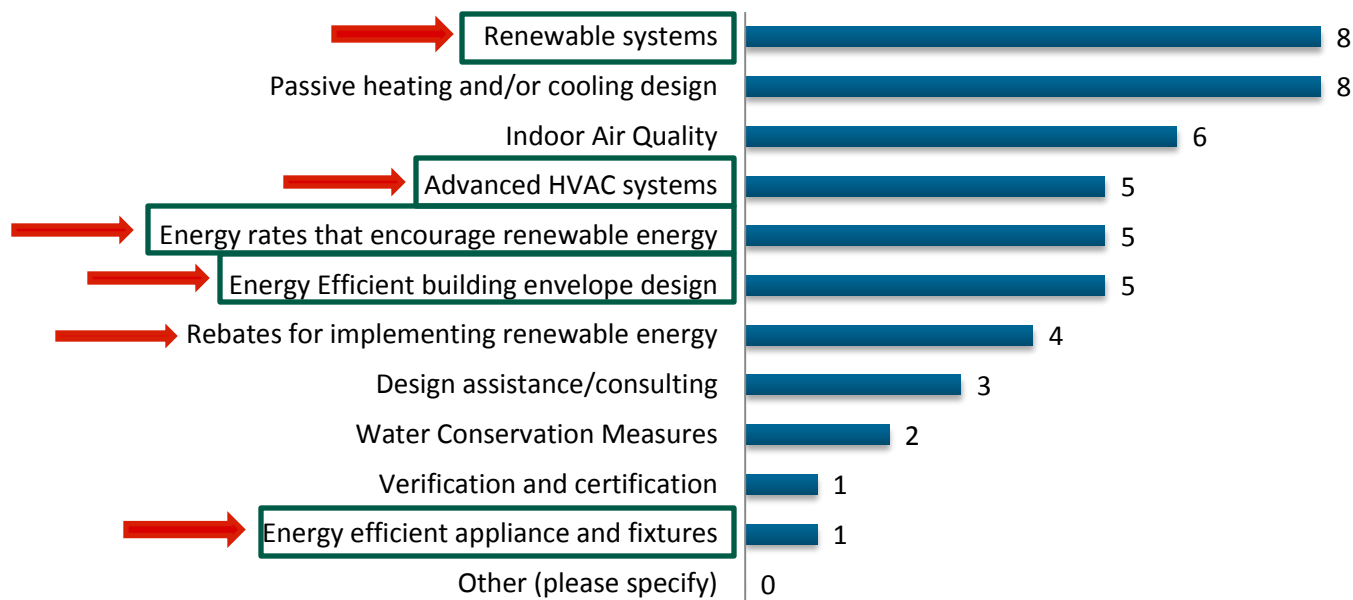
\*“Select up to 3” Question

Q. In your opinion, which of the following strategies commonly used in NZE homes is most desirable for your customers? Please select up to three answers.

Q: Which NZE home strategies provide the most energy cost savings over time? Please rank the following from most energy cost savings (1) to least energy cost savings (11).

Let's take one more look with those Top 4 – 5 strategies in mind

### NZE Home Strategies Most Challenging to Implement (n = 22)

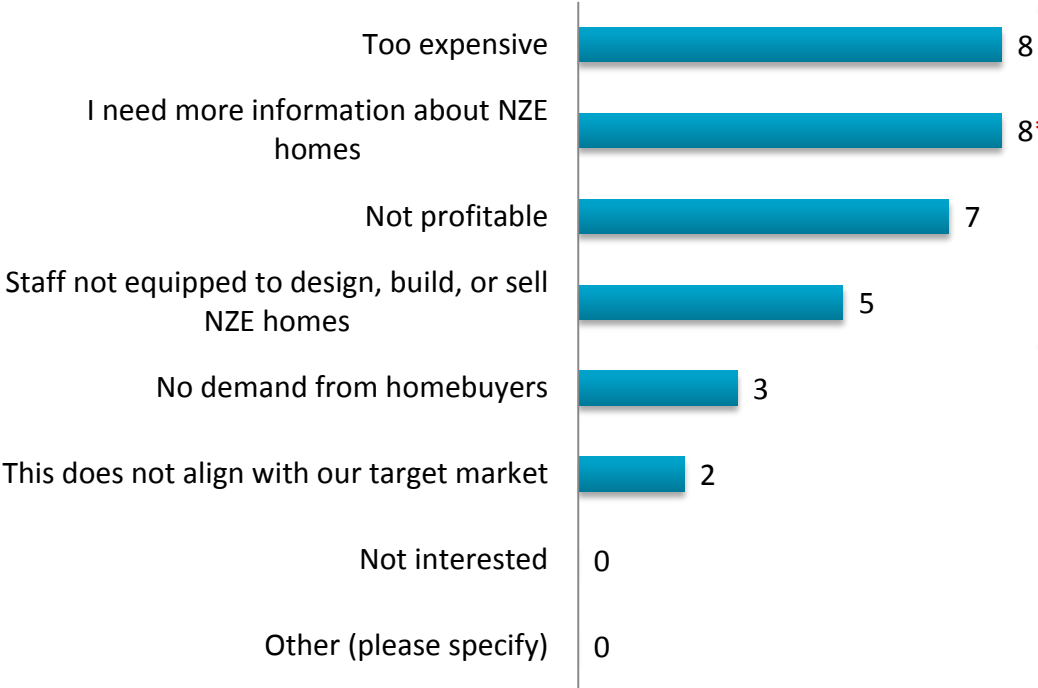


Q. In your opinion, which of the following NZE home strategies seems most challenging to implement?  
Please select up to three answers.



# Barriers to Offering NZE Homes

**Barriers that have kept, or are keeping you, from offering NZE Homes**  
(n = 13)



## How We're Helping

- Added the ZER conversation to our marketing collateral targeting builders & homebuyers
  - Includes Net Metering and Solar Rewards products
- Developed SHP training session with ZER – available May 2017

Q. What are some of the barriers that have kept, or are keeping, you from offering NZE homes? Please check all that apply.

- *Networking Break* -



# DSM Product Development Q1-2017 Highlights

Thor Bjork  
Team Lead, DSM Product Development

# DSM Product Development

## Update on in-flight projects

- Advanced Roof Top Unit Controllers
  - Continue working with CEE Commercial HVAC Committee
  - Currently reviewing industry comments on draft program guide
- “Beyond Widgets” research project with DOE’s Lawrence Berkeley National Laboratory
  - 8/2016 – 6/2017: Testing at FLEXLAB
- Efficient Process/Commercial Dehumidification for indoor farming
  - Exploring options for field study

# Advanced Energy Communities

What are they?

- District-scale development projects
- Aggressive energy goals
- Include multiple energy systems (EE, DR, Advanced Grid, Renewables, Storages, EVs)

What is Xcel Energy's goal with this project?

- Determine if a program can be structured to help meet needs of these projects

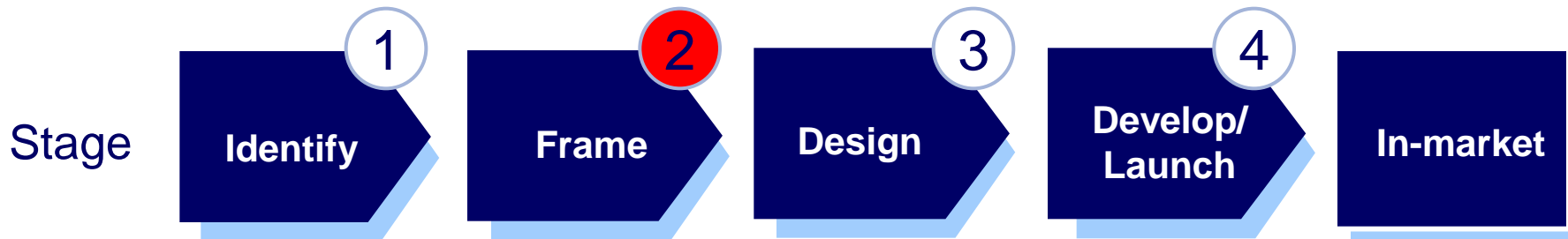
Work to date

- Learning within Partners in Energy program at National Western Center
- Signed on as National Partner in DOE/NREL Zero Energy Districts Accelerator (announced 5/15)



# Status for Stage 2 Framing

Moved to Stage 3	Evaluating	Awaiting 3 <sup>rd</sup> party developments	Removed from consideration
Dehumidifiers	Heat Pump Clothes Dryer	Window Treatments	Windows
Advanced Lighting Controls	Expand Refrigerator Recycling	Small Embedded Data Centers	
Variable Refrigerant Flow	Fault Detection Software		
	PMAC w/ integrated VFD		
	Ozone Laundry		



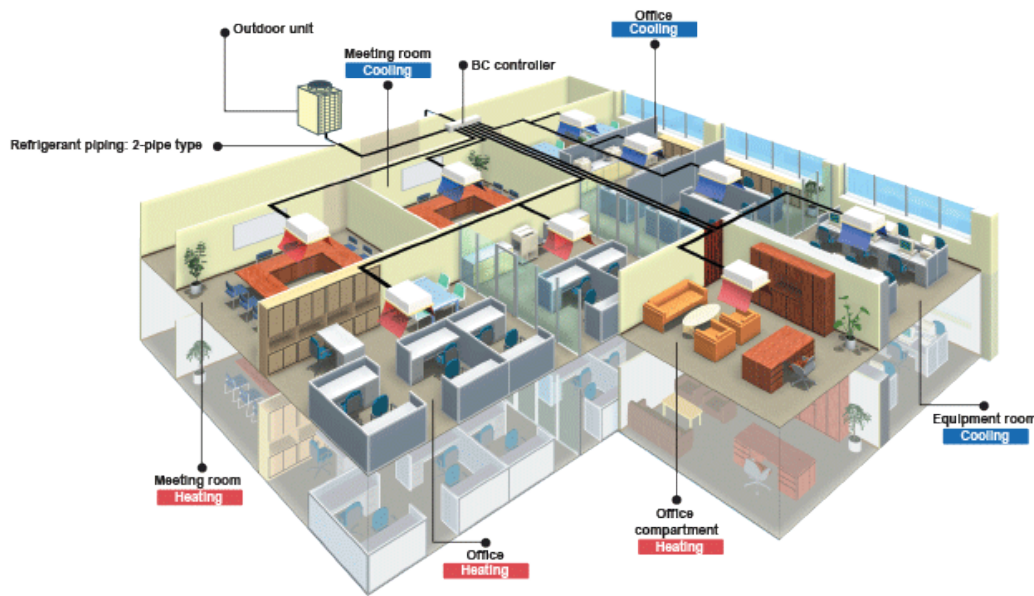
# Advanced Lighting Controls



## Applications

- Retrofits or new construction in small and medium offices with more than 10 Troffers, and warehouse/storage facilities with high-volume, predictable application
- Out of the box functionality and a one-time set up at commissioning
- Includes daylight harvesting, occupancy sensing, and high end trimming control strategies

# Variable Refrigerant Flow Heat Pump Systems



Source: mitsubishi-electric.co.nz

## Applications

Ideal for retrofits in buildings with:

- an in-efficient HVAC system
- need for simultaneous heating and cooling
- space constraints

Best candidates include:

- office buildings,
- educational facilities
- hotels/motels
- healthcare facilities
- retail and restaurants (particularly in strip malls or with multiple dining areas)



# Product idea submissions

Share your Product Ideas:

[www.xcelenergy.com/productideas](http://www.xcelenergy.com/productideas)

# DSM Quick to Market Q1-2017 Highlights

Mike Papula  
Sr. Energy Efficiency Engineer, Energy Efficiency Engineering

# Quick to Market (QTM) Overview

- QTM Measures Developed Through Mid-2016 Are Now Active Including New Measures Added through the 2017 DSM Filing.
  - SBL Direct Install LED Measures
  - High Efficiency Unit Heaters
  - High Efficiency Radiant Heaters
- QTM Team Continues Review Custom Projects For Potential New Measures
  - Watch List From Current Custom Projects:
    - Non-DLC Lighting
    - Area Lighting LED Retrofit Kits
    - T5 Baselines for LED
    - Re-Evaluating Wattage Ranges

# Quick to Market Overview

- Current Measures Under Review:
  - ShowerStart's Evolve Thermostatic Flow Restriction Valve.



# DSM Pilot Updates Q1-2017 Highlights

Colin Lamb  
Team Lead, Product Development

# DSM Pilot Highlights

## Building Optimization DR

- Platform installations continued with all buildings expected to be in full optimization mode by the end of 2<sup>nd</sup> quarter.
  - Two buildings left pilot due to tenant concerns
- Summer DR testing planned to begin in June.
- No-cost contract extensions underway to ensure full-season testing of summer and winter DR for all buildings



# DSM Pilot Highlights

## ENERGY STAR® Retail Products Platform

### New for 2017

Added two new products:

- **ENERGY STAR certified clothes washers**— high consumer of home energy. Complements existing clothes dryer offering
- **ENERGY STAR certified refrigerators**—high volume category. Incenting only Advance Tier.

Added one new retailer:

- **Nationwide Marketing Group**—organization of independent Appliance and Consumer Electronics retailers with over 3,000 member companies and 8,000 store fronts

Added tiers for existing and new products:

- **Basic Tier**—meets Energy Star basic requirements. Higher market share, incented at lower levels
- **Advanced Tier**—meets Energy Star “Most Efficient 2017” or more stringent criteria. Low market share, incented at higher levels.



# Smart Thermostat Pilot Update and M&V Review

Lee Hamilton  
Product Developer, Product Development



# WHAT'S A SMART THERMOSTAT?



## Smart Thermostat Market Growth

- Market essentially didn't exist until Nest released product in Q4 2011
- Analysts estimate 4.9M smart thermostats sold in 2015 (70% in US)
- Market size = \$900M today, estimates say \$4B as soon as 2021

# Smart Thermostat Pilot Summary

## BYOT Pilots

Residential  
5,000 Participants  
EE & DR



Residential  
5,000 Participants  
EE & DR



## Direct-Install Pilots

Small Commercial  
100 Participants  
~300 Thermostats  
DR Only



Residential  
1,500 Participants  
EE & DR



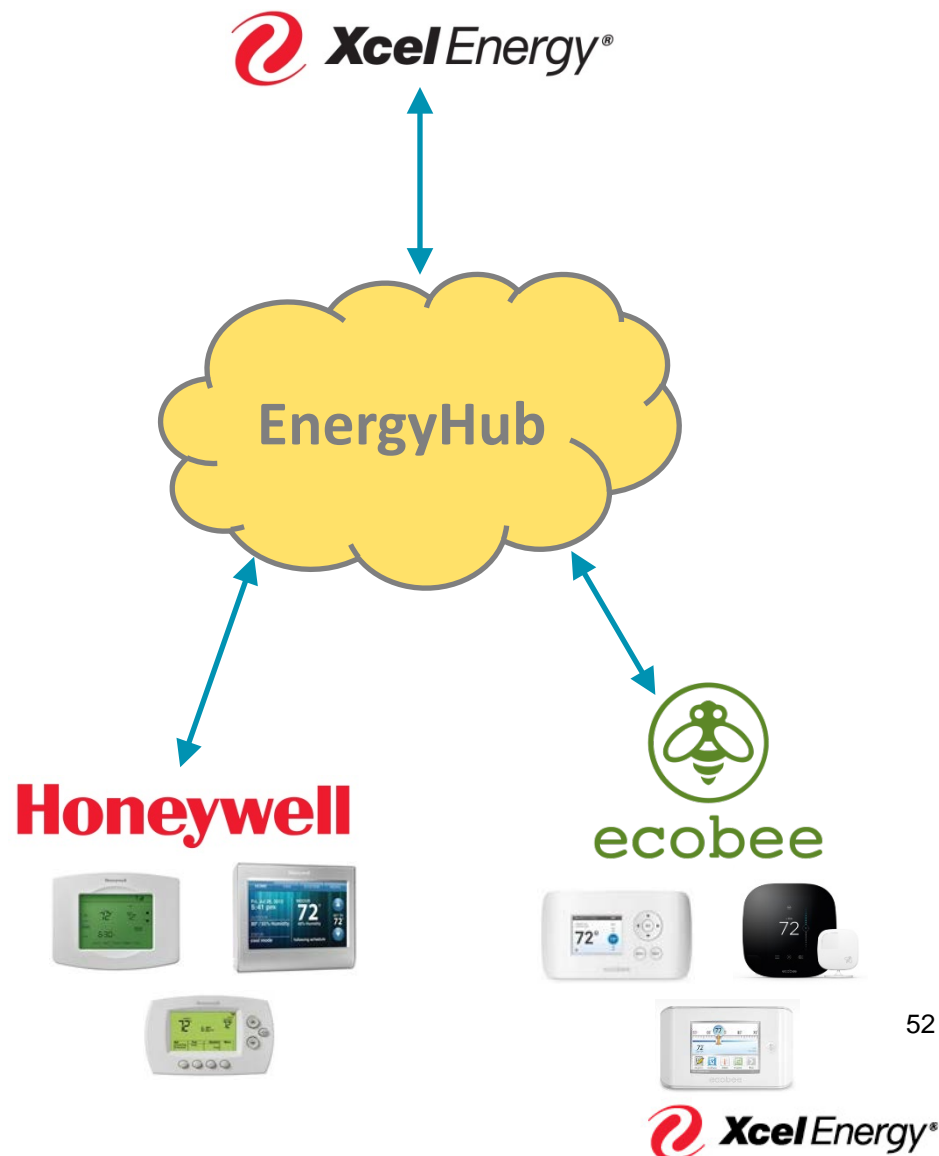
# BYOT Pilots All About Choice

- \$50 rebate for smart thermostats
- Seven thermostats eligible for rebate
  - Four brand partners
  - Can purchase anywhere



# BYOT Demand Response

- \$25 gift card for signing up + performance incentives
- Partnered with EnergyHub as DR Aggregator
- “New” & “Old” smart thermostat owners



# Xcel Energy Storefront



STORE

(0) Cart

Account

Products

Support

## WI-FI THERMOSTATS



### ECOBEE3 HOMEKIT-ENABLED WITH REMOTE SENSOR

~~\$249.00~~ **\$199**

After a \$50 Instant Rebate

\$75 or More in Saver's Stat Incentives Available

ADD TO CART



### 3RD GEN NEST LEARNING THERMOSTAT

~~\$249.00~~ **\$199**

After a \$50 Instant Rebate

ADD TO CART



### HONEYWELL WI-FI COLOR TOUCHSCREEN PROGRAMMABLE THERMOSTAT

~~\$199.00~~ **\$149**

After a \$50 Instant Rebate

\$75 or More in Saver's Stat Incentives Available

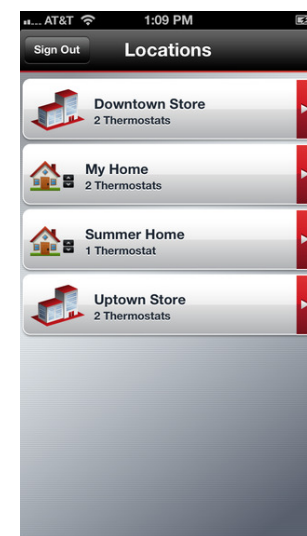
ADD TO CART

[www.XcelEnergyStore.com](http://www.XcelEnergyStore.com)



# CO Small Business DR Smart Thermostat Pilot Summary

- CO SMB customers with annual peak demand of 100 kW or less
- Direct Install: free thermostat(s) and installation
- 100 total customers; up to five thermostats per premise
- Participant Segments:
  - Performance Incentives vs. No Incentives
  - Duty-cycling vs Temperature Offsets with precooling
- Honeywell WiFi 9000 Thermostat



Questions?

- Thank you -