



# Q3-2017 Colorado DSM Roundtable

November 13, 2017



# AGENDA

- 1:00 – 1:15 p.m. Welcome and DSM Regulatory Updates
- 1:15 – 2:45 p.m. DSM Programs: Q3-2017
  - » Q3 Achievement Update
  - » Business Programs
  - » Residential and Low-Income Programs
- 2:45 – 3:00 p.m. -- *Networking Break* –
- 3:00 – 3:30 p.m. DSM Pilot and Product Updates: Q3-2017

# DSM Regulatory Updates Q3-2017

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*
  - *Implemented: June 4, 2017*
- Small Business Lighting Evaluation
  - *Posted: April 13, 2017*
  - *Implemented: June 13, 2017*
- Computer Efficiency Evaluation
  - *Posted: April 13, 2017*
  - *Implemented: May 14, 2017*
- Smart Thermostat Optimization
  - *Posted: May 23, 2017*
  - *Implemented: June 23, 2017*
- Heat Efficiency Corrections
  - *Posted: August 2, 2017*
  - *Implemented: September 2, 2017*
- Lighting Efficiency and Lighting – Small Business Update
  - *Posted: August 2, 2017*
  - *Implemented: November 1, 2017*

# DSM Regulatory Update

- **2017 Strategic Issues**

- Filed July 3, 2017
- Intervenors approved August 9, 2017
- Supplemental Direct Testimony filed September 30, 2017
- Answer Testimony Due December 5, 2017
- Rebuttal Testimony Due January 21, 2018

- **Next Roundtable – Save the Date!**

- Q4-2017 DSM Roundtable Meeting:

Thursday, February 15, 2017

# DSM Achievements Q3-2017

Donna Beaman,  
Manager, Customer Solutions

# 2017 Q3 Achievement Highlights

## Electric Portfolio

- 323 GWh (81% of GWh Target)
- 52.7 MW (81% of Target)
- \$56.4M (70% of Budget)

## Business Programs

- In total 208 GWh (80% of Target)
- Lighting Efficiency + SBL 130.8 GWh (119%)
- Com. Refrigeration 5.7 GWh (100% of Target)

## Residential / LI Programs

- In total 111 GWh (72% of Target)
- ENERGY STAR® New Homes – 98% of Target
- Air Conditioning – 91% of Target
- Home Lighting – 71% of Target

## Gas Portfolio

- 338,393 Net Dth (53% of Dth Target)
- \$8M Spend (61% of Budget)

## Business Programs

- In total 72,869 Net Dth (34% of Target)
- New Construction 40,996 Dth (27% of Target)
- Multifamily Buildings 6,752 Dth (33% of Target)
- Heating Efficiency 9,157 Dth (51% of Target)

## Residential / LI Programs

- In total 247,650 Net Dth (70% of Target)
- ENERGY STAR® New Homes – 78% of Target
- Residential Heating – 61% of Target
- EE Showerhead – 69% of Target

# Marketing Campaigns & Outreach

## Business

- Heating Efficiency limited time bonus rebates launched via Customer and Trade email and social media campaigns
- Heating Trade Partner trainings with Boulder County, Shamrock Sales, CO State Boiler Inspector's Group, CD Jones
- Colorado Association of Mechanical & Plumbing Contractors trade presentation, outreach
- International Facility Management Association facility professionals outreach at CU Medical Campus in Aurora
- Business Cooling continued trade outreach and workshops with Independent Electrical Contractors Rocky Mountain in Northglenn
- Commercial Financing Webinars continued
- Energize Denver Benchmarking Workshops and engagement
- Energy Efficiency Partner Awards – continue recognizing top commercial trade partners in Q3

## Residential

- Ongoing Bundled Cooling: campaign for cooling and insulation
- Refrigerator Recycling: Continued multi-channel marketing (digital, bill inserts, direct mail, email)
- Home Energy Squad: Launched digital and email campaigns
- ENERGY STAR® New Homes: Added DOE ZER, Solar\*Rewards® and Net Metering information to marketing collateral
- Trade Relations: Developed co-branding materials to support trade partner marketing efforts
- Low Income Single Family Weatherization: CARE material development and distribution
- Evaporative Cooling: Launched multi-channel seasonal campaign (digital, radio, email, direct mail)
- Community Outreach: Event participation, social medial promotions



# Business Lighting Efficiency & Small Business Lighting Products

Jackie Ducharme  
Program Manager, Customer Solutions

# Business Lighting Efficiency and Small Business Lighting

- Both commercial lighting DSM products surpassed 2017 energy savings targets during Q3
- LED Instant Rebate Program continues to be a key driver
  - Significant participation and savings in Lighting Efficiency and Lighting – Small Business
  - A Lamps, PAR 38, BR30 top lamp categories for savings
- 60-Day Notice posted during Q3 will make necessary product changes in response to market trends, effective November 1
  - Right-sized LED linear replacement lamps and direct linear ambient fixture rebate levels due to decreasing equipment costs
  - Project payback periods continue to be favorable for customers
  - Non-DLC and non-ENERGYSTAR® qualified products will now receive a reduced rebate in both commercial products
  - The Company responded to comments received
- Trade outreach on product changes continues in Q4

# DSM Business Program Q3-2017 Highlights

David Hueser  
Team Lead, Customer Solutions

# Heating Efficiency

- 50% limited time Rebate Bonus
  - All gas measures including boilers, water heaters, pipe insulation
  - Communication via trade outreach, customer email and direct mail
  - Bonus is valid for Custom gas projects to drive much needed project pipeline
- Collaboration with City of Fort Collins Utilities to coordinate both electric & gas savings
- 60 Day Notice Completed – Change in pipe insulation rebate schedule with increased rebate amounts



**50% BONUS REBATES ON HEATING EFFICIENCY UPGRADES**

For a limited time, Colorado business gas customers can now receive 50% bonus rebates on qualifying natural gas heating efficiency upgrades. But that's not all—we've also increased the limit on the rebate amount from 60% up to 75% of your total upgrade costs—meaning you can now receive even more rebate dollars!

**Bonus rebate qualification details:**

- Heating equipment must be installed and invoiced prior to applying for rebates. The 50% rebate bonus applies to new rebate applications received between 9/18/17 and 12/15/17.
- Upgrades installed and invoiced within 12 months prior to your application submittal can also qualify for bonus rebates.
- Qualifying heating efficiency gas upgrades include:
  - New boiler
  - New furnace
  - New water heater
  - Pipe insulation (on 10/1/17 rebates were raised)
  - Boiler tune-ups
  - Gas-fired unit heaters
  - Steam trap repair or replacement
  - Auxiliary add-ons: modular burner controls, outdoor air reset controls, or stack dampers
- Custom gas projects (those not listed above) are also included in the bonus offering.
- Heating efficiency rebates cannot exceed 75% of the project cost (including equipment and labor).

**Here are some typical rebates.\***

|                |   |
|----------------|---|
| <b>\$7,780</b> | for new/whot water boiler (>= 92% efficiency) |
| <b>\$1,310</b> | for new/whot water boiler (>= 85% efficiency) |
| <b>\$2,050</b> | for new water heaters                         |
| <b>\$382</b>   | for boiler tune-ups                           |
| <b>\$757</b>   | for pipe insulation                           |

\*These amounts represent average rebates for natural gas heating efficiency upgrade projects for rebate applications received January through December 2016, and include the additional 2017 15% non-rebate amount.

For bonus details and rebate applications, visit [xcelenergy.com/HeatingBonus](http://xcelenergy.com/HeatingBonus). Or, contact your account manager or an energy efficiency specialist at 855.839.8862 or [energyefficiency@xcelenergy.com](mailto:energyefficiency@xcelenergy.com).

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Customer Bonus Flyer - For new applications submitted/effective 9/18/17 – 12/15/17.

# Commercial Refrigeration Efficiency

- Added as a new DSM product in the 2013 DSM Plan
- Energy Savings through Q3, 2017
  - 5.7 GWh electric, 100% of goal
  - 2,125 Dth gas, 87% of goal
- Most impactful electric measures: EC Motors in walk-in coolers and display cases, LED refrigerator and freezer case lighting
- Majority of gas savings from restroom aerators
- Free refrigeration coil cleaning, tune-up

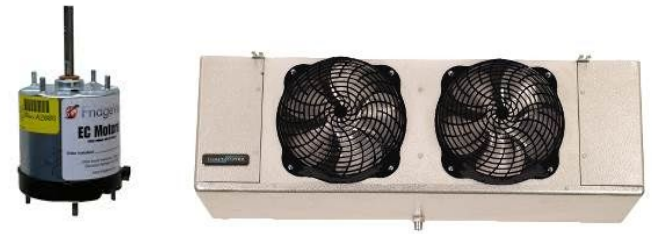


Photo: GE Lighting

# Business Cooling

- Product on track to meet 2017 savings targets
- Steady volume of Midstream equipment, tonnage and savings
  - Air cooled chillers continue to be popular
  - Larger-sized rooftop units
- Repeated well-attended NCI training in Q3 to attract more participating contractors.
- Efficiency Works partnership with these utilities offers a single log-in site for project pricing
  - Estes Park Light & Power, Fort Collins Utilities, Longmont Power & Communications, Loveland Water and Power, and Platte River Power Authority



Photo: Carrier

 Efficiency Works™

# Compressed Air Efficiency

- Electric savings through Q3, 2017
  - 405 kW, 65% of goal
  - 2.3 GWh, 59% of goal
- Compressed air studies identify savings potential along the system
- Highest proportion of total savings from Custom Efficiency, VFD Air Compressors, No Air Loss Drains
- Key Front Range participating trade partners include Blackhawk Equipment Corp., Compression Leasing Services, Ingersoll Rand Co. and Rocky Mountain Energy Management



11 energy-efficiency improvement opportunities in compressed air systems (photo credit: airbestpractices.com)

# DSM Residential & Low-Income Program Q3-2017 Highlights

Carolyn Elam,  
Team Lead, Customer Solutions



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

Product participation rate slowed some from previous months, however, remains on track to exceed year-end targets.

- Q3 2017 achievement:
  - 3,178 homes earned rebate
  - Product average home HER index is 57
- Trend continues - 43% of homes completed under 2012 IECC or higher
  - Up from 22% in January 2017
  - City of Denver adoption of 2015 IECC
- Joint efforts with CO Energy Office in Grand Junction “paused” due to CEO funding issues but expected to get back on track in Q4



Plan: by Shea Homes, Parker



Plan: by Porter Homes, Grand Junction

# Residential Home Performance with ENERGY STAR®

## Achievement 2016 Q3 vs. 2017 Q3

| Savings | 2016      | 2017      |
|---------|-----------|-----------|
| kW      | 31.21     | 19.89     |
| kWh     | 29,064.73 | 23,913.74 |
| Dth     | 1,371.12  | 669.32    |

### Q3 Summary

- Energy Advising Service hit 254 enrollments, 54.33% conversion rate.
- Advising program taking on additional customers with announcement of Denver Energy Challenge retirement.
- Electric and gas savings dropped behind 2016 benchmarks during the third quarter.

- HP still continues to see a steady stream of signups coming in through the brochures and online portal

## Marketing/Outreach Efforts

- Looking into Q4 trade partner training on promoting the program and better utilizing the ENERGY STAR brand and materials available through our program sponsorship.

# Home Energy Squad (E&G)

- 2017 visits continue to be higher than pace in 2016
- >10% average savings per home increased since with expanded measures
- More joint marketing efforts in 2017 including communities
- Key Milestone: >100 enrollments per month



**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
- 2017 Focus: building and serving pipeline and expanding product reach
- Partnership with Fort Collins Utilities



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

Featured Project: Clayton Early Learning Center, Denver  
\$473K Total, \$338K XE, 400 MWh, 148 kW, 1460 Dth, \$56K Annual Bill Savings



# Testing a New Channel

Enabling Instant Rebate Validation and Redemption at the Point of Sale in Other Retail Channels to reach more customers where they transact and enable market animation



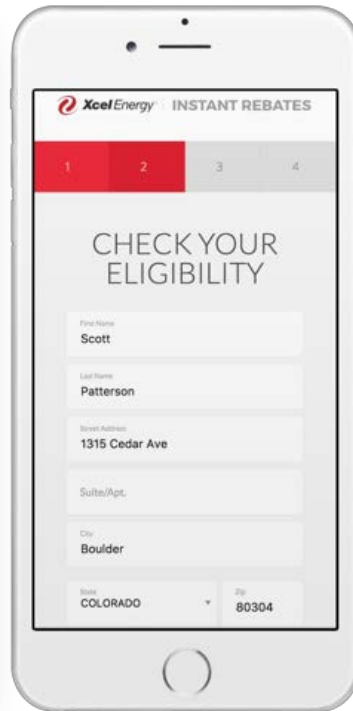
**Announcing Instant Rebates at Lowe's**

Xcel Energy Store has partnered with Lowe's to offer you exclusive access to instant in-store rebates on select evaporative cooling systems.



Getting your discount is easy. Qualify for up to \$300 off evaporative coolers in just a few simple steps and have a personalized coupon sent to your phone, or print it instead.

[Claim Your In-Store Coupon](#)



XcelEnergy INSTANT REBATES

1 2 3 4

### CHECK YOUR ELIGIBILITY

First Name  
Scott

Last Name  
Patterson

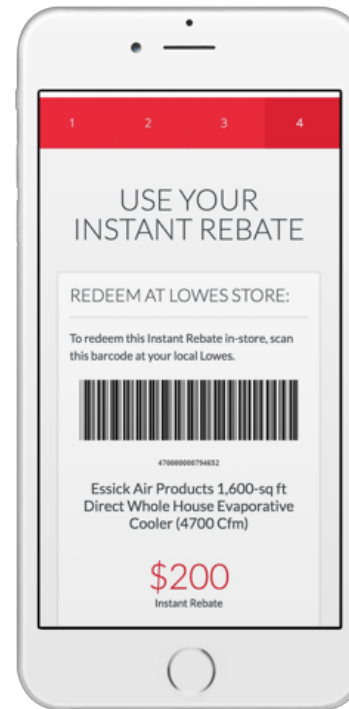
Street Address  
1315 Cedar Ave

Suite/Apt.

City  
Boulder

State  
COLORADO

Zip  
80304




1 2 3 4

### USE YOUR INSTANT REBATE

REDEEM AT LOWES STORE:

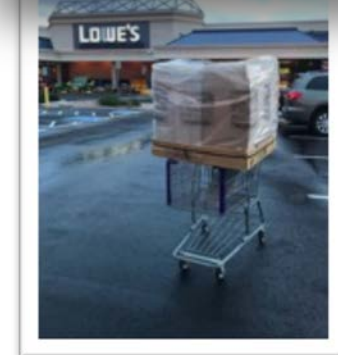
To redeem this Instant Rebate in-store, scan this barcode at your local Lowes.



4700000079452

Essick Air Products 1,600-sq ft Direct Whole House Evaporative Cooler (4700 Cfm)

**\$200**  
Instant Rebate



- *Networking Break* -



# DSM Pilot and Product Development Q3-2017 Highlights

Thor Bjork  
Team Lead, DSM Product Development



# DSM Pilot Highlights

## Building Optimization DR

- Summer DR testing completed – pilot results being compiled and expected to be available for Q4 Roundtable (Feb 2018).
- Pilot ends Dec 31 2017.



# DSM Pilot Highlights

## ENERGY STAR® Retail Products Platform

More retailers added

- **Nationwide Marketing Group** merged with **MEGA Group USA** which have over 14,000 storefronts combined
- **Lowe's** added for 2018 with ~2,000 stores nationally

Adding dehumidifiers to product offering for 2018

Strong support from existing retailers

- Best Buy, Kmart/Sears, Nationwide, and Hope Depot all expressed strong support for ESRPP at partner meeting in October

EM&V strategy continues to develop

- DOE publishing SEE Action paper on Market Transformation in Q4



# New Product Status

| Removed from consideration in last Quarter  | Stage 2                    | Stage 3 - Awaiting 3 <sup>rd</sup> party developments | Stage 3 - Active                     |
|---|----------------------------|---|--------------------------------------|
| Small Embedded Data Centers                 | Window Treatments          | Q-Sync and Switched Reluctance Motors                 | Advanced Lighting Controls           |
| Heat Pump Clothes Dryer (included in ESRPP) | Energy Star Radon Fans     | Advanced RTU Controllers                              | Variable Refrigerant Flow            |
|   | Switched Reluctance Motors |   | Ozone Laundry                        |
|   |                            |   | Window AC and Dehumidifier Recycling |
|   |                            |   | Advanced Energy Communities          |
|   |                            |   | Beyond Widgets - LBL                 |



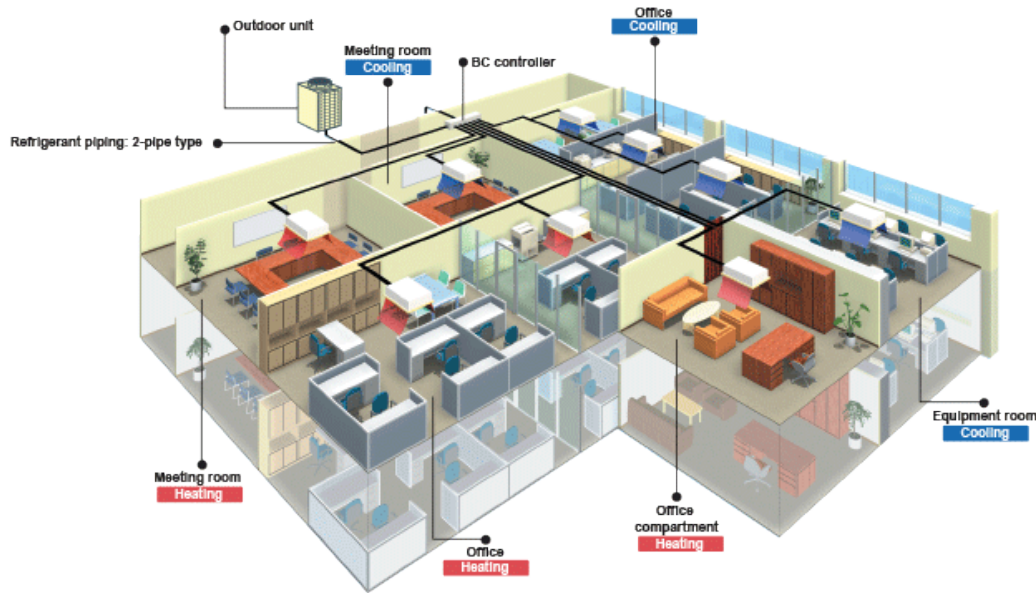
# Advanced Lighting Controls



## Applications

- Retrofits or new construction in medium offices 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)

# Ozone Laundry



## Applications

Gas commercial customers with large loads of laundry

- On-site laundry with over 1,000lbs/day in multi-load washers
- Not on Gas Transport
- Have a natural gas-fired boiler or natural gas water heater
- Nursing homes, healthcare, and hospitality are the customers who will benefit most

## Benefits

- Can save up to 85% of gas related to water heating
- Quick payback periods
- Reduced water, wastewater, and chemical costs
- Longer linen life

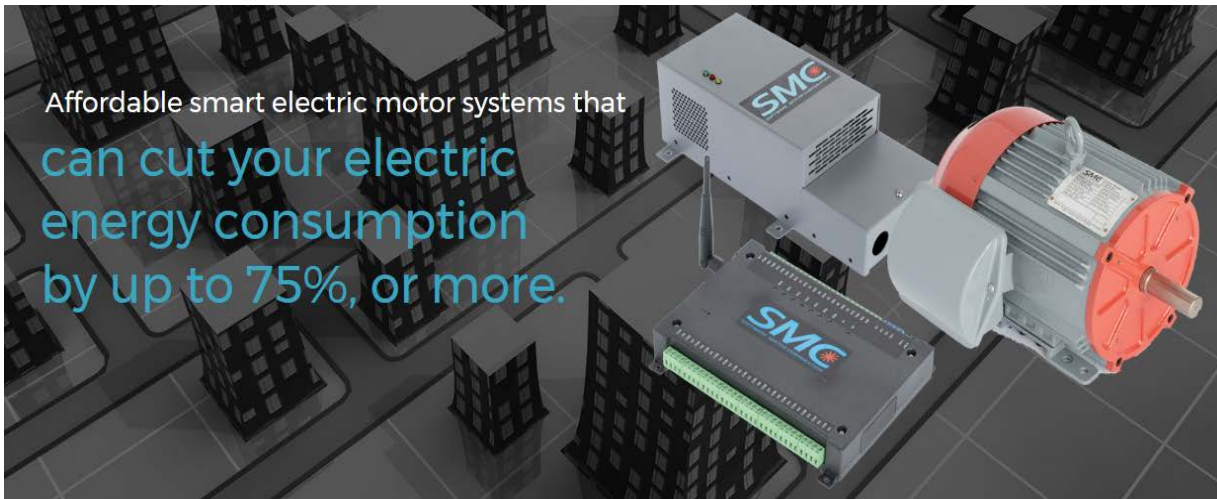
# Q-Sync and Switched Reluctance Motors



## Q-Sync

Ideal for refrigerated display cases and walk-in coolers

- Fractional HP
- 20% more efficient than ECMs



## Switched Reluctance

Ideal for commercial HVAC

- 1-10 HP
- More efficient than permanent magnet motors, especially at partial load

# 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)





# “Beyond Widgets” LBNL Research Project

- Networked lighting controls
- Daylight redirecting window film
- Deep daylight dimming
- HVAC controls
  
- Results:
  - Over 90% savings over traditional zonal T8 system
  
- Next Steps
  - Offer through New Construction Program
  - Training modelers later this year



FLEXLAB Setup, Workstation Specific Lighting, 100sf/person



# Product idea submissions

Share your Product Ideas:

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

# Idea 1: GreenFan

- Received July 17, 2017 by Framo Rimoni of GreenFan
- Description
  - Advanced fan time delay for residential furnaces and air conditioners
  - Similar to the Western Cooling Control Device but adds heating energy savings as well
- Evaluation Results
  - As submitted, scores **2.7 / 2.2** on the electric / gas mTRC test when integrated into our Home Energy Squad (HES) program as a direct install device
  - 60,000+ units installed in CA
  - Integration into our HES program requires the device to be installed by non-HVAC certified technicians. According to the manufacturer the device is as easy to install as a thermostat.

# GreenFan Description



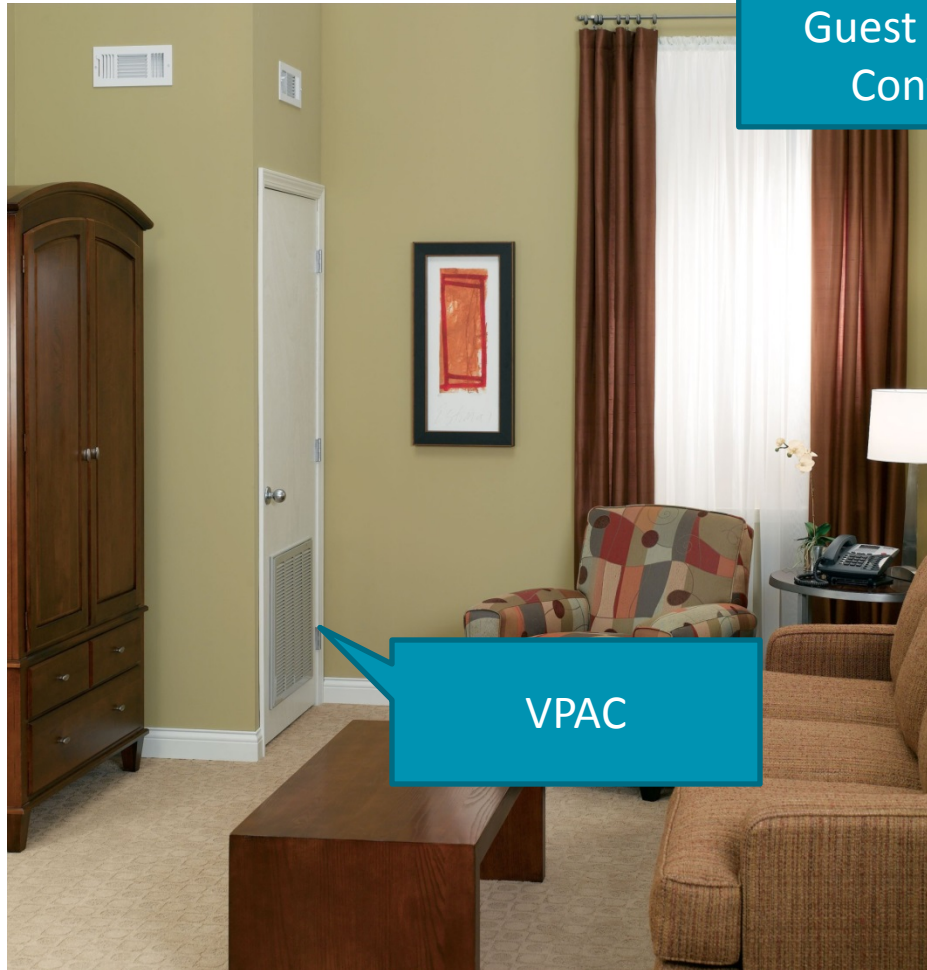
## GreenFan

- Installed at the furnace / air handler
- Intelligently controls the time delay between furnace / AC shut off and fan shut off
- 60,000+ units installed in CA

# Idea 2 and 3: Vertical Packaged Air Conditioners and Guest Room Controls

- Received July 19, 2017 by Alex MacCurdy of Energy Solutions
- Description
  - Vertical Packaged Air Conditioners (VPAC) are installed in chases in hotel guest rooms, which avoid bulging systems installed below the window. VPACs range in efficiency.
  - Guest room controls turn off the lights and set back the thermostat in hotel guest rooms when the room key-card is removed. When guests return, the key-card is placed in the slot and lighting and HVAC is restored.
- Evaluation Results
  - As submitted, the mTRC tests yielded:
    - 2.1 for guest room controls
    - 1.6 for Tier 1 VPACs (10 EER)
    - 1.9 for Tier 2 VPACs (11 EER)
  - Guest room controls, although cost-effective, were removed from our New Mexico program due to poor customer satisfaction

# Vertical Packaged Air Conditioners and Guest Room Controls Description



Guest Room Control



© Tradeboss.com

## Guest Room Controls

- From NMx TRM: *“Guest Room Energy Management continues to have measure retention concerns. Similar to prior years, the Evaluators have found that GREM systems are often removed by Business Comprehensive participants.”*

**Questions?**

**- Thank you -**