

Q2-2018 Colorado DSM Roundtable

August 15, 2018



AGENDA

- 1:00 – 1:15 p.m. Welcome and DSM Regulatory Updates
- 1:15 – 2:45 p.m. DSM Programs: Q2-2018
 - » Q2 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: Q2-2018

DSM Regulatory Updates Q2-2018

Mike Pascucci
DSM Regulatory

60/90-Day Notices

- Water Heating
 - *Posted: March 27, 2018*
 - *Implemented: April 27, 2018*
- Home Performance with Energy Star
 - *Posted: May 11, 2018*
 - *Implemented: June 13, 2018*
- New Construction
 - *Posted: May 11, 2018*
 - *Implemented: June 13, 2018*
- High Efficiency Air Conditioning
 - *Posted: May 11, 2018*
 - *Implemented: July 11, 2018*
- Lighting Efficiency and Small-Business Lighting
 - *Posted: May 11, 2018*
 - *Implemented: July 11, 2018*
- Heating Efficiency
 - *Posted: May 25, 2018*
 - *Implemented: June 26, 2018*
- 2017 Product Evaluations
 - *Posted: 8/15/2018*
- Computer Efficiency
 - *Posted: 8/15/2018*
- Refrigerator Recycling
 - *Posted: 8/15/2018*
- Thermostat Optimization & Residential Demand Response
 - *Posted: 8/17/2018*

DSM Regulatory Update

- **2018 Strategic Issues**
 - Rehearing August 17
 - DSM Plan filing due August 31
- **Upcoming Meetings – Save the Date!**
 - Q4-2018 DSM Roundtable Meeting:
Monday, November 12, 2018

DSM Achievements Q2-2018

Donna Beaman,
Manager, Customer Solutions

2018 Q2 Achievement Highlights

Electric Portfolio

- 281 GWh (70% of 400 GWh Target)
- 40 MW (62% of 65 MW Target)
- \$41.4M (53% of Budget)

Business Programs

- 182.2 GWh (71% of Target)
- Lighting Eff/Small/Street 129 GWh (99%)
- New Construction 19.2 GWh (80% of Target)
- Motor & Drive Eff. 7.1 GWh (57% of Target)

Residential / LI Programs

- 97.4 GWh (56% of Target)
- Home Lighting & Recycling – 70 GWh (62%)
- Residential Heating – 12.5GWh (47% of Target)
- ENERGY STAR® New Homes – 1.5GWh (42%)

Gas Portfolio

- 292,410 Net Dth (51% of Dth Target)
- \$7.5M Spend (58% of Budget)

Business Programs

- 56,201 Net Dth (39% of Target)
- Multifamily Buildings 16,901 Dth (63% of Target)
- New Construction 26,770 Dth (35% of Target)
 - Energy Efficiency Buildings 52% of target, Energy Design Assistance 31%

Residential / LI Programs

- 236,201 Net Dth (55% of Target)
- Water Heating – 3,007 Dth (132%)
- Residential Heating – 42,845 Dth (89%)
- Insulation & Air Sealing – 13,122 Dth (63%)

Marketing Campaigns & Trade Outreach

Business

- Energy Efficiency Exposition April 3
- Lighting: ongoing trade partner meetings to communicate and plan for DSM product updates.
- Ongoing 2018 Energy Efficiency Partner Awards to recognize top commercial and industrial trade
- Four Energize Denver Q2 Trainings with City and County of Denver, Energy Benchmarking Help Sessions April 5 and May 10
- Three Boulder Energy Benchmarking Workshops April 17, April 25, April 30
- Xcel Energy Multifamily Building Workshop April 25, PPA Center in Denver
- Five Commercial Energy Efficiency Financing Webinars April 4 through June 27

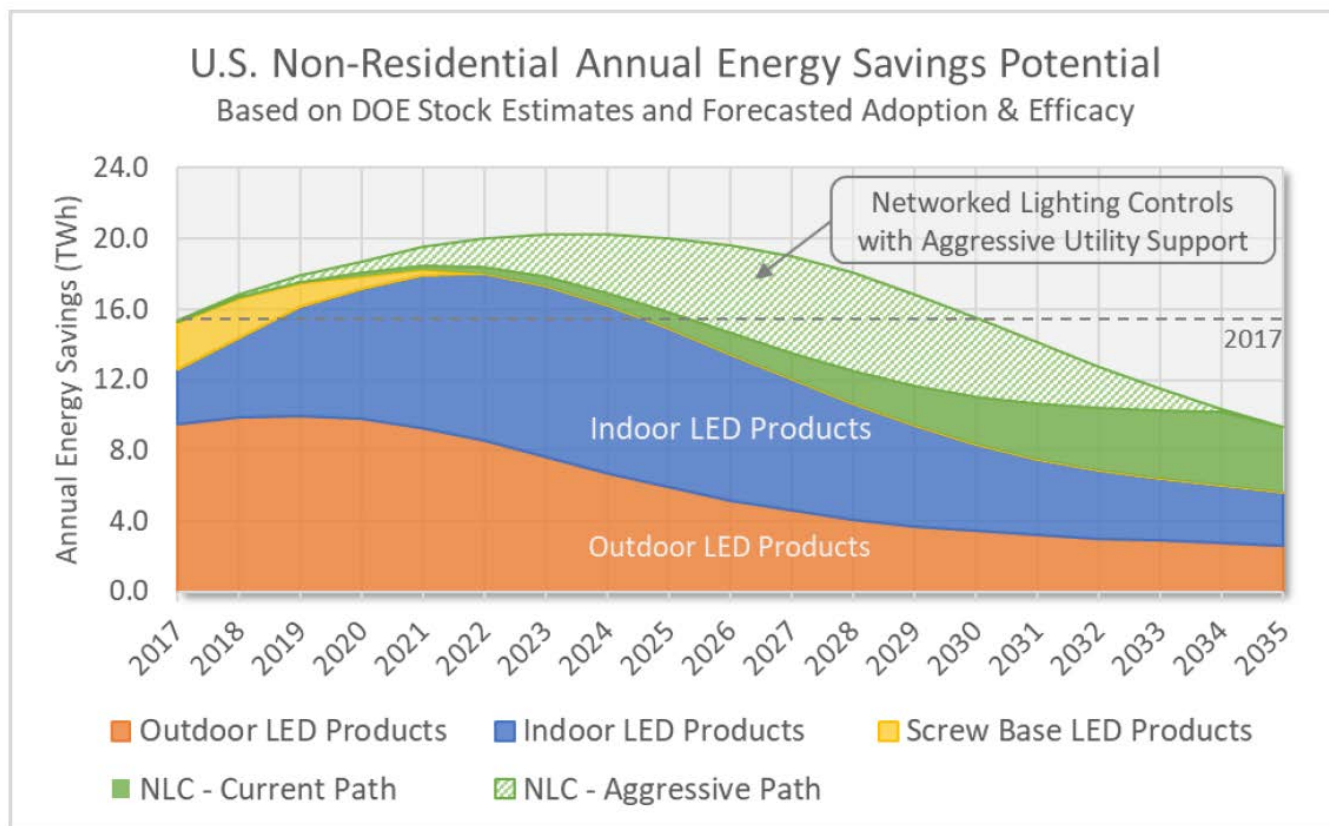
Residential

- Home Energy Squad
 - Spanish language outreach collateral
 - Integrated with partners in energy, energy resources teams to improve outreach and customer signup experience at event
 - Conducted first Enhanced Squad visit
- Refrigerator Recycling
 - Customer experience “ride-along” led to improved collateral and communications
 - April marketing blitz (postcards, radio, digital, email) – doubled signups from previous month
- Low Income
 - Mail campaign to affordable housing property owners for weatherization program
 - Campaigns to eligible customers receiving energy assistance to promote energy savings kits
- Cooling
 - Email promoting the Cooling bundle programs (Insulation, AC, Evaporative Coolers, Mini Splits, Financing, AC Rewards)
 - Social Media campaign for Evaporative Coolers and the Cooling Bundle
 - Radio campaigns for Evaporative Coolers and Cooling Bundle

Business Lighting Efficiency & Small Business Lighting Products– Network Lighting Controls

Mark Schoenheider
Team Lead, Customer Solutions

Energy Savings Potential with Controls



2018 Design Lighting Consortium Conference

Networked Lighting Controls

- Networked lighting controls allow for programmability of multiple control options.

Energy savings for Tier 1 are derived using three strategies:

- **High End Trim** is required at 80% or lower
 - **Daylighting** required where side and top lighting is available as defined in IECC 2015
 - **Occupancy sensing** for timeout set to 20 min or less
- Networked lighting controls can save, on average, 47% of lighting energy use in commercial buildings.



Networked Lighting Controls Specifications

- Rebates are **\$0.40 per connected watt**
 - Rebates are in addition to equipment rebates
- Applies to any LED retrofit prescriptive fixture (except exterior lighting)
 - Fixtures and controls must be rebated within 5 years of each other
 - Controls are required to be on the DLC QPL
 - Contractors will need to sign the rebate to verify that the NLC system was commissioned
- Systems with additional capabilities may be eligible for **increased rebates** through the Advanced Lighting Controls custom offering
 - Customer must obtain pre-approval before proceeding
 - All information needed to analyze the energy savings potential of the project must be provided to Xcel Energy



SPECIFICATIONS

Example

- How much would the rebate be if I have 100 fixtures, 32 watt troffers with networked lighting controls:
- Equipment Rebate: 100 troffers units @ \$30 each = \$3,000
- Networked Controls Rebate: 100 troffers @ 32 watts each = 3,200 watts
 - 3200 watts x \$.40 rebate = \$1,280
- **TOTAL** Rebate Amount: \$3,000 + \$1,280 = **\$4,280**



Networked Lighting Controls Training Series

- Series of ½-Day Networked Lighting Controls trainings will be offered by various manufacturer partners in early fall
- Foundational Training (~90 minutes)
 - Overview of Networked Lighting Controls
 - Benefits and value propositions
 - Target applications
 - How to maximize savings and rebates
- In-depth, hands-on experience with the manufacturers (~3 hours)
 - First-hand experience to work with operational demo equipment
 - Gather tools and experience to successfully specify, price, sell and deploy NLC systems
 - Learn how to install and commission the system in specific application scenarios

DSM Business Q2-2018 Highlights

David Hueser
Team Lead, Customer Solutions

Multifamily Buildings (Electric & Gas savings)

- In the first half of 2018, completed three quarters of planned multifamily assessments to help build units and savings pipeline
- 2017 savings concentrated in “Phase 2” direct installations; 2018 has produced deeper “Phase 3” project savings, especially interior lighting
- Forecasting to meet or exceed 2018 savings goals
- Continued joint project with Fort Collins Utilities



Compressed Air Efficiency

- Electric savings trailing compared to the same period in 2017, not expected to achieve 2018 forecast
- Highest proportion of total 2018 savings from VFD Air Compressors, Custom C.A. projects and measures identified in studies
- 2018 efforts to build pipeline concentrated in key trade partner engagement, may also include compressed air challenge all-day trade partner training



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

Computer Efficiency

- Transition plan for the Product
 - Discontinue Computer Product, merge cost effective measures into Data Center Product
 - Reduce Admin costs and combine resources
 - Cost Effectiveness Issues
- Product measures transitioning to the Data Center Efficiency:
 - Computer Efficiency Prescriptive Zero & Thin Client installation
 - Titanium Rated Power Supply Servers with 400-600 Watt Unit
 - Titanium Rated Power Supply Servers with 600-1000 Watt Units
 - Titanium Rated Power Supply Servers >1000 Watt Units
- New Code Standard: 3.0 Energy Star Enterprise Server Specification
 - Platinum rated power supply



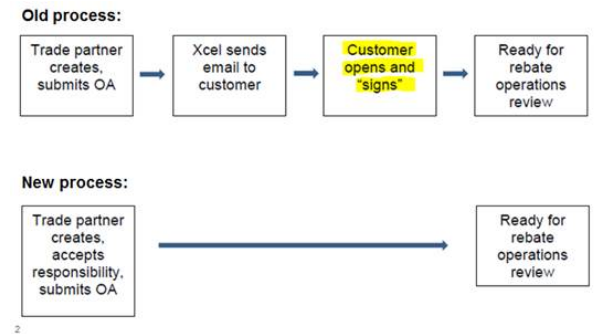
DSM Business, Residential, Low Income Q2-2018 Highlights

Michelle Beaudoin
Team Lead, Customer Solutions

Residential Cooling

Q2 Review

- 2018 AC class requirements were reviewed 1,400 times by 204 trade partners
 - www.brainshark.com/xcel/2018AC-SalesAdmin
 - www.brainshark.com/xcel/2018AC-QInstall
- Online application process was simplified to remove the customer signature requirement.
 - Resulted in a 20% increase in use in Q2



- Stay cool options to assist customers in choosing the best cooling technology for their home

Cooling Technology	Description	Rebates Available
Evaporative Cooler	Works great in Colorado's climate; brings in fresh, outside air to cool your home quickly and at a low cost.	Up to \$1,200
Central Air Conditioner	Circulates cool air through an existing central duct system.	Up to \$1,150
Ductless Mini-Split Heat Pump	Small, quiet, indoor/outdoor units cool and heat without the need for a duct system.	\$300 per condensing unit
Air Source Heat Pump	Similar to a central air conditioner but also provides heating in the winter.	Up to \$1,150
Ground Source Heat Pump	Environmentally-friendly system that cools and heats the home using the natural, constant, temperature of the Earth.	\$300 per heating ton

ENERGY STAR® New Homes (E&G savings)

Q2 Program Metrics:

Metric	First Quarter	Second Quarter
Qualifying Homes	961	1201
Average Home Size	3,593	3,585
Average HERS	56.22	57.4
2012 IECC or Higher	53.30%	57%
ENERGY STAR Certified Bonus Rebate	336	422



Q2 Activity

Q2 Achievement:

Savings	Q1	Q2
Dth	13,999	22,547
kW	205	243
kWh	719,705	799,676

- Residential Science Resources (RSR) has completed the second round of annual program quality assurance. These program QA inspections are conducted on 1% of participating homes each year. The next QA trip will take place in mid to late September.
- Ekotrope, an energy modeling software, has been approved and is scheduled to launch in October 2018.
- Xcel Energy and RSR sponsored a HERS rater meeting to summarize the 2017 program and review 2018 goals.

Residential Home Performance with ENERGY STAR®

2018 Q2 Savings Achievement

Net Gen kW	Net Gen kWh	Net Dth
55	51,989	2,611

Q2 Review

- Passed 60 Day Notice to:
 - Remove lighting measure
 - Add more “low hanging fruit” measures to help more customers qualify for the program
- Hosted trade partner webinar
- Updated application with new measures



Coming in Q3:

- Co-marketing effort with Home Energy Squad to introduce Enhanced Home Energy Squad which will qualify customers for audits.

Low Income Multi-family (Electric & Gas)

Energy Outreach Colorado (EOC) partners with utilities including Xcel Energy, as well as donors and other city/county organizations, to fund equipment retrofits and improvements in income qualified multifamily facilities

- Product expects to meet/exceed 2018 goals for demand (kW) and energy (kWh)
 - 3 large Denver Housing Authority projects completed in Q2. Over 500 MWh, 75 kW
 - In-unit and common area lighting
- Continue to reach facilities beyond Front Range.
 - Recently completed projects in Silt and Grand Junction



Senior Housing, Silt, CO



Denver, CO

- *Networking Break* -



DSM Pilot and Product Development Q2 2018 Highlights

Thor Bjork
Team Lead, DSM Product Development

Thermostat Optimization Pilot – Q2 2018

Tendril's Orchestrated Energy 2018



- Up to 2,000 Ecobees
- Up to 500 Nest (XE, Google employees only)

Nest Peak Aware Seasonal Savings

- Roughly 8,000 participants in 24 hours
- Testing kWh and kW savings with focus on 2-6p (not dispatchable DR)



Nest Seasonal Savings - winter

- Early results indicate 3-4% heating savings

DSM Pilot Highlights ENERGY STAR® Retail Products Platform

- Lowe's on-board and actively participating
- On track to meet electric forecast
- Not likely to meet gas forecast due to removal of basic clothes dryers
- Continued strong sales of the highest tier Clothes Washers and Room AC's
- M&V consulting work on track with EMI Consulting, results expected later this year



New Product Status

Stage 3 - Awaiting 3 rd party developments	Stage 3 - Active	Stage 4 - Launch
Q-Sync and Switched Reluctance Motors	Advanced Energy Communities	Ozone Laundry*
	Geo-Targeting	Networked Lighting Controls*
	Energy Star Radon Fans	Appliance Recycling*
	Advanced RTU Controllers	

*60-Day Notice posted



Appliance Recycling



- Pick up room air conditioners in tandem with refrigerators
- No rebate given; just the convenience of getting appliances removed for free
- Will have one community event in 2019 – customers bring their appliance to a designated public location for collection that day

Advanced RTU Retrofit Controllers (ARC)



- Industry working groups:
 - ❖ NREL Tech-to-Utilities: no preconditions identified
 - ❖ CEE working group: program guide in progress
- Our progress:
 - ❖ Defined all the preconditions that need to be met
 - ❖ Currently investigating program options that can satisfy the preconditions

ARC Pre-Conditions

NEED	CONFLICT
✓ Operating hours > 5000 per year	✗ Offices, retail, restaurants, and warehouses don't qualify
✓ All RTUs on a facility should be retrofit at once	✗ Not all of the RTUs on a facility will meet the preconditions
✓ RTU must have a 3-phase fan motor	✗ Not all RTUs on a facility will be able to be retrofit
✓ Fan motors must be of high enough quality to take a VFD	✗ The motors on certain units fail ~20% of the time ✗ NEMA premium motors on newer RTUs are "inverter ready", not "inverter duty"
✓ RTUs must be new enough to ensure remaining useful life is adequate	✗ Older units not cost effective
✓ Size of RTUs must be > 7.5 tons	✗ Not all RTUs on a facility will be able to be retrofit
✓ RTU must be operationally up to par	✗ Pre-work often needed
✓ RTU ventilation damper must be operable and not closed	✗ Pre-work often needed

Ozone Laundry



- Moving from custom to a midstream program
- \$20 per pound capacity of washing machine incentive to distributors
- Partnership water utilities who have downstream rebates will give distributors significant incentive to reach out to potential customers
- Target Market is hotels, healthcare (including nursing homes), hospitals, and prisons
- Estimated 10,804 Dth/year savings
- Additional customer benefits include ~20% water use reduction and associated costs

Plan to Launch Fall 2018

Can save up to 70% of gas used to heat water
Distributors and water utilities are onboard

ENERGY STAR Radon Fan



- Adding measure to Energy Star New Homes
- Will be incentivized similarly to an appliance rebate
- More cost effective in new homes than as a retrofit in existing homes
- No significant use of ES model in market currently
- Survey results and conversations with industry professionals indicate solid market potential
- Provides Health and Safety benefits beyond energy savings

Plan to post Notice in early November
Electric Savings of 70% compared to non-
Energy Star model

Residential Battery Demand Response

Objectives

Test elements key to establishing a future residential battery demand response product. Areas to test:

- Performance of different battery technologies and vendors for DR;
- Evaluate customer offers; and
- Build system to enable use of Xcel Demand Response Optimization and Management System.

Current Status

Planned to file pilot in 2019/2020 DSM Plan

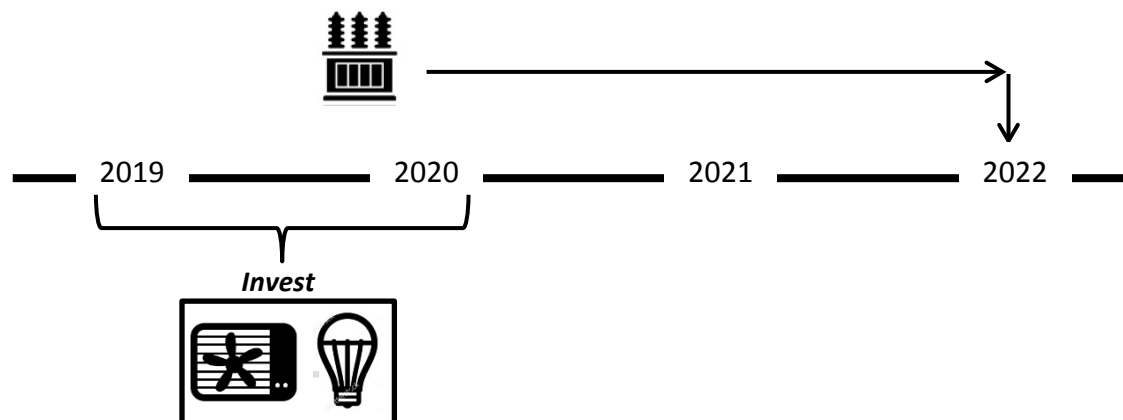
Pilot proposal includes:

- Up to 500 customers
- Small number of eligible technology vendors
- \$500 upfront rebate and \$10/month credit to participating customers
- Reserves 50% of customer battery for 100 demand response calls that occur year-round



Geo-targeting

Using energy efficiency and demand response to defer or avoid the need to invest in a traditional distribution solution (e.g., transformer)



Current Status

- Plan to file pilot in 2019/2020 DSM Plan
- Focuses on deferring new transformer and feeder
- Targets Kendrick feeder located in Lakewood/Rooney Valley area
- Uses demand reduction from three sources:
 - Existing residential DR
 - Energy efficiency (EE) and DR through programs targeted at new construction in Rooney Valley
 - New EE and DR targeted at existing homes, acquired during a concentrated community-based marketing campaign carried out in 2020

Product idea submissions

Share your Product Ideas:

www.xcelenergy.com/productideas

Questions?

- Thank you -