



Q2 – 2021 COLORADO DSM ROUNDTABLE

August 11, 2021



AGENDA

- 1:00 – 1:20 p.m. Welcome and DSM Regulatory Updates
- 1:20 – 1:45 p.m. DSM Programs: Q2-2020 Update
 - Q2 Achievement and Highlights
 - Q2 Performance Deep Dives
- 1:45 – 2:30 p.m. DSM Product Deep Dives
- 2:30 – 3:00 p.m. Product Development Update



DSM REGULATORY UPDATES

Q2 – 2021

George McGuirk | DSM Regulatory

60/90-Day Notices

2020 Product Evaluation Updates – 5/14/2021

- Lighting Efficiency LED Instant Rebate
- Lighting – Small Business
- Energy Efficient Shower Heads
- Refrigerator & Freezer Recycling

CPP Advice Letter (21AL-0091E)

- Effective by operation of law on April 30, 2021

60/90-Day Notice Impacts

2021 Plan Year	Settlement Filing		Evaluation Modifications		% Change	
	Energy Savings	Budget	Energy Savings	Budget	Energy Savings	Budget
Electric Energy Efficiency	537,639,070 (kWh)	\$ 89,954,799	529,562,737 (kWh)	\$ 89,954,799	-1.50%	0.00%
EE Showerheads	519,308 (kWh)	\$ 29,303	493,080 (kWh)	\$ 29,303	-5.05%	0.00%
Lighting Efficiency	100,138,280 (kWh)	\$ 12,221,449	93,506,351 (kWh)	\$ 12,221,449	-6.62%	0.00%
Refrigerator & Freezer Recycling	3,503,273 (kWh)	\$ 1,121,268	4,890,288 (kWh)	\$ 1,121,268	39.59%	0.00%
Small Business Solutions	46,062,218 (kWh)	\$ 5,948,016	43,257,026 (kWh)	\$ 5,948,016	-6.09%	0.00%
Electric Demand Response	94,410 (kW)	\$ 23,384,188	94,410 (kW)	\$ 23,384,188	0.00%	0.00%
Natural Gas Energy Efficiency	780,872 (Dth)	\$ 18,499,094	779,224 (Dth)	\$ 18,499,094	-0.21%	0.00%
EE Showerheads	32,205 (Dth)	\$ 329,655	30,578 (Dth)	\$ 329,655	-5.05%	0.00%
Small Business Solutions	13,284 (Dth)	\$ 166,465	13,262 (Dth)	\$ 166,465	-0.17%	0.00%

60/90-Day Notice Impacts

2022 Plan Year	Settlement Filing		Evaluation Modifications		% Change	
	Energy Savings	Budget	Energy Savings	Budget	Energy Savings	Budget
Electric Energy Efficiency	522,789,432 (kWh)	\$ 89,960,142	514,844,196 (kWh)	\$ 89,960,142	-1.52%	0.00%
EE Showerheads	519,308 (kWh)	\$ 30,162	493,080 (kWh)	\$ 30,162	-5.05%	0.00%
Lighting Efficiency	100,137,739 (kWh)	\$ 12,116,819	93,510,554 (kWh)	\$ 12,116,819	-6.62%	0.00%
Refrigerator & Freezer Recycling	3,569,530 (kWh)	\$ 1,147,206	4,981,636 (kWh)	\$ 1,147,206	39.56%	0.00%
Small Business Solutions	45,965,672 (kWh)	\$ 6,081,333	43,261,743 (kWh)	\$ 6,081,333	-5.88%	0.00%
Electric Demand Response	116,098 (kW)	\$ 23,820,175	94,410 (kW)	\$ 23,820,175	-18.68%	0.00%
Natural Gas Energy Efficiency	799,708 (Dth)	\$ 18,498,555	797,912 (Dth)	\$ 18,498,555	-0.22%	0.00%
EE Showerheads	32,205 (Dth)	\$ 339,395	30,578 (Dth)	\$ 339,395	-5.05%	0.00%
Small Business Solutions	17,475 (Dth)	\$ 186,717	17,306 (Dth)	\$ 186,717	-0.97%	0.00%

2021-22 Stakeholder Engagement Updates

Stakeholder Engagements

- Demand Response Working Group
 - Kick-off/Strategy Overview – June 16, 2021
 - Industrial Deep Dive – July 21, 2021
- On-Bill Financing Working Group
 - Kick-off/Scope and Objective setting – July 9, 2021

DSM Regulatory Calendar

Upcoming Meetings – Save the Date!

- On-Bill Financing Working Group
 - Second Meeting – Thursday, August 19, 9am
- Demand Response Working Group
 - Commercial Deep Dive – Thursday, August 19, 2pm
- Q3-2021 DSM Roundtable Meeting
 - Wednesday, November 10, 2021

DSM Regulatory Calendar

Upcoming Filings – Preliminary Schedule

- PUC DSM Rulemaking
 - Remove fuel switching prohibition and align DSM rules with Clean Heat targets (SB21-264)
 - October 1, 2021
- DSM Strategic Issues + Beneficial Electrification
 - Goal setting for Electric and Natural Gas DSM as well as Beneficial Electrification
 - March 1, 2022
- 2023 DSM Plan + Beneficial Electrification
 - July 1, 2022 (deadline, may be filed earlier in Q2 2022)

DSM Regulatory Calendar

Codes and Standards Evaluation Update

Vendor Selection Complete

Upcoming Tasks

- Schedule revisions to meet April 1 launch
- C&I Compliance Study
- Identifying key evaluation objectives (e.g., Stretch Codes, Beneficial Electrification, etc.)
- Q3-2021 DSM Roundtable Meeting – In depth update
 - [Wednesday, November 10, 2021](#)

DSM Regulatory Calendar

DSM Potential Study Update

Research Status

- Residential & Small Business Research – complete (majority done in Q2)
- Commercial & Industrial Research – Underway with completion this month

- Q3-2021 DSM Roundtable Meeting – Preliminary findings update
 - [Wednesday, November 10, 2021](#)
 - Technical and Economic Potentials (all Sectors) available
 - Preliminary Achievable Potential (Residential) available



DSM ACHIEVEMENTS

Q2 – 2021

Mark Schoenheider | Manager, Customer Energy Solutions



2021 Q2 Achievement Highlights

Electric Portfolio

- 219.3 GWh (41% of 537.6 GWh Target)
- 37.6 MW (37% of 101.7 MW Target)
- \$34M (38% of \$90M Budget)

Business Programs

- 113 GWh (33% of Target)
- New Construction 29.3 GWh (64%)
- Business HVAC+R Systems 5 GWh (16%)
- Small Business Solutions 9.4 GWh (20%)

Residential / IQ Programs

- 106.3 GWh (56% of Target)
- Home Lighting & Recycling 73.2 GWh (95%)
- Income Qualified SF Weatherization 12 GWh (53%)
- Refrigerator/Freezer Recycling 1.1 GWh (31%)
- Residential Heating & Cooling 2.2 GWh (16%)

Gas Portfolio

- 368,754 Net Dth (49% of 755,934 Target)
- \$5.3M Spend (33% of \$17.6M Budget)

Business Programs

- 75,589 Net Dth (70% of Target)
- New Construction 63,044 Dth (93%)
- Business HVAC+R Systems 5,679 (37%)
- Small Business Solutions 727 Dth (7%)

Residential / IQ Programs

- 293,165 Net Dth (45% of Target)
- ENERGY STAR Homes 45,350 Dth (39%)
- Residential Heating & Cooling 66,829 Dth (40%)
- Insulation & Air Sealing 12,752 Dth (33%)
- Income Qualified Non-profit 184 Dth (5%)

Marketing Campaigns & Trade Outreach

Business

Energy Solutions Virtual Expo April 21-22

- More than 600 attendees
- Several program update and business building sessions
- Commercial Financing workshop

Trade Events

- IECRM Independent Electrical Contractors Rocky Mountain Summit Awards sponsorship and exhibit April 26
- 21st Century Energy Transition Symposium: Xcel Energy was a key sponsor and presenter along with Colorado Energy Research Collaboratory, virtual symposium May 4, 5, 14 (originally scheduled for Q2, 2020)
- EEBC Quarterly Membership Meeting June 24
- Denver Strategic Electrification working group ongoing every ~6 weeks

Residential

Marketing

- Memorial Day thermostat and LED promotion email
- Refrigerator Recycling email sent to CO, MN and TX electric customers
- Residential HVAC customer email promoting cooling season rebates
- Evaporative Cooling
 - Targeted direct mail campaign
 - The Home Depot emails
 - Digital marketing campaign, similar to 2020, including The Weather Channel
- July - Geotargeted emails promoting bonuses available to customers for furnaces, water heaters, showerheads, home audits and home energy squad

Trade ally/stakeholder outreach

- Heat pump training in May
- State GFCI breaker variance pursued
- Prepared contractors for 2021 season
 - Required AC/heat pump training classes
 - New rebate application forms
- Heat pump adoption collaboration with stakeholders, other utilities and governments/agencies

Energy Star New Homes

- Awards for top builders & raters being distributed
 - Included digital awards for use in digital channels
- Exploring partnerships to elevate profile of high-performance building practices





DSM PRODUCT DEEP DIVES

Product Managers | Customer Energy Solutions



Residential Heating & Cooling

- This program offers a comprehensive approach to several programs which were previously separate – Evaporative Cooling, High Efficiency Air Conditioning, Residential Heating, Thermostat Optimization, and Water Heating.
- The program was updated in the filing to include beneficial electrification measures for heat pumps and heat pump water heaters for the first time.
- Following settlement, rebates for several measures were changed, and rebates for cold climate heat pumps were added.
- The company has been coordinating with other utilities and trade allies to develop quality installation parameters specific to air source heat pumps.
- The Company has provided trainings for trade allies specific to heat pumps including installation best practices and how to sell the benefits of heat pumps to customers.

Residential Heating & Cooling

- Quality installation practices for a central air source heat pump include all of the QI requirements for an air conditioner.
- The Company is evaluating additional QI guidelines for heat pump installations, such as:
 - Confirming the selected system's balance point vs. Manual J load calculation.
 - Verifying the balance point is appropriately followed in the controls for dual fuel cutover.
 - Verify refrigerant charge is appropriate for both hot weather and cold weather operation. This typically requires a second visit in the opposite season to the original installation.
 - Verify that heating airflow is adequate
 - Ensuring the home is sufficiently weatherized and insulated to reduce the size of the heat pump needed
- The Company is working with Center for Energy and Environment (CEE), a company with experience with cold climate heat pump research in Minnesota, to provide training to contractors. Some virtual trainings have already been provided, and a two-day in-person training is planned for September 14-15.

Residential Heating & Cooling

- The Company is working on a study of cold climate heat pump performance, with the goal of reaching 40-50 participants.
- The Company is evaluating the addition of an Aeroseal measure both as a standalone measure and as an add-on to its Air Conditioning w/Quality Installation measure.
- The company has had the following participation in its beneficial electrification measures through the end of Q2:
 - Cold Climate Mini-Split Heat Pump Dual Fuel - 1
 - Mini-Split Heat Pump Dual Fuel - 36
 - Central Air Source Heat Pump Dual Fuel – 1

Residential Heating & Cooling

The Company is developing a 60-Day Notice for energy-efficient natural gas boilers.

- Additional measure for boilers with a sidearm water heater
- Provides additional savings and receives an additional rebate

Targeted efforts for areas such as Summit County

- Gas capacity constraints and high penetration of boilers in Summit County
- Incentivize switch to a more efficient unit or replace a boiler and water heater with one combined piece of equipment

These rebates will be available statewide

- Will be more heavily promoted in Summit County and other areas with a comparable climate

Income-Qualified Beneficial Electrification

Leverage Residential Heating & Cooling BE measures with higher incentive levels to encourage adoption and participation in Multi-family buildings

- Air source and mini split heat pump rebates significantly increased
- Scope will include heat pump water heaters
- 60-Day Notice scheduled for Q4 2021
- Pilot commits \$250,000 per year towards heat pump offerings

Expansion of electric health & safety measures

Pair weatherization upgrades with renewables, solar

Income-Qualified Beneficial Electrification

Keep bills low, examine impact to IQ customer energy burden

- Partnership with Group14 Engineering to conduct third party Quality Install Verification and 12 months of post-install bill analysis
- Analysis to study multiple scenarios: heat pump with gas backup, full system replacement, and heat pump with electric resistance backup
 - Three multi-family properties targeting each scenario above have been identified for 2021/2022 review and potential implementation

Energy Star New Homes

All-electric path update

- Fewer than ten homes so far this year
 - Builder supply chain not ready for electrification
 - Trades not ready for electrification
 - Some homes with all electric HVAC, 220V outlets for EV, induction cooktops, and electric ovens have gas water heat, disqualifying the home from all-electric path
- Increased interest from builders and communities
 - Eco-focused communities
 - Resource constrained developments

Energy Star New Homes

Targeted heat pump demonstration

- In contact with several builders with potential
- Evaluating envelope improvements that would facilitate operational cost parity with gas

Retrofits

- ASHP heating capacity concerns
- Inadequate panel capacity for electrification

Streamlined Weatherization Upgrades

- Evaluate the potential for streamlined weatherization upgrades, including, but not limited to, developing standardized pricing options and participating contractor lists
 - Included in roadmap for Simplified Residential Solutions
 - Contractor scheduling through Xcel Energy store
 - Streamlined bid process
- Next Steps:
 - Build out functionality on Xcel Energy Store
 - Industry research including contractor input on pricing and feasibility
 - Solution Design

Weatherization Pay-for-Performance Incentive Levels

- Evaluate the potential to launch a new offering for weatherization pay-for-performance incentive levels through a 60-Day Notice
 - Analyzing offering rebates at 70-80% of ARR
 - Include within Home Performance product design

- Next Steps
 - Industry research
 - Finalize internal analysis
 - Evaluator review



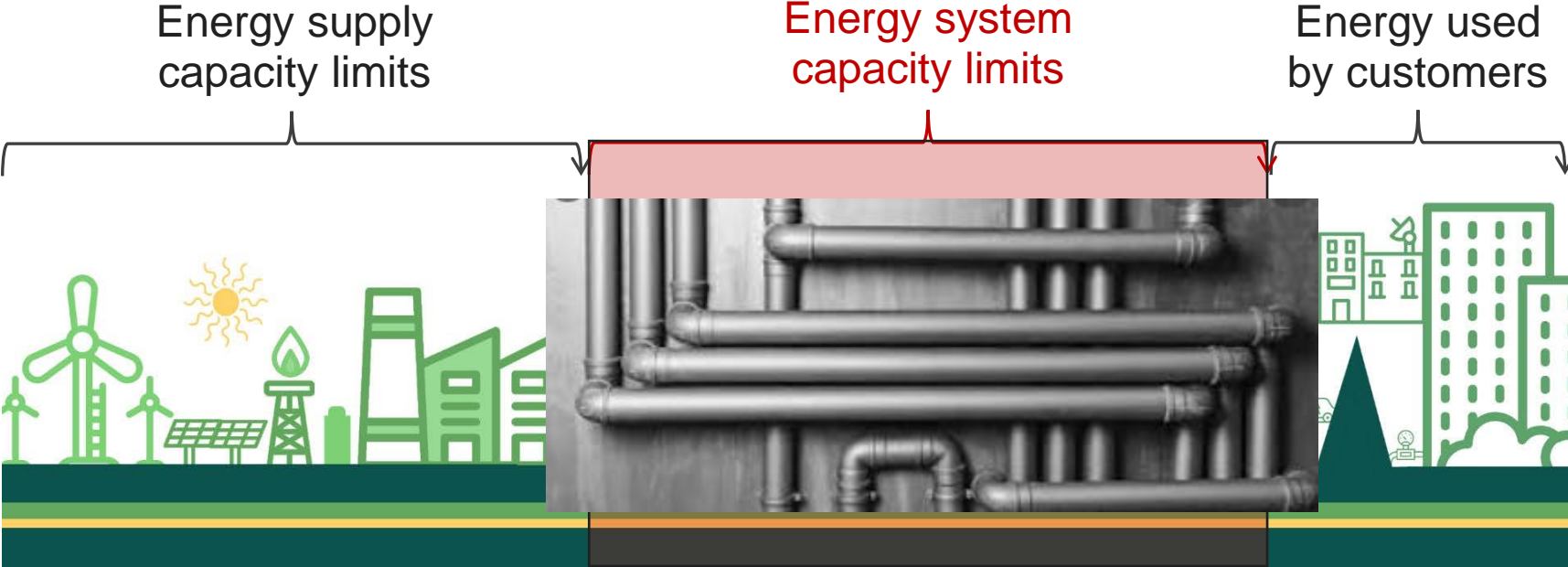
DSM PILOT & PRODUCT DEVELOPMENT Q2 – 2021 HIGHLIGHTS

Adam White | Team Lead, Customer Energy Solutions

Thor Bjork | Team Lead, C&I Product Development



Value of avoided peak gas capacity (Dth/h)



What Will We Learn from Gas Capacity Thermostat Research?

1. Target 300 Customers in Summit County

1. Q4 2021

2. Appropriate incentive level to motivate customers

3. Opt-in/out rates



4. Appropriate setback levels: 3, 4 or 5 F

5. Appropriate setback periods

1. 6 hours during the day

2. 10pm-5am overnight

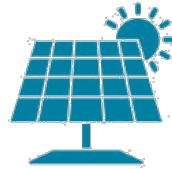
6. Most effective trigger temperature and duration

7. Document hourly gas volume shifts & savings during events

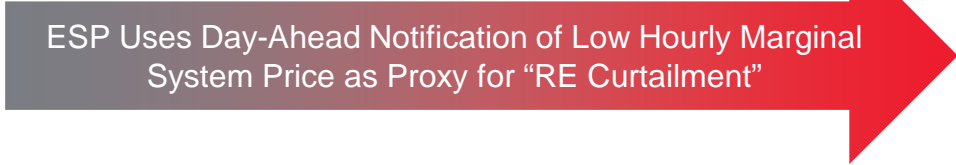
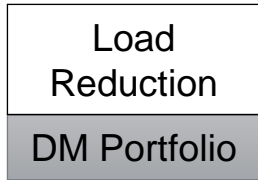
Excess Supply Partners (ESP)

R&D-Funded Research Project

Add-on Option for
C&I DM Programs



Custom electric-electric measure
at an incentive rate of ~\$0.03/kWh



ESP Research Project	2021	2022	2023
Participants (cumulative)	~10	~20	~30
MW Shifted (annual)	2.9	6.1	9.1
Budget (annual)	\$104,617	\$120,540	\$140,245

What Will We Learn from ESP Research?

Exploring the best approaches, possibilities for deeper value

1. Do responses to day-ahead signal:
 - a. Result in a beneficial load shift?
 - b. Is there an associated change in energy use?
2. What are the best practices?
 - a. Which signals and operations altering mechanisms are most efficient?
 - b. Which methodologies (e.g., pre-cooling) most likely to result in shift to forecasted high renewable periods?
 - c. How marketable is the overall design?
3. How feasible are these activities?
 - a. Associate customer & RE plant locations;
 - b. Participant emissions reduction reports
 - c. Associate participant actions with interval data of:
 - i. Marginal system resource type
 - ii. System CO₂/MWh emission factor, and
 - iii. Marginal CO₂/MWh emission factor

Aeroseal update

The company has analyzed AeroSeal both as a standalone measure and an “add-on” to its AC w/QI measure.

The analysis has shown that neither version of the measure is cost-effective, largely due to the incremental cost.

The company does not intend to pursue the measure further.

Measure	Rebate	Inc Cost	kWh Savings	Peak kW Savings	Dth Savings	Total ARR	E MTRC Score	G MTRC Score	E Net Benefits	G Net Benefits
Standalone Aero Seal	\$275.00	\$1,836.59	131	0.098	9.5	\$371	0.473	0.473	-\$265	-\$538
AeroSeal + New AC w/QI	\$400.00	\$1,656.03	524	0.456	0.0	\$552	0.696	n/a	-\$464	\$0
AeroSeal + New AC w/QI and furnace	\$200.00	\$935.02	187	0.070	7.8	\$313	0.689	0.689	-\$90	-\$170

Website Submissions to Product Development

Product	Description	Status
Encycle	Unit coordination for rooftop units.	Investigated. Believe it has potential, recommended for our custom program and open to further discussion and a pilot. Scored and entered into our database.
Remote pump monitoring	Remote pump efficiency monitoring for wastewater applications.	Described to the vendor how to best implement this: It's a good fit for our custom program but the vendor must connect with Account Management early in the process so that the monitoring product can be tied to an efficiency improvement for our custom program.
Wastewater treatment technologies	Various technical wastewater treatment technologies.	Already incorporate these technologies in our SEM program.
EcoBreeze	Smart window fans designed as a replacement for a whole house fan. Great for renters.	Investigated, scored, and entered into our database.
CERV2 Smart Vents	Smart residential registers that open/close based on the temperature in the room.	Investigated. Small market potential because it's only beneficial for homes with variable speed HVAC equipment, which isn't commonplace.
Siemens Enlighted	Commercial lighting controls.	Investigated. Good fit for our Networked Lighting Controls measure, but has additional functionality. Can be used as a whole building IoT solution. Scored and entered into our database.
Skycool	Radiant cooling panel (currently for refrigeration).	Investigated, scored, and entered into our database.

Share your product ideas

www.xcelenergy.com/productideas

