



DEMAND RESPONSE WORKING GROUP WRAP-UP

November 18, 2021

AGENDA

1. Working Group Recap
2. Key Program Updates
3. Future Product Roadmap
4. Discussion



Working Group Timeline

Frequency:

- Monthly
- Kickoff - June 16, 2021
- Three customer segment deep dives
 - Industrial – July 21, 2021
 - Commercial – August 19, 2021
 - Residential – September 22, 2021
- Working Group Wrap-up - Today

Stakeholder Idea Submissions

Automated window shade demand response

- Performed initial analysis, under review with vendor

Real time carbon emissions/grid conditions monitor

- Scored and entered in our database

Managed EV Charging

- Additional pathway for participation

Ford F150 electric truck

- Scored and entered in our database

Stakeholder Idea Submissions

Primary objectives

- Examine the effectiveness of current products and
- Determine feasibility and benefits of launching one or more residential DR pilots in 2022

Share your Product Ideas:

www.xcelenergy.com/productideas

WORKING GROUP RECAP

Key Takeaways



Meeting Recap – Kickoff Meeting

Kickoff Meeting

- Overview of Demand Response
 - Solving the “4-hour” problem today
- The changing grid
- Demand Response evolution for customers
 - Evolving from just a “shed” utility
- Emerging technologies for new products
- Introduction to Advanced Grid Initiative (AGIS)

Meeting Recap – Industrial Sector Deep Dive

Industrial Sector Deep Dive

- Review current offerings
 - 10-minute notice
 - 1 hour notice
 - Day ahead notice
 - Risk vs Reward
- Future landscape
 - How do we get there

Meeting Recap – Commercial Sector Deep Dive

Commercial Sector Deep Dive

- Current offerings
 - Industrial offerings plus
 - AC Rewards for Business
- Future Products and Pilots
 - How Programs fit into the Shape/Shift/Shed/Shimmy

Meeting Recap – Residential Sector Deep Dive

Residential Sector Deep Dive

- Current offerings
 - How the programs fit into the DR 1.0 – 2.0 – 3.0 journey
- Gas capacity management
 - Study in Summit County
- Future Programs and evolution
 - AGIS to act as an enabling technology
 - How are we going to solve Equity, Multi-Family, V2G, Gas DR

DEMAND RESPONSE

Key Updates and Future Roadmap



Smart Water Heaters

- Very early launch stage
- Eligible models of Heat Pump Water Heaters Qualify
 - HPWH EE Rebate: \$600
 - Extra \$200 rebate for DR Qualified Units
 - Must be installed by participating contractor
 - Mixing valve must be installed – paid by Xcel Energy
- Control Strategies
 - Cellular commands using CTA 2045
 - Daily load shift (heat tank in the very early morning to avoid recharge during morning peak)
 - Peak event shed (est. 8-10 times/year)
- Enrollment and annual bill credits: **\$75 / \$25**



Behavioral Demand Response

“Can you get a small demand reduction from a very large number of costumers?”

- Current pilot running through the end of September (Results to Share)???
- Utilizing AMI meter data
- 18K customers split into treatment and control groups
- 4 control events so far
- Customer notification day ahead of needed demand reduction
- Data to be evaluated in the fall



Residential Battery DR – Battery Connect

Objectives

- Demonstrate three use cases—peak load reduction, solar shifting, controlled charging
- Understand customer interest
- Learn about software capabilities

Description

- 500 customers (~100 SolarEdge/~400 Tesla)
- \$1,250 upfront
- 80% of customer's battery, up to 100 events

Status

- Launched in February 2021
- Contracted with SolarEdge and Tesla
- Pilot will run for 18 months



Charging Perks

Objectives

- Learn About Customer to Enhance Full Program Design
 - Program satisfaction
 - Enrollment motivators
 - Communications preferences
 - Overrides

M&V Plan

- Characterize Grid Value
 - EV baseline usage
 - Grid Impacts:
 - Shifting charging to avoid system peak
 - Lowest electricity production costs
 - Absorb curtailed renewable product

Status

- Launched with WeaveGrid in middle of 2021 (Tesla vehicles)
- Launched with the automakers Sept 30, 2020 (BMW, Honda, Ford & GM)
- Roughly 200 enrolled vehicles at this time and growing 1.5 months into pilot

Optimize Your Charge

Objectives

- Static Optimization / Optimize Your Charge
 - Support Transportation Electrification Plan
 - Avoid system peak; encourage off-peak EV charging
 - Shift charging to lower cost hours; use more renewables to charge EVs
 - Incentivize customers financially

Plan

- Xcel Energy receives charging data and tracks participation
 - Evaluate whether EV customers are charging during off-peak windows
 - Provide behavioral reminders to charge during off-peak windows
 - Reward EV customers who charge off-peak with a \$50 bill credit

Status

- Launched in CO
 - Finalizing contract with Geotab Energy, who will provide software API and hardware to track customer charging patterns
 - Customer enrollment is currently tracked in Salesforce

Gas DR Thermostat study update

Web page is live [Heat Savers Mode \(xcelenergy.com\)](https://www.xcelenergy.com/heat-savers-mode)

Enrollments have started to come in

Continued marketing (emails, direct mail)

M&V parameters are being finalized



Small Commercial Building Controls

New product addition to the portfolio under the 2019-2020 DSM Plan

- Product write-up via 60-Day Notice in Q1 2020.
- Official Launch in 2020 as direct install delivery channel
- Promotions and installations were on hold in response to the COVID-19 pandemic

Initially compromised of Smart Thermostat Demand Response component “AC Rewards for Business”

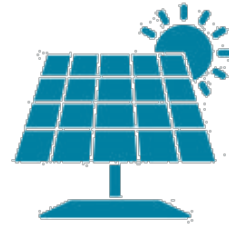
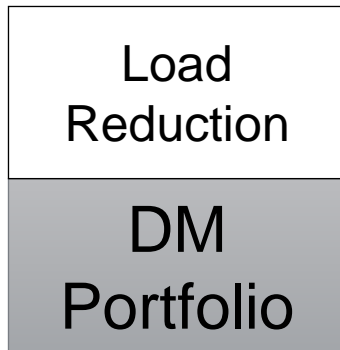
Looking into technologies to incorporate next. Technologies we are focusing on:

- Water Heaters
- Lighting Controls
- Batteries

Excess Supply Partners

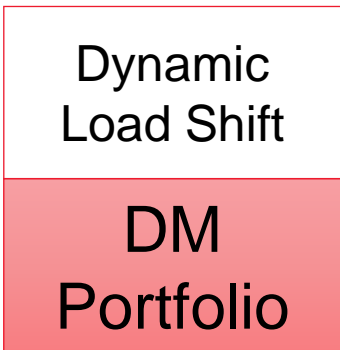
Demonstration Project Funded by R&D

Add-on Option
for C&I DM
Programs



RSR Uses Day-Ahead Forecast of Low Marginal System Price as Proxy for “RE Curtailment”

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



RSR Demonstration Project	2021	2022	2023
Participants (cumulative)	~10	~20	~30
MW Shifted (annual)	~2.9	~6.1	~9.2
Budget (annual)	\$124,000	\$133,000	\$125,000

2-Way Communication DLC Switches

Load Control Receivers currently utilized by Saver's Switch Program are 1-way communicating devices

Rollout of AMI may enable use of 2-way communication with switch

- Potentially improved signal reception
- More feedback for real-time load reduction impact
- Easier Measurement & Verification of program performance

Conducted RFI in 2019

Preparing for lab testing of potential vendor equipment



AGIS Update – Smart Meter Installations

Meter installs are on track

- Surpassed 200,000 meters this week
- On target for 300,000 meters by end of the year



Q3:

July - September:
Denver - South and West
Sheridan
Littleton
Southglenn
Englewood
Lakewood
Golden
Wheat Ridge



Q4:

October - December:
Denver - West, South, Southeast
Wheat Ridge
Arvada
Glendale
Aurora



DISCUSSION

Discussion

What have we missed? Concepts, programs, etc.

What DR topics are critical to Strategic Issues?

Future Stakeholder Engagement

Discussions don't end here...

- DSM Roundtables
- 2022 Strategic Issues and 2023 DSM Plan
- Product idea submissions

Share your Product Ideas:

www.xcelenergy.com/productideas

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