Q4-2018 Colorado DSM Roundtable

February 13, 2019

AGENDA

- 1:00 – 1:30 p.m. Welcome and DSM Regulatory Updates
  - » 2019/2020 DSM Plan Review
- 1:30 – 2:45 p.m. DSM Programs: Q4-2018
  - » Q4 Achievement Update
  - » Business Programs
  - » Residential and Low-Income Programs
  - » Product Development Update
- *2:45 – 3:00 p.m.* -- *Networking Break* –
- 3:00 – 4:00 p.m. DSM Comprehensive Evaluations: Q3-2018

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DSM Regulatory Updates
Q4-2018

Mike Pascucci
DSM Regulatory

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60/90-Day Notices

- High Efficiency Air Conditioning
  - *Posted: May 11, 2018*
  - *Implemented: July 11, 2018*
- Lighting Efficiency & Lighting – Small Business
  - *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*
  - *Implemented: 9/15/2018*
- Computer Efficiency
  - *Posted: 8/15/2018*
  - *Implemented: 9/15/2018*
- Refrigerator Recycling
  - *Posted: 8/15/2018*
  - *Implemented: 9/15/2018*
- Thermostat Optimization & Residential Demand Response
  - *Posted: 8/20/2018*
  - *Implemented: 9/20/2018*
- Lighting Efficiency and Small-Business Lighting
  - *Posted: 11/2/2018*
  - *Implemented: 12/3/2018*
- 2018 Product Evaluations Pt. 1
  - *Posted: 2/1/2019*
- 2018 Product Evaluations Pt 2
  - *Posted: TBD*

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DSM Regulatory Update

- **2019/2020 DSM Plan**
  - Revised DSM Plan filed 12/21/18
  - Answer Testimony filed 1/18 and 1/22
  - Settlement Agreement filed 2/8/19
  - Settlement Testimony filed 2/12/19
- **Upcoming Meetings – Save the Date!**
  - Q1-2019 DSM Roundtable Meeting:

    Tuesday, May 14, 2019

DSM Achievements
Q4-2018

Mark Schoenheider,
Manager, Customer Solutions

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2018 Q4 Achievement Highlights - preliminary

Electric Portfolio

- 455 GWh (106% of 429.3 GWh Target)
- 75.5 MW (115% of 65.7 MW Target)
- $79.2M (102% of $77.7M Budget)

Business Programs

- 301 GWh (117% of Target)
- Lighting Eff/Small/Street 207 GWh (160%)
- Multifamily Buildings 6 GWh (114%)
- New Construction 29.1 GWh (121%)

Residential / LI Programs

- 151 GWh (89% of Target)
- High Efficiency Air Conditioning 4.5 GWh (112%)
- Home Lighting & Recycling – 91.5 GWh (81%)
- Residential Heating – 5.9 GWh (111%)

Gas Portfolio

- 605,912 Net Dth (106% of Dth Target)
- $15.2M Spend (119% of $12.8M Budget)

Business Programs

- 110,586 Net Dth (77% of Target)
- Heating Efficiency 24,923 Dth (138% of Target)
- New Construction 50,548 Dth (66% of Target)
  - Energy Efficiency Buildings 76% of target
  - Energy Design Assistance 64%

Residential / LI Programs

- 495,326 Net Dth (115% of Target)
- ENERGY STAR Homes – 113,488 Dth (120%)
- Residential Heating – 93,194 Dth (194%)
- Insulation & Air Sealing – 27,131 Dth (131%)

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Marketing Campaigns & Trade Outreach

Business

- Colorado Association of Mechanical and Plumbing Contractors (CAMPC) exhibit, sponsorship, attracting new trade partners, discuss 2019 trainings & events
- Energize Denver Advisory Oct. 9 with new mapping beta and scorecards
- Denver Water Oct. 31, Ozone Laundry and cross-promotional opportunities
- Three Commercial Financing Webinars, improved trade partner portal
- Compressed Air Challenge, Fundamentals Denver PPA Center November 6
- USGBC Annual sponsorship breakfast Dec. 4
- Colorado Business Economic Outlook Forum led by CU-Boulder Dec. 10
- Commercial & Industrial Individual trade partner meetings to review CO 2019/20 DSM Plan proposed changes, implications

Residential

- AC Rebate changes
  - Communicated changes to contractors, distributors, and manufacturers
  - Updated web page and call center knowledge base
- Heating trade partner survey
  - $25 gift card sent to participating contractors
  - Survey final results still pending
- Fridge Recycling
  - Q4 Marketing efforts included a Halloween themed email campaign and a customer bill onsert
- Home Energy Squad
  - Squad Plus visits launched in Q4 and has been well-received by customers
  - Q4 marketing efforts included email campaigns, a Home Energy Report module, and a bill onsert
- “Stay Warm” campaign email sent to customers

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Business Lighting Efficiency & Small Business Lighting Products

Allison McIntire
SBL Product Manager, Customer Solutions

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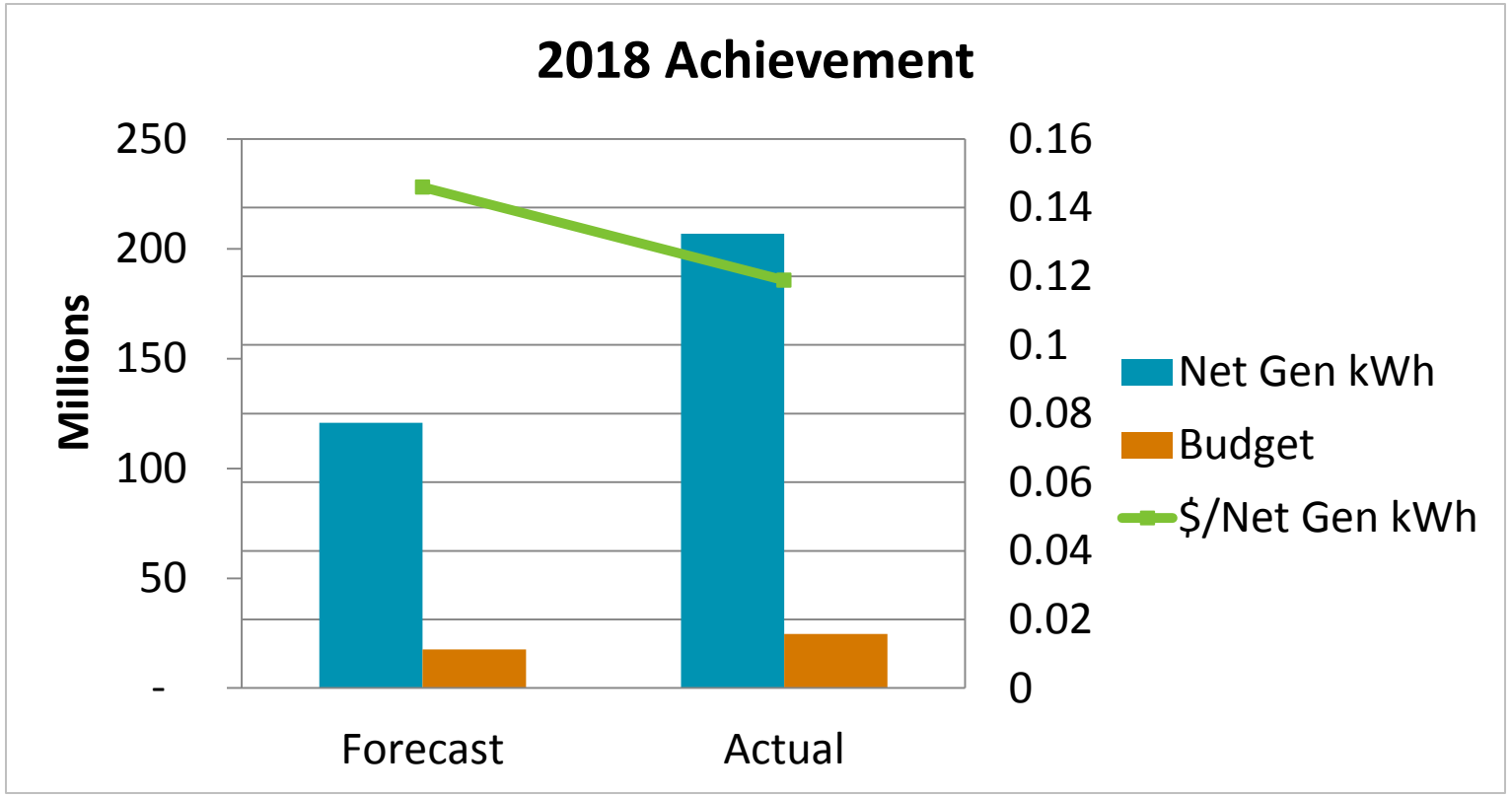
Business Lighting Efficiency and Small Business Lighting



Energy Analysis Audits for Small Business Customers

- Small Business Lighting customers now receive a comprehensive audit instead of a lighting only assessment
  - Free for customers with a building size of <50,000 square feet
- Improvements
  - Simplify the offerings
  - Create a more comprehensive experience for customers
  - Direct Installation available for customers with a peak demand under 100kW
    - Screw-in LEDs, Aerators, Pipe insulation
  - Better conversion rates from audits to projects
- The Small Business lighting program will continue to provide resources and support to customers to overcome barriers

DSM Business
Q4-2018 Highlights

David Hueser
Team Lead, Customer Solutions

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Business Heating Efficiency (E&G)

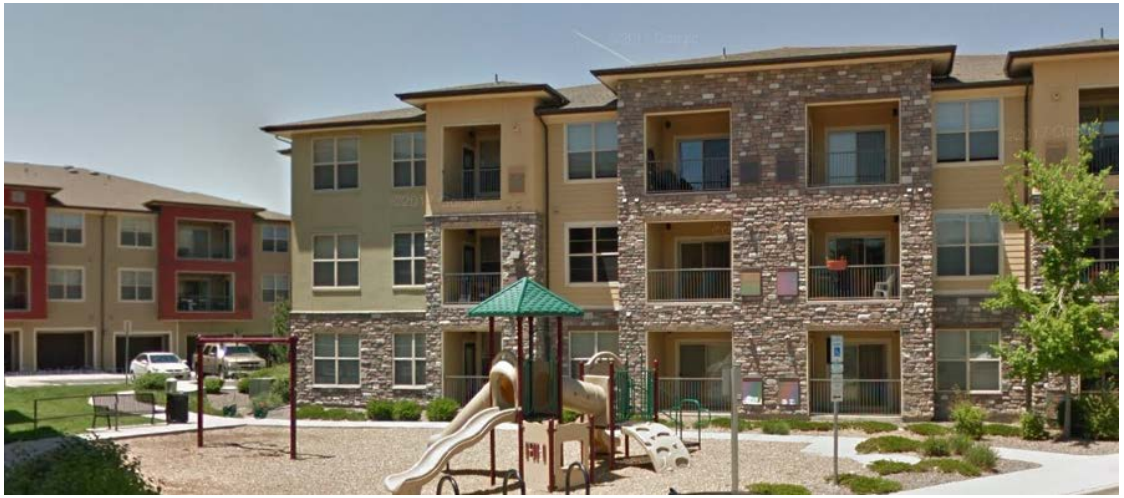
- Product fell short of 2018 electric targets where measures include
  - EC Fan Motor on New Commercial Furnace
  - Unit Heaters – Condensing, Non-Condensing, Infrared
- Exceeded natural gas targets, solid participation in
  - HE Commercial Water Heaters, including Tankless
  - New Hot Water Boiler >= 92% efficient
- Ozone Laundry measure launch delayed from 2018 to 2019 on vendor contracts, trade communications
- In 2019 focusing on more cost effective measures such as pipe insulation, aerators, larger boiler retrofits

Photo: Roberts Gordon

Photo: Rheem

Multifamily Buildings (Electric & Gas savings)

- Forecasted to over achieve the electric and slightly under achieve the gas savings targets
- Significant 2018 improvement in Stage 3 energy-saving opportunities, beyond direct installation
  - High efficiency lighting
  - Efficient hot water boilers
- Forecasted to achieve the direct install target and over achieve the number of assessments performed which builds a strong pipeline for 2019
- Building assessments with two large property management groups led to multi-measure electric and gas project savings and significant customer value.



Motors & Drive Efficiency (Electric)

- Variable Frequency Drives (VFDs) majority of savings
- 100-200 HP drives drove over 50% of 2018 energy savings, 10% of projects
- Heavily driven by the trade
- Made headway in 2018 with Oil & Gas Extraction in Northern Colorado
- Good achievement from
  - Water and Sanitation
  - Real Estate, Rental, Leasing
  - Hospitals
- Product slightly underperformed 2018 energy efficiency savings target

Photo: EQ

Energy Management Systems (Elec & Gas)

- Did not achieve 2018 Electric Energy Savings target
- Participation and savings growth occurred vs. 2017
  - Higher average savings per project in 2018
  - Demand achievement improved vs. 2017
- Barriers in trade partner understanding, perception about rates of project approval were addressed
- Q4 in-person visits to individual trade partner offices for refresher training
- Commercial and industrial customer segment participation was quite diverse in 2018 – a good sign for future opportunity
- Although the Product missed its natural gas target, trade partners were encouraged to target dual-fuel (electric & natural gas) saving projects in the future

DSM Residential, Low Income
Q4-2018 Highlights

Michelle Beaudoin
Team Lead, Customer Solutions

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Residential Cooling

Air Conditioning

- Simplified rebate structure launched October 1
- AC systems must be “QI” commissioned in warm weather
- New rebate use impacts will be fully seen in 2019

Measure type	Efficiency minimums	Customer rebate
Standard efficiency AC-ASHP with QI	under 15 SEER and 12.5 EER	$300
High efficiency AC-ASHP with QI	15 SEER, 12.5 EER	$600

Evaporative Cooling

- Product evaluation completed
- High customer and trade partner satisfaction with the product
- Recommendations for 2019 and beyond will increase participation, energy savings and net-to-gross

ENERGY STAR® New Homes (E&G savings)

Q4 Program Metrics:

Metric	Third Quarter	Fourth Quarter
Qualifying Homes	1,331	1,811
Average Home Size	3,584 sq. ft.	3,375 sq. ft.
Average HERS	56	57
2012 IECC or Higher	59%	70%
ENERGY STAR Certified Bonus Rebate	450	605

Q4 Achievements:

Savings	Q3	Q4
Dth	31,850	39,340
kW	268	271
kWh	1,013,579	1,571,412

Q4 Activity

- The annual Builder/Rater survey was sent to all product participants. Responses from 12 builders and 5 raters are being reviewed to decide what feedback can be used to make changes or updates to the product.
- Ekotrope, an energy modeling software, was launched for all raters. Currently, two raters are using Ekotrope when modeling the homes.

Residential Home Performance with ENERGY STAR®

Q4 Savings Achievements:

Net Gen kW	Net Gen kWh	Net Dth
46	54,368	2,384

Q4 Activity

- Ramped up Home Energy Squad Plus visits in preparation for 2019 with the purpose of connecting customers that complete these visits with the HPwES program and make the path towards participation more accessible
- Continued work on a new HPwES introductory video that will be posted and accessible to new Trade Partners as well as a refresher of the program rules for current Trade Partners

Low Income Single-family Weatherization

- **Q4 Activity**
- Neighborhood Sweep: Adelante Project
  - Led by Energy Outreach Colorado, City of Denver, and Colorado Department of Transportation
  - Location: Denver Elyria Swansea neighborhood
  - Purpose: Mitigate impact of I - 70 construction
  - 287 eligible homes - 253 chose to participate - 237 completed in Q4
  - Upgrades rebated by Xcel Energy do more than just save energy
  - Measures installed:
    - Storm Windows
    - Furnaces
    - Air Sealing & Insulation
    - Lightbulbs
    - Refrigerators
    - Programmable thermostats
  - Savings Realized:
    - Dth: 3,000
    - kW: 7
    - kWh: 83,023
    - Total Rebates: $157,000

- **Q4 Achievements**
- Low Income products recognized as Exemplary Program by ACEEE
- Product exceeded electric and met natural gas 2018 savings targets

Savings	
Dth	48,238
kW	103
kWh	1,310,212

Elyria Swansea, Denver, CO

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DSM Pilot and Product Development
Q4 2018 Highlights

Thor Bjork
Team Lead, DSM Product Development

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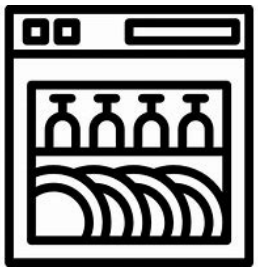
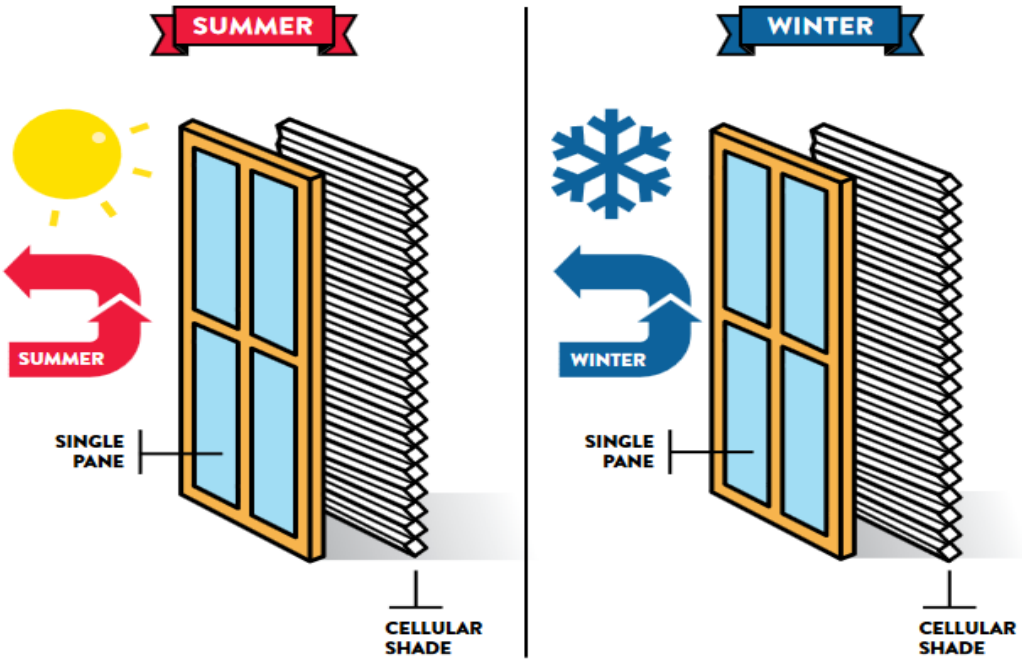
Behavioral Demand Response



- **Messaging to residential customers on peak control days**
- **Customers take voluntary actions to temporarily reduce or shift energy use during times of peak demand**
- **Based on other programs around the country we could get ~ 0.05kW per customer**
- **AMI is necessary to verify demand reductions**
- **Developing a pre-AMI test plan**

Cellular Shades



- "Fenestration attachments incorporating a cellular construction made from fabric or other materials joined together to form cells that trap air"*
- Minimum performance standards based on AERC recommendations
- $20 rebate per shade (based on an average size of 3' x 5')
- 15,000 units
- 5 kWh per window
- 0.04 Dth per window

Included in 2019/2020 DSM Plan

*AERC 1 technical standard

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Clean Water Pumps

- Commercial, Industrial, Agricultural, and Municipal applications
- Increase sales of efficient clean water pumps through the stocking and upselling of high efficiency equipment.
- New DOE label requirement goes into effect in 2020
- Measures based on PEI, pump type, and control strategy
- Expected average rebate ~ $300
- ~ 9 GWh savings

Plan to post a 60 – Day Notice in 2019

Product idea submissions

Share your Product Ideas:

www.xcelenergy.com/productideas

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- Networking Break -

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DSM Evaluation Results – 2018 Year End

Nick Minderman
DSM Regulatory

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DSM Evaluation Overview

- Evaluations are completed to position the Company for:
  - Programs that meet a customer need
  - Programs that have an impact on customer decision-making
  - Programs that are operationally efficient
  - Programs that increase awareness of the value of saving energy

- In 2018, three business and three residential products were evaluated

Residential	Evaporative Cooling	School Education Kits	Home Lighting & Recycling
Business	Lighting Efficiency	Custom Efficiency +	Data Center Efficiency *

Evaluation Recommendations & Outcomes

- Xcel Energy has posted 60-Day Notices to implement the recommendations for Evaporative Cooling, Data Center Efficiency, and School Education Kits
  - Lighting Efficiency and Home Lighting & Recycling to be posted in February
- Some 60-Day Notices do not match the recommendations perfectly because of other changes related to (for example):
  - Approaches that are more easily implemented in Xcel Energy's CRM
  - Anticipated product changes in the 19/20 DSM Plan

- EMI will present the key recommendations for all products

Xcel Energy - Colorado
2018 Evaluation Findings

PRESENTATION TO COLORADO ROUNDTABLE

February 13, 2019

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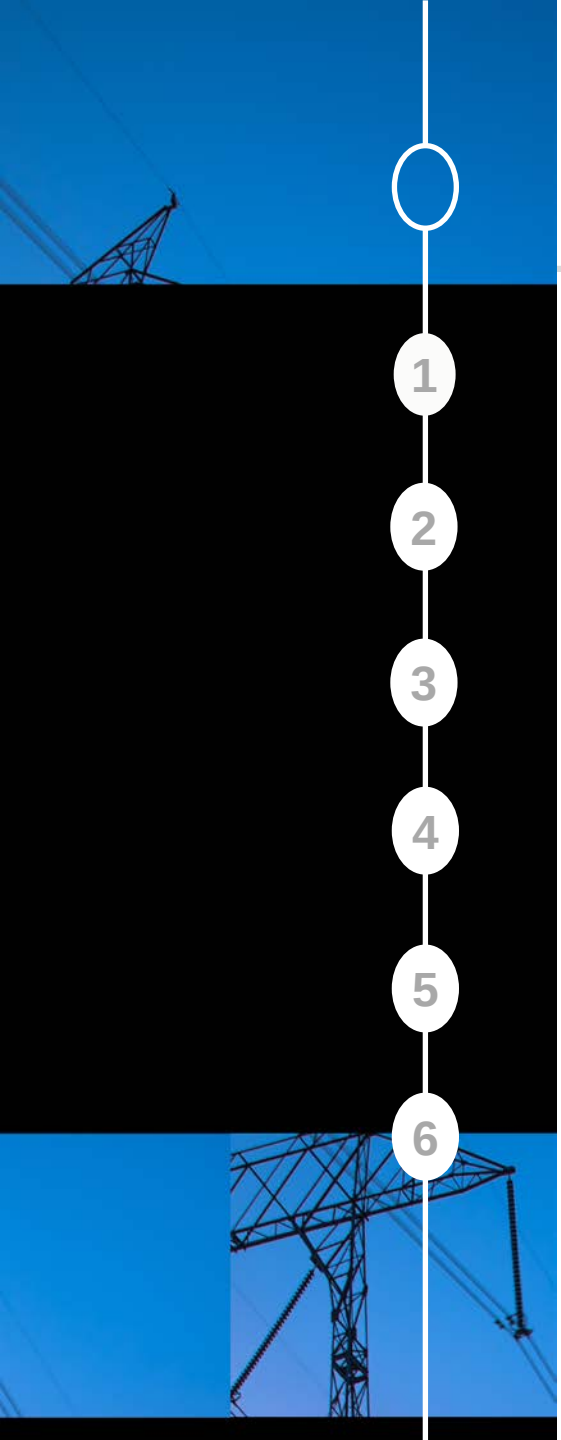
APEX ANALYTICS, LLC

RIDGE & ASSOCIATES



2018 EVALUATIONS

1. **Data Centers**
2. Evaporative Cooling
3. School Kits
4. Custom
5. Lighting Efficiency
6. Home Lighting

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RESEARCH METHODS

Primary Research Objectives	Participant Interviews (n=13)	Non-participant Interviews (n=5)	Trade Partner Interviews (n=7)	Peer program benchmarking (n=5)
Sources of awareness, improved customer engagement	X	X	X	X
Customer motivations, impact of incentives	X	X	X	X
Barriers to customer participation	X	X	X	X
Customer satisfaction	X	X	X	
Opportunities to improve implementation	X	X	X	X
Impact on efficient data center equipment availability and interest			X	
Trade partner business models, challenges, opportunities	X		X	X
NTG ratio	X	X	X	
Calibrate research focusing on similar products				X

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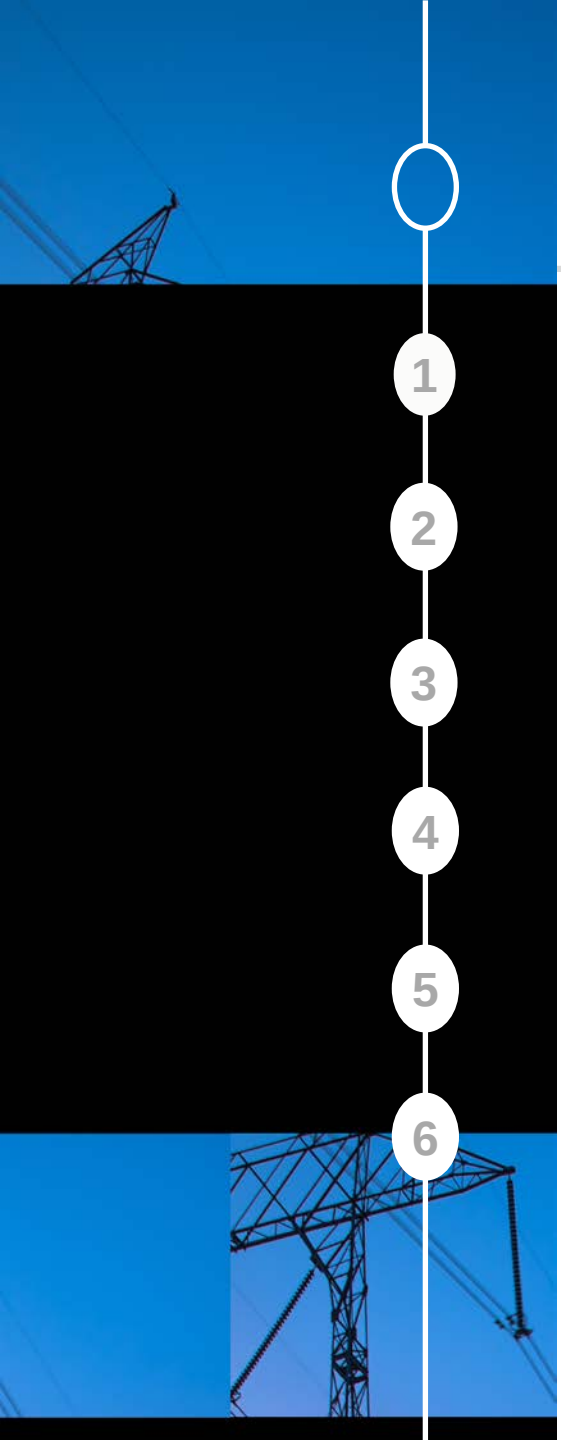
KEY FINDINGS

- Evidence shows staff need more detailed characterization of market to better target engagement activities.
- The recommended prospective NTGR is **0.65**.
  - While there is evidence that the Data Center Product is impacting parts of the market, the wide range of NTG values indicate that some participants are high free riders.
  - The influence trade partners have on customer decision-making varies.
  - As the data center market is highly competitive and IT equipment is quickly made obsolete, participants reported that they were highly motivated by standard industry practice.
- Market actors find determining eligibility difficult and had trouble completing rebate forms.

RECOMMENDATIONS

- Conduct a targeted market characterization study. Then target outreach efforts towards market actors with characteristics that indicate increased barriers to energy efficiency.
- Consider segmenting and incentivizing the market based on how and how many times they participate. Devise a method for documenting the customer journey.
- Consider having a dedicated resource to promote the product to potential new participants.
- Further develop trade partner engagement opportunities.
- Promote technologies that are not well accepted through implementing a tiered incentive structure.
- Make sure eligibility requirements are explicit, clearly communicated, and easy to find on every communication channel.
- To make forms easier to complete, consider changing the format to an Excel workbook or online form and review fields and structure of documents to make them more user-friendly.



2018 EVALUATIONS

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RESEARCH OBJECTIVES / METHODS

Research Objective	Participant Surveys (n=71)	Near-Participant Surveys (n=71)	Trade Partner Interviews (n=20)	Peer Utility Benchmarking (n=5)
Assess customer and trade partner awareness and perceptions of evaporative cooling technologies.	●	●	●	
Assess customer and trade partner awareness and perceptions of the rebate and other Xcel Energy marketing activities.	●	●	●	
Characterize key barriers in the customer decision-making process related to evaporative cooling purchases.	●	●	●	●
Assess customer and trade partner experiences and satisfaction with the product.	●		●	●
Estimate a NTG ratio documenting the product's influence on customers' decisions.	●		●	
Characterize the role of market actors (manufacturers, manufacturer reps, distributors, retailers, and new home builders) in the evaporative cooling market in Colorado.			●	
Estimate product impacts (net-to-gross analysis).	●		●	●
Identify opportunities to improve product implementation.	●	●	●	●

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KEY FINDINGS

- Customers are very likely to replace existing cooling systems with “like” systems, making it difficult to convert customers from central AC to evaporative cooling.
- Lack of experience with how an evaporative cooler operates may be preventing more customers from seriously considering this type of equipment. Maintenance/access concerns are particularly important.
- Window and roof-mounted evaporative coolers face heavy competition from other cooling technologies such as central AC systems, mini-split heat pumps, and non-rebated portable evaporative coolers.
- While contractors interviewed by the evaluation team indicated that nearly all eligible evaporative coolers they sell are rebated, there is some indication from wholesalers that not all units sold receive a rebate.
- There is evidence from this evaluation that the Evaporative Cooling Product is having a net positive influence on customer decisions regarding high efficiency residential cooling equipment in the Xcel Energy service territory in Colorado.

RECOMMENDED NTGR

Existing, Retrospective, and Prospective NTGRs

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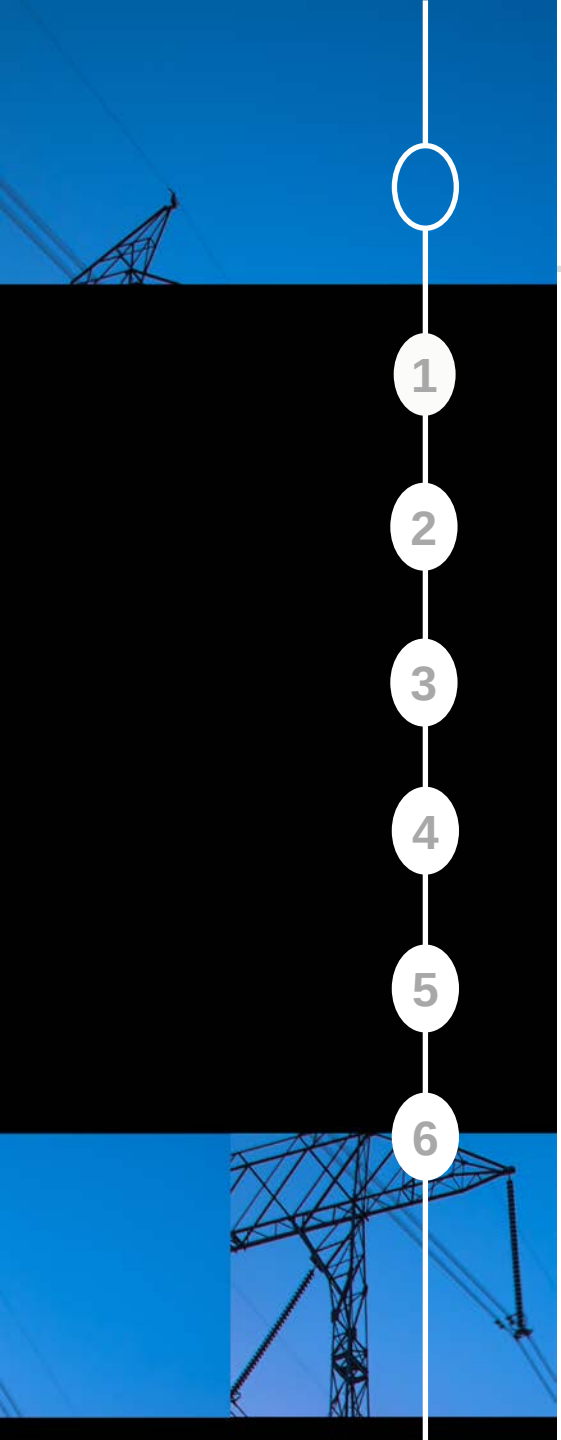
RECOMMENDATIONS

- Continue to target customers without a cooling system & areas of lower socioeconomic means.
- Consider increasing rebate amount for first time installations, decreasing rebate amount for whole house replacement, and keeping other replacements rebate static.
- After implementing instant incentives mechanism—consider partnering with retailers to give customers first-hand experience.
- Consider partnering with contractors to provide information on proper maintenance to potential buyers.
- The recommended retrospective product-level NTGR is 0.60. Optimize influence by (1) prioritizing whole house systems and first time installations, and (2) partnering with retailers to promote evaporative cooling systems through in-store displays in coordination with an instant rebate at the point of sale. These modifications would allow the product to increase its influence in the market, resulting in a recommended prospective product-level NTGR of 0.70.
- Separate the “Whole House” product tier into two separate tiers—a first-time tier and replacement tier.



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RESEARCH OBJECTIVES & METHODS

	Staff Interviews (n=2/2)	Participating Teacher Web Survey (n=153/150)	Participating Household Web Survey (n=109/100)	Follow Up Teacher Interviews (n=13/12)	Peer Utility Benchmarking (n=4/6)
Free-ridership, spillover, NTGR		X	X	X	
Installation rates & measure persistence			X		X
Teacher background		X		X	
Household characteristics			X		
Implementation process	X				
Student engagement		X	X	X	
Program satisfaction		X	X	X	
Measure awareness		X	X	X	
Additional kit measures		X	X	X	X

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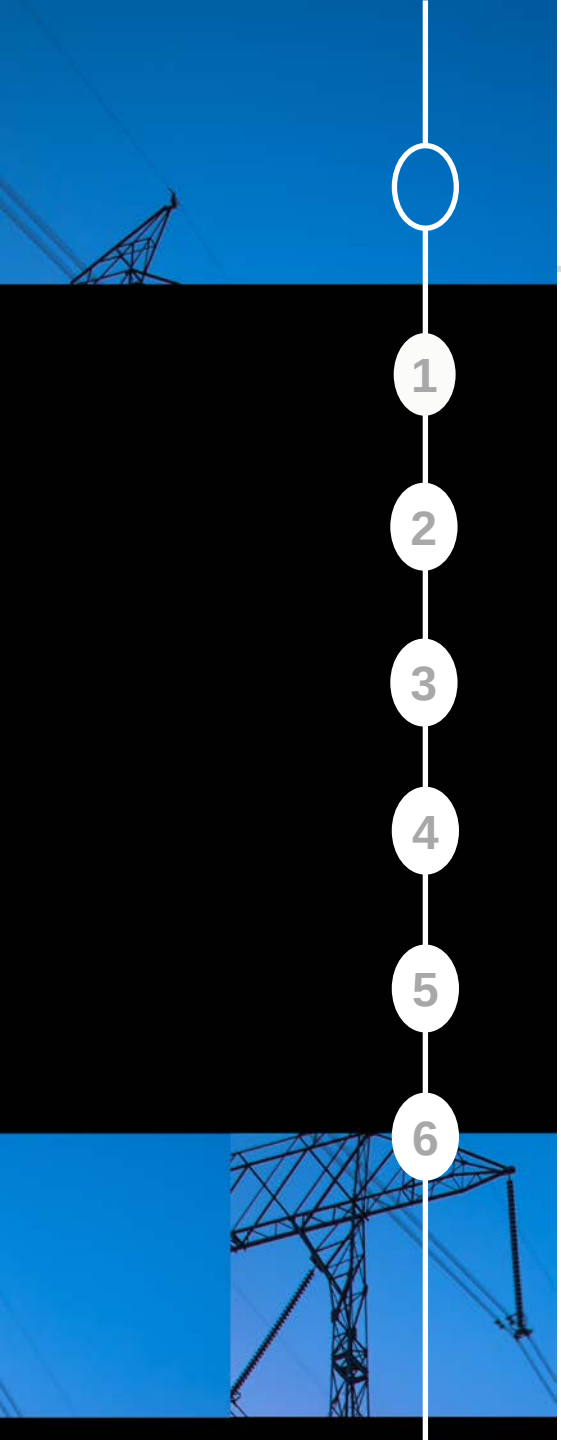
KEY FINDINGS

- Teachers and households are very satisfied with the School Education Kit Product. The product is functioning well and providing energy-efficient equipment to households that are installing equipment, learning about efficiency, becoming interested in other opportunities to save energy, and actually investing in additional energy efficiency solutions.
- Free-ridership estimated at 32% with a spillover rate of 35%.
- Installation rates for water-related measures are generally lower than Home Energy Worksheet estimates.
- Schools with higher % of students on free and reduced lunch reported a higher importance for kit measures.
- Households are familiar with LEDs and have installed them.
- Teachers and other programs demonstrated a benefit for in-school presentations.
- The product educates households who are now interested in learning about other, larger solutions.

RECOMMENDATIONS

- Maintain product NTG of 1.0.
- Decrease the installation rates for energy efficient showerheads and aerators to account for households that said they ”will install” measures but did not end up installing.
- Consider targeting lower income schools where percentage of households with kit measures already is lower.
- Explore the feasibility of additional kit measures such as outdoor lighting (solar), smart energy strips, and thermostats.
- Consider opportunities for in-school demonstrations or trainings.
- Include information pamphlets in the kits with resources on ways to save energy.



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RESEARCH OBJECTIVES & METHODS

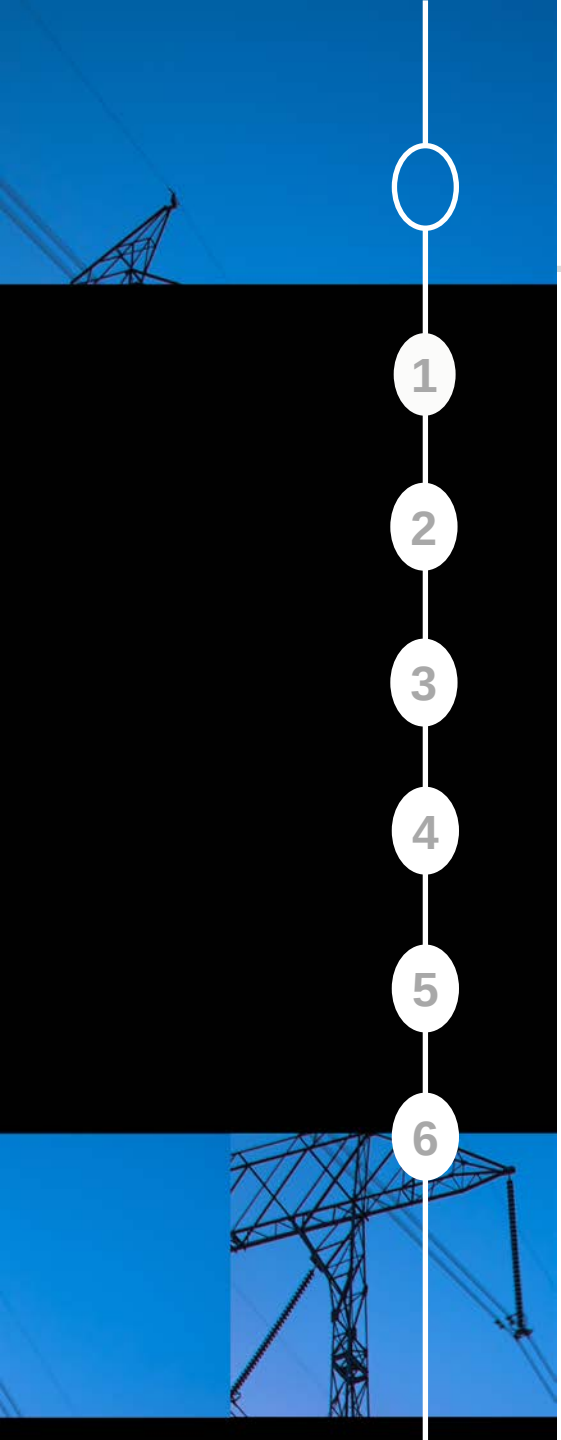
Primary Research Objectives	Staff Interviews (n=6 groups, 15 people)	Participant Interviews (n=7)	Peer program benchmarking (n=4)
Understand perceptions among customers	X	X	
Understand customers' experience and satisfaction with the product and how this influences participation		X	
Characterize the barriers to participation experienced by customers	X	X	X
Identify opportunities to increase participation in the Custom Efficiency Product.	X	X	X
Identify opportunities to improve the application process	X	X	X
Identify methods to engage trade partners in promoting the product to customers and completing projects			X
Identify innovative custom efficiency approaches implemented by peer utilities			X

KEY FINDINGS

- Participating customers are satisfied with product.
- Xcel Energy staff have a desire to increase participation in the Custom Efficiency Product but struggle to do so.
- While customers do not perceive challenges in the application process, Xcel Energy staff experience challenges.
- Xcel Energy staff believe there is an opportunity to engage more with trade partners.

RECOMMENDATIONS

- Market the Custom Efficiency Product to past DSM participants.
- Re-visit including website link to submit project ideas.
- Improve application processes so trade partners and account managers are more willing to pursue custom projects. (see details in report)
- Provide training to trade partners on Custom Efficiency Product.



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RESEARCH OBJECTIVES / METHODS

Research Objective	Participant Surveys (n=232)	Trade Partner Interviews (n=41)	Peer Utility Benchmarking (n=5)
Identify barriers and programmatic adoption strategies for lighting controls.	●	●	●
Investigate DLC and non-DLC offerings.	●	●	●
Assess application form.	●	●	
Estimate product impacts (net-to-gross analysis).	●	●	●

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KEY FINDINGS

- Participant customers indicate significant opportunities for increasing lighting control strategies, citing cost as the most common barrier to installation.
- Changes to product offerings allowing non-DLC-qualified products received mixed reviews from trade partners.
- There is a learning curve associated with the application form.

FINDINGS & RECOMMENDATIONS: NTG

Retrospective and Prospective NTGRs

Prospective NTG Recommendation	2017	2019
Without Recommended Changes	96%	67%
With Recommended		74%

Prospective NTG captures changes in LED market:

- LED prices are dropping
- LED market share is increasing

Recommended changes:

- Promote additional early replacement of working lighting equipment
- Remove prescriptive lighting efficiency new construction rebates
- Expand trade partner network and focus efforts on mid/low performing trade partners
- Continue to monitor changes to the lighting market

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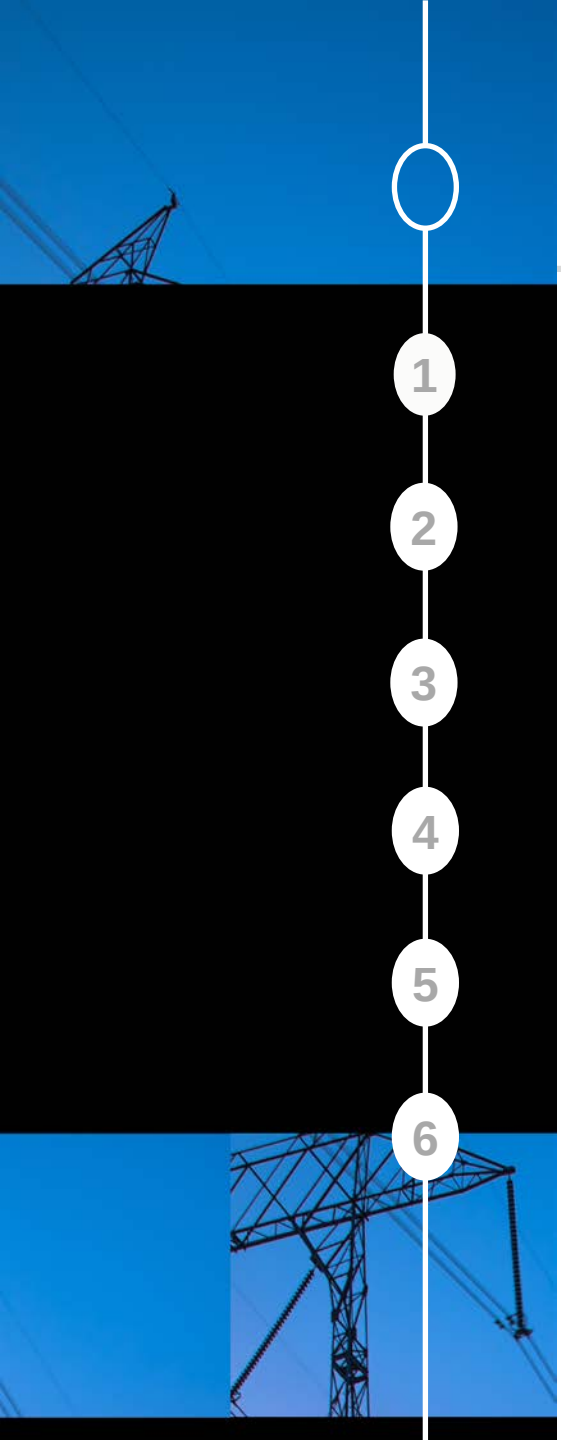
RECOMMENDATIONS

- Focus product efforts on increasing adoption of lighting control strategies through focused campaigns and trade partner trainings.
- Consider applying a separate NTGR to lighting control strategy measures.
- Monitor satisfaction with non-DLC-qualified products among participant customers and reassess non-DLC incentives if product satisfaction is substantially less than DLC-qualified products.
- Assess ways to simplify application form to make accessible to more customers and trade partners.



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RESEARCH OBJECTIVES / METHODS

Research Objective	Manufacturer Interviews (n=8)	Peer Utility Benchmarking (n=5)	Sales Data Modeling
Assess lighting industry changes.	●	●	
Underserved markets (what, if any, sectors could benefit from the Home Lighting Product, and what barriers still exist for LEDs?)	●		
Estimate product impacts (net-to-gross analysis).	●	●	●

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KEY FINDINGS

- Implementation of the EISA backstop and GSL expansion remains uncertain.
- Manufacturers differ on how to impact hard-to-reach populations.
- Manufacturers are planning for LED market dominance.

FINDINGS & RECOMMENDATIONS: NTG

- Sales data modeling
  - Model explains the variation of LED market share as a function of product intensity and other variables
  - Total of 42 U.S. states included in the model

$$LED\ Market\ Share_i = \beta_0 + \beta_1 * \sum Product\ Intensity\ Variables + \beta_2 * \sum Channel\ Variables + \beta_3 * \sum Demographic\ Variables$$

Variables
Product Spending per HH (sq. root)
SqFt of DYI/Club Stores per HH
Product Age (Years)

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FINDINGS & RECOMMENDATIONS: NTG

Retrospective and Prospective NTGRs

Prospective NTG Recommendation	2017	2019+
Sale data modeling	82% (with market effects)	n/a
Manufacturers	74%	61%

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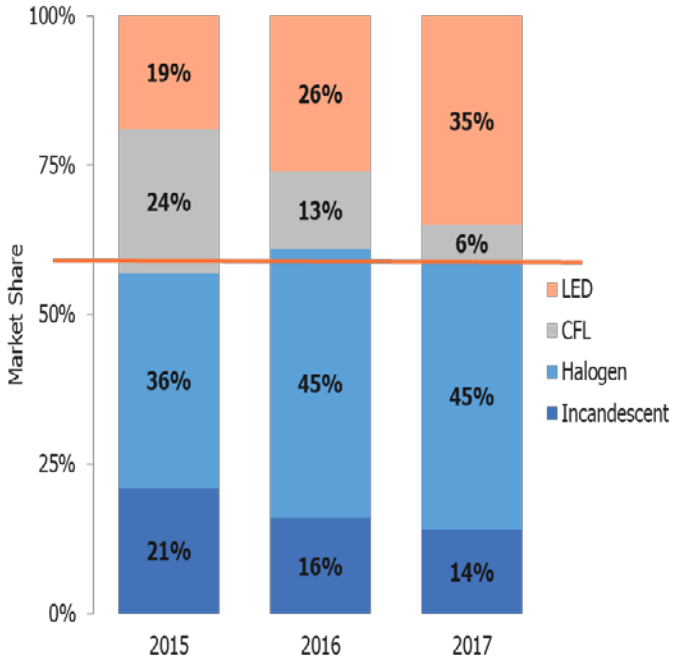
RECOMMENDATIONS

- Continue running upstream lighting products until legislation solidifies or LEDs become the predominant technology.
- Reassess prospective NTGR value when the fate of EISA backstop implementation becomes clear.
- Closely monitor legislative actions for direction on EISA.
- Xcel Energy will need to design and test a variety of methods if they choose to target hard-to-reach populations. Consider focusing staff and customer education efforts on discount and mass merchandiser stores and continue bringing outreach events and giveaways to low income and immigrant geographies.
- Xcel Energy should plan for decreasing NTGR as options for inefficient bulbs diminish.

SUPPLEMENTAL SLIDES

- Year-Over-Year US Market Share by Lamp Type



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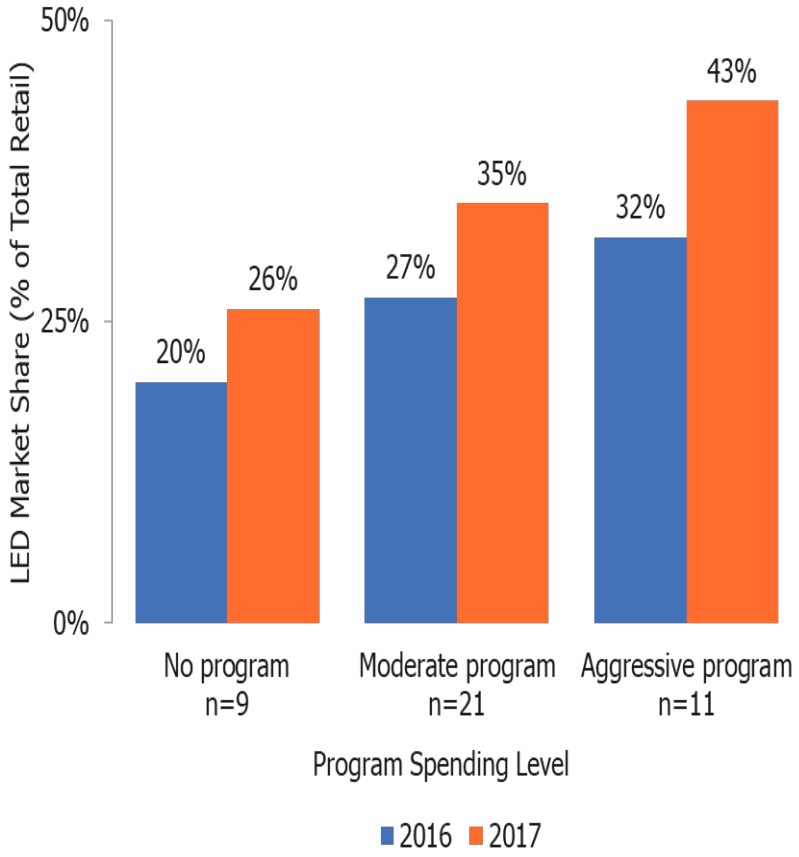
SUPPLEMENTAL SLIDES

- Relationship between Program Spending and LED Sales



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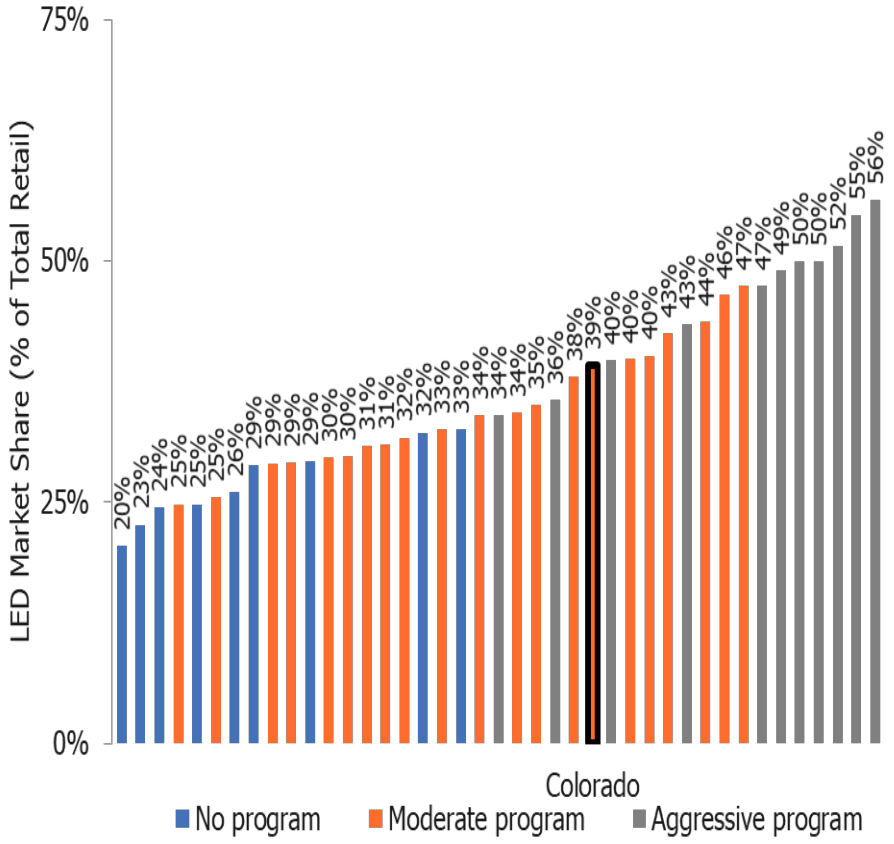
SUPPLEMENTAL SLIDES

- LED Sales Distribution Across States (2017)



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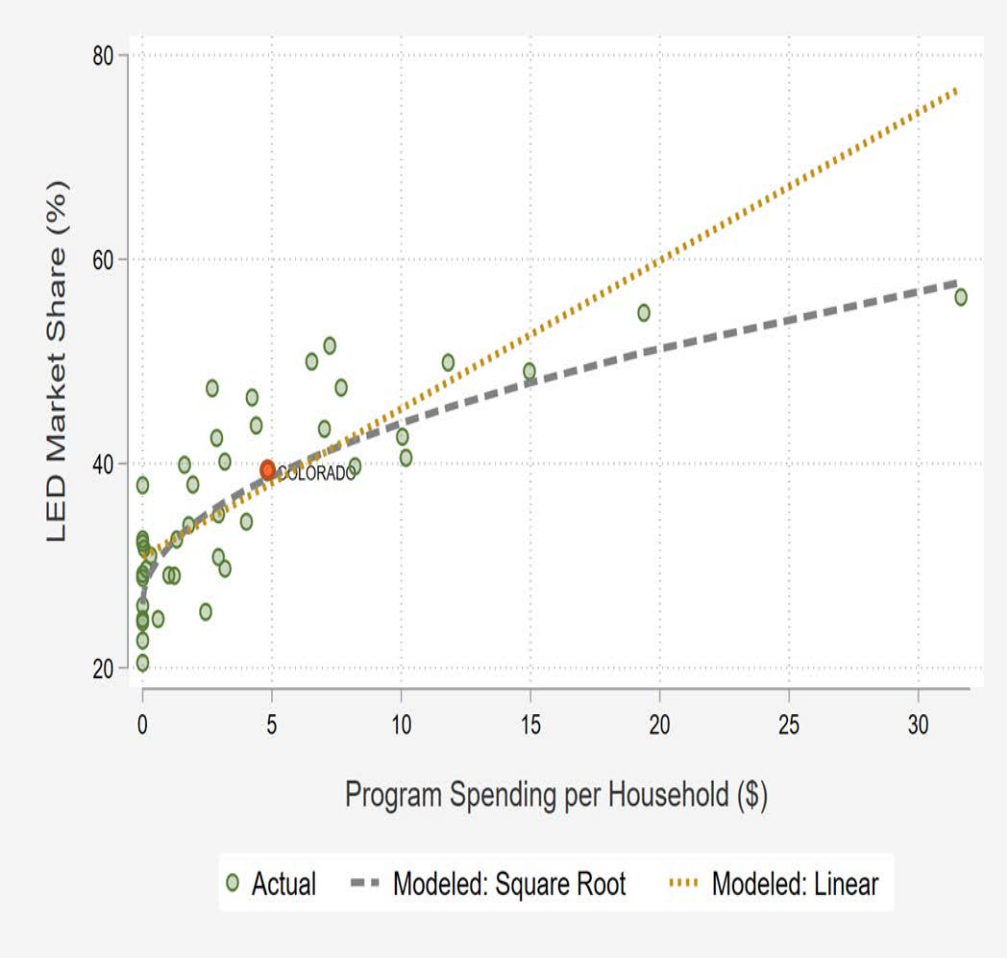
SUPPLEMENTAL SLIDES

- LED market share vs. program spending per HH (2017)



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