



2018 Fourth Quarter Colorado DSM Roundtable Update

February 13, 2018

Public Service Company of Colorado (“Public Service” or “the Company”) provides the following update regarding product status including energy and demand savings achieved, product expenditures, implementation changes, and measurement and verification (“M&V”) modifications.

Product Implementation Status

Please refer to the attached table for the preliminary fourth quarter 2018 (cumulative Jan. 1 – Dec. 31, 2018) product energy and demand savings achieved, product expenditures, and CO₂ and SO₂ emissions avoided. In total, Demand-Side Management (“DSM”) electric products have achieved savings of approximately 455 GWh and gas savings of 605,912 Dth in the 2018 calendar year. This represents approximately 106% of the 2018 electric DSM plan’s energy savings target of 429 GWh and 106% of the gas target of 573,139 Dth.

The following section provides product status activities for the fourth quarter of 2018 in the Business, Residential, Low-Income, and Demand Response Products, as well as Indirect Products & Services and other related activities.

Business Product

- **Commercial Refrigeration Efficiency** – The product did not reach its targeted savings in 2018; however, performance was better than previous years. The Company found that participation has continued to decline for both measures and the product as a whole, with each passing year. After several years of the product being provided by one implementer, the Company will go to RFP in 2019. It was decided, after much thought and effort, that the product would begin 2019 with a new implementer; CLEAResult. The team is excited for a fresh perspective and looks forward to working with the new implementer. The focus of 2019 will be to make the transition of the implementer as smoothly and efficiently as possible for staff, customers and trade, building pipeline, possibly conducting some marketing campaigns and hosting at least a couple trade partner events.
- **Compressed Air Efficiency** – The product fell short of its savings target to end 2018. In early October, the product hosted a Fundamentals of Compressed Air Challenge for the trade, which is a day-long training course intended to boost trade awareness, education, and in turn, customer participation and engagement. The event was well attended and received by members of the trade community so the Company will host an Advanced Compressed Air Challenge in March, 2019. This is also an opportunity for continued learning for the trade. Similar to the first event, we are hoping this outreach continues to generate more awareness of the technologies and offerings within the product, as well as, increased customer and trade participation and engagement. The focus of first quarter outreach, and throughout 2019, will be to educate and work with the trade to increase pipeline and potentially conduct a marketing campaign.
- **Computer Efficiency** – The product did not achieve its year-end savings target. The Company posted a 90-Day Notice to terminate the product, which went into effect on December 31, 2018. The product has transitioned cost-effective measures into the Data Center product.
- **Cooling** – The product did not achieve its year-end savings target. The midstream product continues to see significant growth across all measures. The product will work with account managers to promote custom cooling projects in 2019.

- **Custom Efficiency** – The product did achieve its year end savings target. Product management will continue to work with account managers to identify and promote custom projects. The custom process efficiency evaluation identified several areas that will help improve participation in the product in 2019.
- **Data Center Efficiency** – The product did not achieve its year-end electric savings target. A few customer projects were completed during the fourth quarter while several more are planned for completion in mid-2019. The Company will focus on launching the new prescriptive measures from the Computer Efficiency product and conducting trade partner outreach during the first quarter of 2019.
- **Energy Management Systems (“EMS”)** – The EMS product did not achieve its full year electric energy savings target. However, full-year electric achievements were substantially greater than the prior year. Demand achievement was near its target. Growth was mainly due to greater average savings per project, which had been declining in recent years. The product’s natural gas savings fell short of its target. Gas savings were from projects that save electricity as well as the Company’s retail natural gas. Within the quarter, the Company visited several trade partner offices to improve understanding. The meetings provide training about functions that can yield peak-coincident savings. They also highlight the value the product can have to the performance contractors. In several cases, the meetings have corrected trade partner misconceptions about actual rates of approval. Trade partners were also encouraged to target projects for dual-fuel (gas and electric) customers.
- **Heating Efficiency** – The product did not achieve its year-end electric targets, but did exceed its gas target. 2019 will see some measures discontinued and the launch of the new ozone laundry measure.
- **LED Street Lights** – Interest from customers decreased in 2018 relative to the last two years and the product did not meet its electric savings target. At the end of the year the product retrofitted 2,721 units and achieved 15% of its filed target.
- **Lighting Efficiency** – The product exceeded its energy savings targets for the year. The achievement year-to-date was highest for LED tubes, LED troffers and LED area lighting measures. In the fourth quarter the product completed four networked lighting controls trainings in conjunction with various manufacturer partners to provide contractors, distributors and specifiers with foundational training of networked lighting controls as well as hands-on experience with specific networked lighting control systems. The Company will continue its efforts to train and promote the networked lighting controls offering to customers and contractors in 2019.
- **Lighting – Small Business** – The product performed well throughout the 2018 year and surpassed its forecast for electric energy savings in the fourth quarter. The achievement year-to-date was highest for the LED Troffer, LED area lighting, and LED tube measures. The participation did pick up during the fourth quarter, but the product did not meet the gas target for the year.
- **Motor & Drive Efficiency** – The product finished 2018 just under the savings target. This is mostly due to projects closing dates changing to early 2019. The product will focus on pipeline, trade and customer engagement and potentially some marketing campaigns in 2019. Most of the savings came from participation and installation of variable frequency drives.
- **Multifamily Buildings** – The product finished 2018 by marginally under achieving the gas target and over-achieving its electric target which was supported by strong participation in “stage two” direct install measures and significant savings from direct installations. The number of assessments performed was overachieved which builds a strong pipeline for 2019.

- **New Construction** – The product performed well throughout 2018 exceeding its electric target but missing its gas target. Analysis of product performance point to delays of several large gas projects, as well as an above-average share of electric-only projects as a major contributor of the product's missed gas target. Product enrollment decreased 20.1% in 2018 compared to 2017, but was consistent with its 5-year average. Given the changes to product design taking place in the 2019 plan year, much of the product's focus in Q1 2019 will be aimed at both customer and trade education.
- **Process Efficiency** – The product met its energy savings targets, and nearly doubled its prior year savings. Particularly within the quarter, customers implemented lighting projects. Several customers reprioritized their recommended opportunities to favor lighting projects. However, there were no new enrollments and no study completions during the fourth quarter which may impact long term achievements. To address this, the Company continues to offer “re-studies” for inactive enrollees to revive interest in customer participation. The Company has also been conducting more formalized and regularly scheduled follow-up sessions. Finally, the Company is seeking and sharing best practices by increasing interaction with the Consortium for Energy Efficiency, the American Council for an Energy-Efficient Economy, and E Source.
- **Recommissioning** – The product did not achieve its year-end electric or natural gas savings targets despite having an active fourth quarter. Half of the Small Building Tune-Up signups from the summer promotion were completed during the fourth quarter. The remaining signups will be completed during the first quarter of 2019.
- **Self-Direct** – The product did not achieve its year-end electric savings target. Projects in the pipeline are scheduled for completion in the coming years. The Company will continue discussions with engineering firms to add projects to the pipeline.

Residential Product

- **Energy Efficiency Showerheads** – The product has had lower rates of participation from its marketing campaigns than in previous years and underachieved its goal this year.
- **Energy Feedback Residential** – The product exceeded year-end savings targets while staying within budget. The Company continues to leverage the printed and digital Home Energy Reports to promote other DSM products. The large wave of customers added in 2015 continues to show strong savings.
- **ENERGY STAR® New Homes (“ESNH”)** – The ENERGY STAR® New Homes product exceeded electric and natural gas savings targets in 2018. Homes compliant with 2012 or 2015 IECC codes represented 60% of the qualifying homes. The Company expects to see this percentage continue to increase as more areas on older codes will adopt IECC 2015 or 2018. Builder and rater trainings are being planned for the first and second quarters of 2019 to maintain or increase product participation in these areas.
- **Evaporative Cooling** – Projections for a flat sales year appear to have been accurate. Year to date participation is trailing 2017 by 5 percent, and is forecasted to end the year in that position as well. The product evaluation was completed in the fourth quarter and a 60-Day Notice to implement the recommendations was posted on February 1, 2019.
- **High Efficiency Air Conditioning** – The product is on track to meet year end forecasts. The Company is reviewing the mini-split heat pump measure first introduced in March 2017 to determine if updates to assumptions and tactics are needed.
- **Home Energy Squad** – Strong participation continued through the fourth quarter, and per-customer electric savings have been higher than expected, but the product will not achieve its

savings or participation targets for the year. The marketing push that began in September continued, with additional emails being targeted at customers who had previously engaged with the product. In addition, customers received a bill insert and Home Energy Report module toward the end of the year. Close involvement with Partners in Energy communities and the Energy Resources team continues to be pursued, in addition to Spanish-language outreach and cross-marketing with the Refrigerator Recycling and School Education Kits products. The product began promoting “Squad Plus” visits, which combine a Home Energy Squad visit with a Home Energy Audit. These visits are intended to be a gateway to other energy efficiency products, such as Home Performance with Energy Star.

- **Home Lighting & Recycling** – Home Lighting & Recycling did not achieve the forecasted target in 2018, although we did see an increase over 2017 results. Fourth quarter efforts included increased customer education at multiple community events to promote the benefits of LEDs and increased product awareness through our fall advertising campaign. The product completed a formal evaluation in December 2018 to assess lighting industry changes, product attribution (net-to-gross) and underserved markets. Results of the evaluation will inform product decisions in 2019.
- **Home Performance with ENERGY STAR® (“HPwES”)** – The product underachieved its electric and natural gas savings targets in 2018 and came in under budget. Trade partner trainings and adding Home Energy Squad Plus (combination of a Home Energy Squad visit with a Home Energy Audit) visits as a qualifying upgrade are intended to increase participation in 2019. In addition, the Company will evaluate product structure and rebates in 2019.
- **Insulation & Air Sealing** – The product exceeded its natural gas targets. The product overachieved the demand reduction savings but did not achieve the energy savings target. The Company will continue to market the product through bundled campaigns in order to maintain participation in 2019.
- **Refrigerator & Freezer Recycling** – Participation remained strong in the fourth quarter, driven by a Halloween-themed email campaign. Close involvement with Partners in Energy communities will continue, as will cross-marketing with the Home Energy Squad and School Education Kits products. The product is not expected to achieve its energy savings targets due to lower than expected energy savings from recycled appliances, but it stayed under-budget for the year and nearly met its participation target for the year. The new Room Air Conditioner recycling measure will launch on January 1, 2019.
- **Residential Heating** – The product is on track to meet all year end targets.
- **School Education Kits** – Participation for the fall semester exceeded 18,000 students, bringing the annual total to 38,501. The product exceeded its savings targets for the year due to strong installation rates of the energy-saving equipment distributed to students.
- **Water Heating** – The product overachieved the natural gas targets. The natural gas tankless measure continues to see an increase in participation relative to the tank measure. Participation for electric heat pump water heaters did not meet the Company’s expectation for participation for the year. The expansion of instant rebates in 2019 will be used as a tactic for increasing participation in electric heat pump water heaters.

Low-Income Product

- **Energy Savings Kits** – The product did not meet electric or natural gas savings targets due to lack of participation. This is largely due to the fact that the number of customers applying for energy assistance has decreased. The Company is working on obtaining qualifying customer

leads outside of energy assistance to increase participation for 2019. In line with savings, the product stayed under budget.

- **Multifamily Weatherization** – The product had a very strong fourth quarter, and exceeded both electric and natural gas energy savings targets. Partnership with Energy Outreach Colorado (EOC) to help fund equipment retrofits and process improvements for electric and natural gas energy efficiency measures in low-income, multi-family buildings continues and has resulted in over 60 completed projects and more than 20 projects in the pipeline for 2019.
- **Non-Profit** – The product exceeded electric and met natural gas savings targets. In 2018, the partnership with EOC has resulted in over 50 completed projects and more than 30 additional projects identified for 2019. Projects completed in the fourth quarter reach past the Denver metro area, such as Grand Junction and Alamosa.
- **Single-Family Weatherization (SFWx)** – The product exceeded year-end electric and met natural gas savings targets through the Weatherization Assistance Product (WAP) and the Colorado Affordable Residential Energy Product (CARE). Additional funding to the CARE product at the beginning of the year has supported increased weatherization upgrades through the fourth quarter.

Indirect Product

- **Business Education** – Through the fourth quarter of 2018, the Business Education product achieved approximately 102 percent of the year-end participation target and generated 527 customer leads. Participation and outreach through key community and trade association events continue to create a meaningful conversation with customers. By the end of the fourth quarter, the Company provided outreach through 23 community-based event days. In addition, the product has been supported through energy efficiency messaging via the Energy Solutions newsletter, as well as a mass marketing print campaign. The combination of these initiatives continues to support DSM achievements.
- **Business Energy Analysis** – Marketing efforts in the early fall brought in enough participation to completely book the product through the end of the year. Although the product's participation came in slightly under target, it saw consistent engagement in the fourth quarter. The product has a lot of momentum moving into 2019 with an overflow of audits that were scheduled late 2018. Transitioning into the first quarter of 2019, we expect new implementation and the addition of direct install measures available for customers with a peak demand of less than 100 kW to spark a lot of interest in the product. If participation slows down, promotions through social media, direct mail or email will remain a viable option.
- **Consumer Education** – Through the fourth quarter of 2018, Consumer Education achieved approximately 168 percent of the year-end participation target and generated 5,287 customer leads and 394 signups. Participation and outreach through key community events continues to create a meaningful opportunity to address energy efficiency with customers. By the end of fourth quarter, the Company provided outreach through 110 community-based event days. In addition, the product has been supported through conservation messaging in residential newsletters and web-based channels. The combination of these initiatives continues to drive participation in DSM products.
- **Energy Efficiency Financing** – The Company continues to develop its partnerships with the Colorado Energy Office's RENU loan product and Elevations Credit Union. Over 80 trade partners have signed up to offer these products to customers across the state. The Company is working to promote awareness by including financing messaging in marketing efforts for all relevant products and trade partner trainings, and by including a Financing section in the Heating,

Ventilation, Air Conditioning, and Refrigeration web portal, where customers can easily find which trade partners can offer them the rebate and financing option they want.

The Commercial Financing Product launched a new streamlined web portal in the fourth quarter. In two minutes or less, trade partners can create a customized financing estimate through HBC Energy Capital. HBC Energy Capital uses its industry-wide relationships and leading edge lender-partners to provide the best rates and terms to optimize energy efficiency projects. This includes CPACE financing when appropriate. The Company hosted 3 one-hour webinars on the new financing portal in November with approximately 32 trade partners attending. For the fourth quarter, the product received 20 proposal requests with 2 completing the process for loans in the \$50,000 to \$150,000 price range.

- **Home Energy Audit** - Participation in the Home Energy Audit product decreased compared to 2017. The discounted visit in combination with the Home Energy Squad has launched, and the name has been established as “Home Energy Squad Plus.” Early feedback from customers has been positive, and the third-party vendor coordinating these visits is working to onboard additional independent auditors. By promoting these combined visits, the Company hopes to simplify the customer experience, increase participation in the Home Energy Audit product, encourage participation in other DSM products, and to eliminate customer confusion regarding the difference between a Squad visit and an Audit.
- **Energy Benchmarking** - The Company supports municipalities within its service territory to reach their benchmarking targets. During the fourth quarter, 57 new participant buildings were added. This brings the total Colorado building count to 3,397.
- **DSM Planning & Administration** – During the fourth quarter the Company continued to respond to discovery requests as well as facilitate settlement discussion with parties to the Company's 2019/2020 DSM Plan filing. The Company also filed supplemental testimony addressing the impact of product evaluations that significantly reduced the net-to-gross value for the residential and business lighting products.
- **Product Evaluations** – 2018 evaluation results and draft reports were presented to the Company in Q4 with most of the reports finalized by the end of the quarter. Two evaluations (Custom Efficiency and Lighting Efficiency) had additional discussions regarding product processes that drove follow-up drafts that were not complete by December 31st.
- **Measurement & Verification** – The Company's third-party verification contractor, Nexant, completed random field inspections for prescriptive products for the 2018 M&V year, with no significant variances.
- **Market Research** – The Home Use study is complete. Highlight reports are complete that identify changes from prior studies. The most notable change from 2016 is the rapid growth of LED lighting in all home types. Planning has started to field a small commercial end use study during Q1 2019 in CO to reach 400 businesses with demands between 25 and 125 kW.
- **Product Development** – Current development efforts include:
 - Research and development into advanced energy communities which are district-scale development projects that have aggressive energy targets and include multiple energy systems (energy efficiency, demand response, advanced grid, renewable energy, storage, and electric vehicles.) The Company is looking into product designs that can help meet the needs of these projects;
 - Advanced roof top unit controllers that operate a variable frequency drive using advanced economizer and demand-controlled ventilation;
 - A residential measure for ENERGY STAR® radon mitigation fans;
 - A pilot that tests the use of residential batteries to provide demand response;

- A pilot that deploys energy efficiency and demand response into a specific location in the distribution system in order to defer or avoid traditional distribution investments to meet a need for additional distribution capacity;
 - A pilot that manages when electric vehicles charge to reduce their impact on system peak load and provide other possible system benefits; and
 - Direct load control switches with two-way communications that control air conditioners and water heaters.
 - Smart thermostat demand response for small and medium businesses.
 - A residential water heater demand response measure.
 - Sending electronic alerts to customers who are on track to have a higher than normal monthly bill. The alert will provide behavioral tips on how to save energy and manage their energy costs.
 - A behavior-based demand response product for residential customers that uses pre and post-event communications and social comparisons to reduce customer consumption during demand response events.
 - A residential measure for cellular shades.
- **Thermostat Optimization Pilot** – Nest Peak Aware Seasonal Savings summer optimization product successfully recruited about 11,000 participants, with initial cooling savings results of over 35 kWh per unit. This pilot also included a deployment of Tendril's Orchestrated Energy optimization to ecobee customers as well as an employee-only pilot with Nest devices; initial savings estimates are consistent with 2017 results.
 - **ENERGY STAR® Retail Products Platform Pilot** – The pilot exceeded its electric year end savings target, but did not reach its gas target. Evaluation work with the third-party contractor concluded in the fourth quarter.

Demand Response Product

- **Residential Demand Response** – The recruiting environment for Residential Demand Response continues to be challenging. For the year as a whole, the company gained about 5,000 new participants. New participants for the year were roughly split 50/50 between Saver's Switch and AC Rewards.
- **Critical Peak Pricing Pilot** – There were no changes to the pilot's participation during the fourth quarter, ending the year with eight participants and potential of 4.09 MW of controllable load. The pilot did not dispatch any events during the fourth quarter. A total of 11 events were dispatched during 2018 for all pilot participants.
- **Peak Partner Rewards** – The product added one participant in the fourth quarter, ending the year with 17 participants and 15 MW of load. The product did not dispatch any events during the fourth quarter. Efforts in the fourth quarter continued to focus on meeting with potential customers and enrolling new customers.