Xcel Energy®

Demand-Side Management Annual Status Report

Electric and Natural Gas
Public Service Company of Colorado

March 31, 2018 / Proceeding No. 16A-0512EG

2017

2017 Demand-Side Management Annual Status Report

Public Service Company of Colorado ("Public Service" or "the Company") continues to provide customers the choices and the tools they need to make educated decisions about their electricity use. Public Service helps customers manage their energy consumption through one of the largest energy saving program portfolios in the United States. These energy efficiency programs help customers save money, benefit all of Colorado by avoiding emissions, and reduce the Company's need to purchase, produce, and deliver additional energy. The DSM portfolio continues to be cost-effective while delivering significant energy efficiency savings and demand reductions.

This 2017 Demand-Side Management ("DSM") Annual Status Report summarizes the natural gas and electric energy efficiency achievements made in 2017. This report also explores the challenges and lessons learned from a diverse and varied portfolio of programs, products, and pilots designed to provide customers control of their energy use.

Report Highlights:

• **The electric DSM portfolio exceeded its energy efficiency goal.** In 2017, Public Service's electric energy efficiency portfolio achieved energy savings at 104% of the Commission approved goal. At more than 415 GWh, the portfolio surpassed 2016's record setting achievement for electric energy savings. This was accomplished at 93% of the filed budget. The natural gas portfolio achieved 99% of the target at 112% of budget.

• **A total of 341,152 tons of CO2 were avoided in 2017 through the natural gas and electric DSM achievements.** In terms of energy saved, the greatest contributors were Home Lighting & Recycling, Lighting Efficiency, Lighting – Small Business, and New Construction. In addition, the electric and natural gas portfolios avoided 247,009 tons of SOx emissions.

• **Lighting programs continued to contribute to the majority of the electric energy savings achievements**. Lighting programs contributed over 60% of the energy savings realized in 2017.

• **The Energy Efficiency portfolio was cost-effective.** Both the Residential Program and Business Program were cost-effective. The Low-Income Program was marginally not cost-effective with a Modified Total Resource Cost ("MTRC") ratio of 0.99.

• **New products and pilots expanded customer choice.** The Company launched AC Rewards as part of the Residential Demand Response ("DR") product, building on results from the Smart Thermostat Pilot. The Company also implemented the Thermostat Optimization Pilot launched to evaluate opportunities for more efficiency and demand response participation without impacting comfort of pilot participants. Finally, the Multifamily Buildings product was also transitioned from pilot to a standard product offering during 2017.

Looking ahead, the Company will continue to offer more cost-effective choices for customers in an effort to help Coloradans exceed their energy, climate, and sustainability goals. The Company takes pride in its environmental leadership and commitment to managing customer bill impacts responsibly. These achievements also exemplify the Company's commitment to customers and communities by providing a wide variety of choices to meet the diverse energy needs of Coloradans.

2017 Demand-Side Management Annual Status Report

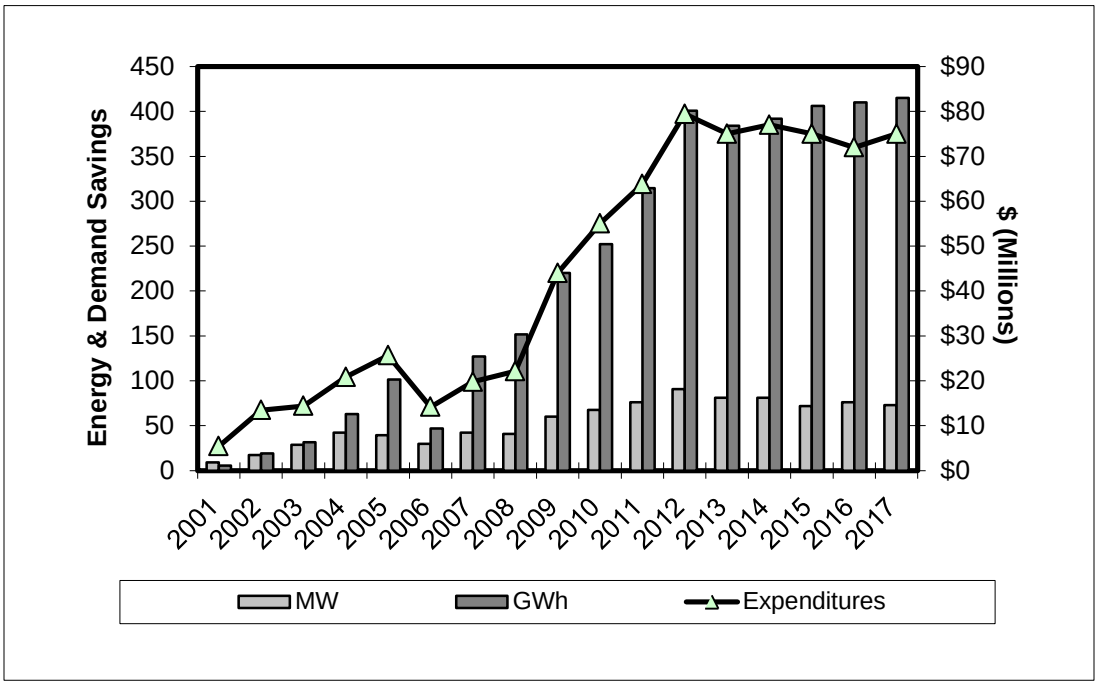
Table of Contents

Executive Summary

Public Service Company of Colorado ("Public Service" or the "Company") submits this combined electric and natural gas 2017 Colorado Demand-Side Management ("DSM") Annual Status Report ("Status Report") to the Colorado Public Utilities Commission ("Commission"). In this filing, the Company will report on its electric and natural gas DSM achievements from January 1, 2017 through December 31, 2017.

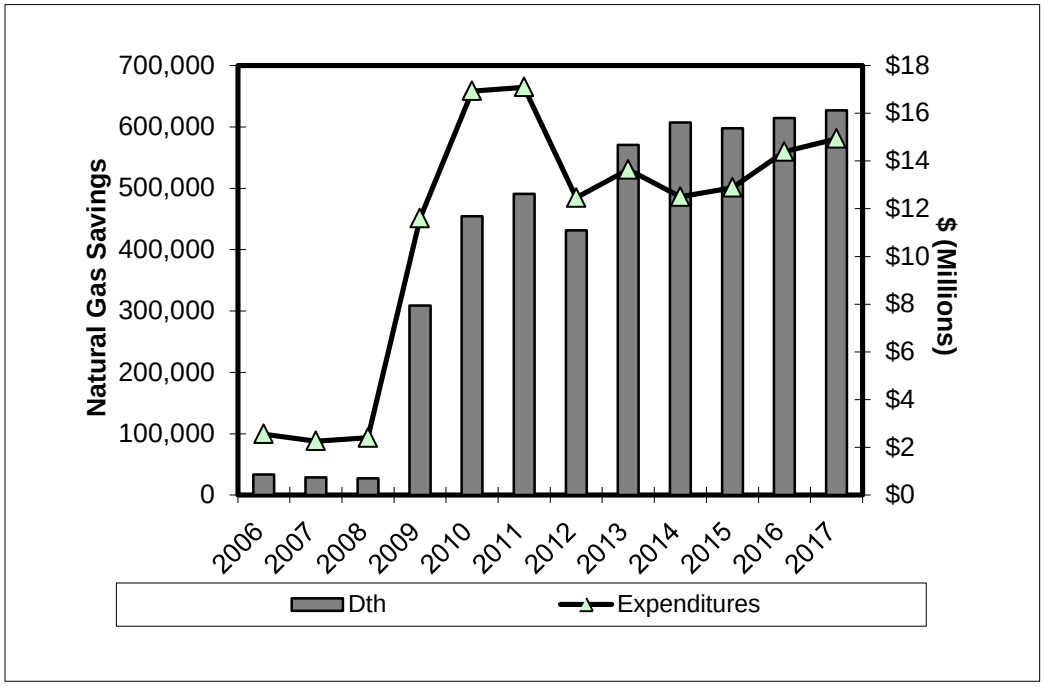
The electric savings of 415 GWh are a significant accomplishment equaling 104% of the goal of 400 GWh. Natural gas savings of 626,978 Dth was 99% of the goal of 636,078 Dth. To achieve these savings, the Company spent a total of $103,190,370 million ($75.0 million – electric energy efficiency, $13.2 million – demand response, and $14.9 million – natural gas energy efficiency) on its electric and natural gas programs. The electric energy efficiency spending was less than the approved electric energy efficiency budget cap of $84.3 million,[1] the demand response spending was less than the approved demand response budget of $19.2 million, and the natural gas energy efficiency spending was more than the minimum natural gas expenditure requirement of $7.6 million.[2] Below in Figures 1 and 2 are Public Service's historical achievements and expenditures for its electric and natural gas DSM Programs.

Figure 1: Historical Electric Program Savings and Expenditures



[1] Decision No. C14-0997 at Paragraph 5.
[2] Decision No. C14-0731 at Paragraph 69.

Figure 2: Historical Natural Gas Program Savings and Expenditures



History of the Plan

Over the last eighteen years, Public Service has entered into several regulatory settlements involving demand-side management, in conjunction with its integrated resource/least-cost planning process. The following paragraphs describe those settlements, as well as legislation and decisions significant to DSM:

- In the 1996 Integrated Resource Plan ("IRP") Settlement Agreement (Decision No. C98-1042, Proceeding No. 97A-297E), the Company committed up to $10M for DSM over four years through two bid processes. The first focused on residential air conditioning load control and lighting for commercial customers ("Bid 2000") and the second followed the completion of the Bid 2000 program.
- In the 1999 Integrated Resource Plan DSM Stipulation and Settlement Agreement (Decision No. C00-1057, Proceeding No. 00A-008E), the Company committed to use its best efforts to acquire 124 MW of cost-effective DSM resource through the 1999 IRP Resource Acquisition Period ending December 31, 2005. The Company was authorized to spend no more than $75 million (Year 2000 Dollars) to obtain the 124 MW of DSM. This amount included total capital costs and operating expenses incurred by the Company, but excluded expenses for the natural gas Energy $avings Partners ("E$P") low-income weatherization program. The 1999 Agreement identified target savings by customer class and program type.
- As part of the 2003 Least-Cost Resource Plan Settlement Agreement (Decision No. C05-0049, Proceeding Nos. 04A-214E, 04A-215E, 04A-216E), the Company committed to obtain 320 MW and 800 GWh of cost-effective conservation for $196 million (Year 2005 Dollars) between 2006 and 2013.
- House Bill 07-1037, Concerning Measures to Promote Energy Efficiency, and Making as Appropriation Therefor, was passed by the Colorado General Assembly and signed into law by Governor Ritter in 2007. It codified in relevant part at §§ 40-1-102(5), (6) and (7), C.R.S. as well as §§ 40-3.2-101 and 104, C.R.S. That bill establishes that:

  cost-effective natural gas and electricity demand-side management programs will save money for consumers and utilities and protect Colorado's environment. The general assembly further finds, determines, and declares that providing funding mechanisms to encourage Colorado's public utilities to reduce emissions or air pollutants and to increase energy efficiency are matters of statewide concern

and that public interest is served by quality of life and health of Colorado citizens and an increase in the attractiveness of Colorado as a place to live and conduct business.[3]

Section 40-3.2-104, C.R.S. further directs the Commission to:

establish energy savings and peak demand reduction goals to be achieved by an investor-owned electric utility, taking into account the utility's cost-effective DSM potential, the need for electricity resources, the benefits of DSM investments, and other factors as determined by the commission. The energy savings and peak demand reduction goals shall be at leave five percent of the utility's retail system peak demand measured in megawatts in the base year and at least five percent of the utility's retail energy sales measured in megawatt-hours in the base year. The base year shall be 2006. The goals shall be met in 2018, counting savings in 2018 from DSM measures installed starting in 2006. The commission may establish interim goals and may revise the goals as it deems appropriate.[4]

- On June 27, 2007, the Commission issued Decision No. C07-0562, opening Proceeding No. 07I-251G to investigate issues associated with the natural gas DSM requirements contained in §40-3.2-103, C.R.S. which directs the Commission to implement rules to establish specific natural gas DSM requirement for jurisdictional natural gas utilities. Through an informal workshop and two rounds of comments on proposed rules, the Commission issued Decision No. C08-0248 adopting the Rules regarding Natural Gas Demand Side Management, pursuant to House Bill 07-1037, enacted as § 40-3.2-103, C.R.S..
- On October 31, 2007, Public Service filed its Application for Authorization to Implement an Enhanced Demand Side Management Program and to Revise its Demand Side Management Cost Adjustment Mechanism to Include Current Cost Recovery and Incentives. Public Service requested approval to implement an enhanced electric DSM program and to revise its demand-side management cost adjustment mechanism ("DSMCA") to include current cost recovery and incentives designed to reward Public Service for successfully implementing cost-effective electric DSM programs and measures. On June 5, 2008, the Commission issued its Decision No. C08-0560 approving, in part, the enhanced DSM Plan proposed by the Company and establishing annual electric energy savings goals for Public Service from 2009 through 2020. As part of Decision No. C08-0560, the Commission also endorsed the Company's proposal to file biennial DSM plans and to combine natural gas and electric DSM plans in one filing, thereby waiving the natural gas DSM rules' requirement for the Company to file triennial natural gas DSM Plans.
- In compliance with Decision No. C08-0560, Public Service filed its first combined natural gas and electric 2009/2010, DSM Plan on August 11, 2008. In this Plan, the Company proposed a comprehensive portfolio of electric and natural gas demand-side management programs for 2009 and 2010 as well as annual budgets and annual goals for the natural gas DSM programs. The Commission initiated Proceeding No. 08A-366EG to consider the 2009/2010 DSM Plan filing and numerous parties intervened. However, prior to hearings, the majority of the Interveners, the Commission Staff, and the Company entered into a Stipulation and Settlement Agreement. The Settling Parties recommended approval of the Plan subject to certain amendments and changes to specific DSM programs agreed to and described in the Appendix to the Agreement. The Settling Parties further agreed to recommend to the Commission that the Company be afforded the discretion to modify the plan during the course of the plan period and agreed to a process for providing notice of plan changes to interested stakeholders.
- The Commission accepted the 2009/2010 Plan Stipulation in Decision No. R08-1243 issued on November 28, 2008. As agreed to in the Stipulation, in compliance with Decision No. R08-1243, on February 20, 2009, the Company filed its 2009/2010 DSM Plan Update,

[3] § 40-3.2-101, C.R.S.
[4] § 40-3.2-104(2)

including all changes that had been agreed to in the Stipulation as well as corrections to certain errors made in the original plan filing. On May 1, 2009, the Company filed a further amendment to the Plan.

- On July 1, 2010, Public Service filed its Verified Application for approval of its proposed 2011 DSM Plan and continuation of the terms of the Stipulation and Settlement Agreement entered into and approved by the Commission in Proceeding No. 08A-366EG, except to the extent that those terms are specific to the Company's 2009/2010 Biennial DSM Plan in Proceeding No. 10A-471EG. On December 16, 2010, the Stipulation and Settlement Agreement was approved by the Commission in Decision No. R10-1336.
- On August 10, 2010 Public Service filed a Verified Application for Approval of a Number of Strategic Issues relating to its DSM Plan, including long term electric energy savings goals and incentives in Proceeding No. 10A-554EG. The Application proposed new electric savings goals along with a new electric incentive mechanism. In addition, the application requested various other changes to the plan. Following the hearing in that proceeding, the Commission issued on April 26, 2011, Decision No. C11-0442, approving Public Service's Application with modifications. The Commission then issued Decision No. C11-0645 on June 14, 2011, addressing Public Service's Application for Rehearing, Reargument, or Reconsideration and granting the Company's motion for a one-month extension to file it 2012/2013 DSM Plan to August 1, 2011.
- On August 1, 2011 the Company filed a combined electric and natural gas 2012/2013 Demand-Side Management Plan in Proceeding No. 11A-631EG. On November 10, 2011 the Stipulation and Settlement Agreement and Joint Motion to Approve Stipulation Agreement were filed by Public Service. The Stipulation and Settlement Agreement was approved by the Administrative Law Judge ("ALJ") by Decision No. R-11-1326 issued on December 9, 2011 without significant modification. No exceptions were filed, and, therefore, Decision No. R11-1326 became the final decision of the commission on December 29, 2011. It was ordered by the ALJ that within 60 days of the effective date of the Recommended Decision, Public Service file an update of its DSM Plan reflecting changes approved with approval of the Stipulation and Settlement Agreement, together with an erratum correcting errors. On February 28, 2012, Public Service filed the updated 2012/2013 DSM Plan.
- On June 17, 2013 the Company filed a Verified Application for Approval of a Number of Strategic Issues Relating to its DSM Plan (Proceeding No. 13A-0686EG), including proposed new electric savings goals along with a new electric incentive mechanism, and approval for new DSM products. Following the hearing in that proceeding, the Commission issued on July 1, 2014, Decision No. C14-0731, approving Public Service's Application with modifications. The Commission then issued Decision No. C14-0997 on August 13, 2014, addressing Public Service's Application for Rehearing, Reargument, or Reconsideration.
- On July 1, 2013 the Company filed a combined electric and natural gas 2014 DSM Plan in Proceeding No. 13A-0773EG. On September 19, 2013, the Company filed a Joint Statement of Clarification Regarding the Interim Extension of the Company's 2013 Electric and Natural Gas DSM Plan, Pending Consideration of the Company's Proposed 2014 DSM Plan ("Joint Statement"). The purpose of the Joint Statement was to clarify the effect of the interim extension of the Company's 2013 DSM Plan on the energy savings goals and budgets during calendar year 2014, as well as the calculation of net economic benefits and associated incentives under the electric 2013 DSM Plan and 2014 DSM Plan in calendar year 2014, the calculation of lost revenues and gas bonus under the natural gas 2013 DSM Plan and 2014 DSM Plan in calendar year 2014, and the operation of the DSM tracker during 2014, among other matters. On September 27, 2013, a Recommended Decision was issued (Decision No. R13-1204-1) granting the proposed interim extension of the 2013 DSM Plan consistent with the terms set forth in the Joint Statement. On October 29, 2013 a Stipulation and Settlement Agreement along with a Joint Motion to Approve Stipulation

Agreement were filed by Public Service. The Stipulation and Settlement Agreement was approved by the Administrative Law Judge by Decision No. R14-0389 issued on April 11, 2014 without significant modification following the hearing in the proceeding. No exceptions were filed, and, therefore, Decision No. R14-0389 became the final decision of the commission on May 1, 2014. On May 22, 2014, Public Service filed the updated 2014 DSM Plan, reflecting changes approved with approval of the Stipulation and Settlement Agreement.

- On October 30, 2014 the Company filed a combined electric and natural gas 2015/16 DSM Plan in Proceeding No. 14A-1057EG. On March 3, 2015 a Stipulation and Settlement Agreement along with a Joint Motion to Approve Stipulation Agreement were filed by Public Service. The Stipulation and Settlement Agreement was approved without modification by the Administrative Law Judge by Recommended Decision No. R15-0496, issued on May 22, 2015. The Commission stayed the Recommended Decision through Decision No. C15-0543-I; and exceptions to the Recommended Decision were filed by Western Resource Advocates and the Office of Consumer Counsel. On July 21, 2015, the Commission issued Decision No. C14-0735 addressed exceptions, and required the Company to conduct an avoided transmission and distribution study with its next DSM Plan. The Decision also required the Company to submit within 10 days an avoided energy compliance filing using Strategist modeling, which the Company filed on July 31, 2015. The final Decision became effective on August 1, 2015. On August 20, 2015, Public Service filed the updated 2015/16 DSM Plan, reflecting changes approved with approval of the Stipulation and Settlement Agreement.
- On July 1, 2016 the Company filed a combined electric and natural gas 2017/2018 DSM Plan in Proceeding No. 16A-0512EG. On November 4, 2016 a Stipulation and Settlement Agreement along with a Joint Motion to Approve Stipulation Agreement were filed by Public Service. The Stipulation and Settlement Agreement was approved without modification by the Administrative Law Judge by Recommended Decision No. R17-0028, issued on January 12, 2017. The Recommended Decision became effective on February 2, 2017.

High-Level Achievements

In 2017, Public Service's electric portfolio achieved demand savings of 97,075 net generator kW (120% of filed target) and energy savings of 415,370,820 net generator kWh (104% of goal, 98% of filed target) at a cost of $88,260,328 (89% of filed budget). The natural gas portfolio achieved savings of 626,904 Dth (99% of filed target) at a cost of $14,930,891 (112% of filed budget).

Table 1a below shows the Company's electric portfolio achievements, including Modified Total Resource Cost ("MTRC") Test ratio results at the program level.

Table 1a: High-Level Electric Targets and Achievements for 2017

2017 Programs	Electric Budget	Electric Expenditures (Actual)	Gen. kW Target	Net Gen. Realized kW	Net Gen. kWh Target	Net Gen. Realized kWh	MTRC Target	MTRC (Actual)
Business	$ 45,351,045	$43,648,943	36,187	42,994	259,058,371	266,493,539	1.64	1.61
Residential	$ 22,645,420	$22,024,540	27,439	28,899	154,860,353	139,639,920	2.32	2.23
Low-Income	$ 3,774,087	$3,519,119	750	972	5,534,354	6,638,425	1.26	0.99
Indirect	$ 8,659,196	$5,840,029	636	575	2,149,899	2,537,004	0.34	0.27
Demand Response	$ 19,180,133	$13,227,697	16,120	23,634	123,179	61,014	1.58	1.36
2017 TOTAL	**$ 99,609,881**	**$88,260,328**	**81,132**	**97,074**	**421,726,157**	**415,369,902**	**1.34**	**1.64**

Table 1b below shows the Company's natural gas portfolio achievements, including MTRC test ratio results at the program level.

Table 1b: High-Level Natural Gas Targets and Achievements for 2017

2017 Programs	Natural Gas Budget	Natural Gas Expenditures (Actual)	Dth Target	Net. Realized Dth	MTRC Target	MTRC (Actual)
Business	$2,986,871	$2,723,443	212,820	140,626	1.30	1.53
Residential	$5,469,292	$6,929,574	353,485	405,584	1.88	2.00
Low-Income	$3,299,393	$3,805,941	69,503	80,531	1.27	1.22
Indirect	$1,583,891	$1,471,084	269	236	0.20	0.23
2017 TOTAL	**$13,339,447**	$14,930,042	**636,078**	**626,978**	**1.49**	**1.64**

These achievements shown in Tables 1a and 1b have provided electric net benefits of approximately $121 million and natural gas net benefits of $21 million. Based on these achievements and net benefits, the Company has calculated an associated financial incentive of $10 million for its electric portfolio and $2.6 million for its natural gas portfolio. This includes $2,125,580 for the incentive and an acknowledgement of lost revenues ("ALR") associated with gas DSM programs of $596,527. The DSM portfolio's overall costs and benefits, as determined by the MTRC test, along with the Company's lost revenue and incentive resulting from these achievements, is shown in Table 1c below. Additional incentive calculation details are shown in the Financial Incentive Calculation section of this Report.

Table 1c: MTRC Test Results with Financial Incentive

	Electric	Natural Gas
MTRC Benefits w/Adder	$311,546,102	$54,026,775
MTRC Costs	$190,428,409	$33,024,319
MTRC Ratio	1.64	1.64
MTRC Benefits w/Adder	$311,546,102	$54,026,775
Incentive	$10,079,358	$2,127,235
Acknowledgement of Lost Revenue (ALR)	n/a	$596,595
MTRC Costs w/Incentive & ALR	$200,507,767	$35,748,148
MTRC Ratio w/Incentive & ALR	1.55	1.51

Some of the products that are part of the Company's portfolio did not pass the MTRC Test in 2017. While each product listed below is discussed in more detail in the 2017 Status Report section of this report, below is a bulleted summary of the primary reason for the failing of MTRC Test ratios (natural gas and/or electric), and brief discussion of plans to improve the ratios in 2017.

Business Program

- *Heating Efficiency – Natural Gas (0.78 MTRC)*
    - An increase in direct staff marketing outreach strategy, with customer incentives in late 2017, aimed to raise customer awareness and participation. A higher amount of direct account manager and energy efficiency specialist outreach also resulted in higher program administration costs.
    - Higher labor and incremental capital costs, in comparison to product expenditures, negatively impacted the cost-benefit analysis.

    Efforts to improve for 2018: The Company will focus on promoting specific cost effective measures such as steam traps for steam boilers and pipe insulation. Peer utility research was

conducted to craft a water heater campaign for the restaurant industry and will be driven with customized messages through various engagement tactics. In an effort to streamline labor costs and increase cost effectiveness, the product will also increase specific channel outreach to trade partners to drive participation and continue to monitor administrative expenses.

- *LED Street Lighting – Electric (0.87 MTRC)*
    - The product under achieved its energy savings target in comparison to the plan.
    - The product's incremental capital costs are higher than savings which negatively impacted the product's cost-benefits results.

Efforts to improve for 2018: The Company will continue to promote the product to interested communities and work to promote more cost-effective measures.

Residential Program

- *Home Energy Squad – Electric (0.74 MTRC)*
    - The weighted measure life for LEDs changed from 13 years to 7.3 relative to previous assumptions.
    - Equipment and installation costs were much higher than forecasted due to a higher penetration of measures per household. The Company offered subsidized pricing on premium LED bulbs, in addition to the complementary bulbs, which greatly increased the number installed per home.
    - The Company increased the advertising and promotional spend to improve the customer experience and continue driving participation. These additional costs, while necessary, hurt the program's overall cost-effectiveness for 2017 but are expected to drive improvement in future years.

Efforts to improve for 2018: The Company plans to link Home Energy Squad visits with other residential products to help drive awareness and participation without adding additional costs.

- *Home Performance with ENERGY STAR® – Electric (0.97 MTRC) & Natural Gas (0.87 MTRC)*
    - The product saw low participation numbers and did not achieve its savings targets while non-incentive costs were consistent with forecasts.

Efforts to improve for 2018: The Company plans to bundle Home Performance with other products to help with awareness and ease of participation without adding additional administrative or promotional expenses. The Company will also offer promotions for its Insulation and Air Sealing product during 2018, which is expected to also increase the number of customers participating in Home Performance.

- *Insulation and Air Sealing – Natural Gas (0.82 MTRC)*
    - Administrative costs remain low; however, high incremental capital costs reduce cost-effectiveness even if the product meets or exceeds its participation and savings targets.

Efforts to improve for 2018: The Company will continue to look for ways to bundle with other products and promote the product through participating trade partners to encourage participation and achievement of the natural gas goal without any additional promotional costs.

- *Water Heating – Electric (0.71 MTRC) & Natural Gas (0.66 MTRC)*
    - Updates to the product due to changing efficiency standards resulted in higher administrative costs.

- High incremental capital costs and low natural gas costs continue to negatively impact the cost-effectiveness of the product.

Efforts to improve for 2018: Marketing efforts will emphasize the most cost-effective measures. Instant rebates will be piloted as a means of further reducing administrative costs and enabling low- to no-cost targeted marketing.

Low-Income Program

- *Multifamily Weatherization – Electric (0.88 MTRC) & Natural Gas (0.74 MTRC)*
  - Given the long-term benefit to low-income multifamily building tenants, some rebates were approved for projects that did not pass cost-effectiveness under the standard custom analysis.
  - Additional funding was provided for marketing and outreach efforts.
  - Bonus rebates were offered for natural gas measures to encourage participation.

Efforts to improve for 2018: The Company will continue to seek cost-saving opportunities while ensuring that this customer segment receives necessary assistance. The Company will review its custom analysis tools and approach to ensure that they are adequately representing the savings opportunity for this segment. The Company will also work with its implementer to identify possible administrative cost savings.

- *Non-Profit – Natural Gas (0.71 MTRC)*
  - Low natural gas prices result in many measures not passing under custom cost-effective analyses. Given the long-term benefits for this customer segment and the limited capital available for property owners, the Company elected to approve non-passing measures, in particular boiler replacements, to enable number of projects to move forward.

Efforts to improve for 2018: The Company will continue to seek cost-saving opportunities while ensuring that this customer segment receives necessary assistance. The Company will review its custom analysis tools and approach to ensure that they are adequately representing the savings opportunity for this segment. The Company will also work with its implementer to identify possible administrative cost savings.

- *Single-Family Weatherization – Electric (0.80 MTRC)*
  - The Company provided additional funding for marketing and outreach efforts to help expand the Colorado Affordable Residential Energy ("CARE") program and an educational workshop series. This funding greatly benefits the low-income customer segment but is weighted as an administrative cost to the program, thus, hurting cost-effectiveness.
  - The majority of participating customers were duel fuel or gas-only so the product saw fewer electric-heated homes receiving shell measures, which are the most cost-effective measures for electric savings.

Efforts to improve for 2018: The Company will continue to watch and cut administrative costs where possible while still ensuring this customer segment receives the necessary assistance. The Company will also look for opportunities to weatherize electric-resistance heated homes.

Indirect Products & Services

- *ENERGY STAR® Retail Products Platform Pilot – Electric (0.63 MTRC) & Natural Gas (0.06 MTRC)*

- Many measures in the pilot have high incremental costs which reduces cost-effectiveness.
- Midstream incentives were not eligible for treatment as a rebate cost to customers.

Efforts to improve for 2018: The Company will continue to promote the most cost-effective measures but will evaluate the future of the pilot and potentially may shift the design to focus on indirect market transformation.

- *Building Optimization Pilot – Electric (0.00 MTRC) & Natural Gas (0.00 and 0.00 MTRC)*
  - Many vendor and customer challenges with implementation of the technology limited the usefulness of pilot results. Indicative results appear savings and demand reduction possible, and many lessons were learned related to future implementation of this kind of technology. This technology may be considered for inclusion in other efficiency or demand response programs.
  - The pilot ended December 31, 2017.

Efforts to improve for 2018: The pilot was scheduled to end in 2017. If a revised pilot is offered it will be provided through 60-Day Notice or through a future DSM Plan.

Summary of Program Changes via 60/90-Day Notice

In recognition of the need to afford the Company discretion to make changes to the Plan in order to achieve the greatest level of energy savings, the 2010 Stipulation and Settlement Agreement provided for a 60/90-Day Notice process to advise interested stakeholders of changes to the Plan. A 60-Day Notice is required for any proposal to add a new DSM product, reduce rebate levels, adopt new or discontinue existing measures, or change technical assumptions or eligibility requirements. DSM roundtable participants have 30 days from the time of the Notice date to provide comments to Public Service on the proposed changes. The Company will have 30 days thereafter to consider comments. A 90-Day Notice is required for any product discontinuation.

Eight 60-Day Notices were posted that impacted calendar year 2017, and are shown in Table 2 below; these included the addition of new measures to the portfolio, updates to technical assumptions, and information for stakeholders regarding clarifications and intentions of the Company. The Company did not post any 90-Day Notices in 2017. A detailed description of the changes made via 60/90-Day Notice can be found on the Company's Colorado DSM webpage: http://www.xcelenergy.com/Company/Rates_&_Regulations/Filings/Colorado_Demand-Side_Management.

Table 2: 60/90-Day Notices Impacting 2017

Product, Pilot, or Measure	Notice Date	Notice Type	
Business Program			
DSM Plan Corrections	3/7/2017	60-Day	Technical Assumptions Corrections
Computer Efficiency Evaluation	4/13/2017	60-Day	Technical Assumptions Updates
Lighting - Small Business Evaluation	4/13/2017	60-Day	Technical Assumption Update
Heating Efficiency Corrections	8/2/2017	60-Day	Technical Assumptions Correction
Lighting Efficiency & Lighting – Small Business	8/2/2017	60-Day	Technical Assumptions and Measure Update
Residential Program			
High Efficiency Air Conditioning	3/7/2017	60-Day	Technical Assumption Update
DSM Plan Corrections	3/7/2017	60-Day	Technical Assumptions Corrections
Low-Income Program			
None	N/A	N/A	N/A
Indirect Products & Services			
Smart Thermostat Optimization	5/23/2017	60-Day	New pilot product
Demand Response			
Residential Demand Response	4/4/2017	60-Day	New product

Additional detail on the impact of these changes can be found in the 2017 Status Report section of this report, within each DSM product summary.

RFP Administrative Costs for Third-Party Implementation

As required in Decision No. C11-0442 (Proceeding No. 10A-554EG),[5] the Company continues to track administrative costs incurred for conducting requests for proposals (RFPs), shown in Table 3 below.

Table 3: RFP Administrative Costs in 2017

Product	2017 Expenditures
Peak Partner Rewards	$1,200
TOTAL	**$1,200**

Program Achievements and Expenditures

Tables 4a and 5a below provide the electric and natural gas savings targets, budgets, and forecasted cost-effectiveness approved in the 2017 DSM Plan. Tables 4b and 5b provide the Company's 2017 achievements, actual expenditures, and cost-effectiveness results by product.

[5] Paragraph 81 of Decision No. C11-0442 in Proceeding No. 10A-554EG, pages 33, states that "…Public Service is directed to quantify and track any additional costs it incurs in the use of third-party DSM providers." The directive is mentioned again on page 52 of the Order.

Table 4a: 2017 Electric Program Targets and Budgets

2017	Electric Budget	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
Business Program				
Commercial Refrigeration Efficiency	$1,059,035	573	5,679,594	1.39
Compressed Air Efficiency	$769,707	624	3,896,022	1.35
Computer Efficiency	$267,205	293	2,293,385	0.72
Cooling	$4,337,058	4,238	11,110,802	1.20
Custom Efficiency	$1,246,983	973	5,926,973	1.37
Data Center Efficiency	$1,284,624	755	8,242,586	1.52
Energy Management Systems	$1,269,885	135	8,534,453	1.22
Heating Efficiency	$10,341	8	44,967	1.65
LED Street Lighting	$43,000	0	7,380,270	0.74
Lighting Efficiency	$11,233,085	10,421	83,203,875	1.42
Lighting - Small Business	$5,819,878	3,123	26,324,295	1.19
Motor & Drive Efficiency	$2,637,576	1,863	11,274,543	1.57
Multifamily Buildings	$900,003	538	3,949,551	2.34
New Construction	$10,575,780	9,124	46,601,300	1.16
Process Efficiency	$2,238,671	1,700	18,084,744	1.81
Recommissioning	$678,307	302	6,277,029	1.27
Self Direct	$979,907	1,517	10,233,982	1.97
Business Program Total	**$45,351,045**	**36,187**	**259,058,371**	**1.64**
Residential Program				
Energy Efficient Showerhead	$55,406	80	991,735	10.94
Energy Feedback Residential	$3,085,489	4,441	20,670,112	1.10
ENERGY STAR New Homes	$964,113	985	3,283,030	1.54
Evaporative Cooling	$3,039,697	5,166	3,444,940	2.82
High Efficiency Air Conditioning	$3,648,545	3,481	3,249,319	1.07
Home Energy Squad	$295,465	224	1,737,542	1.69
Home Lighting & Recyding	$7,545,986	10,177	104,667,777	1.72
Home Performance with ENERGY STAR	$293,121	517	760,044	1.18
Insulation & Air Sealing	$198,969	423	443,437	1.25
Refrigerator & Freezer Recyding	$1,292,935	566	4,954,115	1.57
Residential Heating	$777,897	861	4,883,086	1.53
School Education Kits	$1,419,329	498	5,672,969	1.22
Water Heating	$28,468	21	102,246	0.63
Residential Program Total	**$22,645,420**	**27,439**	**154,860,353**	**2.32**
Low-Income Program				
Energy Savings Kit	$319,057	80	908,428	1.05
Multifamily Weatherization	$1,156,816	266	1,900,602	0.69
Non-Profit	$1,106,947	304	1,493,941	0.93
Single-Family Weatherization	$1,191,267	101	1,231,383	0.68
Low-Income Program Total	**$3,774,087**	**750**	**5,534,354**	**0.78**

Table 4a: (Cont.)

2017	Electric Budget	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
Indirect Products & Services				
Education/Market Transformation				
Business Education	$176,739			
Business Energy Analysis	$619,499			
Consumer Education	$899,908			
Energy Benchmarking	$89,000			
Energy Efficiency Financing	$57,711			
Home Energy Audit	$417,763			
Education/Market Transformation Total	**$2,260,620**			
Planning and Research				
DSM Planning & Administration	$573,390			
Program Evaluations	$674,600			
Market Research	$345,940			
Measurement & Verification	$10,738			
Product Development	$3,871,093			
ENERGY STAR Retail Products Platform Pilot	$886,065	636	2,149,899	0.63
Building Optimization DR Pilot	$36,750	0	0	-
Product Development Total	**$4,793,908**	**636**	**2,149,899**	**0.83**
Planning and Research Total	**$6,398,576**	**636**	**2,149,899**	**0.50**
Indirect Products & Services Total	**$8,659,196**	**636**	**2,149,899**	**0.34**
EE PORTFOLIO TOTAL	**$80,429,748**	**65,013**	**421,602,978**	**1.76**
Demand Response Program				
Residential Demand Response	$16,316,436	16,120	123,179	1.75
Critical Peak Pricing	$145,000	0	0	
Peak Partner Rewards	$2,627,047	0	0	
Building Optimization DR Pilot	$91,650	0	0	
DR PORTFOLIO TOTAL	**$19,180,133**	**16,120**	**123,179**	**1.58**
PORTFOLIO TOTAL	**$99,609,881**	**81,132**	**421,726,157**	**1.34**

Table 4b: 2017 Electric Program Achievements and Expenditures

2017	Electric Budget	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
Business Program				
Commercial Refrigeration Efficiency	$973,537	1,399	6,763,482	2.26
Compressed Air Efficiency	$696,289	488	2,826,073	1.52
Computer Efficiency	$248,140	328	3,428,263	1.14
Cooling	$3,331,022	3,335	11,243,926	1.52
Custom Efficiency	$723,056	181	1,333,399	1.05
Data Center Efficiency	$1,039,397	847	6,002,025	1.38
Energy Management Systems	$1,069,128	28	5,628,760	1.55
Heating Efficiency	$16,978	8	29,786	1.18
LED Street Lighting	$0	0	6,499,032	0.87
Lighting Efficiency	$14,680,618	18,099	121,727,021	1.84
Lighting - Small Business	$7,554,286	6,307	36,150,372	1.39
Motor & Drive Efficiency	$2,296,009	1,879	11,552,197	2.41
Multifamily Buildings	$693,315	174	2,015,528	1.22
New Construction	$7,404,616	7,441	31,159,232	1.19
Process Efficiency	$1,316,537	1,093	8,857,219	2.49
Recommissioning	$441,336	294	1,156,436	1.52
Self Direct	$1,164,681	1,093	10,120,786	1.91
Business Program Total	**$43,648,943**	**42,994**	**266,493,539**	**1.61**
Residential Program				
Energy Efficient Showerhead	$38,121	75	811,481	16.10
Energy Feedback Residential	$3,118,698	5,406	20,612,094	1.19
ENERGY STAR New Homes	$1,016,535	1,433	4,822,829	1.59
Evaporative Cooling	$3,118,533	4,905	3,419,956	2.97
High Efficiency Air Conditioning	$5,139,311	4,824	3,819,450	1.04
Home Energy Squad	$498,800	167	1,015,791	0.74
Home Lighting & Recycling	$5,135,140	9,136	86,310,620	4.34
Home Performance with ENERGY STAR	$165,331	250	208,241	0.97
Insulation & Air Sealing	$217,008	417	262,528	1.11
Refrigerator & Freezer Recycling	$1,062,948	400	3,501,380	1.99
Residential Heating	$940,682	1,083	5,768,282	1.34
School Education Kits	$1,550,719	785	8,956,353	1.76
Water Heating	$22,714	19	130,915	0.71
Residential Program Total	**$22,024,540**	**28,899**	**139,639,920**	**2.23**
Low-Income Program				
Energy Savings Kit	$263,145	106	1,216,361	2.33
Multifamily Weatherization	$1,153,269	318	2,028,143	0.88
Non-Profit	$1,369,629	426	1,879,757	1.00
Single-Family Weatherization	$733,075	122	1,514,163	0.80
Low-Income Program Total	**$3,519,119**	**972**	**6,638,425**	**0.99**

Table 4b: (Cont.)

2017	Electric Budget	Net Generator kW	Net Generator kWh	Electric MTRC Test Ratio
Indirect Products & Services				
Education/Market Transformation				
Business Education	$158,004			
Business Energy Analysis	$378,267			
Consumer Education	$851,865			
Energy Benchmarking	$64,021			
Energy Efficiency Financing	$59,804			
Home Energy Audit	$337,532			
Education/Market Transformation Total	**$1,849,493**			
Planning and Research				
DSM Planning & Administration	$569,683			
Program Evaluations	$651,292			
Market Research	$198,736			
Measurement & Verification	$14,257			
Product Development	$1,299,148			
ENERGY STAR Retail Products Platform Pilot	$1,197,979	575	2,537,004	0.63
Building Optimization DR Pilot	$59,440	0	0	0.00
Product Development Total	**$2,556,568**	**575**	**2,537,004**	**0.43**
Planning and Research Total	**$3,990,536**	**575**	**2,537,004**	**0.33**
Indirect Products & Services Total	**$5,840,029**	**575**	**2,537,004**	**0.27**
EE PORTFOLIO TOTAL	**$75,032,631**	**73,440**	**415,308,887**	**1.66**
Demand Response Program				
Residential Demand Response	$12,598,174	7,890	56,836	1.41
Critical Peak Pricing	$20,466	3,201	4,179	0.00
Peak Partner Rewards	$549,852	12,543	0	0.00
Building Optimization DR Pilot	$59,205	0	0	0.00
DR PORTFOLIO TOTAL	**$13,227,697**	**23,634**	**61,014**	**1.36**
PORTFOLIO TOTAL	**$88,260,328**	**97,074**	**415,369,902**	**1.64**

Table 5a: 2017 Natural Gas Program Targets and Budgets

2017	Gas Budget	Net Annual Dth Savings	Annual Dth/$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Business Program					
Commercial Refrigeration Efficiency	$11,905	2,434	204,437	$263,780	8.60
Compressed Air Efficiency					
Computer Efficiency					
Cooling					
Custom Efficiency	$83,213	3,768	45,285	$118,120	1.71
Data Center Efficiency					
Energy Management Systems	$51,303	8,810	171,721	$230,191	1.54
Heating Efficiency	$488,280	18,032	36,930	$16,504	1.01
LED Street Lighting					
Lighting Efficiency					
Lighting - Small Business	$17,940	3,497	194,907	$97,794	5.62
Motor & Drive Efficiency					
Multifamily Buildings	$558,090	20,184	36,166	$1,319,066	2.31
New Construction	$1,716,943	152,646	88,905	$1,328,790	1.16
Process Efficiency					
Recommissioning	$59,198	3,450	58,277	$8,870	1.08
Self Direct					
Business Program Total	**$2,986,871**	**212,820**	**71,252**	**$3,383,115**	**1.30**
Residential Program					
Energy Efficient Showerhead	$460,118	52,190	113,428	$6,205,675	10.56
Energy Feedback Residential	$483,345	63,873	132,149	$141,506	1.29
ENERGY STAR New Homes	$2,150,945	93,054	43,262	$1,892,423	1.38
Evaporative Cooling					
High Efficiency Air Conditioning					
Home Energy Squad	$336,108	11,592	34,490	$205,989	1.38
Home Lighting & Recycling					
Home Performance with ENERGY STAR	$559,460	26,853	47,999	-$359,155	0.83
Insulation & Air Sealing	$385,385	20,687	53,678	-$83,481	0.94
Refrigerator & Freezer Recycling					
Residential Heating	$533,403	47,981	89,953	$206,477	1.07
School Education Kits	$438,447	34,972	79,762	$4,004,469	7.51
Water Heating	$122,080	2,283	18,700	-$73,546	0.69
Residential Program Total	**$5,469,292**	**353,485**	**64,631**	**$12,140,357**	**1.88**
Low-Income Program					
Energy Savings Kit	$116,094	8,005	68,951	$951,508	7.04
Multifamily Weatherization	$592,539	10,835	18,286	-$242,522	0.81
Non-Profit	$293,413	3,821	13,021	-$106,306	0.80
Single-Family Weatherization	$2,297,347	46,842	20,390	$1,065,960	1.26
Low-Income Program Total	**$3,299,393**	**69,503**	**21,065**	**$1,668,640**	**1.27**

Table 5a: (Cont.)

2017	Gas Budget	Net Annual Dth Savings	Annual Dth/$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Indirect Products & Services					
Education/Market Transformation					
Business Education	$19,638			-$19,638	
Business Energy Analysis	$65,507			-$65,507	
Consumer Education	$133,323			-$133,323	
Energy Benchmarking	$31,000			-$31,000	
Energy Efficiency Financing	$60,000			-$60,000	
Home Energy Audit	$545,006			-$545,006	
Education/Market Transformation Total	**$1,049,344**			**-$854,474**	
Planning and Research					
DSM Planning & Administration	$63,124			-$63,124	
Program Evaluations	$168,400			-$168,400	
Market Research	$96,732			-$96,732	
Measurement & Verification	$1,193			-$1,193	
Product Development	$170,668			-$170,668	
ENERGY STAR Retail Products Platform Pilot	$34,430	269	7,826	-$120,818	0.24
Building Optimization DR Pilot EE	$0				
Product Development Total	**$205,098**	**269**	**1,314**	**-$120,818**	**0.12**
Planning and Research Total	**$534,547**	**269**	**504**	**-$1,189,683**	**0.06**
Indirect Products & Services Total	**$1,583,891**	**269**	**194**	**-$2,044,157**	**0.20**
EE PORTFOLIO TOTAL	**$13,339,447**	**636,078**	**48,391**	**$15,147,955**	**1.49**

Table 5b: 2017 Natural Gas Program Achievements and Expenditures

2017	Gas Budget	Net Annual Dth Savings	Annual Dth/$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Business Program					
Commercial Refrigeration Efficiency	$36,504	3,842	105,252	$456,457	12.55
Compressed Air Efficiency					
Computer Efficiency					
Cooling					
Custom Efficiency	$122,349	8,285	67,719	$164,343	1.38
Data Center Efficiency					
Energy Management Systems	$47,705	8,109	169,989	$121,272	1.38
Heating Efficiency	$881,471	16,063	18,223	-$373,927	0.78
LED Street Lighting					
Lighting Efficiency					
Lighting - Small Business	$43,045	7,529	174,912	$986,771	23.50
Motor & Drive Efficiency					
Multifamily Buildings	$525,740	14,094	26,808	$1,560,133	2.96
New Construction	$1,023,884	80,096	78,228	$1,018,590	1.25
Process Efficiency					
Recommissioning	$42,745	2,607	60,983	$23,835	1.52
Self Direct					
Business Program Total	**$2,723,443**	**140,626**	**51,635**	**$3,957,474**	**1.53**
Residential Program					
Energy Efficient Showerhead	$461,511	53,141	115,146	$6,978,710	11.73
Energy Feedback Residential	$496,894	70,854	142,593	$258,639	1.52
ENERGY STAR New Homes	$2,381,130	107,353	45,085	$1,732,585	1.27
Evaporative Cooling					
High Efficiency Air Conditioning					
Home Energy Squad	$292,802	6,316	21,570	$171,650	1.58
Home Lighting & Recycling					
Home Performance with ENERGY STAR	$252,260	11,934	47,309	-$120,746	0.87
Insulation & Air Sealing	$574,439	23,270	40,509	-$364,582	0.82
Refrigerator & Freezer Recycling					
Residential Heating	$1,819,832	62,612	34,405	$454,286	1.10
School Education Kits	$525,238	64,806	123,384	$7,722,968	11.93
Water Heating	$125,466	5,299	42,237	-$193,924	0.66
Residential Program Total	**$6,929,574**	**405,584**	**58,519**	**$16,639,587**	**2.00**
Low-Income Program					
Energy Savings Kit	$98,057	8,671	88,431	$1,052,232	9.22
Multifamily Weatherization	$1,137,226	14,373	12,639	-$608,862	0.74
Non-Profit	$581,030	5,380	9,259	-$325,436	0.71
Single-Family Weatherization	$1,989,628	52,107	26,189	$1,488,360	1.40
Low-Income Program Total	**$3,805,941**	**80,531**	**21,159**	**$1,606,294**	**1.22**

Table 5b: (Cont.)

2017	Gas Budget	Net Annual Dth Savings	Annual Dth/$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Indirect Products & Services					
Education/Market Transformation					
Business Education	$18,999			-$18,999	
Business Energy Analysis	$46,314			-$42,671	
Consumer Education	$124,970			-$124,970	
Energy Benchmarking	$29,034			-$29,034	
Energy Efficiency Financing	$64,126			-$64,126	
Home Energy Audit	$567,825			-$215,010	
Education/Market Transformation Total	**$851,267**			**-$494,810**	
Planning and Research					
DSM Planning & Administration	$155,625			-$155,625	
Program Evaluations	$170,199			-$170,199	
Market Research	$77,398			-$77,398	
Measurement & Verification	$2,545			-$2,545	
Product Development	$167,907			-$167,907	
Energy Star Retail Products Platform Pilot	$46,143	236	5,114	-$132,416	0.06
Building Optimization Pilot - EE					
Product Development Total	**$214,049**	**236**	**1,102**	**-300,322**	**0.03**
Planning and Research Total	**$619,817**	**236**	**381**	**-706,090**	**0.01**
Indirect Products & Services Total	**$1,471,084**	**236**	**160**	**-1,200,899**	**0.23**
EE PORTFOLIO TOTAL	**$14,930,042**	**626,978**	**41,989**	**$21,002,456**	**1.64**

Table 6 below provides the CO_2 and SO_X emissions avoided for 2017 and cumulatively over the lifetime for each product.

Table 6: 2017 Emissions Avoided

	Annual				Cumulative over Lifetime			
	Tons CO_2			lbs SOx	Tons CO_2			lbs SOx
2017	Electric	Gas	Total	Electric	Electric	Gas	Total	Electric
Business Program								
Commercial Refrigeration Efficiency	4,937	232	5,170	4,022	72,943	2,319	75,261	36,098
Compressed Air Efficiency	2,063	0	2,063	1,681	32,935	0	32,935	15,968
Computer Efficiency	2,503	0	2,503	2,039	13,450	0	13,450	7,089
Cooling	8,208	0	8,208	6,686	152,369	0	152,369	73,639
Custom Efficiency	973	501	1,475	793	19,023	10,025	29,048	9,048
Data Center Efficiency	4,381	0	4,381	3,569	60,022	0	60,022	30,623
Energy Management Systems	4,109	491	4,600	3,347	59,938	7,359	67,297	29,543
Heating Efficiency	22	972	994	18	326	15,583	15,909	159
LED Street Lighting	4,744	0	4,744	3,865	71,164	0	71,164	34,634
Lighting Efficiency	88,861	0	88,861	72,388	1,294,531	0	1,294,531	645,190
Lighting - Small Business	26,390	456	26,845	21,498	377,802	4,555	382,357	186,500
Motor & Drive Efficiency	8,433	0	8,433	6,870	128,636	0	128,636	62,602
Multifamily Buildings	1,471	853	2,324	1,199	29,427	11,778	41,204	13,692
New Construction	22,746	4,846	27,592	18,530	454,925	96,916	551,841	211,669
Process Efficiency	6,466	0	6,466	5,267	117,832	0	117,832	56,969
Recommissioning	844	158	1,002	688	5,909	1,104	7,013	3,004
Self Direct	7,388	0	7,388	6,019	133,971	0	133,971	64,772
Business Program Total	**194,540**	**8,508**	**203,048**	**158,476**	**3,025,202**	**149,639**	**3,174,841**	**1,481,197**
Residential Program								
Energy Efficient Showerhead	592	3,215	3,807	483	5,924	32,150	38,074	2,832
Energy Feedback Residential	15,047	4,287	19,333	12,257	45,140	13,027	58,168	25,426
ENERGY STAR New Homes	3,521	6,495	10,015	2,868	57,851	129,830	187,680	28,119
Evaporative Cooling	2,497	0	2,497	2,034	37,449	0	37,449	18,225
High Efficiency Air Conditioning	2,788	0	2,788	2,271	23,276	0	23,276	11,688
Home Energy Squad	742	382	1,124	604	5,409	3,723	9,133	2,750
Home Lighting & Recycling	63,007	0	63,007	51,326	654,292	0	654,292	311,264
Home Performance with ENERGY STAR	152	722	874	124	2,134	11,687	13,821	1,056
Insulation & Air Sealing	192	1,408	1,599	156	2,938	22,832	25,770	1,430
Refrigerator & Freezer Recycling	2,556	0	2,556	2,082	20,689	0	20,689	10,287
Residential Heating	4,211	3,788	7,999	3,430	75,772	68,184	143,957	37,072
School Education Kits	6,538	3,921	10,459	5,326	49,672	39,208	88,880	24,929
Water Heating	96	321	416	78	956	5,861	6,816	457
Residential Program Total	**101,937**	**24,538**	**126,475**	**83,040**	**981,501**	**326,503**	**1,308,004**	**475,534**
Low-Income Program								
Energy Savings Kit	888	525	1,413	723	7,047	5,246	12,293	3,566
Multifamily Weatherization	1,481	870	2,350	1,206	16,286	9,565	25,851	7,918
Non-Profit	1,372	325	1,698	1,118	23,328	5,533	28,861	11,413
Single-Family Weatherization	1,105	3,152	4,258	900	10,274	52,536	62,810	5,012
Low-Income Program Total	**4,846**	**4,872**	**9,718**	**3,948**	**56,934**	**72,881**	**129,815**	**27,909**
Indirect Products & Services								
ENERGY STAR Retail Prod Platform Pilot	1,852	14	1,866	1,509	20,655	171	20,826	9,870
Building Optimization DR Pilot	0	0	0	0	0	0	0	0
Indirect Products & Services Total	**1,852**	**14**	**1,866**	**1,509**	**20,655**	**171**	**20,826**	**9,870**
EE PORTFOLIO TOTAL	**303,175**	**37,932**	**341,108**	**246,972**	**4,084,293**	**549,194**	**4,633,486**	**1,994,509**
Demand Response Program								
Residential Demand Response	41	0	41	34	585	0	585	290
Critical Peak Pricing	3	0	3	2	0	0	0	0
Peak Partner Rewards	0	0	0	0	0	0	0	0
Building Optimization DR Pilot	0	0	0	0	0	0	0	0
DR PORTFOLIO TOTAL	**45**	**0**	**45**	**36**	**585**	**0**	**585**	**290**
PORTFOLIO TOTAL	**303,220**	**37,932**	**341,152**	**247,009**	**4,084,878**	**549,194**	**4,634,072**	**1,994,799**

Program Costs by Budget Category

The Company uses the following six budget categories to track and report its annual expenditures for DSM programs and products within its portfolio:

1. **Program Planning and Design**
   Expenditures for:
   - Labor for new pilot/product development and management.
   - Expenditures related to product development, planning, and design.

2. **Administration and Program Delivery**
   Expenditures for:
   - Labor for program managers, sales representatives, call center, rebate processing, technical consulting, and other fulfillment activities associated with delivering a product directly to the customer.
   - Labor for installation contractors, vendors, technical consultants, fulfillment contractors, and alternative providers that The Company contracts with to provide DSM services.
   - Project fulfillment, implementation and program support activities associated with delivering a program directly to the customer.

3. **Advertising / Promotion / Customer Education**
   Expenditures for:
   - Labor for communications staff and others.
   - TV, radio, newspaper, and print media; direct promotion and sales support materials; postage, promotional events; contracted outbound telephone sales.
   - Customer education through seminars, pamphlets, videos, and computer games.

4. **Participant Rebates and Incentives**
   Expenditures for:
   - Customer rebates, finance interest subsidies, subsidies for engineering studies, trade incentives, and incentives given in the form of subsidized products or equipment.

5. **Equipment and Installation**
   Expenditures for:
   - The costs to purchase energy efficient equipment and to install efficiency equipment at the customer site.

6. **Measurement and Verification**
   Expenditures for:
   - Labor for market research and load research.
   - Labor for product development staff, product development, external consultants, and product development research activities.
   - Customer surveys and program evaluation expenses.

Table 7a: 2017 Electric Program Costs by Category (Budget)

2017	Program Planning & Design	Admin & Program Delivery	Advertising/ Promotion/ Customer Ed	Participant Rebates and Incentives	Equip & Install	M&V	Total
Business Program							
Commercial Refrigeration Efficiency	$12,000	$594,171	$62,740	$369,524	$0	$20,600	$1,059,035
Compressed Air Efficiency	$5,000	$199,379	$35,684	$505,644	$0	$24,000	$769,707
Computer Efficiency	$0	$259,455	$1,500	$6,250	$0	$0	$267,205
Cooling	$0	$2,736,613	$86,634	$1,503,811	$0	$10,000	$4,337,058
Custom Efficiency	$0	$701,630	$92,325	$423,028	$0	$30,000	$1,246,983
Data Center Efficiency	$0	$121,816	$148,971	$988,837	$0	$25,000	$1,284,624
Energy Management Systems	$0	$458,520	$73,314	$703,051	$10,000	$25,000	$1,269,885
Heating Efficiency	$0	$5,625	$2,000	$2,716	$0	$0	$10,341
LED Street Lighting	$0	$43,000	$0	$0	$0	$0	$43,000
Lighting Efficiency	$30,000	$2,788,242	$704,299	$7,654,144	$0	$56,400	$11,233,085
Lighting - Small Business	$0	$2,513,747	$850,462	$2,409,669	$0	$46,000	$5,819,878
Motor & Drive Efficiency	$0	$640,348	$159,831	$1,812,820	$0	$24,577	$2,637,576
Multifamily Buildings	$0	$184,720	$0	$395,810	$319,473	$0	$900,003
New Construction	$5,000	$3,255,886	$322,770	$6,402,797	$0	$589,327	$10,575,780
Process Efficiency	$0	$577,669	$8,665	$1,620,679	$0	$31,658	$2,238,671
Recommissioning	$18,000	$218,629	$70,946	$364,732	$0	$6,000	$678,307
Self Direct	$0	$97,883	$3,477	$877,547	$0	$1,000	$979,907
Business Program Total	**$70,000**	**$15,397,333**	**$2,623,618**	**$26,041,059**	**$329,473**	**$889,562**	**$45,351,045**
Residential Program							
Energy Efficiency Showerhead	$0	$37,356	$2,329	$15,525	$0	$196	$55,406
Energy Feedback Residential	$12,000	$3,032,801	$15,000	$0	$0	$25,688	$3,085,489
ENERGY STAR New Homes	$0	$224,851	$861	$622,638	$0	$115,763	$964,113
Evaporative Cooling	$0	$837,118	$396,899	$1,780,600	$0	$25,080	$3,039,697
High Efficiency Air Conditioning	$0	$292,264	$0	$3,309,281	$0	$47,000	$3,648,545
Home Energy Squad	$0	$38,048	$88,253	$17,710	$145,204	$6,250	$295,465
Home Lighting & Recycling	$0	$1,007,275	$1,041,711	$5,487,000	$0	$10,000	$7,545,986
Home Performance with ENERGY STAR	$0	$155,803	$4,919	$102,399	$0	$30,000	$293,121
Insulation & Air Sealing	$0	$25,151	$1,370	$162,448	$0	$10,000	$198,969
Refrigerator & Freezer Recycling	$0	$657,970	$249,965	$375,000	$0	$10,000	$1,292,935
Residential Heating	$0	$71,425	$85,772	$607,200	$0	$13,500	$777,897
School Education Kits	$0	$539,430	$5,000	$874,899	$0	$0	$1,419,329
Water Heating	$0	$968	$0	$22,500	$0	$5,000	$28,468
Residential Program Total	**$12,000**	**$6,920,460**	**$1,892,079**	**$13,377,200**	**$145,204**	**$298,477**	**$22,645,420**
Low-Income Program							
Energy Savings Kit	$0	$84,886	$45,920	$185,751	$0	$2,500	$319,057
Multifamily Weatherization	$0	$81,761	$40,000	$1,019,704	$0	$15,351	$1,156,816
Non-Profit	$0	$103,670	$45,000	$930,452	$0	$27,825	$1,106,947
Single-Family Weatherization	$0	$94,054	$167,690	$885,260	$0	$44,263	$1,191,267
Low-Income Program Total	**$0**	**$364,371**	**$298,610**	**$3,021,167**	**$0**	**$89,939**	**$3,774,087**

Table 7a: (Cont.)

2017	Program Planning & Design	Admin & Program Delivery	Advertising/ Promotion/ Customer Ed	Participant Rebates and Incentives	Equip & Install	M&V	Total
Indirect Products & Services							
Education/Market Transformation							
Business Education	$0	$0	$176,739	$0	$0	$0	$176,739
Business Energy Analysis	$30,000	$115,653	$97,850	$375,996	$0	$0	$619,499
Consumer Education	$0	$367,173	$532,735	$0	$0	$0	$899,908
Energy Benchmarking	$4,000	$75,000	$10,000	$0	$0	$0	$89,000
Energy Efficiency Financing	$0	$32,907	$14,804	$10,000	$0	$0	$57,711
Home Energy Audit	$0	$182,038	$11,330	$186,996	$0	$37,399	$417,763
Education/Market Transformation Total	**$34,000**	**$772,771**	**$843,458**	**$572,992**	**$0**	**$37,399**	**$2,260,620**
Planning and Research							
DSM Planning & Administration	$0	$570,390	$3,000	$0	$0	$0	$573,390
Program Evaluations	$1,000	$40,000	$0	$0	$0	$633,600	$674,600
Market Research	$2,000	$343,940	$0	$0	$0	$0	$345,940
Measurement & Verification	$0	$10,738	$0	$0	$0	$0	$10,738
Product Development	$462,272	$1,306,151	$77,832	$1,242,338	$682,500	$100,000	$3,871,093
ENERGY STAR Retail Products Platform Pilot	$0	$105,301	$4,365	$741,255	$0	$35,144	$886,065
Building Optimization DR Pilot	$3,600	$33,100	$50	$0	$0	$0	$36,750
Product Development Total	**$465,872**	**$1,444,552**	**$82,247**	**$1,983,593**	**$682,500**	**$135,144**	**$4,793,908**
Planning and Research Total	**$468,872**	**$2,409,620**	**$85,247**	**$1,983,593**	**$682,500**	**$768,744**	**$6,398,576**
Indirect Products & Services Total	**$502,872**	**$3,182,391**	**$928,705**	**$2,556,585**	**$682,500**	**$806,143**	**$8,659,196**
EE PORTFOLIO TOTAL	**$584,872**	**$25,864,555**	**$5,743,012**	**$44,996,011**	**$1,157,177**	**$2,084,121**	**$80,429,748**
Demand Response Program							
Residential Demand Response	$0	$3,363,759	$1,774,696	$7,927,560	$0	$100,000	$13,166,015
Critical Peak Pricing	$50,000	$35,000	$8,900	$0	$26,100	$25,000	$145,000
Peak Partner Rewards	$0	$592,953	$25,000	$1,710,000	$274,094	$25,000	$2,627,047
Building Optimization DR Pilot	$0	$5,328,076	$2,423,360	$8,440,000	$0	$125,000	$16,316,436
DR PORTFOLIO TOTAL	**$50,000**	**$9,319,788**	**$4,231,956**	**$18,077,560**	**$300,194**	**$275,000**	**$32,254,498**
PORTFOLIO TOTAL	**$634,872**	**$35,184,343**	**$9,974,968**	**$63,073,571**	**$1,457,371**	**$2,359,121**	**$112,684,246**

Table 7b: 2017 Electric Program Costs by Category (Actual Expenditures)

2017	Program Planning & Design	Admin & Program Delivery	Advertising/ Promotion/ Customer Ed	Participant Rebates and Incentives	Equip & Install	M&V	Total
Business Program							
Commercial Refrigeration Efficiency	$30,608	$353,235	$16,714	$558,089	$0	$14,890	$973,537
Compressed Air Efficiency	$48,345	$137,268	$32,906	$467,028	$0	$10,741	$696,289
Computer Efficiency	$91	$64,660	$361	$40,847	$0	$2,800	$248,140
Cooling	$61,723	$976,333	$74,990	$1,254,308	$0	$18,525	$3,331,022
Custom Efficiency	$136,451	$361,979	$75,631	$145,174	$0	$3,821	$723,056
Data Center Efficiency	$49,313	$194,699	$134,725	$655,037	$0	$5,623	$1,039,397
Energy Management Systems	$33,098	$522,533	$84,284	$409,940	$0	$19,273	$1,069,128
Heating Efficiency	$0	$13,442	$2,210	$1,325	$0	$0	$16,978
LED Street Lighting	$0	$0	$0	$0	$0	$0	$0
Lighting Efficiency	$157,579	$2,914,648	$494,822	$11,059,426	$0	$51,932	$14,680,618
Lighting - Small Business	$46,909	$2,318,355	$109,658	$5,049,689	$0	$27,653	$7,554,286
Motor & Drive Efficiency	$31,287	$373,628	$120,248	$1,751,333	$0	$19,513	$2,296,009
Multifamily Buildings	$701	$130,496	$1,889	$164,616	$395,613	$0	$693,315
New Construction	$44,104	$2,011,419	$108,760	$4,321,240	$0	$346,424	$7,404,616
Process Efficiency	$92,387	$419,272	$20,538	$778,955	$0	$5,385	$1,316,537
Recommissioning	$61,534	$182,202	$32,008	$164,963	$0	$0	$441,336
Self Direct	$4,297	$126,596	$11,274	$1,022,513	$0	$0	$1,164,681
Business Program Total	**$798,428**	**$11,100,766**	**$1,321,017**	**$27,844,484**	**$395,613**	**$526,579**	**$43,648,943**
Residential Program							
Energy Efficiency Showerhead	$304	$20,156	$4,600	$13,061	$0	$0	$38,121
Energy Feedback Residential	$651	$3,118,047	$0	$0	$0	$0	$3,118,698
ENERGY STAR New Homes	$2,773	$200,478	$188	$706,131	$0	$106,965	$1,016,535
Evaporative Cooling	$935	$486,438	$389,149	$2,000,810	$0	$18,150	$3,118,533
High Efficiency Air Conditioning	$10,794	$170,735	$1,362	$4,700,830	$0	$50,315	$5,139,311
Home Energy Squad	$852	$128,152	$104,055	$18,006	$246,164	$1,571	$498,800
Home Lighting & Recycling	$0	$979,047	$623,922	$3,529,171	$0	$3,000	$5,135,140
Home Performance with ENERGY STAR	$0	$66,537	$1,223	$74,199	$0	$18,185	$165,331
Insulation & Air Sealing	$0	$22,589	$1,534	$192,085	$0	$800	$217,008
Refrigerator & Freezer Recycling	$0	$528,961	$219,537	$311,450	$0	$3,000	$1,062,948
Residential Heating	$0	$68,650	$80,542	$783,950	$0	$7,540	$940,682
School Education Kits	$0	$628,007	-$1,395	$924,107	$0	$0	$1,550,719
Water Heating	$3,979	$2,535	$0	$16,200	$0	$0	$22,714
Residential Program Total	**$20,287**	**$6,420,331**	**$1,424,718**	**$13,270,001**	**$246,164**	**$209,526**	**$22,024,540**
Low-Income Program							
Energy Savings Kit	$243	$79,101	$21,878	$157,173	$0	$4,750	$263,145
Multifamily Weatherization	$24,160	$164,862	$3,907	$944,989	$0	$15,351	$1,153,269
Non-Profit	$32,158	$213,323	$3,833	$1,092,491	$0	$27,825	$1,369,629
Single-Family Weatherization	$2,331	$104,837	$113,618	$484,832	$15	$27,442	$733,075
Low-Income Program Total	**$58,892**	**$562,122**	**$143,236**	**$2,679,485**	**$15**	**$75,368**	**$3,519,119**

Table 7b: (Cont.)

2017	Program Planning & Design	Admin & Program Delivery	Advertising/ Promotion/ Customer Ed	Participant Rebates and Incentives	Equip & Install	M&V	Total
Indirect Products & Services							
Education/Market Transformation							
Business Education	$0	$85,418	$72,586	$0	$0	$0	$158,004
Business Energy Analysis	$5,964	$296,125	$61,002	$15,176	$0	$0	$378,267
Consumer Education	$0	$153,514	$698,350	$0	$0	$0	$851,865
Energy Benchmarking	$0	$64,021	$0	$0	$0	$0	$64,021
Energy Efficiency Financing	$0	$45,786	$14,018	$0	$0	$0	$59,804
Home Energy Audit	$0	$123,295	$10,879	$170,975	$0	$31,944	$337,532
Education/Market Transformation Total	**$5,964**	**$768,158**	**$856,837**	**$186,151**	**$0**	**$31,944**	**$1,849,493**
Planning and Research							
DSM Planning & Administration	$0	$569,683	$0	$0	$0	$0	$569,683
Program Evaluations	$0	$149,490	$0	$0	$0	$501,802	$651,292
Market Research	$0	$198,736	$0	$0	$0	$0	$198,736
Measurement & Verification	$0	$13,249	$1,008	$0	$0	$0	$14,257
Product Development	$449,023	$680,973	$7,453	$0	$0	$161,700	$1,299,148
ENERGY STAR Retail Products Platform Pilot	$1,679	$1,196,300	$0	$0	$0	$0	$1,197,979
Building Optimization DR Pilot	$3,102	$56,338	$0	$0	$0	$0	$59,440
Product Development Total	**$453,804**	**$1,933,611**	**$7,453**	**$0**	**$0**	**$161,700**	**$2,556,568**
Planning and Research Total	**$453,804**	**$2,864,769**	**$8,461**	**$0**	**$0**	**$663,502**	**$3,990,536**
Indirect Products & Services Total	**$459,767**	**$3,632,927**	**$865,298**	**$186,151**	**$0**	**$695,446**	**$5,840,029**
EE PORTFOLIO TOTAL	**$1,337,375**	**$21,716,147**	**$3,754,270**	**$43,980,121**	**$641,792**	**$1,506,920**	**$75,032,631**
Demand Response Program							
Residential Demand Response	$12,732	$3,107,806	$993,189	$8,366,215	$0	$118,200	$12,598,174
Critical Peak Pricing	$0	$20,466	$0	$0	$0	$0	$20,466
Peak Partner Rewards	$0	$355,686	$50,178	$143,988	$0	$0	$549,852
Building Optimization DR Pilot	$3,065	$56,140	$0	$0	$0	$0	$59,205
DR PORTFOLIO TOTAL	**$15,797**	**$3,540,098**	**$1,043,367**	**$8,510,203**	**$0**	**$118,200**	**$13,227,697**
PORTFOLIO TOTAL	**$1,353,172**	**$25,256,245**	**$4,797,637**	**$52,490,323**	**$641,792**	**$1,625,120**	**$88,260,328**

Table 8a: 2017 Gas Program Costs by Category (Budget)

2017	Program Planning & Design	Admin & Program Delivery	Advertising/ Promotion/ Customer Ed	Participant Rebates and Incentives	Equip & Install	M&V	Total
Business Program							
Commercial Refrigeration Efficiency	$0	$4,909	$0	$6,996	$0	$0	$11,905
Compressed Air Efficiency							
Computer Efficiency							
Cooling							
Custom Efficiency	$0	$66,137	$56	$17,020	$0	$0	$83,213
Data Center Efficiency							
Energy Management Systems	$0	$25,042	$600	$25,661	$0	$0	$51,303
Heating Efficiency	$0	$199,951	$12,078	$248,251	$0	$28,000	$488,280
LED Street Lighting							
Lighting Efficiency							
Lighting - Small Business	$0	$14,724	$0	$3,216	$0	$0	$17,940
Motor & Drive Efficiency							
Multifamily Buildings	$0	$212,028	$0	$229,581	$116,481	$0	$558,090
New Construction	$10,000	$696,811	$20,423	$824,709	$0	$165,000	$1,716,943
Process Efficiency							
Recommissioning	$0	$12,521	$3,000	$43,677	$0	$0	$59,198
Self Direct							
Business Program Total	**$10,000**	**$1,232,123**	**$36,157**	**$1,399,110**	**$116,481**	**$193,000**	**$2,986,871**
Residential Program							
Energy Efficiency Showerhead	$0	$230,968	$20,286	$206,260	$0	$2,604	$460,118
Energy Feedback Residential	$3,858	$470,989	$3,642	$0	$0	$4,856	$483,345
ENERGY STAR New Homes	$0	$437,995	$69,832	$1,428,130	$0	$214,988	$2,150,945
Evaporative Cooling							
High Efficiency Air Conditioning							
Home Energy Squad	$0	$50,093	$111,102	$82,280	$86,383	$6,250	$336,108
Home Lighting & Recycling							
Home Performance with ENERGY STAR	$0	$103,785	$5,852	$419,823	$0	$30,000	$559,460
Insulation & Air Sealing	$0	$49,006	$9,938	$306,441	$0	$20,000	$385,385
Refrigerator & Freezer Recycling							
Residential Heating	$0	$64,198	$80,745	$378,960	$0	$9,500	$533,403
School Education Kits	$0	$259,504	$2,661	$176,282	$0	$0	$438,447
Water Heating	$0	$34,080	$2,000	$67,000	$0	$19,000	$122,080
Residential Program Total	**$3,858**	**$1,700,618**	**$306,058**	**$3,065,177**	**$86,383**	**$307,198**	**$5,469,292**
Low-Income Program							
Energy Savings Kit	$0	$49,750	$22,451	$41,393	$0	$2,500	$116,094
Multifamily Weatherization	$0	$72,436	$20,000	$487,038	$0	$13,065	$592,539
Non-Profit	$0	$80,083	$15,000	$181,272	$0	$17,058	$293,413
Single-Family Weatherization	$0	$207,078	$125,861	$1,870,865	$0	$93,543	$2,297,347
Low-Income Program Total	**$0**	**$409,347**	**$183,312**	**$2,580,568**	**$0**	**$126,166**	**$3,299,393**

Table 8a: (Cont.)

2017	Program Planning & Design	Admin & Program Delivery	Advertising/ Promotion/ Customer Ed	Participant Rebates and Incentives	Equip & Install	M&V	Total
Indirect Products & Services							
Education/Market Transformation							
Business Education	$0	$4,200	$15,438	$0	$0	$0	$19,638
Business Energy Analysis	$3,000	$14,507	$0	$48,000	$0	$0	$65,507
Consumer Education	$0	$46,700	$86,623	$0	$0	$0	$133,323
Energy Benchmarking	$1,000	$25,000	$5,000	$0	$0	$0	$31,000
Energy Efficiency Financing	$0	$32,000	$28,000	$0	$0	$0	$60,000
Home Energy Audit	$0	$237,293	$50,133	$221,100	$0	$36,480	$545,006
Education/Market Transformation Total	**$4,000**	**$359,700**	**$185,194**	**$269,100**	**$0**	**$36,480**	**$854,474**
Planning and Research							
DSM Planning & Administration	$0	$63,049	$75	$0	$0	$0	$63,124
Program Evaluations	$0	$10,000	$0	$0	$0	$158,400	$168,400
Market Research	$0	$96,732	$0	$0	$0	$0	$96,732
Measurement & Verification	$0	$1,193	$0	$0	$0	$0	$1,193
Product Development	$100,368	$45,233	$12,567	$0	$0	$12,500	$170,668
ENERGY STAR Retail Products Platform Pilot	$0	$1,704	$70	$27,800	$0	$4,856	$34,430
Building Optimization DR Pilot	$0	$0	$0	$0	$0	$0	$0
Product Development Total	**$100,368**	**$46,937**	**$12,637**	**$27,800**	**$0**	**$17,356**	**$205,098**
Planning and Research Total	**$100,368**	**$217,911**	**$12,712**	**$27,800**	**$0**	**$175,756**	**$534,547**
Indirect Products & Services Total	**$104,368**	**$577,611**	**$197,906**	**$296,900**	**$0**	**$212,236**	**$1,389,021**
EE PORTFOLIO TOTAL	**$118,226**	**$3,919,699**	**$723,433**	**$7,341,755**	**$202,864**	**$838,600**	**$13,144,577**

Table 8b: 2017 Gas Program Costs by Category (Actual Expenditures)

2017	Program Planning & Design	Admin & Program Delivery	Advertising/ Promotion/ Customer Ed	Participant Rebates and Incentives	Equip & Install	M&V	Total
Business Program							
Commercial Refrigeration Efficiency	$0	$33,348	$0	$3,156	$0	$0	$36,504
Compressed Air Efficiency							
Computer Efficiency							
Cooling							
Custom Efficiency	$2,062	$44,454	$1,331	$74,286	$0	$216	$122,349
Data Center Efficiency							
Energy Management Systems	$0	$17,973	$0	$29,732	$0	$0	$47,705
Heating Efficiency	$16,357	$319,569	$23,589	$505,456	$0	$16,500	$881,471
LED Street Lighting							
Lighting Efficiency							
Lighting - Small Business	$0	$42,196	$0	$849	$0	$0	$43,045
Motor & Drive Efficiency							
Multifamily Buildings	$701	$153,934	$1,661	$209,556	$159,889	$0	$525,740
New Construction	$5,219	$408,725	$20,111	$405,096	$0	$80,332	$1,023,884
Process Efficiency							
Recommissioning	$812	$33,681	$144	$8,108	$0	$0	$42,745
Self Direct							
Business Program Total	**$25,150**	**$1,053,880**	**$46,836**	**$1,236,240**	**$159,889**	**$97,048**	**$2,723,443**
Residential Program							
Energy Efficiency Showerhead	$2,153	$216,209	$72,898	$170,251	$0	$0	$461,511
Energy Feedback Residential	$0	$496,894	$0	$0	$0	$0	$496,894
ENERGY STAR New Homes	$348	$453,194	$60,844	$1,617,159	$0	$249,585	$2,381,130
Evaporative Cooling							
High Efficiency Air Conditioning							
Home Energy Squad	$261	$93,345	$89,197	$29,396	$78,247	$2,356	$292,802
Home Lighting & Recycling							
Home Performance with ENERGY STAR	$5,436	$45,149	$2,835	$171,343	$0	$18,185	$252,260
Insulation & Air Sealing	$577	$39,104	$5,887	$499,671	$0	$29,200	$574,439
Refrigerator & Freezer Recycling							
Residential Heating	$2,653	$106,959	$77,880	$1,621,030	$0	$11,310	$1,819,832
School Education Kits	$0	$332,256	-$443	$193,425	$0	$0	$525,238
Water Heating	$1,379	$26,493	$0	$80,120	$0	$17,475	$125,466
Residential Program Total	**$12,807**	**$1,809,602**	**$309,099**	**$4,382,395**	**$78,247**	**$328,111**	**$6,929,574**
Low-Income Program							
Energy Savings Kit	$0	$47,941	$9,641	$35,724	$0	$4,750	$98,057
Multifamily Weatherization	$6,972	$132,360	$4,084	$980,745	$0	$13,065	$1,137,226
Non-Profit	$8,174	$122,115	$4,232	$429,451	$0	$17,058	$581,030
Single-Family Weatherization	$1,998	$136,984	$73,068	$1,689,726	$674	$87,177	$1,989,628
Low-Income Program Total	**$17,145**	**$439,400**	**$91,026**	**$3,135,646**	**$674**	**$122,050**	**$3,805,941**

Table 8b: (Cont.)

2017	Program Planning & Design	Admin & Program Delivery	Advertising/ Promotion/ Customer Ed	Participant Rebates and Incentives	Equip & Install	M&V	Total
Indirect Products & Services							
Education/Market Transformation							
Business Education	$0	$8,253	$10,746	$0	$0	$0	$18,999
Business Energy Analysis	$0	$40,046	$1,525	$3,643	$0	$1,100	$46,314
Consumer Education	$0	$57,213	$67,758	$0	$0	$0	$124,970
Energy Benchmarking	$0	$29,034	$0	$0	$0	$0	$29,034
Energy Efficiency Financing	$0	$48,079	$16,047	$0	$0	$0	$64,126
Home Energy Audit	$0	$121,255	$61,611	$352,815	$0	$31,944	$567,825
Education/Market Transformation Total	**$0**	**$303,879**	**$157,687**	**$356,458**	**$0**	**$33,044**	**$851,267**
Planning and Research							
DSM Planning & Administration	$0	$155,625	$0	$0	$0	$0	$155,625
Program Evaluations	$0	$37,375	$0	$0	$0	$132,824	$170,199
Market Research	$0	$77,398	$0	$0	$0	$0	$77,398
Measurement & Verification	$0	$2,545	$0	$0	$0	$0	$2,545
Product Development	$66,267	$82,044	$503	$0	$0	$19,092	$167,907
ENERGY STAR Retail Products Platform Pilot	$0	$46,143	$0	$0	$0	$0	$46,143
Building Optimization DR Pilot							
Product Development Total	**$66,267**	**$128,187**	**$503**	**$0**	**$0**	**$19,092**	**$214,049**
Planning and Research Total	**$66,267**	**$401,131**	**$503**	**$0**	**$0**	**$151,916**	**$619,817**
Indirect Products & Services Total	**$66,267**	**$705,009**	**$158,191**	**$356,458**	**$0**	**$184,960**	**$1,471,084**
EE PORTFOLIO TOTAL	**$121,369**	**$4,007,891**	**$605,151**	**$9,110,739**	**$238,809**	**$732,169**	**$14,930,042**

Participation Analysis

Decision No. C14-0731 in 2013 DSM Strategic Issues (Proceeding No. 13A-0686EG) directed the Company to "*collect, define, and analyze participant and non-participant rates. In future DSM plan filings, the Company shall explain how these data were collected and used for each program.*"[6] Furthermore, the Commission clarified in Decision No. C14-0997 that *"we also require that the Company set forth proposals for tracking participants and non-participants for specific programs and measures and to provide estimates of participant and non-participant counts in its DSM Plans. While we recognize that, for certain programs or measures it may be difficult or prohibitively expensive to collect such data, it is reasonable for the Commission to consider plans for tracking participation and non-participation when programs and measures are proposed in a DSM Plan filing and when we review the cost-effectiveness and ratepayer impacts of those programs and measures."*[7]

2017 Participation

Participant counts have been reported at the customer level (rather than at the premise level as had been forecasted in the 2014 DSM Plan) for each electric DSM product and by customer class, as well as the portfolio total counts for the 2017 calendar year. These values are shown in Tables 9a, 9b, 9c and 9d.

Historical Participation Analysis

The Company believes a thorough analysis of participants and non-participants must go beyond a counting of participation each year. It must also consider the amount of cumulative consumption savings realized by individual customers each year, due to the participation in electric DSM programs over several program years. To this end, the Company has identified the estimated percentages of business and residential customers by their range of consumption savings attributable to DSM participation since the expansion of the DSM programs in 2009. The extent of individual participation is further compared to the cumulative rate impacts of DSM program since 2009. The combination of these factors results in identification of the level and distribution of bill savings among business and residential customers. This data is shown in Tables 9e, 9f, and 9g.

[6] Paragraph 115, pg. 39.
[7] Paragraph 24, pg. 8.

Table 9a: 2017 Electric Participation, Percentage of Total by Customer Class

	Total Unique DSM Participants (Estimate)[8]		Total PSCo Customers[9]		PSCo Customers Participating in DSM		PSCo Customers Not Participating in DSM	
Electric	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**
2017 Total	800,586	100%	1,346,574	100%	800,586	59.45%	545,988	40.55%
Business	10,241	1.28%	99,805	7.41%	10,241	10.26%	89,564	89.74%
Residential	790,345	98.72%	1,246,769	92.59%	790,345	63.39%	456,424	36.61%

Table 9b: 2017 Gas Participation, Percentage of Total by Customer Class

	Total Unique DSM Participants (Estimate)[10]		Total DSM-Eligible PSCo Customers		PSCo Customers Participating in DSM		PSCo Customers Not Participating in DSM	
Gas	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**
2017 Total	471,824	100%	1,385,454	100%	471,824	34.06%	913,630	65.94%
Business	661	0.14%	100,810	7.28%	661	0.66%	100,149	99.34%
Residential	471,163	99.86%	1,284,644	92.72%	471,163	36.68%	813,481	63.32%

[8] Participation by DSM product is shown in Table 9c below. Total estimated participation is the sum of DSM product participation estimates less the number of duplicates (participation in multiple products).
[9] Customer count as of 12/31/2017.
[10] Participation by DSM product is shown in Table 9c below. Total estimated participation is the sum of DSM product participation estimates less the number of duplicates (participation in multiple products).

Table 9c: 2017 Electric Participation, Average Rebate and Savings

Product	2017 Participants	Average Rebate per Customer	Average kWh Savings per Customer
Business Program			
Commercial Refrigeration Efficiency	228	$2,447.76	27,736
Compressed Air Efficiency	65	$7,185.05	48,032
Computer Efficiency	2,515	$16.24	1,486
Cooling	413	$3,037.07	27,981
Custom Efficiency	8	$18,146.81	179,125
Data Center Efficiency	18	$36,390.94	341,483
Energy Management Systems	126	$3,253.49	47,722
Heating Efficiency	9	$147.22	3,094
Lighting Efficiency	1,791	$6,175.00	64,780
Lighting - Small Business	3,407	$1,482.15	10,798
Motor & Drive Efficiency	190	$9,217.54	87,382
Multifamily Buildings	14	$11,758.29	134,609
New Construction	111	$38,930.09	278,734
Process Efficiency	283	$2,752.49	32,514
Recommissioning	21	$7,855.39	57,206
Self Direct	6	$170,418.83	1,733,114
Residential Program			
Energy Efficient Showerhead	2,609	$5.01	424
Energy Feedback Residential	448,468	$0.00	42
ENERGY STAR New Homes	2,305	$306.35	2,099
Evaporative Cooling	3,407	$587.26	1,345
High Efficiency Air Conditioning	5,442	$863.81	969
Home Energy Squad	1,242	$14.50	755
Home Lighting & Recycling	169,615	$20.81	535
Home Performance with ENERGY STAR	216	$343.51	767
Insulation & Air Sealing	828	$231.99	353
Refrigerator & Freezer Recycling	5,771	$53.97	969
Residential Heating	7,152	$109.61	796
School Education Kits	13,825	$66.84	671
Water Heating	36	$450.00	3,357
Low-Income Program			
Energy Savings Kit	3,102	$50.67	553
Multifamily Weatherization	44	$21,477.02	42,550
Non-Profit	39	$28,012.58	45,066
Single-Family Weatherization	3,187	$152.13	439
Indirect Products & Services			
Business Education	2,844	$0.00	0
Business Energy Analysis	133	$114.11	0
Consumer Education	46,744	$0.00	0
Energy Efficiency Financing	46	$0.00	0
Home Energy Audit	1,621	$105.47	0
Planning and Research			
ENERGY STAR Retail Prod Platform Pilot	6,314	$0.00	632
Smart Thermostat Pilot - EE	15	$0.00	0
Demand Response Program			
Saver's Switch	5,921	N/A	N/A

Table 9d: 2017 Natural Gas Participation

Product	2017 Participants	Average Rebate Per Customer	Average Dth Savings Per Customer
Business Program			
Commercial Refrigeration Efficiency	120	$26.30	32.0
Custom Efficiency	2	$37,143.19	4761.7
Energy Management Systems	62	$479.55	145.3
Heating Efficiency	191	$2,646.36	97.7
Lighting - Small Business	92	$9.23	90.5
Multifamily Building	130	$1,611.97	108.4
New Construction	56	$7,233.86	1458.8
Recommissioning	8	$1,013.49	362.1
Residential Program			
Energy Efficient Showerhead	20,002	$8.51	3.9
Energy Feedback Residential	402,400	$0.00	0.2
ENERGY STAR New Homes	2,217	$729.44	52.6
Home Energy Squad	910	$32.30	6.9
Home Performance with ENERGY STAR	168	$1,019.90	61.2
Insulation & Air Sealing	974	$513.01	27.9
Residential Heating	4,324	$374.89	18.8
School Education Kits	39,244	$4.93	2.3
Water Heating	924	$86.71	6.4
Low-Income Program			
Energy Savings Kit	5,484	$6.51	2.5
Multifamily Weatherization	43	$22,808.02	334.3
Non-Profit	27	$15,905.59	199.3
Single-Family Weatherization	1,838	$919.33	28.3
Indirect Products & Services			
Business Education	113	$0.00	0.0
Business Energy Analysis	93	$39.17	0.0
Consumer Education	9,587	$0.00	0.0
Energy Efficiency Financing	62	$0.00	0.0
Home Energy Audit	2,784	$126.73	0.0
Planning and Research			
ENERGY STAR Retail Prod Platform Pilot	210	$0.00	1.4

Table 9e: Estimated Customer Consumption Savings Range, 2009-2017

Year	Total Non-Participants		DSM Participants Saving 1-2% of Annual Electric Consumption		DSM Participants Savings 3-5% of Annual Electric Consumption		DSM Participants Saving 6-10% of Annual Electric Consumption		DSM Participants Saving 11-25% of Annual Electric Consumption		DSM Participants Saving More than 25% of Annual Electric Consumption	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
2009												
BUS	95,264	98.22%	583	0.60%	325	0.34%	225	0.23%	418	0.43%	175	0.18%
RES	1,002,895	83.78%	46,664	3.90%	49,289	4.12%	64,964	5.43%	29,559	2.47%	3,660	0.31%
2010												
BUS	93,700	96.61%	1,063	1.10%	574	0.59%	501	0.52%	627	0.65%	524	0.54%
RES	841,077	70.26%	75,558	6.31%	67,823	5.67%	121,557	10.15%	80,156	6.70%	10,859	0.91%
2011												
BUS	90,922	93.74%	1,703	1.76%	1,117	1.15%	996	1.03%	1,374	1.42%	878	0.91%
RES	521,924	43.60%	68,964	5.76%	116,415	9.73%	237,175	19.81%	214,875	17.95%	37,678	3.15%
2012												
BUS	86,193	88.87%	2,319	2.39%	1,749	1.80%	1,689	1.74%	2,861	2.95%	2,179	2.25%
RES	481,788	40.25%	78,694	6.57%	133,753	11.17%	245,966	20.55%	217,324	18.16%	39,507	3.30%
2013												
BUS	83,530	86.12%	2,570	2.65%	2.177	2.24%	2,295	2.37%	3,612	3.72%	2,805	2.89%
RES	352,847	29.48%	73,693	6.16%	153,450	12.82%	276,372	23.09%	282,966	23.64%	57,704	4.82%
2014												
BUS	80,168	82.66%	3,008	3.10%	2,755	2.84%	2,828	2.92%	4,510	4.65%	3,721	3.84%
RES	237,454	19.84%	57,010	4.76%	178,786	14.94%	303,588	25.36%	343,422	28.69%	76,770	6.41%
2015												
BUS	71,425	73.28%	8,894	9.13%	4,010	4.11%	3,559	3.65%	5,479	5.62%	4,098	4.20%
RES	108,652	8.96%	100,007	8.24%	200,298	16.51%	322,245	26.57%	389,218	32.09%	92,540	7.63%
2016												
BUS	70,516	65.57%	13,556	12.61%	5,818	5.41%	4,935	4.59%	6,724	6.25%	5,991	5.57%
RES	89,486	7.27%	86,136	7.00%	181,845	14.78%	319,593	25.98%	437,535	33.56%	115,671	9.40%
2017												
BUS	59,747	59.86%	17,726	17.76%	7,036	7.05%	5,041	5.05%	5,964	5.98%	4,291	4.30%
RES	57,396	4.60%	67,535	5.42%	165,542	13.28%	314,079	25.19%	490,044	39.31%	152,172	12.21%

Table 9f: Estimated Cumulative Rate Impact, 2009-2017

Year	Cumulative Electric Rate Impact						
	DSM Cost Recovery	System Benefits	Lost Revenue	Rate Imbalance (Increase)	Rate Impact (Increase)	Total Revenue	% Rate Increase
2009	$31.8M	$16.7M	$10.4M	-$6.2M	$25.5M	$2,216M	1.151%
2010	$42.2M	$32.3M	$22.4M	-$9.9M	$32.4M	$2,614M	1.238%
2011	$51.7M	$48.0M	$36.0M	-$12.0M	$39.7M	$2,673M	1.486%
2012	$67.1M	$71.2M	$62.7M	-$8.4M	$58.7M	$2,604M	2.255%
2013	$63.5M	$92.7M	$87.7M	-$4.9M	$58.6M	$2,793M	2.097%
2014	$65.1M	$108.8M	$109.2M	$0.3M	$65.5M	$2,865M	2.285%
2015	$74.7M	$131.2M	$141.5M	$10.4M	$85.1M	$2,767M	3.075%
2016	$72.2M	$147.9M	$179.6M	$31.7M	$104.0M	$2,737M	3.798%
2017	$88.3M	$166.9M	$219.8M	$52.9M	$141.2M	$2,735M	5.161%

Table 9g: Estimated Customer Bill Savings Range, 2009-2017

Year	Customers >1% Bill Increase		Customers 0-1% Bill Increase		Customers 0-2% Bill Savings		Customers 3-5% Bill Savings		Customers 6-15% Bill Savings		Customers more than 15% Bill Savings	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
2009												
BUS	95,395	98.36%	318	0.33%	257	0.26%	261	0.27%	471	0.49%	288	0.30%
RES	1,003,343	83.82%	39,099	3.27%	21,072	1.76%	54,960	4.57%	67,954	5.68%	10,858	0.91%
2010												
BUS	93,931	96.85%	598	0.62%	489	0.50%	461	0.48%	726	0.75%	783	0.81%
RES	845,554	70.64%	61,787	5.16%	29,019	2.42%	82,581	6.90%	143,759	12.01%	34,322	2.87%
2011												
BUS	91,583	94.43%	792	0.82%	858	0.88%	870	0.90%	1,438	1.48%	1,449	1.49%
RES	703,376	58.76%	40,082	3.35%	38,547	3.22%	117,868	9.85%	228,185	19.06%	68,950	5.76%
2012												
BUS	87,971	90.70%	717	0.74%	1,257	1.30%	1,179	1.22%	2,521	2.60%	3,344	3.45%
RES	547,524	45.74%	17,512	1.46%	80,617	6.73%	167,317	13.98%	282,157	23.57%	101,883	8.51%
2013												
BUS	85,209	87.85%	933	0.96%	1,493	1.54%	1,686	1.74%	3,306	3.41%	4,364	4.50%
RES	403,710	33.73%	24,509	2.05%	91,003	7.60%	181,822	15.19%	348,137	29.08%	147,819	12.35%
2014												
BUS	82,680	85.25%	1,075	1.11%	1,808	1.86%	1,857	1.91%	4,006	4.13%	5,562	5.73%
RES	277,559	23.19%	25,085	2.10%	112,873	9.43%	201,714	16.85%	390,844	32.65%	188,918	15.78%
2015												
BUS	80,969	83.08%	1,521	1.56%	2,172	2.23%	2,283	2.34%	4,415	4.53%	6,103	6.26%
RES	207,475	17.10%	58,120	4.79%	137,772	11.36%	202,860	16.72%	400,288	33.00%	206,445	17.02%
2016												
BUS	86,851	80.74%	1,851	1.72%	2,571	2.39%	2,797	2.60%	5,475	5.09%	8,030	7.46%
RES	186,063	15.12%	57,925	4.71%	153,439	12.47%	190,010	15.44%	407,093	33.09%	235,735	19.16%
2017												
BUS	84,195	84.36%	1,376	1.38%	2,297	2.30%	2,198	2.20%	4,105	4.11%	5,634	5.65%
RES	218,438	17.52%	57,038	4.57%	121,930	9.78%	172,829	13.86%	397,034	31.85%	279,499	22.42%

Compliance

Table 10: Reporting Requirements and Compliance

Item #	Compliance Point – Description	Statute / Rule / Proceeding Reference	Status Report Reference	Comments
ELECTRIC				
1	The annual DSM report will be filed with the Commission on April 1 of each year, starting in 2010.	Proceeding No. 07A-420E, Decision No. C08-560, p.53, ¶173.	---	Report filed April 1, 2017.
2	Shall include the results achieved during the previous plan year in total and by program, including achieved energy and demand savings, avoided annual and cumulative CO_2 and SO_x emissions in metric tons, actual expenditures, expenditures expressed in terms of $/kWh over the lifetime of the measures installed, and net economic benefits achieved.	Proceeding No. 08A-366EG, Stipulation & Settlement Agreement, p.16, ¶11(b)	See Tables 4a - 6	$/kWh over lifetime and net economic benefits achieved by product in Cost-Effectiveness Section.
3	Public Service shall use the technical assumptions relating to the energy savings calculations for such measures actually installed during calendar years 2015 and 2017.	Proceeding No. 14A-1057EG, Stipulation & Settlement Agreement, p.17, ¶8	---	Deemed savings approved in Proceeding No. 14A-1057EG (2015/2017 DSM Plan) were used to calculate prescriptive product achievements unless amended via 60-Day Notice during 2017.

4	Use the net-to-gross ratios and the technical assumptions relating to incremental customer O&M savings (for prescriptive measures only), customer O&M costs (for prescriptive measures only), incremental customer capital costs (for prescriptive measures only), the deemed savings formulas and other technical assumptions set forth in the Appendix G for purposes of determining program and portfolio cost-effectiveness and for calculating annual portfolio net economic benefits based on measures actually installed during calendar years 2015 and 2017.	Proceeding No. 14A-1057EG, Stipulation & Settlement Agreement, p.17, ¶8	See Cost-Effectiveness and Financial Incentive Calculations sections	The technical assumptions approved in Proceeding No. 16A-0512EG (2017/18 DSM Plan) were applied to product achievements.
5	All Participant O&M data should be treated as proprietary in the absence of a written agreement signed by the Participant authorizing disclosure.	Proceeding No. 08A-366EG, Stipulation & Settlement Agreement, p.8, ¶4	---	---
6	Do not include Participant O&M data in incentive calculations unless there is authorization to disclose such data.	Proceeding No. 08A-366EG, Stipulation & Settlement Agreement, p.8, ¶4	See Financial Incentive Calculations	----

7	PSCo may only disclose the results, by cost category, of calculations made using the privileged values, but not values themselves, by making such results available for inspection by both the Staff of the Commission and OCC at the Company's Colorado offices, pursuant to the following procedures: • PSCo will provide the customer 10 business-days' notice of the place and time of the inspection and provide the opportunity for a customer representative to be present during the inspection. • PSCo shall maintain a log of persons, dates, times and documents reviewed. • Participant O&M data shall not be disclosed to any other party or by any other means, except after receipt of written authorization from the Participant.	Proceeding No. 08A-366EG, Stipulation & Settlement Agreement, p.9, ¶4	---	Participant O&M data has been neither requested nor disclosed to any external party.
8	Track the expenditures, energy savings, and paybacks associated with each approved project under the Self-Directed Custom Efficiency Program.	Proceeding No. 08A-366EG, Stipulation & Settlement Agreement, p.8, ¶3	See Evaluation, Measurement and Verification	---
9	Approve Self-Directed customers' projects for which the customer meets TRC test value at least equal to one (1), rather than limiting this product to installations that have a TRC value at least equal to the TRC value for the overall DSM portfolio.	Proceeding No. 08A-366EG, Stipulation & Settlement Agreement, p.7, ¶3	---	Ongoing.
10	Offer the Self-Directed Custom Efficiency product to commercial and industrial customers who have an aggregated peak demand at all meters of at least 2 MW in any single month and an aggregated annual energy usage of at least 10 GWh. The customer of record must be the same for all meters aggregated to qualify for this program.	Proceeding No. 08A-366EG, Stipulation & Settlement Agreement, p.8, ¶3	---	Ongoing.

11	All incentive payments must be included in the final TRC calculation. At the time of the annual report following the DSM performance year, the incentive amounts will be "proposed" versus "final." PSCo shall include the proposed incentive amounts in their annual report. Public Service will calculate a proposed incentive amount based upon its calculation of the DSM savings achieved and costs incurred. Public Service's annual report will delineate the DSM activities that occurred, the costs and benefits related to these activities, and the net economic benefits. Based upon the percentage of the DSM goal achieved, a percentage of the net economic benefits will comprise Public Service's incentive payment. That value, along with the disincentive offset, will also be presented in the annual report, as a proposed performance incentive. This is the procedure that Public Service is to follow in its annual DSM report. The Decision does not require that the incentive amount be recalculated after the inclusion of the incentive payment amounts into the final TRC calculation.	Proceeding No. 07A-420E, Decision No, C08-0560, p.37, ¶117 Proceeding No. 071-420E, Decision No. C08-0769, pg. 19-20, ¶63	See Table 1c See Financial Incentive Calculations	---
12	For any low-income program that achieves a TRC<1.0, the costs and benefits may be excluded from the calculation of net economic benefits. The energy and demand savings may be applied toward the calculation of overall energy and demand savings, for the purposes of determining progress toward annual goals.	Proceeding No. 07A-420E, Decision No, C08-560, p.44, ¶140	See Financial Incentive Calculations	---
13	Beginning with the 2012 Annual Status Report, PSCo will quantify and track certain costs incurred through the use of third-party providers.	Proceeding No. 10A-554EG, Decision No. C11-0442, p. 52, Ordering ¶4	See Executive Summary	---

14	"Indirect impact programs" (customer education, market transformation and pilot programs) do not need to individually pass a TRC test, but need to be incorporated into the overall costs used to calculate the TRC of the DSM portfolio. Market Transformation efforts shall have a presumptive TRC of 1.0 so as to not adversely affect the financial incentive calculation.	Proceeding No. 07A-420E, Decision No. C08-0560, pg. 44-45, ¶141	See Indirect Program and Financial Incentive Calculations	Included within Report filed April 1, 2017.
15	Distribute a bi-monthly DSM Pilot/Product Development e-mail update.	Proceeding No. 14A-1057EG, Settlement Agreement, Para. 5(j)(i)	---	The Company continued to provide more comprehensive PD updates as part of its DSM Roundtables in lieu of the e-mail update.
16	Offer to hold at least two meetings with interested stakeholder, for each pilot that the Company decides to pursue, prior to 60-Day Notice.	Proceeding No. 14A-1057EG, Settlement Agreement, Para. 5(j)(iv)	---	The Company held a stakeholder meeting in March 2017 prior to the launch of the Smart Thermostat Optimization pilot. Stakeholders agreed that a second meeting was not necessary.
17	Re-allocate $25,000 to support energy codes training, in consultation with interested stakeholders.	Proceeding No. 14A-1057EG, Settlement Agreement, Para. 5(n)	---	Discussions with stakeholders were held in January and February 2017 and a final contract was executed in February 2017.
18	Maintain low-income efficiency programs from 2015 to 2020 at existing levels.	Decision No. C14-0731, Para. 75	See Tables 15a and 15b	The 2014 DSM Plan forecast for Low-Income Program combined electric and natural gas expenditures was $6.249 million. The 2017 combined electric and natural gas expenditures for the Low-Income Program were $7.587 million.

19	Provide an annual total of DSM program participants and non-participants in its annual status reports filed with the Commission.	Decision No. C14-00997, Para. 24	See Participation Analysis	Included within Report filed April 1, 2017.
20	Commit to report the number of leads generated and shared with internal product management and customer service specialists from all customer outreach event categories	Proceeding No. 16A-0512EG, Settlement Agreement, Para. III(S)(iii)	See Consumer Education write up included in the Indirect Program section	---
21	Include in its annual status report filing the number of customers under the tariff, the number of interruptions called, and the number of interruptions that were coincident with the system peak.	Proceeding No. 16A-0512EG, Settlement Agreement, Para. III(BB)(i)	See Peak Partner Rewards Write Up included in the Demand Response Program section	
22	The Company's recovery of the Disincentive Offset and Performance Incentive for 2016 will not be affected by the Interim Extension of the 2015/2016 DSM Plan. The Parties agree that this is, consistent with Sheet 140 and 140A of the Company's electric DSMCA tariff, effective January 1, 2017, and in compliance with Decision C14-0731 which states that beginning on July 1, 2014, the Company shall be entitled to recover a pretax disincentive offset provided it meets or exceeds 100% of its DSM performance goals. The Company shall also be permitted to recover a Performance Incentive based on five percent of net economic benefits achieved in calendar year 2016 if it achieves 100 percent of its energy savings goal.	Proceeding No. 16A-0512EG, Joint Motion to Continue to the 2015/2016 DSM Plan and Waiver of the Response Time and Joint Statement Identifying the Methodology to Prorate the 2015/2016 DSM Plan for 2017, Para. 6	See Financial Incentive Calculations	

23	The Company's electric energy savings goal does not require a pro-ration, as was necessary in Proceeding No. 13A-0773EG, because the Commission has ordered, in Proceeding No. 13A-0686EG, that the Company achieve at least 400 GWh annually through 2020. For all electric DSM measures implemented during the period in which the Interim Extension of the 2015/2016 DSM Plan remains in effect, the Company's energy savings and net economic benefits will be measured based on the avoided costs and technical assumptions, including net-to-gross ratios used for purposes of the 2015/2016 DSM Plan. Once the Company implements an approved 2017/2018 DSM Plan pursuant to a final order issued in this proceeding, energy savings and net economic benefits shall be determined based on the avoided costs and technical assumptions, including net-to gross ratios, approved in this proceeding.	Proceeding No. 16A-0512EG, Joint Motion to Continue to the 2015/2016 DSM Plan and Waiver of the Response Time and Joint Statement Identifying the Methodology to Prorate the 2015/2016 DSM Plan for 2017, Para. 6	See Financial Incentive Calculations	
NATURAL GAS				
1	Beginning April 1, 2010 and each April 1st thereafter, each utility shall submit its annual DSM report, application for bonus and DSMCA filing.	Rule 4752(b)	---	Report filed April 1, 2017.
2	Each utility shall also file an annual DSM report and an application for bonus.	Rule 4750(b)	---	Included with Report filed April 1, 2017.
3	The utility's annual expenditure target for DSM programs shall be, at a minimum, two percent of a natural gas utility's base rate revenues, (exclusive of commodity costs), from its sales customers in the 12-month calendar period prior to setting the targets, or one-half of one percent of total revenues from its sales customers in the 12-month calendar period prior to setting the targets, whichever is greater.	Rule 4753(h)(I)	---	PSCo spent a total of $14.4 million on its natural gas DSM programs. This surpassed the statutory expenditure targets – $7.7 million (2% of gas base rate revenues), and $5.5 million (0.5% of total gas revenues).
4	In the annual DSM report the utility shall describe its actual DSM programs as implemented. For each DSM program, the utility shall document actual program expenditures, energy savings, participation levels and cost-effectiveness.	Rule 4754(a)	See 2017 Status Report	---

5	Annual program expenditures shall be separated into cost categories contained in the approved DSM plan.	Rule 4754(b)	See Tables 7a, 7b, 8a, 8b	---
6	For each DSM program, the utility shall compare the program's proposed and actual expenditures, savings, participation rate, and cost-effectiveness; in addition, the utility shall prepare an assessment of the success of the program, and list any suggestions for improvement and greater customer involvement.	Rule 4754(c)	See 2017 Status Report	---
7	The utility shall provide actual benefit/cost results for the overall DSM plan and individual DSM programs implemented during the plan year. The benefit/cost analysis shall be based on the costs incurred and benefits achieved, as identified in the modified TRC test. Benefit values are to be based upon the results of M&V evaluation, when such has been conducted as set forth in rule 4755. Otherwise, the benefit values of the currently approved DSM plan are to be used.	Rule 4754(d)	See Cost-Effectiveness	Business, Residential, and Low-Income cost-benefit analysis (CBA) results are included in CBA work paper.
8	If the annual report covers a year within which an M&V evaluation was completed, the complete M&V results are to be included as part of the annual report.	Rule 4754(e)	See Evaluation, Measurement & Verification	---

9	The utility may file an application for bonus, pursuant to rule 4760. The application for bonus shall include the utility's calculation of estimated bonus applying the methodology set forth in this rule to the utility's actual performance. (II) As a threshold matter, the utility must expend at least the minimum amount set forth in rule 4753 (g)(I), except during a phase-in period as set forth in rule 4753 (g)(III), in order to earn a bonus. (III) The bonus amount is a percentage of the net economic benefits resulting from the DSM plan over the period under review. The percentage value is the product of the two factors: (A) The Energy Factor is determined by the percentage of the energy target achieved by the utility. The energy factor is zero plus 0.5% for each one percent above 80 percent of the energy target achieved by the utility. (B) The Savings Factor is the actual savings achieved divided by the approved savings target. Each of these quantities is expressed in dekatherms saved per dollar expended. (IV) The following is provided as an example of the bonus calculation, using these illustrative numbers: utility achieves 106 percent of its energy target; the utility's savings target is 15,000 dekatherms per $1 million expended, and the utility's actual savings is 18,000 dekatherms per $1 million.	Rule 4754(f)	See Financial Incentive Calculations	Included within Report filed April 1, 2017.
10	Acknowledgment of Lost Revenues (ALR) - Separate from any bonus determined by the Commission, the Commission may authorize a utility to recover a calculated amount of revenue that acknowledges that an effective DSM program reduced the utility's revenue. The amount shall be calculated as set forth in Rule 4754(g)(I) (A)-(F)	Rule 4754(g)	See Financial Incentive Calculations	---
11	Spend no less than $12 million annually on gas DSM in 2015 and 2017.	Decision C14-0731, Para. 69	See Table 5b	Natural gas DSM expenditures in 2017 totaled $14.4 million.

12	Maintain low-income efficiency programs from 2015 to 2020 at existing levels.	Decision No. C14-0731, Para. 75	See Tables 15a and 15b	The 2014 DSM Plan forecast for Low-Income Program combined electric and natural gas expenditures was $6.249 million. The 2017 combined electric and natural gas expenditures for the Low-Income Program were $7.0 million.

Financial Incentive Calculations

Electric Financial Incentive: Summary

In calendar year 2017, the Company operated its DSM programs under technical assumptions from both the 2015/2016 and 2017/2018 Plan-year because final approval of the 2017/2018 Plan was not received until February 2, 2017. Consistent with paragraphs 6 and 7 of the Joint Motion to Continue to the 2015/2016 DSM Plan and Waiver of the Response Time and Joint Statement Identifying the Methodology to Prorate the 2015/2016 DSM Plan for 2017 in Proceeding No. 16A-0512EG the Company has utilized the Deemed Savings and Technical Assumptions from the 2015/2016 DSM Plan for January and February 2017 and has used the Technical Assumption and Deemed Savings from the 2017/2018 DSM Plan for March through December 2017.[11]

Table 11 below summarizes the Company's Financial Incentive for electric energy efficiency based upon the Company's achievement of 415 GWh and net benefits of $127,537,780 in 2017.

Table 11: Summary of 2017 Electric Incentive

	Amount
Disincentive Offset	$5,000,000
Performance Incentive	$5,079,358
Total	**$10,079,358**

Disincentive Offset

A Disincentive Offset of $5.0 million is awarded because the Company achieved 100% of the annual energy savings goal of 400 GWh. That threshold is the same for the incentive mechanism ordered in Decision No. C11-0442 and the revised mechanism ordered in Decision No. C14-0731.

Performance Incentive

The Performance Incentive for the 2017 Plan year is 5% of net economic benefits[12] when the Company achieves 100% or more of the energy savings goal of 400 GWh. That threshold was ordered in Decision No. C14-0731.

Electric Financial Incentive: Calculation

The combination of the pre-tax Disincentive Offset and the Performance Incentive cannot exceed $30 million. The total financial incentive is recovered in the year following the 2017 performance year. The full calculation of the Company's financial incentive for electric DSM is shown in Table 12 below.

[11] Unless otherwise modified by 60-Day Notice.

[12] A minor adjustment is made for market transformation programs, allowing for the costs of these programs to be excluded from net economic benefits.

Table 12: Public Service 2017 Electric DSM Incentive

Disincentive Offset (Grossed-up for Income Taxes)	**$5,000,000**
Performance Incentive Calculation	
Approved 2017 kWh Goal	400,000,000
kWh from YE Achievements	415,365,723
Net Economic Benefits from YE Achievements	**$97,141,983**
Net Economic Benefits Adjustments	
Total Low-Income Allowance	$1,218,002
Total Market Transformation Allowance from YE Achieve.	$3,227,168
FINAL Net Benefits from YE Achievements	**$101,587,153**
% of Goal Achieved	104%
% of Net Benefits Awarded	5.00%
Performance Incentive	**$5,079,358**
Total Incentive - Subject to CAP	$10,079,358
Incentive Cap (Subject to Hard Cap of $30,000,000)	$30,000,000
Total 2017 Proposed Electric Financial Incentive Pre-Tax	**$10,079,358**

Natural Gas Bonus

The natural gas incentive mechanism ("Gas DSM Bonus") is calculated as set forth in 4 CCR 723-4-4754 ("Rule 4754"). The Gas DSM Bonus is awarded in a single installment, requested by application and approved in the first status report year following the natural gas DSM program year in which the savings were achieved. The approved Gas DSM Bonus amount is recovered through the Gas Demand-Side Management Cost Adjustment ("G-DSMCA"), over the same twelve-month period as set forth in 4 CCR 723-4-4752 (b) (I). (See, Rule 4752(g)(I)(E)).

The natural gas incentive is awarded on a sliding scale of net benefits, calculated based on an Energy Factor (percent of Dth goal achieved) and a Savings Factor (Dth per $1 million spend). The Gas DSM Bonus is capped at 25% of expenditure, or 20% of net benefits, whichever is less. For 2017, the natural gas incentive is calculated to be $2,127,235. This bonus is less than the expenditure cap of $3,597,426 and the net benefits cap of $4,334,320. In addition, the Company is filing for an acknowledgement of lost revenues associated with natural gas DSM programs of $596,595 for a total award of $2,723,829. The full calculation of Public Service's 2017 Natural Gas Incentive is detailed in Table 13 below.

Table 13: Public Service 2017 Natural Gas Bonus and Acknowledgement of Lost Revenue

Approved Energy Target (Goal)	632,572	Dekatherm per year		
Energy Target Achieved - YE Forecast	626,978	Dekatherm per year		
% of Energy Target Achieved	99.1%			
			Dth	**Spend**
Approved Savings Target	48,124	Dekatherm per $1M	632,572	$13,144,577
Savings Target Achieved - Portfolio Total	41,994	Dekatherm per $1M	614,558	$14,930,042
Savings Target Achieved - Low-Income Program Adjustments				
Energy Savings Kit			8,671	$98,057
Multi-Family Weatherization			14,373	$1,137,226
Non-Profit Energy Efficiency			5,380	$581,030
Single-Family Weatherization			52,107	$1,989,628
Total Savings Target Achieved - Low-Income Program Adjustments	21,159	Dekatherm per $1M	80,531	$3,805,941
Savings Target Achieved - Adjusted*	49,123	Dekatherm per $1M	546,446	$11,124,101
Total DSM Expenditures	$14,930,042			
Energy Factor	9.5%			
Savings Factor	1.020750181			
% of Net Benefits Awarded	9.7%	= Energy Factor * Savings Factor		
Net Economic Benefits Achieved	**$21,002,456**			
Net Economic Benefits Adjustments				
Energy Savings Kit	$-			
Multi-Family Weatherization	$608,862			
Non-Profit Energy Efficiency	$325,436			
Single-Family Weatherization	$-			
Low-Income Allowance from Plan	$934,298			
FINAL Net Economic Benefits Achieved	**$21,936,754**			
Incentive Cap	$3,732,510	= 20% of net economic benefits or 25% of expenditures, whichever is less		
Total 2017 Proposed Gas Financial Incentive Pre-Tax	**$2,127,235**			
Business/Residential Allocation		**%**		
Business Actual Savings (Dth)	140,626	22%		
Residential & Low Income Actual Savings (Dth)	486,352	78%		
Total Savings	**626,978**	**100%**		
Allocated Bonus				
Business	477,121			
Residential & Low Income	1,650,113			
Total	**2,127,235**			
Acknowledgement of Lost Revenue [ALR] Calculation:				
Dollar Value Per Therm				
Business (Non-residential)	$0.10906			
Residential	$0.09113			
12-Month Therm Reduction Impact From 2017 Programs				
Business (Non-residential)	1,406,260			
Residential	4,863,516			
ALR Totals				
Business (Non-residential)	$153,372			
Residential	$443,223			
Total ALR	**$596,595**			
Total Gas Bonus and ALR	**$2,723,829**			

Business Program

The Company's Business Program—for commercial and industrial customers of all sizes—offers a broad portfolio of DSM products designed to meet the needs of this varied segment. Eligible customers are on a Public Service business rate for electric service and/or retail natural gas service. The portfolio has three primary components:

1. *Prescriptive products* focus on the most common equipment.
2. *Custom products* encourage savings from unique situations, often involving newer technologies or measures.
3. *Study and educational products* help customers identify energy efficiency opportunities.

Electric

In 2017, the electric products in the Company's Business Program achieved 103% of the net generator kWh target. While the two commercial lighting products significantly over-performed in savings and participation, the New Construction and Process Efficiency products experienced lower than expected achievement mainly due to the longer development and completion time associated with projects. Lighting Efficiency was the largest contributor to business program achievements, followed by Lighting – Small Business and New Construction. Additionally, Computer Efficiency, Commercial Refrigeration Efficiency, Motor & Drive Efficiency and Cooling all exceeded their electric savings targets due to robust activity with trade partners, manufacturers and distributors. A summary of the Company's Business Program achievements for electric DSM products is shown in Table 14a below.

Table 14a: 2017 Business Program – Electric DSM Products (Target to Actual)

	Budgets / Targets				Expenditures / Achievements			
Business Program - 2017	**Electric Budget**	**Net Gen. kW**	**Net Gen. kWh**	**Electric MTRC Test Ratio**	**Electric Expenditures**	**Net Gen. kW**	**Net Gen. kWh**	**Electric MTRC Test Ratio**
Commercial Refrigeration Efficiency	$1,059,035	573	5,679,594	1.39	$973,537	1,399	6,763,482	2.26
Compressed Air Efficiency	$769,707	624	3,896,022	1.35	$696,289	488	2,826,073	1.52
Computer Efficiency	$267,205	293	2,293,385	0.72	$248,140	328	3,428,263	1.14
Cooling	$4,337,058	4,238	11,110,802	1.20	$3,331,022	3,335	11,243,926	1.52
Custom Efficiency	$1,246,983	973	5,926,973	1.37	$723,056	181	1,333,399	1.05
Data Center Efficiency	$1,284,624	755	8,242,586	1.52	$1,039,397	847	6,002,025	1.38
Energy Management Systems	$1,269,885	135	8,534,453	1.22	$1,069,128	28	5,628,760	1.55
Heating Efficiency	$10,341	8	44,967	1.65	$16,978	8	29,786	1.18
LED Street Lighting	$43,000	-	7,380,270	0.74	$0	-	6,499,032	0.87
Lighting Efficiency	$11,233,085	10,421	83,203,875	1.42	$14,680,618	18,099	121,727,021	1.84
Lighting - Small Business	$5,819,878	3,123	26,324,295	1.19	$7,554,286	6,307	36,150,372	1.39
Motor & Drive Efficiency	$2,637,576	1,863	11,274,543	1.57	$2,296,009	1,879	11,552,197	2.41
Multifamily Buildings	$900,003	538	3,949,551	2.34	$693,315	174	2,015,528	1.22
New Construction	$10,575,780	9,124	46,601,300	1.16	$7,404,616	7,441	31,159,232	1.19
Process Efficiency	$2,238,671	1,700	18,084,744	1.81	$1,316,537	1,093	8,857,219	2.49
Recommissioning	$678,307	302	6,277,029	1.27	$441,336	294	1,156,436	1.52
Self Direct	$979,907	1,517	10,233,982	1.97	$1,164,681	1,093	10,120,786	1.91
Business Program Total	**$45,351,045**	**36,187**	**259,058,371**	**1.64**	**$43,648,943**	**42,994**	**266,493,539**	**1.61**

Natural Gas

In 2017, the natural gas products in the Company's Business Program achieved 66% of the Dth savings target. Lower than expected achievement in the New Construction and Multifamily Buildings products contributed to the shortfall. However, Custom Efficiency, Lighting – Small Business and Commercial Refrigeration Efficiency exceeded their natural gas savings forecast.

Natural gas expenditures for the Business Program overall were under budget due to lower than expected New Construction spending. A summary of the Company's Business Program achievements for natural gas DSM products is shown in Table 14b below.

Table 14b: 2017 Business Program – Natural Gas DSM Products (Target to Actual)

	Budgets / Targets					Expenditures / Achievements				
Business Program - 2017	**Gas Budget**	**Net Annual Dth Savings**	**Annual Dth/$M**	**Gas MTRC Test Net Benefits**	**Gas MTRC Test Ratio**	**Gas Expenditures**	**Net Annual Dth Savings**	**Annual Dth/$M**	**Gas MTRC Test Net Benefits**	**Gas MTRC Test Ratio**
Commercial Refrigeration Efficiency	$11,905	2,434	204,437	$263,780	8.60	$36,504	3,842	105,252	$456,457	12.55
Compressed Air Efficiency										
Computer Efficiency										
Cooling										
Custom Efficiency	$83,213	3,768	45,285	$118,120	1.71	$122,349	8,285	67,719	$164,343	1.38
Data Center Efficiency										
Energy Management Systems	$51,303	8,810	171,721	$230,191	1.54	$47,705	8,109	169,989	$121,272	1.38
Heating Efficiency	$488,280	18,032	36,930	$16,504	1.01	$881,471	16,063	18,223	-$373,927	0.78
LED Street Lighting										
Lighting Efficiency										
Lighting - Small Business	$17,940	3,497	194,907	$97,794	5.62	$43,045	7,529	174,912	$986,771	23.50
Motor & Drive Efficiency										
Multifamily Buildings	$558,090	20,184	36,166	$1,319,066	2.31	$525,740	14,094	26,808	$1,560,133	2.96
New Construction	$1,716,943	152,646	88,905	$1,328,790	1.16	$1,023,884	80,096	78,228	$1,018,590	1.25
Process Efficiency										
Recommissioning	$59,198	3,450	58,277	$8,870	1.08	$42,745	2,607	60,983	$23,835	1.52
Self Direct										
Business Program Total	**$2,986,871**	**212,820**	**71,252**	**$3,383,115**	**1.30**	**$2,723,443**	**140,626**	**51,635**	**$3,957,474**	**1.53**

Business Products

The following provides a brief summary of the performance of each DSM business product in 2017.

Commercial Refrigeration Efficiency

The Commercial Refrigeration Efficiency product offers refrigeration maintenance and upgrades to commercial customers with significant refrigeration loads, notably restaurants, grocery, convenience and liquor stores. The product offers four major components to provide customers with the resources necessary to reduce their energy usage. These include a free onsite energy assessment with an assessment report, direct installation of complimentary energy saving measures, identification of prescriptive measures, and proactive project management to assist customers in implementing energy efficient measures.

Deviation from Target

The Commercial Refrigeration Efficiency product exceeded its electric energy savings target and natural gas savings target in 2017. The overachievement in electric energy savings was largely due to a large industrial project closing mid-2017, which accounted for approximately 70 percent of the savings target. Outreach efforts and concentrated focus on direct install measures for hospitality facilities also added to the overachievement by driving increased participation and savings.

Changes in 2017

Two new measures were introduced as part of the 2017 Plan year: Demand Control Kitchen Ventilation and Dishwashers. Both have longer payback periods but are expected to gain some savings as projects are completed in 2018.

Compressed Air Efficiency

The Compressed Air Efficiency product helps customers identify and address inefficiencies in their compressed air systems. The product encourages the repair and redesign of existing systems and the purchase of efficient options for new and replacement systems. The product has three components:

1. Prescriptive rebates for the most common high-efficiency options, such as no-loss air drains, and for certain variable frequency drive ("VFD") compressors.
2. Rebates for studies that help customers identify efficiency opportunities from fixing to redesign or replacement of system components.
3. Custom rebates for implementation of unique improvements identified by studies. Improvements can include a wide range of capital purchases and "process" improvements, such as piping modifications or horsepower reductions.
    - An incentive of $600 per kW is enforced, rather than the $400 per kW, for those eligible custom projects that have had a compressed air study previously conducted and completed.

Trade partners support the product through direct equipment sales and system studies.

Deviation from Target
The product did not achieve its 2017 electric savings target; however, expenditures were also under budget. The product underachieved because a number of 2017 projects were moved into the 2018 pipeline due to delayed completion dates.

Computer Efficiency

The Computer Efficiency program provides prescriptive electric offerings to business customers who install Personal Computer ("PC") Power Management and Virtual Desktop Infrastructure ("VDI"). These products are marketed directly to business customers through trade partner and sales channels.

Incentives are also offered directly to desktop personal computer and server manufacturers that design, manufacture, and sell PCs and servers with energy-efficient power supplies to business customers in Public Service's electric service territory. These incentives are marketed through a third-party implementer that works directly with the various PC and server manufacturers to track equipment sold in Public Service's electric service territory.

Deviation from Target

The Computer Efficiency product exceeded its electric savings target and expenditures were under budget. The product saw an unusual increase in prescriptive participation, with two large projects across a school district and chain of banks. Since 2015 there has been a decrease in upstream computer sales and the product is experiencing a market shift towards other devices as the market moves to mobile computing options.

Cooling

The Cooling product offers rebates to customers who purchase and install select high-efficiency ("HE") cooling equipment and incentives to distributors to stock and sell select HE equipment.

Rebate dollars and study funding are offered to assist in buying down the incremental cost associated with purchasing the HE equipment, and to shorten the associated payback period. In addition, customers may qualify for a mix of prescriptive rebates for common HE equipment and custom rebates for newer, system-based HE solutions. Marketing efforts and events are directed toward educating customers on making strategic decisions that will benefit their facility, as well as to vendors who work with customers on a daily basis.

Deviation from Target
The product exceeded its forecast of electric energy savings for 2017 with several large prescriptive projects moving into 2018 thereby sustaining the future pipeline of savings. The midstream product realized 15 percent growth from the prior year with nearly 25,000 tons incentivized.

Custom Efficiency

The Custom Efficiency product is designed to provide rebates on a wide variety of equipment and process improvements that do not fall within the Company's prescriptive rebate products. All Custom Efficiency projects require pre-approval before customer and/or contractor purchase and installation, and must pass the MTRC test as part of that analysis. This process is in place to help ensure that participation in the product significantly influences the project and that rebates are awarded to projects that are technically and financially sound.

Deviation from Target
The Custom Efficiency product did not achieve its electric savings target in 2017 but successfully achieved its natural gas savings target in 2017. The electric shortfall was due primarily to a weak pipeline of projects in 2017 and includes the cancellation of preapproved projects by the customer which were not implemented and given lowered prioritization by the customer due to higher implementation costs. The categorization of a large project from Custom Efficiency to Self Direct also decreased the product's electric savings in 2017. The Company's strong focus on natural gas achievement led to the completion of a large natural gas project consisting of multiple large high-efficiency boilers. Expenditures came in less than the filed budget, with low participation for the electric product, and exceeded spend for the natural gas product due to the large multi-boiler project with high savings achievement.

Data Center Efficiency

The Data Center Efficiency product offers study and implementation rebates to customers who make energy saving improvements to a data center. The product encourages a holistic approach by providing energy efficiency information, site evaluations, and project analyses for customers. The Company's portfolio of prescriptive and custom rebates is also available to data center customers to encourage the implementation of additional energy saving upgrades.

Deviation from Target
The Data Center Efficiency product did not achieve its electric savings target in 2017. Even though the product fell short, several large custom data center projects were completed by customers in 2017. Additionally, 2017 saw the greatest participation in prescriptive EC plug fans since the measure moved to a prescriptive offering in 2015. Electric expenditures were less than the forecasted budget.

Energy Management Systems

The Energy Management Systems ("EMS") product is designed to encourage customers to install or upgrade automated building controls. The product covers energy management systems in an existing building, replacement of an obsolete energy management system, and adding functionality and/or control points to an existing system. An EMS helps reduce a building's on- and off-peak energy usage through controls and sensors that are centrally operated. Through automated controlling, such systems may control the heating, cooling, ventilation and lighting of a facility.

The EMS product also contains the Energy Information Systems ("EIS") offering, which includes facility-wide visualization and analysis of real-time energy data, completed a full-year measurement and verification for its first customer.

Deviation from Target

The EMS product did not achieve its electric energy savings target. Some customers implemented energy efficiency measures including LED lighting and ventilation improvements. After a review of applications, implementation costs appear to have risen more than 13 percent relative to 2016 costs, on a similar-project or price per square foot basis. The Company is evaluating options for addressing the capital cost issue while maintaining or improving benefits. The product also underachieved its natural gas savings target, but improved compared to 2016 results. Overall, the product remained under budget while incurring start-up and study costs related to the addition of new participants in the EIS offering for whom savings could not be claimed due to project timelines.

Heating Efficiency

The Heating Efficiency product provides rebates for retail natural gas business customers who purchase high-efficiency natural gas or dual-fuel commercial equipment for heating. The process load of the equipment must be less than 30 percent to qualify, (higher than 30 percent may qualify under the Custom Efficiency product). Product rebates are designed to promote, to qualifying customers, the installation of high-efficiency boilers, commercial water heaters, furnaces and electronically commutated furnace fan motors ("ECM"), pipe insulation, unit heaters, boiler tune-ups, and boiler system auxiliary equipment that improves combustion and seasonal efficiency. The Company communicates with customers and trade partners via direct mail and direct customer outreach via account managers and energy efficiency specialists. Low-cost and cost-efficient tactics such as email, newsletters, social media, association meetings and trade shows are also used, as well as strategic partnerships with the Colorado Boiler Inspection Office, and the bi-annual Heating Advisory Board.

Deviation from Target

The product did not achieve its natural gas participation and savings targets despite considerable amount of outreach and incentives. The electric participation and savings achievement were below targets as well. The ECMs for furnace fan measure saw slightly decreased participation from the prior year, yet account manager and energy efficiency specialists' educational outreach to customers was sustained. The greatest natural gas participation continued to be seen in boilers with efficiency greater than 92 percent and high-efficiency water heaters. High participation was also seen in boiler tune ups, as a low-cost entry measure for customers in

which they could more easily participate; however, tune-ups are not as cost effective as other measures with high cost effectiveness and lower participation. Pipe insulation was more specifically promoted as a high cost-effective measure and saw an approximate 3-fold increase in participation over the prior year, which provided increased net benefits to the program. Overall, participation for natural gas measures, over electric prescriptive measures, often tends to be less attractive to customers in the current environment of low natural gas prices.

LED Street Lights

The Company's LED Street Lights product captures energy savings for local municipalities on the Street Lighting Service ("SL") Rate by replacing legacy Company-owned street lights with LED fixtures.

Deviation from Target
The Company came short of the forecasted 2017 target; however, the product had a strong year in participation.

Lighting Efficiency

The Lighting Efficiency product offers rebates to customers who purchase and install qualifying energy-efficient lighting in existing or new construction buildings. Prescriptive rebates are offered to encourage customers to purchase energy-efficient lighting by lowering the up-front premium costs associated with this equipment. Custom lighting and redesign rebates are also available for energy-saving lighting solutions not currently available as prescriptive rebate measures, but require pre-approval prior to purchasing equipment and beginning a project.

Deviation from Target
The product had a strong year and exceeded its electric targets. The product's success can be attributed to declining LED costs and increased adoption rates. The business LED market is seeing rapid technological advances which have led to cost reductions at a rapid pace. For example, business customers now have a variety of LED options to upgrade their lighting to at various cost points such as new LED fixtures, LED retrofit kits and LED tubes. The reduction in costs have made higher-efficiency lighting products coupled with our rebates an attractive investment for our business customers. The LED Instant Rebate offering also continues to be very successful representing approximately 19% of the product's overall achievement. The Company anticipates however that the Energy Independence and Security Act legislative backstop will impact the product's achievement and demand for LED lamps will level off in the future as customers require fewer lamp replacements each year as a result of the longer operating life of LEDs.

Changes in 2017
In August 2017, the Company posted 60-Day Notice to reduce linear tube rebates to match declining costs in the market, reduce linear ambient rebates to reduce the product's annual costs and shift participation to more cost-effective options, adding a tiered rebate structure and incentives for non-ENERGY STAR® and non-Design Light Consortium ("DLC") listed products and revising the midstream offering's hours of operation and coincidence factor to more accurately represent customers' facilities and the Company's actual participants.

Lighting – Small Business

The Lighting – Small Business product offers free lighting audits and free direct installation of lighting and non-lighting measures for customers under 100 kW demand, as well as recommendations for energy-saving measures, special services, and attractive rebates to business customers who purchase and install energy-efficient lighting equipment in existing facilities. The product is available to businesses with peak demand of up to 400 kW, and seeks to overcome barriers that often prevent small businesses from investing in energy-efficient lighting, including limited financial resources and time, low awareness of lighting equipment, and lack of access to quality contractors.

Deviation from Target
The product had a strong year and exceeded both its electric and natural gas savings targets. The product's success can be attributed to declining market costs and increased adoption rates. LED tubes are often the most affordable LED option for linear fluorescent retrofits and the Company continues to see an increase in participation with corresponding decreases in cost. LED tubes were one of the most popular measures within the product representing approximately 16% of the product's overall achievement and 30% of the product's prescriptive achievement. The LED Instant Rebate offering also continues to be very successful, representing approximately 30% of the product's overall achievement. The Company anticipates however that the Energy Independence and Security Act legislative backstop will impact the product's achievement and demand for LED lamps will level off in the future as customers require fewer lamp replacements each year as a result of the longer operating life of LEDs.

Changes in 2017
In August 2017, the company posted 60-Day Notice to reduce linear tube rebates to match declining costs in the market, reduce linear ambient rebates to reduce the product's annual costs and shift participation to more cost-effective options, adding a tiered rebate structure and incentives for non-ENERGY STAR® and non DLC-listed products and revising the midstream offering's hours of operation and coincidence factor to more accurately represent customers' facilities and the Company's actual participants.

Motor and Drive Efficiency

The Motor & Drive Efficiency product is designed to encourage customers to purchase high-efficiency motors and variable frequency drives used on fans, pumps, and eligible industrial equipment. The Company offers prescriptive rebates to customers who install qualifying equipment, and custom rebates to those customers whose projects do not meet the prescriptive criteria.

Deviation from Target
The Motor and Drives Efficiency product exceeded its 2017 electric savings target. Achievement can be attributed in part to the trade base which heavily promotes the product.

Multifamily Buildings

The Multifamily Buildings product is designed to engage multifamily building owners in deploying DSM measures that will lower customers' energy consumption. The multifamily

customer segment has historically been a difficult market to reach with traditional DSM products because building/equipment owners may not be the metered bill payer for individual units. The product first launched as a pilot in 2014 and was designed to encourage DSM participation by offering an energy assessment and direct-install improvements for individual units and common areas at no cost to the customer. The assessments are also used to identify larger prescriptive and custom efficiency opportunities for improvements to mechanical and lighting systems and for common areas.

The product engages customers in a three-stage process:

Stage 1. Energy assessment
Stage 2. Direct-install measures
Stage 3. Traditional energy efficiency improvements (comprehensive building upgrades, custom/prescriptive projects, etc.)

Deviation from Target
The Multifamily Buildings product had a strong first year in market after the pilot phase but did not achieve its natural gas or electric savings targets in 2017. The product did achieve the direct-install targets and overachieved on the number of assessments performed, building a strong pipeline for 2018.

Changes in 2017
During 2017, the product was transitioned from a pilot to an in-market product. To support the transition, the Company conducted outreach to develop a list of participating trade partners and provided several training workshops. The Company also worked with the implementer to launch several promotional tactics and attended events conducted by various apartment and housing associations. In the third quarter, the Company launched the Multifamily Buildings product in Fort Collins, partnering with Fort Collins Utility to conduct assessments and direct-install measures, allowing each utility to claim the corresponding savings and split the cost. This collaboration proved successful and will be expanded in 2018.

New Construction

The New Construction product's mission is to help business customers prioritize energy efficiency when constructing new buildings. By providing whole-building energy analysis for larger buildings, as well as consultation and checklists of energy savings opportunities for smaller buildings, the Company is helping customers achieve their energy and sustainability goals.

The Energy Design Assistance ("EDA") component of the New Construction product was the primary offering to customers in 2017. Features include comprehensive energy consulting services in support of integrated design processes by providing; computer modeling of planned designs; funding to offset the cost of design time associated with increased energy analyses; financial rebates to improve the cost-effectiveness of packages of energy-efficient measures; and field verification to ensure that the strategies are installed per the design intent.

The Energy Efficient Buildings ("EEB") component of the product is a combination of prescriptive measures and custom analyses that allows customers to package numerous measures in just one application. The EEB process provides preliminary rebate amounts per measure, giving the customer the tools to make early decisions to influence efficient equipment choices

Deviation from Target
The product did not achieve its electric savings or natural gas savings targets. Unlike the previous year, where delays of a few large projects prevented the product from meeting its targets, even smaller projects within the New Construction product experienced delays across all building types due to deficits between supply and demand of skilled labor within Colorado's commercial construction sector. While EDA remains the primary offering within the New Construction product, the EEB offering increased its project enrollments by 29% in 2017 compared to 2016, while EDA enrollments decreased slightly by 5% from 2016 to 2017.

Process Efficiency

Process Efficiency targets energy-intensive processes at large facilities with a minimum annual usage of 2 GWh. The product is primarily intended to identify and influence improvements on large systems not being addressed through the Company's Custom Efficiency or prescriptive products. It also provides strategic energy management resources to improve business practices and drive continuous improvement in energy efficiency.

The Process Efficiency product is delivered in phases, providing customers with the resources necessary to drive conservation through the development and implementation of a holistic, sustainable energy management plan.

- Phase 1 identifies energy saving opportunities through a high-level energy diagnostic session.
- Phase 2 further defines those energy saving opportunities identified in the previous phase and develops an actionable energy management plan.
- During Phase 3 the Company works with the customer to implement energy saving opportunities included in the energy management plan.

Participation in this product results in not only a list of conservation opportunities with a plan for implementation of those measures, but also involves integrating energy efficiency into how the customer completes their daily business practices.

Deviation from Target

The product did not achieve its energy savings targets but was cost effective, as expenses were less than the product's budget. While existing customers completed nearly four times more projects than in the prior year only five new customers enrolled during the year. The sharp decline in average project size may indicate that the existing customers have exhausted the most impactful opportunities, but the product continues to encourage additional, incremental efficiency improvements. Furthermore, in-territory oil and gas, mining, and steel industries continue to avoid capital expenditure; whereas, other large customers in Colorado have shifted capital expenditures from retrofits to new construction.

Through the year, the Company balanced its efforts to enroll new customers with a renewed focus on customer re-visits to encourage participation. The approach has significantly improved the pipeline of projects for the next year.

Recommissioning

The Recommissioning product is designed to assist electric and/or natural gas business customers to improve the efficiency of their existing building operations by identifying functional systems that can be "tuned up" to run as efficiently as possible through low- or no-cost improvements. Recommissioning consists of two main steps: (1) diagnosis (studies) and (2) implementation. Public Service offers rebates for recommissioning studies and for the implementation of recommissioning measures.

Deviation from Target
The product did not achieve its electric and natural gas energy savings target in 2017. The number of completed studies has decreased over the last two years, customer implementation of identified energy savings measures has been minimal, and other customers push implementation out to future years. Electric and natural gas expenditures were less than the budget.

Self-Direct

The Self-Direct product provides large commercial and industrial electric customers in Colorado the opportunity to control all stages of their energy saving projects' rebate application process. The product allows the customer to perform all of the required activities and incur all the costs for the identification, study, design, engineering, Measurement & Verification ("M&V"), and reporting work associated with energy savings projects. These steps are comparable to the Company's Custom Efficiency product but because the customer is responsible for the majority of the administrative and engineering activities, the customer is eligible to receive a higher rebate than is offered through the Custom Efficiency product. The Company's role in this process is one of support through the project stages including verification of customer eligibility, pre-approval of proposed projects, development of the approved M&V plan, and verification of project completion prior to rebate processing.

The product is open to those customers who have an aggregated peak load of at least 2 MW in any single month and an aggregated annual energy consumption of at least 10 GWh.

Deviation from Target
The product marginally underachieved its electric savings target in 2017. Several customers completed large Self-Direct projects in 2017 which drove significant savings. The product did exceed the budget due to customer rebates.

Residential Program

The Residential Program serves customers who live in single-family dwellings, apartments, or condominiums and receive electric and/or natural gas from Public Service. The Company focuses on cost-effective, direct-impact products. This effort is supplemented with educational services intended to further increase customer understanding and interest in conservation and energy efficiency.

Electric

In 2017, the Residential Program did not achieve its targeted electric energy savings. Electric expenditures were slightly below budget and the program was, overall, cost effective. Home Lighting and Recycling continued to be a significant contributor to the program delivering the majority of the program's electric energy savings; however, the product fell short of its target. ENERGY STAR® New Homes continued to perform well, exceeding goal by nearly 50% on the electric side and 15% on the natural gas side. School Education Kits led the program in exceeding targets; improvements in curriculum and installation rates led to more than 3 GWh in achieved savings above target. A summary of the Company's Residential Program achievements for electric DSM products is shown in Table 15a below.

Table 15a: Residential Program – Electric DSM Products (Budget to Actual)

	Budgets / Targets				Expenditures / Achievements			
Residential Program - 2017	**Electric Budget**	**Net Gen. kW**	**Net Gen. kWh**	**Electric MTRC Test Ratio**	**Electric Expenditures**	**Net Gen. kW**	**Net Gen. kWh**	**Electric MTRC Test Ratio**
Energy Efficiency Showerhead	$ 55,406	80	991,735	10.94	$ 38,121	75	811,481	16.10
Energy Feedback Residential	$ 3,085,489	4,441	20,670,112	1.10	$ 3,118,698	5,406	20,612,094	1.19
ENERGY STAR New Homes	$ 964,113	985	3,283,030	1.54	$ 1,016,535	1,433	4,822,829	1.59
Evaporative Cooling	$ 3,039,697	5,166	3,444,940	2.82	$ 3,118,533	4,905	3,419,956	2.97
High Efficiency Air Conditioning	$ 3,648,545	3,481	3,249,319	1.07	$ 5,139,311	4,824	3,819,450	1.04
Home Energy Squad	$ 295,465	224	1,737,542	1.69	$ 498,800	167	1,015,791	0.74
Home Lighting & Recycling	$ 7,545,986	10,177	104,667,777	1.72	$ 5,135,140	9,136	86,310,620	4.34
Home Performance with ENERGY STAR	$ 293,121	517	760,044	1.18	$ 165,331	250	208,241	0.97
Insulation & Air Sealing	$ 198,969	423	443,437	1.25	$ 217,008	417	262,528	1.11
Refrigerator & Freezer Recycling	$ 1,292,935	566	4,954,115	1.57	$ 1,062,948	400	3,501,380	1.99
Residential Heating	$ 777,897	861	4,883,086	1.53	$ 940,682	1,083	5,768,282	1.34
School Education Kits	$ 1,419,329	498	5,672,969	1.22	$ 1,550,719	785	8,956,353	1.76
Water Heating	$ 28,468	21	102,246	0.63	$ 22,714	19	130,915	0.71
Residential Program Total	**$ 22,645,420**	**27,439**	**154,860,353**	**2.32**	**$22,024,540**	**28,899**	**139,639,920**	**2.23**

Natural Gas

The Residential Program exceeded its natural gas savings target. Natural gas expenditures were above budget due to the increase in customer rebates associated with the overachievement in savings. The higher installation rates for School Education Kits resulted in more than 30,000 Dth of savings above target. Residential Heating also delivered a significant amount of savings, finishing the year at almost 15,000 Dth above target. Overall, all products exceed targets, except for Home Energy Squad and Home Performance with ENERGY STAR®, which continue to struggle with low participation rates.

A summary of the Company's Residential Program achievements for natural gas DSM products is shown in Table 15b below.

Table 15b: Residential Program – Natural Gas DSM Products (Budget to Actual)

	Budgets / Targets					Expenditures / Achievements				
Residential Program - 2017	Gas Budget	Net Annual Dth Savings	Annual Dth/$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio	Gas Expenditures	Net Annual Dth Savings	Annual Dth/$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Energy Efficiency Showerhead	$460,118	52,190	113,428	$6,205,675	10.56	$461,511	53,141	115,146	$6,978,710	11.73
Energy Feedback Residential	$483,345	63,873	132,149	$141,506	1.29	$496,894	70,854	142,593	$258,639	1.52
ENERGY STAR New Homes	$2,150,945	93,054	43,262	$1,892,423	1.38	$2,381,130	107,353	45,085	$1,732,585	1.27
Evaporative Cooling	$0	-				$0	-			
High Efficiency Air Conditioning	$0	-				$0	-			
Home Energy Squad	$336,108	11,592	34,490	$205,989	1.38	$292,802	6,316	21,570	$171,650	1.58
Home Lighting & Recycling	$0	-				$0	-			
Home Performance with ENERGY STAR	$559,460	26,853	47,999	-$359,155	0.83	$252,260	11,934	47,309	-$120,746	0.87
Insulation & Air Sealing	$385,385	20,687	53,678	-$83,481	0.94	$574,439	23,270	40,509	-$364,582	0.82
Refrigerator & Freezer Recycling	$0	-				$0	-			
Residential Heating	$533,403	47,981	89,953	$206,477	1.07	$1,819,832	62,612	34,405	$454,286	1.10
School Education Kits	$438,447	34,972	79,762	$4,004,469	7.51	$525,238	64,806	123,384	$7,722,968	11.93
Water Heating	$122,080	2,283	18,700	-$73,546	0.69	$125,466	5,299	42,237	-$193,924	0.66
Residential Program Total	**$5,469,292**	**353,485**	**64,631**	**$12,140,357**	**1.88**	**$6,929,574**	**405,584**	**58,519**	**$16,639,587**	**2.00**

Residential Products

The following provides a brief summary of the performance of each residential DSM product in 2017.

Energy Efficiency Showerhead

The Energy Efficiency Showerhead product has delivered reliable and cost-effective natural gas and electric savings to Public Service customers since 2009. Residential natural gas and combination natural gas and electric customers are eligible to receive a free kit—valued at $30—containing energy-efficient showerheads and aerators to help reduce their energy and water use costs. The product continues to prove to be a popular energy saving solution. The product not only provides energy savings, but also O&M savings that are equally beneficial to customers and the environment.

Recognizing that many customers have more than one shower and one bathroom sink in their home, previous product participants are offered supplemental kits to retrofit a secondary showerhead and bathroom faucet aerator with energy-efficient models. Additionally, new participants are offered the choice of a one or two bathroom kit to retrofit their current configuration, which also includes a kitchen faucet aerator. Customers are provided with education and instructions for installing the units and later surveyed to determine the installation rates of each unit.

Deviation from Target

The product performed well in delivering electric and natural gas savings and achieved its electric and natural gas savings targets. Improved survey methods resulted in more accurate installation rates. The Company has shifted the product to offer more customizable kits which has made digital marketing more difficult. Therefore, the Company has focused on direct mail marketing more than it has in previous years as well as non-traditional efforts like giveaways to drive participation.

Changes in 2017

In 2017, the Company continued to add new options for customers including an "upgraded" showerhead kit that includes "spa" style showerheads or handheld showerheads for a nominal charge. These showerheads offer the same energy savings as the basic model, but provide

additional features for customer satisfaction. Customers still have the option to order the basic model kits free of charge.

In addition, the Company has tested two different delivery methods. The first method was inclusion of the showerheads product in the Xcel Energy Store. This allows eligible customers to select showerheads and aerators with an instant rebate applied at the time of purchase. Delivery through the Xcel Energy Store allows customers to select their equipment "a la carte," enabling them to only receive those items that they intend to install in their home.

The second delivery method the Company tested in 2017 was a giveaway model. 15,450 showerheads were given out at a variety of events including a Colorado Avalanche game, the Denver Botanic Gardens, and the Thornton Winter Fest. Surveys were used to determine what percentage of recipients were Public Service customers and how many recipients installed the showerheads.

Energy Feedback Residential

The Energy Feedback Residential product provides targeted communication of energy-use comparisons and information called the Home Energy Report to residential customers, including specific recommendations and feedback intended to motivate and educate customers on how to reduce their energy consumption. Customers receive new information with each report that is delivered, by mail, email, or a combination of both. An online version, referred to as My Energy, provides similar information along with supplemental energy-awareness and savings tools. Savings are determined by comparing the energy consumption of the participating "treatment group" (those receiving the reports) to a non-participating "control group." Realized energy savings increase gradually over time as behavior is impacted by treatment. Product savings are measured and reported to the Company each month by the third-party implementer.

Deviation from Target
Participants continue to respond favorably to both the print and email versions of the Home Energy Report. Electric energy savings fell in line with the filed year-end target. Natural gas savings exceeded the filed target, which is primarily attributed to the improved performance of the large group of new product participants added in 2015. Electric and natural gas spend were well within range of the year-end targets. Demand reduction savings came in above target, which is also attributed to the increased performance from the new participants group added in 2015.

Changes in 2017
New participants were added on a monthly or rolling basis rather than the traditional annual refill process. This change to monthly enrollment was made to replace participants lost to attrition more quickly and to better manage the Company's call center resources.

ENERGY STAR® New Homes

The ENERGY STAR® New Homes ("ESNH") product provides builders of single-family and small multifamily homes with an incentive to exceed local building codes and go beyond common construction practices. Homes must achieve at least a 10% improvement over their local jurisdiction's energy code in order to qualify. All homes are evaluated and rated by an independent third-party Home Energy Rating System ("HERS") rater. The Residential Energy Services Network accredited HERS raters consult with homebuilders during the construction

process and ensures the energy-efficiency measures have been properly installed in the home. Homeowners benefit from lower energy bills, fewer maintenance concerns, higher resale value, and a more comfortable, quiet home.

Deviation from Target
The product exceeded electric and natural gas savings targets and spending was in line with overachievement. Lighting measures played a significant role in the overall product electric savings. The Company reallocated natural gas portfolio funds from other gas energy efficiency products to ensure the ESNH product remained open throughout the year. A small majority of the qualifying homes were completed in jurisdictions with 2009 IECC as their adopted energy code; however, 2012/15 IECC jurisdictions were a close second. The Company expects 2018 will bring a reversal of this trend, with 2012/15 IECC being the predominate energy code for qualifying homes. This will likely drive lower therm savings on a per-home basis and lower product net benefits; however, the Company expects the product to remain cost-effective.

Evaporative Cooling

The Evaporative Cooling product provides a cash rebate to Public Service's residential electric customers who purchase and install energy-efficient evaporative cooling equipment and incentives for trade allies to promote the product to their customers. The product's primary objective is to encourage consumers, builders and trade partners to purchase residential evaporative cooling equipment in place of less-efficient central air conditioning. Customer rebates help reduce the up-front costs of choosing an efficient evaporative cooler to replace an existing, inefficient evaporative cooler or air conditioner, and higher rebates are available to lower the up-front costs of installing an evaporative cooler in a home that previously had no cooling. For homes in dryer climates, such as Colorado, this equipment provides cooler, more comfortable air—like an air conditioner—but with significantly lower equipment, installation and energy use costs.

Deviation from Target
The product fell slightly short of its 2017 electric energy savings target, and also ended the year slightly under budget. Overall participation and savings remained consistent with 2016 levels.

Changes in 2017
During 2017, the Company conducted a six-week pilot in partnership with Lowe's to provide customers with an instant rebate at the time of purchase. The Company leveraged the Xcel Energy Store to deliver the instant rebates. Customer participation during the pilot was substantially higher than for the same time period in 2016 as measured by total rebates attributable to retail purchases. The Company will evaluate expanding the instant rebates during 2018.

High Efficiency Air Conditioning

The High Efficiency Air Conditioning product comprehensively addresses energy-efficiency opportunities related to central air conditioning ("AC"), heat pumps, quality installations ("QI"), and the Western Cooling Control. A participating North American Technical Excellence ("NATE")-certified contractor must install the measures for the project to qualify for a rebate. The product consists of three major components: equipment rebates, trade-in rebates, and quality installation.

Deviation from Target
The product achieved its electric energy savings target in 2017. Administration expenditures came in over budget to accommodate additional contractor incentives and customer rebates, related administrative costs, and measurement and verification expenses. The Company continued to support contractors by offering an extensive sales class, two online AC training classes, promotional items, and contractor recognition.

Changes in 2017
The customer rebate for QI best practices used for non-qualifying, minimally efficient air conditioners was raised from $0 to $100 beginning July 2, 2017. Participation in this cost-effective measure increased from under 10 to over 60. Ductless mini-split heat pump rebates began with the implementation of the 2017/2018 DSM Plan on March 1, 2017. A 60-day notice raised the minimum EER to 11, and raised the incremental costs, beginning July 2, 2017. Participation for this cost-effective measure was lower than anticipated, with just under 70 units qualifying for the $200 rebate.

Home Energy Squad

The Home Energy Squad product offers energy-efficiency installation services and discounted equipment costs to customers who seek to improve their homes' energy efficiency and comfort levels, and lower their utility bills. The product had a successful track record in other Xcel Energy service territories, and, therefore, was launched in Colorado in mid-2015.

For a small trip fee, the Home Energy Squad product installs a number of moderate-impact; low-cost measures for combination natural gas and electric customers, and electric-only customers, at no cost, and offers additional "a la carte" measures at a discounted cost. The product seeks to assist customers in overcoming barriers related to making energy efficiency improvements. Such barriers include confusion on which products are right for their home, product cost and payback, and finding qualified installers.

Deviation from Target
The Home Energy Squad product did not achieve its energy savings targets. The product remained under its filed natural gas budget but went over the filed electric budget. The electric overspend was due to higher-than-anticipated equipment costs for both the complementary LEDs and the subsidized, premium LEDs, and higher-than-anticipated bulb installations per home. The average electric savings per home increased consistent with the higher number of bulbs being installed.

Changes in 2017
The Company used multiple promotional and community-based tactics to promote the product and added digital advertising and Facebook retargeting into the mix during the second and fourth quarters. During the third quarter, the Company launched the product on the Xcel Energy Store. This tactic generated higher participation numbers and allowed the program to hit an internal milestone of 100 or more visits each month in the fourth quarter.

Home Lighting & Recycling

The Home Lighting & Recycling product offers discounted prices, via upstream incentives to retailers and manufacturers, on LEDs as well as an environmentally-friendly way to dispose of spent CFLs. Energy-efficient light bulbs are an easy and low-cost way for customers to save energy and reduce their monthly electric bills. Increasingly, the Company has put more focus on LED bulbs to drive transformation in the marketplace.

The Home Lighting & Recycling product is widely promoted through a variety of marketing channels, including radio, TV, social media, print publications, bill inserts, and point-of-purchase displays. The Company promotes the product at local events in the community such as fairs, energy workshops, earth day celebrations, sporting events.

Deviation from Target
The product underachieved its electric energy savings target and underspent the budget target. The primary reason the Company did not achieve the forecast savings in the Home Lighting & Recycling product is because the growth in LED sales was less than the Company expected. The Company forecasted year-over-year growth of approximately 40 percent but achieved closer to 20 percent. The budget savings were attributed to the continued reduction in the price of LED bulbs and the cost of incentives. Significant achievements were made in growing LED sales to more than 2.2 million units, which is an increase of 22% relative to 2016 results.

Home Performance with ENERGY STAR®

Home Performance with ENERGY STAR® ("HPwES") is a comprehensive, whole-home retrofit product designed to give cash rebates to customers for implementation of measures identified during a Home Energy Audit. Air sealing, attic insulation, and energy-efficient lighting are three improvements that, if recommended through the audit, must be completed (at minimum) to receive a rebate.

Upon completion of the product improvements, a post-improvement verification inspection is conducted. The Company's third-party implementer is responsible for performing quality assurance on the in-home inspections, the home energy audit reports, and the audit itself. The implementer also provides customer support, contractor management, and oversight of the energy modeling software.

The Company promoted the program through consumer outreach (i.e., bundled mailings and utility bill onserts), community program partnerships and HVAC trade education and promotion.

Deviation from Target
HPwES underachieved its electric and natural gas savings targets in 2017 and came in under budget. The product's insulation and air sealing tiers were realigned with the standalone insulation product which encouraged participation and kept the average savings per project ahead of 2016 benchmarks for the majority of the year. The Company saw a decline in participation during the second and third quarters but a rebound in participation in the fourth quarter.

Insulation & Air Sealing

The Insulation & Air Sealing product offers prescriptive rebates in order to increase the energy efficiency in single-family homes and one-to-four unit residential properties. This product is available to combination electric and natural gas service customers, natural gas service residential customers, or electric service customers who heat their homes with electrically-powered baseboard heat. To qualify for the rebate, customers must have the insulation professionally installed by a contractor with a Building Performance Institute certification, and must make air sealing improvements first, unless the house does not require additional air sealing improvements.

Deviation from Target
The Insulation product exceeded its natural gas targets and marginally underachieved electric targets. The product remained under its filed electric budget but was over the natural gas budget due to rebate spending corresponding with overachievement. The product performed well throughout the year, even with the air sealing and attic insulation changes that went into effect with the launch of the 2017/2018 DSM Plan. The product offered bonus rebates during the first quarter which helped build a strong pipeline for the year and was also part of a fourth quarter heating bundle, however, no bonuses were offered during this time.

Refrigerator & Freezer Recycling

The Refrigerator & Freezer Recycling product is designed to decrease the number of inefficient freezers and refrigerators in the Company's service territory in an environmentally safe and compliant manner and, by doing so, achieve electric energy savings and peak demand reduction. Customers receive an incentive plus free pickup and disposal of their operable, inefficient freezers and refrigerators. A third-party implementer administers the product, including customer scheduling, pickup, recycling, and rebating. This product is primarily marketed through bill onserts, direct mail, print, radio advertisements, and online/social media efforts.

Deviation from Target
The product underachieved its electric savings targets in 2017. Product expenditures were under budget due to the use of low-cost marketing channels and decreased rebate and third-party implementer costs. The secondary refrigerator removal component of the product continues to be the majority of units recycled.

Residential Heating

The Residential Heating product provides cash rebates to the Company's customers who purchase high-efficiency heating equipment for residential use. Customers benefit because a high-efficiency furnace and/or an electronically commutated ("EC") motor uses less energy and lowers monthly bills over the life of the equipment. The rebates lower the purchase price of the high-efficiency equipment and improve the project's payback.

EC Motor rebates are eligible when paired with a non-qualifying new furnace, as well as with a qualifying new furnace, increasing the number of eligible units. The majority of Heating applications were for EC Motors without a qualifying furnace in 2017.

Deviation from Target
The product overachieved both its natural gas and electric energy savings targets and exceeded its respective budgets. Additional electric expenditures were correlated with increased EC Motor participation, which was almost twice that of 2016. The natural gas budget was exceeded as a result of increased participation due to a bonus furnace rebate offer in the first quarter, an increase in the standard rebate from $120 to $300 on July 2, a large bonus furnace rebate offering in the fourth quarter, and bundle rebate messaging.

School Education Kits

The School Education Kits product combines a set of classroom and in-home activities with projects that enable students and parents to install energy efficiency measures in their homes. The product is targeted to fifth and sixth grade students in the Company's electric and natural gas combined service territory. A third-party implementer fully administers the product, including recruiting and training teachers, providing all materials, and tracking participation and installation rates among the students.

Deviation from Target
The product greatly exceeded both its electric and natural gas savings targets in 2017, while slightly exceeding its budget. 1,033 students in natural gas-only service territory were enrolled in an effort to increase gas savings. The success of the product can be attributed to continuous participation from teachers and follow-up communications to emphasize the importance of installing the provided measures. Installation rates increased in 2017 due to the replacement of CFL with LED bulbs and accounting for customers planning to install measures in the near future. Previously, these customers were counted as not installing their measures.

Water Heating

The Water Heating product leverages incentives to encourage residential customers to purchase energy-efficient water heating equipment. Rebates are available for natural gas storage tank and tankless water heaters and electric heat pump water heaters. Participating customers reduce their natural gas and electricity usage and long-term operating costs.

Deviation from Target
The product exceeded its natural gas and electric energy savings targets. Natural gas expenditures also exceeded target in line with energy savings and due to increased rebate spending. The product did not achieve its electric participation target and remained under budget. Product achievements are attributed to continued momentum in the marketplace, sustained product awareness, and effective, low- to no-cost communication tactics.

Changes in 2017
A focus in 2017 was to understand the changing efficiency standards from Energy Factor to Uniform Energy Factor and how those changes will impact the customer's experience.

Low-Income Program

The Low-Income Program consists of the Energy Savings Kit, Multifamily Weatherization, Non-Profit and Single-Family Weatherization products. These products analyze natural gas and electric consumption for low-income customers and provide them with products, services, and education designed to assist in lowering their energy bills.

Electric

In 2017, the Low-Income Program achieved its electric energy savings target with strong performances from the Multifamily Weatherization and Non-Profit products. Expenditures were also in line with the budget.

A summary of the Company's Low-Income Program achievements for electric DSM products is shown in Table 16a below.

Table 16a: Low-Income Program – Electric DSM Products (Budget to Actual)

	Budgets / Targets				Expenditures / Achievements			
Low-Income Program - 2017	Electric Budget	Net Gen. kW	Net Gen. kWh	Electric MTRC Test Ratio	Electric Expenditures	Net Gen. kW	Net Gen. kWh	Electric MTRC Test Ratio
Energy Savings Kit	$319,057	80	908,428	1.05	$263,145	106	1,216,361	2.33
Multifamily Weatherization	$1,156,816	266	1,900,602	0.69	$1,153,269	318	2,028,143	0.88
Non-Profit	$1,106,947	304	1,493,941	0.93	$1,369,629	426	1,879,757	1.00
Single-Family Weatherization	$1,191,267	101	1,231,383	0.68	$733,075	122	1,514,163	0.80
Low-Income Program Total	**$3,774,087**	**750**	**5,534,354**	**0.78**	**$3,519,119**	**972**	**6,638,425**	**0.99**

Natural Gas

In 2017, all four products within the Low-Income Program exceeded natural gas savings targets, resulting in an overall achievement of 16% above target. Expenditures were slightly above budget, consistent with the increase in savings. A summary of the Company's Low-Income Program achievements for natural gas DSM products is shown in Table 16b below.

Table 16b: Low-Income Program – Natural Gas DSM Products (Budget to Actual)

	Budgets / Targets					Expenditures / Achievements				
Low-Income Program - 2017	Gas Budget	Net Annual Dth Savings	Annual Dth/$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio	Gas Expenditures	Net Annual Dth Savings	Annual Dth/$M	Gas MTRC Test Net Benefits	Gas MTRC Test Ratio
Energy Savings Kit	$116,094	8,005	68,951	$951,508	7.04	$98,057	8,671	88,431	$1,052,232	9.22
Multifamily Weatherization	$592,539	10,835	18,286	-$242,522	0.81	$1,137,226	14,373	12,639	-$608,862	0.74
Non-Profit	$293,413	3,821	13,021	-$106,306	0.80	$581,030	5,380	9,259	-$325,436	0.71
Single-Family Weatherization	$2,297,347	46,842	20,390	$1,065,960	1.26	$1,989,628	52,107	26,189	$1,488,360	1.40
Low-Income Program Total	**$3,299,393**	**69,503**	**21,065**	**$1,668,640**	**1.27**	**$3,805,941**	**80,531**	**21,159**	**$1,606,294**	**1.22**

Low-Income Products

The following provides a brief summary of the performance of each low-income product in 2017.

Energy Savings Kit

The Energy Savings Kit product provides income-qualifying customers with a bundle of home energy efficiency measures and educational materials. Customers prove income eligibility by applying for Federal Low-Income Housing Energy Assistance Program funding or other forms

of energy assistance, such as those provided by Energy Outreach Colorado ("EOC"). In 2017, the kits included the following measures:

- 1.0 gallon per minute ("gpm") bathroom faucet aerator
- 1.5 gpm kitchen faucet aerator
- 1.5 gpm high-efficiency showerhead
- Eight LED bulbs

Deviation from Target
The product's main challenge continues to be participation, this year achieving less than 60% of the natural gas and electric participant targets. To increase participation in 2017, the Company purchased a list of customers identified as receiving government assistance, as well as partnering with Energy Outreach Colorado and the Low-Income Multifamily product to identify additional participants for 2018. A focus in 2017 was improving installation rates, efforts including improvement on the installation instructions, surveying methods and adding more Spanish options. This proved successful, as both the natural gas and electric products met their targets despite low participation.

Multifamily Weatherization

The Multifamily Weatherization product provides funding for a wide variety of natural gas and electric equipment retrofits, process improvements, facility audits and studies for low-income multifamily buildings. These buildings have common areas, greater square footage, more appliances and more potential retrofit measures than single-family homes.

The Company's rebates supplement Federal weatherization grants to produce incremental, cost-effective natural gas and electric savings. Each submitted project is evaluated using a custom analysis by the Company's energy efficiency engineers to determine cost-effectiveness. In some cases, prescriptive rebates are offered for retrofit measures when the equipment would otherwise be ineligible for inclusion in the custom project bundle, to offer greater flexibility.

Deviation from Target
The product significantly exceeded its electric and natural gas savings targets in 2017, with project completion driven by the third-party implementer, Energy Outreach Colorado ("EOC"). Considerable electric demand reduction was achieved as large multifamily facilities continued to upgrade common-area and in-unit lighting, cooling and windows. Electric expenditures were on budget while natural gas expenditures exceeded the budget due to funding of higher-cost measures such as boilers, insulation, and in-unit heating.

Non-Profit

The Non-Profit product provides funding for a wide variety of energy-efficient equipment and process improvements for qualified non-profit organizations within the Company's service territory. The product's focus is helping organizations that serve low-income individuals, such as shelters, safe houses, and residential treatment centers.

The Company's rebates supplement weatherization grants and other funding to produce incremental, cost-effective natural gas and electric savings for qualified non-profit facilities. Each submitted project is evaluated using a custom analysis by the Company's energy efficiency

engineers to determine cost-effectiveness. In some cases, prescriptive rebates are offered for retrofit measures when the equipment would otherwise be ineligible for inclusion in the custom project bundle, to offer greater flexibility.

Deviation from Target
The product exceeded its electric and natural gas savings targets for 2017, with project completion driven by the third-party implementer, EOC. Electric and natural gas expenditures exceeded the budget due to funding of higher-cost measures such as appliances, weather stripping and boilers. EOC partnered with local contractors to retrofit and upgrade equipment and processes for several non-profit education and outreach facilities, as well as national non-profit organizations with a Colorado presence, contributing to the product's 2017 achievements.

Single-Family Weatherization

The Single-Family Weatherization product offers natural gas and electric efficiency measures to low-income, single-family households in the Public Service electric and natural gas service territory. Depending on the needs of the home, eligible customers will receive the cost-effective improvements that are recommended. In addition to these measures, a major focus of the product is customer education on ways to reduce energy use in the home.

The product is implemented in partnership with EOC, the Colorado Energy Office ("CEO") and the various weatherization agencies across the state. The program helps to supplement Federal weatherization grants to produce incremental, cost-effective natural gas and electric savings for low-income customers.

Deviation from Target

The product exceeded all 2017 targets. This achievement can be attributed to the expansion of the CARE program as well as continued collaboration with Colorado weatherization agencies implementing the Weatherization Assistance Program. The Company also supported implementer efforts for behavior change and was able to claim savings on measures directly installed through this program.

Indirect Program

The Indirect Program includes products and services that support the overall development and implementation of the DSM Plan. Most of these products and services do not directly produce energy or demand savings and are not independently evaluated for cost-effectiveness. However, DSM pilots that are being evaluated to become direct impact products and have measured savings do go through a cost-effectiveness evaluation. The costs of the entire indirect program are included in the overall portfolio cost-effectiveness evaluation. The Indirect Program has two core elements: Education/Market Transformation and Planning and Research.

Within Education/Market Transformation, the Company offered six customer-facing products in 2017, including: Business Education, Business Energy Analysis, Consumer Education, Energy Benchmarking, Energy Efficiency Financing, and Home Energy Audit. These products did not deliver measured savings in 2017 and, therefore, were not evaluated for cost-effectiveness. However, these services do encourage participation in other direct-impact DSM products.

Within Planning and Research, the Company continued five internal services: DSM Planning and Administration, Program Evaluations, Market Research, M&V, and Product Development. In 2017, the Company operated two direct DSM pilots: ENERGY STAR® Retail Products Platform Pilot and Building Optimization EE & DR Pilot. It also conducted a Smart Thermostat Optimization pilot intended to further research into improving the effectiveness of smart thermostat products.

Electric

A summary of the Company's indirect program achievements for electric DSM products and services is shown in Table 17a below.

Table 17a: Indirect Program – Electric DSM Products (Budget to Actual)

	Budgets / Targets				Expenditures / Achievements			
Indirect Products & Services - 2017	**Electric Budget**	**Net Gen. kW**	**Net Gen. kWh**	**Electric MTRC Test Ratio**	**Electric Expenditures**	**Net Gen. kW**	**Net Gen. kWh**	**Electric MTRC Test Ratio**
Education/Market Transformation								
Business Education	$176,739				$158,004			
Business Energy Analysis	$619,499				$378,267			
Consumer Education	$899,908				$851,865			
Energy Benchmarking	$89,000				$64,021			
Energy Efficiency Financing	$57,711				$59,804			
Home Energy Audit	$417,763				$337,532			
Education/Market Transformation Total	**$2,260,620**				**$1,849,493**			
Planning and Research								
DSM Planning & Administration	$573,390				$569,683			
Program Evaluations	$674,600				$651,292			
Market Research	$345,940				$198,736			
Measurement & Verification	$10,738				$14,257			
Product Development	$3,871,093				$1,299,148			
Energy Star Retail Products Platform Pilot	$886,065	636	2,149,899	0.63	$1,197,979	575	2,537,004	0.63
Building Optimization DR Pilot	$36,750	-	-	-	$59,440	-	-	-
Product Development Total	$4,793,908	636	2,149,899	0.83	$2,556,568	575	2,537,004	0.43
Planning and Research Total	$6,398,576	636	2,149,899	0.50	$3,990,536	575	2,537,004	0.33
Indirect Products & Services Total	**$8,659,196**	**636**	**2,149,899**	**0.34**	**$5,840,029**	**575**	**2,537,004**	**0.27**

Natural Gas

A summary of the Company's indirect program achievements for natural gas DSM products and services is shown in Table 17b below.

Table 17b: Indirect Program – Natural Gas DSM Products (Budget to Actual)

	Budgets / Targets					Expenditures / Achievements				
Indirect Products & Services - 2017	**Gas Budget**	**Net Annual Dth Savings**	**Annual Dth/$M**	**Gas MTRC Test Net Benefits**	**Gas MTRC Test Ratio**	**Gas Expenditures**	**Net Annual Dth Savings**	**Annual Dth/$M**	**Gas MTRC Test Net Benefits**	**Gas MTRC Test Ratio**
Education/Market Transformation										
Business Education	$19,638					$18,999			-$18,999	
Business Energy Analysis	$65,507					$46,314			-$42,671	
Consumer Education	$133,323					$124,970			-$124,970	
Energy Benchmarking	$31,000					$29,034			-$29,034	
Energy Efficiency Financing	$60,000					$64,126			-$64,126	
Home Energy Audit	$545,006					$567,825			-$215,010	
Education/Market Transformation Total	**$854,474**					$851,267			-$494,810	
Planning and Research										
DSM Planning & Administration	$63,124					$155,625			-$155,625	
Program Evaluations	$168,400					$170,199			-$170,199	
Market Research	$96,732					$77,398			-$77,398	
Measurement & Verification	$1,193					$2,545			-$2,545	
Product Development	$170,668					$167,907			-$167,907	
Energy Star Retail Products Platform Pilot	$34,430	269	7,826	-$120,818	0.24	$46,143	236	5,114	-$132,416	0.06
Building Optimization DR Pilot										
Product Development Total	$205,098	269	1,314	-$120,818	0.12	**$214,049**	**236**	**1,102**	**-$300,322.01**	**0.03**
Planning and Research Total	$534,547	269	504	-$1,189,683	0.06	**$619,817**	**236**	**381**	**-$706,089.67**	**0.01**
Indirect Products & Services Total	$1,583,891	**269**	**194**	**-$2,044,157**	**0.20**	**$1,471,084**	**236**	**160**	**-$1,200,899.37**	**0.23**

The Indirect Program budget consists primarily of labor, educational materials, and study costs. Most studies are conducted by outside experts, generally selected through a competitive bid.

Education / Market Transformation Products

The following provides a brief summary of the performance of each education / market transformation product in 2017.

Business Education

The Business Education product creates awareness of energy conservation by providing business customers with information and resources to reduce their business' energy use. The Company provides customers with opportunities to actively engage in energy efficiency through offering program information at event sponsorships and other onsite outreach, customer feedback surveys, and social media channels such as Facebook and Twitter. The Company also uses traditional outreach channels like seasonal print and bill inserts as an integral part of the overall education and outreach strategy.

Deviation from Target

The Company exceeded the electric and natural gas participation targets for this program while staying on budget achieving approximately 101% of the year-end participation target. The Company conducted 25 community-based events, attended by approximately 13,440 people that generated 264 customer leads at a cost of $70,348. Continued long-term partnerships with community-based organizations contributed to increased participation without additional expenditures. Community partners offered additional outreach opportunities as a result of mutually beneficial, longstanding relationships. The Company's DSM efforts have realized better newsletter readership and positive results from digital tracking and social media reporting, which have supported increased participation. The combination of these initiatives continues to support DSM achievements.

Business Energy Analysis

Business Energy Analysis is an indirect impact product that offers analysis services to identify energy saving opportunities for Colorado business customers. The product includes three different types of assessments: (1) online assessments, (2) on-site audits, and (3) engineering assistance studies. The reports in all three assessments provide varying levels of detailed information about cost and paybacks, which support the business case for the customer to make energy-efficiency upgrades.

Deviation from Target

While the program did not meet its target of 300 electric participants, the offering did identify over 21 GWh of energy conservation opportunities, an increase from 2016. Marketing efforts included multiple direct mail and e-mail campaigns including a promotional on-site energy audit price of only $99 for a spring promotion during the 2017 Energy Efficiency Expo, another $99 promotion to keep momentum following the benchmarking deadline in September and a $48 for 48-hours sale in November to encourage last-minute program participation for the end of the year. These promotions contributed to over 50 percent of the leads brought in for the offering and the 2-day $48 sale has given the product a strong start to 2018 with audits booked out until mid-February. Electric and natural gas expenditures were less than the filed budget.

Consumer Education

The Consumer Education product creates awareness of energy conservation by providing residential customers with information and resources to reduce their homes' energy use. The Company provides customers with opportunities to actively engage in energy efficiency through offering product registration at community outreach events, customer feedback surveys, follow-up emails, digital kiosks, and social media channels such as Facebook and Twitter. The Company also uses traditional outreach channels like seasonal print and bill inserts as an integral part of the overall education and outreach strategy.

Deviation from Target
The Company exceeded the electric and natural gas participation targets for this product while staying within the approved budgets achieving approximately 113 percent of the year-end participation target. The Company conducted 90 community-based events, attended by approximately 1.2 million people that generated 3,670 customer leads and 450 signups at a cost of $540,298. While the product followed tactics outlined in the Plan, factors that contributed to increased participation without additional expenditure included: value-added outreach from continued long-term partnerships with community-based organizations, and increased tracking and reporting from those partnerships. Community-based partners continued to offer additional outreach opportunities at no charge as a result of mutually beneficial, longstanding relationships. The Company has also worked with its community relations and internal partners to deliver better newsletter readership and social media reporting, which have also resulted in increased DSM participation. The combination of these initiatives continues to drive participation in DSM products.

Energy Efficiency Financing

Energy Efficiency Financing is an indirect impact product, connecting residential and business customers with third-party lending institutions to encourage the use of financing, where needed, for implementation of DSM projects. The Company has established formal alliances with several financial institutions and local programs that provide customers with easy access to the funds they need to be able to improve energy performance. All loans are made directly from third-party lenders—"allies"—to customers.

Deviation from Target
The target of 25 business loans and 275 residential loans was not reached, with only 66 residential participants in 2017; but the Company did identify gaps in commercial offerings to customers and established new lending allies. A new online finance portal will help facilitate loans for business customers, while a new residential lending ally launched a state-wide residential loan product late in 2017. These efforts will help to increase participation. The Company will continue to strategically promote the product through its trade partner network and trainings, business and residential marketing communications, sponsorships, and events.

Home Energy Audit

The Home Energy Audit product provides rebates to the Company's natural gas and/or electric customers who receive an in-home energy audit. Considered a gateway to other residential products, Home Energy Audit is designed to encourage customers to understand their home's energy usage which can lead to improvements in energy savings in residential homes. An Energy Advising component has been incorporated as a value-added service to customers who are unsure of which next steps to take to achieve their energy goals. There are three types of in-home audit rebates offered through this product that can earn the customer a rebate: (1) standard audit; (2) standard audit with blower door test; or (3) infrared audit which includes the standard audit and the blower door test.

Throughout the year, the Company promoted the Home Energy Audit product through marketing efforts such as bill onserts, digital ads, and bundling with other products such as Home Energy Squad and Insulation.

Deviation from Target
The Home Energy Audit product did not achieve its participation targets for the year. The Company utilized trade partners as the primary method of marketing and implemented a large general awareness email in the fourth quarter that resulted in a spike in both natural gas and electric participation at the end of the year.

Energy Benchmarking

Benchmarking is a free data aggregation and upload service offered to electric and natural gas customers seeking to track whole-building data. The service allows building owners to receive monthly whole-building energy consumption data for their buildings without violating customer privacy. Once the service is implemented, it continues to upload data automatically to the Environmental Protection Agency's online tool; ENERGY STAR® Portfolio Manager.

The product is marketed to larger building customers with multiple premises on their property. It primarily targets customers in those cities with a benchmarking ordinance that are required to report whole-building energy consumption data to the cities.

Deviation from Target
The Company significantly exceeded customer participation forecasts in the first year resulting in slightly higher than budgeted labor costs.

Planning & Research Products

The following provides a brief summary of the performance of each planning and research product in 2017.

DSM Planning & Administration

DSM Planning & Administration is an indirect product with internal staff that manages all energy efficiency-related filings, including the annual DSM Status Report, DSM Plans and Notices, and Strategic Issues proceedings. This group performs cost-benefit analyses of all the energy efficiency

and demand response products, provides tracking of the energy and demand savings, and collaborates with the Company's Resource Planning group to develop inputs for the resource plans. DSM Planning & Administration conducts all planning and implementation of the quarterly DSM Roundtable Meetings and associated filings; and provides management oversight of all evaluation, measurement and verification planning and policies. These staff members work with outside consultants and stakeholders as needed throughout the year. These functions are necessary to ensure a cohesive and high-quality DSM portfolio that meets all legal requirements as well as the expectations of internal and external customers and the Colorado PUC.

Deviation from Target

In 2017, the Company's electric expenditures were under budget and over budget for natural gas expenditures largely attributable to the costs associated with the Company's Strategic Issues proceeding.

DSM Market Research

The Company conducts surveys and studies throughout the year to gauge energy awareness and customer interest around DSM. Internal market research functions are needed to provide overall support for clarifying DSM issues and thoroughly understanding current and potential DSM customers. In 2017, the Company conducted the following general research and analytical services:

- Residential and Business Advertising Tracking
- Contracting support for Portfolio-Wide Technical Assumptions Review
- Dun & Bradstreet Business list refresh for Salesforce market segmentation
- CAMEO Residential list for Salesforce market segmentation
- E Source Consultative Services
- CEE Consultative Services
- DSM Electric and Natural Gas Potential Study
- ENERGY STAR ® New Homes Program Survey

Market research is used internally by the Company as a resource for planning marketing activities and initiating efforts to reduce the number of non-participants.

Deviation from Target
In 2017, the Market Research expenditures were under budget for both electric and natural gas expenditures.

Program Evaluations

The Company procures third-party comprehensive evaluations, including impact and/or process evaluations, of products in the DSM Portfolio. The evaluations identify product strengths as well as opportunities for improvement and enable comparison with industry best practices. In 2017, a process-only evaluation was conducted for Commercial Refrigeration. In addition, Data Center Efficiency, Cooling Efficiency, Residential Heating, and Insulation and Air Sealing were subject to impact and process evaluations.

High-level outcomes from these evaluations include:

- *Commercial Refrigeration (Business):* The evaluator reported that the single greatest barrier to improved success for this product is converting audits into completed projects. Improvements in only one of every three audits were implemented and these implemented measures are dominated by lighting. Helping customers connect with trade partners that can help make project implementation easier, by way of a tiered trade partner list, is one way this could be achieved.
- *Cooling Efficiency (Business)*: The evaluation of Cooling Efficiency found that the midstream product is an effective channel for encouraging sale and installation of energy-efficient cooling technologies. Regarding downstream measures, customers had a difficult time articulating the value that the product had on their decision to install energy-efficient cooling. This suggested that the product may see declining influence in the future unless baselines are adjusted to account for standard industry practices. The need to continuously adjust baselines also applies to the midstream product
- *Data Center Efficiency (Business):* The evaluator found that a large proportion of customers report minimal influence by the product because they are often adopting standard industry practices. However, this is contradicted by information shared with the Company by trade partners, therefore a follow-up study will research the customer's proposed baseline and efficient option in product application materials in order to assess the possibility of market effects from the Data Center Efficiency product.
- *Residential Heating (Residential):* The evaluation suggested that trade partner and customer satisfaction with Residential Heating is very high. Raising the furnace net-to-gross from 0.77 to 0.86 was recommended based on the research findings and the increased rebate implemented for this product in 2017. Finding an electric measure to replace the soon-to-be-baseline EC Motor was recommended.
- *Insulation & Air Sealing (Residential):* The most significant take-away from the Insulation and Air Sealing product evaluation was that the choice of trade partner is integral to savings. A large portion of insulation vendors are not active in the Company's closed program, a customer that elects to use a trade partner that isn't on the pre-qualified list cannot receive rebates. Finding a way to drive customers to qualified trade has a host of benefits: customers get a better project; vendors that have invested time in qualifying get more work; and the product get more savings.

Evaluation reports are found on the Company's website, here:
http://www.xcelenergy.com/Company/Rates_&_Regulations/Filings/Colorado_Demand-Side_Management

Deviation from Target
Program Evaluations ended the year under budget when electric and natural gas expenditures are considered as a whole; electric expenditures was under budget while natural gas costs where just over target due to the two key residential gas products in the comprehensive evaluations.

Measurement and Verification

Measurement and verification activities ensure that all direct electric and natural gas DSM savings are properly calculated in the system of record (Salesforce) and accurately reported for compliance purposes, on a quarterly and annual basis. This M&V ensures that technical assumptions, net-to-gross ("NTG") ratios, and realization rates used in energy savings calculations are as accurate as

possible. The expenditures associated with M&V, as reported in the Executive Summary of this report, include only the internal labor to manage the overall M&V process. M&V expenses from third-party verification contractors are charged directly to individual products supported.

The intensity of third-party M&V methods is balanced with the costs of the M&V approaches, being mindful of the objectives to ensure accurate savings while keeping expenditures prudent and maintaining the cost-effectiveness of the products. Product savings are validated through a multi-step process designed to ensure that rebates are correctly processed, rebated measures were installed, and equipment is performing as intended. The M&V activities also provide opportunities to evaluate customer satisfaction and identify strategies for improving product delivery and effectiveness. Results of M&V analyses are reported in the section of this Report labeled "Evaluation, Measurement, and Verification Results."

DSM Product Development

The product development process starts with ideas and concepts from customers, regulators, energy professionals, interest groups, and Company staff. The Company's DSM Product Development team identifies, assesses, and develops new energy efficiency and load management products, services, and measures for the Company. This work enables the Company to identify and promote promising new DSM products, measures, delivery mechanisms, and other opportunities for its customers.

In 2017, the Company introduced new DSM products or measures via 60-Day Notices, managed ongoing pilots, and also worked to develop new products and measures that may be introduced via a 60-Day notice in 2018. A summary of these activities in 2017 follows:

60 Day Notices

- Thermostat Optimization Pilot

Pilots

- ENERGY STAR® Retail Products Platform Pilot.
- Building Optimization EE & DR Pilot.

Deviation from Target
DSM Product Development expenditures were under budget in 2017 due to lower-than-anticipated costs for research, consulting services, and association dues.

ENERGY STAR® Retail Products Platform Pilot

The ENERGY STAR® Retail Products Platform Pilot is intended to test a national-level mid-stream incentive approach to driving transformation of the appliance and consumer electronics market. The Pilot is part of an effort coordinated by the U.S. Environmental Protection Agency to evaluate whether incentivizing retailers for efficient product sales can drive increased market penetration of ENERGY STAR® products. The Pilot launched in 2016 and included participating utilities and energy efficiency program implementers from California, the Pacific Northwest, New York, Vermont, Wisconsin, Hawaii and New Jersey.

Deviation from Target
Targeted savings were exceeded. This was largely due to several retailers driving sales of the highest efficiency clothes washers which produce higher-than-average savings compared to the rest of the products in the program. An area of emphasis in 2017 was timely and accurate sales information delivered by the retailers. In 2018, the Company plans to eliminate support for the basic tier of clothes dryers based on low cost-effectiveness with the intent to focus on the most cost-effective measures and attempt to optimize the pilot around this limited set of products.

Changes in 2017
In 2017, Clothes Washers and Refrigerators were added as product categories. Nationwide was also added as a retailer.

Demand Response Program

Demand Response provides utilities with a valuable tool for managing peak demand on the electric system. The Company offered three types of DR products in 2017: (1) Direct Load Control, (2) Interruptible DR, and (3) Non-Dispatchable DR.[13] The Company's DR Program includes participation opportunities for business and residential customers on a Public Service firm demand rate for electric service. DR results for 2017 are shown in Table 19 below.

Table 19: 2017 DR Results (MW)

	Goal[14]	Actual
Demand Response (DR)	555	451
Demand Reduction from Energy Efficiency (EE-DR)	65	73
Total	**620**	**524**

Ordering Paragraph 58 of Decision No. C17-0731 directed the Company to achieve total demand reduction goals of 620 MW in 2017.

The Company's Demand Response program underachieved its forecasts and goals in 2017. The shortfall was due to underperformance across its suite of products. However, the Peak Partner Rewards and Critical Peak Pricing products were both new commercial and industrial offerings in 2017 as was the new AC Rewards offering for residential customers. All are expected to increase available load in the future.

Table 20: Demand Response Program – Electric DSM products (Budget to Actual)

	Budgets / Targets				Expenditures / Achievements			
Demand Response Program - 2017	Electric Budget	Net Gen. kW	Net Gen. kWh	Electric MTRC Test Ratio	Electric Expenditures	Net Gen. kW	Net Gen. kWh	Electric MTRC Test Ratio
Residential Demand Response	$16,316,436	16,120	123,179	1.75	$12,598,174	7,890	56,836	1.41
Critical Peak Pricing	$145,000	-	-	-	$20,466	3,201	4,179	-
Peak Partner Rewards	$2,627,047	-	-	-	$549,852	12,543	-	-
Building Optimization DR Pilot	$91,650	-	-	-	$59,205	-	-	-
Demand Response Program Total	**$19,180,133**	**16,120**	**123,179**	**1.58**	**$13,227,697**	**23,634**	**61,014**	**1.36**

Demand Response Products

The following provides a brief summary of the performance of each Demand Response product in 2017.

Building Optimization DR Pilot

The Building Optimization Demand Response Pilot is designed to evaluate the use of building optimization software to obtain reliable DR load relief from commercial business customers. A growing trend in managing energy use in buildings is to utilize building energy management systems with "optimization" software to better manage buildings' heating, ventilation, and air-conditioning

[13] See page 312 of the 2015/16 DSM Plan (Proceeding No. 14A-1057EG).
[14] Decision No. C14-0731, Proceeding No. 13A-0686EG, Paragraph 60, page 22.

systems. Through the use of cloud-based data collection and energy modeling, a building's control system can be continuously adjusted to optimize performance. Of key interest for the pilot is these systems' promised ability to reduce building loads in response to utility-initiated DR control events.

The objectives of the pilot are to: (1) evaluate how effective optimization software is in delivering promised demand reduction, and (2) confirm that these changes are unobtrusive to the building operators.

Deviation from Target
The pilot was fully subscribed during 2017 with seven different properties totally 16 buildings, 2.3 million square feet of controllable space and a cumulative summer peak of nine MW. Two of these properties were fully commissioned during 2017 and were able to participate in demand response events. The balance of the properties experienced start-up delays due to required upgrades and coordination with other upgrade activities taking place at those properties. The Company continues to evaluate the methodologies used to determine savings; therefore, no savings were reported for 2017. The pilot completed in 2017 and will not be continued in 2018. The Company continues to review outcomes and lessons learned to determine if alternative product designs can be identified for future offerings.

Critical Peak Pricing Pilot

During periods of peak energy demand, such as hot summer days, the electric system may require more power than is typically available. The Critical Peak Pricing ("CPP") pilot provides participants a price signal to encourage them to reduce their electricity usage during these periods. Participants can save between 5% -10% on their annual electric bill depending on how much load they are able to reduce.
Under the CPP rate participating customers receive a discounted demand charge, but are subject to higher energy charges during CPP events. CPP events can occur up to 15 times a year. Events may be up to four hours in duration and may be called between the hours of noon and eight p.m. on non-holiday weekdays. No more than one curtailment event may be called per day. Participating customers will receive day-ahead notification of when "critical peak" days will occur and will include the event start time, duration of event, and event end time.

To better manage their energy usage during peak events, participants are provided access to their electric load profile data in near-real-time. Access to this data not only allows participants to monitor their performance during events, but also provide insight into their energy use throughout the year.

The CPP pilot is marketed directly by the Company's account management staff and is available to commercial and industrial customers under rate schedules SG, PG or TG, (including Net Metering Service under schedule NM) who have an existing interval meter.

Deviation from Target
Overall, event performance for limited number of customers participating in the pilot this year was positive. Unfortunately due to these participates enrolling late in the control season, and only having a limited number control day available, there is limited control data. This year will be an entire control season to call more events, giving better insight to how this pilot will perform. Additionally, there is more time to work with customers on control plans on the day of an event. The pilot's expenditures were under budget.

Interruptible Service Option Credit

The Interruptible Service Option Credit ("ISOC") product offers savings opportunities for business customers on the ISOC Tariff[15] that can reduce their electric demand when notified. In return for participating, customers receive a monthly credit based on the program options they signed up for. Participating customers must have a Contract Interruptible Load ("CIL") of 300 kW or more.

Deviation from Target

Total costs for the product were $24,937,827 and the program added two new participants in 2017. Additional information on the ISOC product is available through the Company's ISOC Annual Status Report filed in Proceeding No. 07S-521E.

Peak Partner Rewards

During periods of peak energy demand, such as hot summer days, the electric system may require more power than is typically available. Customers who participate in the Peak Partner Rewards product agree to reduce their electricity use at the Company's request during these periods. The Peak Partner Rewards product is available to all business customers that agree to reduce usage during the summer months, June through September, between the hours of 2 p.m. and 6 p.m. by a minimum of 25 kilowatts (kW).

Deviation from Target

In 2017, the Peak Partner Rewards product had a target of 45 MWs and a budget of $2,627,047. Actual achievement was 12.5 MWs and actual spend was $549,852. As of December, 12 customers had enrolled, and there was one test event from 10 a.m. – 12 p.m. on July 21. The Company contracted with a third-party implementer, EnerNOC, to transition customers from the former Third-Party Demand Response product, implemented by EnerNOC, to the new Peak Partner Rewards product. Unfortunately, due in large part to staffing changes at EnerNOC, the number of customers that EnerNOC was able to successfully transition to the new product was much lower than anticipated. The Company also conducted an RFP in 2017 to acquire an implementation service partner. This partner will be brought online in 2018 to supplement the Company's marketing and administration of the product.

In addition, due to unanticipated delays with the Demand Response Management System ("DRMS") project, the Company did not actively enroll new participants until the second quarter of 2017. Following a successful DRMS test event in July, the Company began actively marketing the product to a larger audience. Marketing campaigns included email, direct mail, and bill onserts to all eligible customers. These marketing campaigns are expected to drive the 2018 pipeline and it is anticipated that new participants will be added in 2018.

Residential Demand Response

With the launch of AC Rewards this year, the Company has two residential demand response offerings. Saver's Switch® is a demand response product that offers residential customers with central AC an annual rebate on their bill in exchange for allowing the Company to control their AC during times of peak demand.

[15] Advice Letter No. 1524 (Second Amended); Electric Tariff Sheet No. 90.

AC Rewards is a demand response product that uses smart communicating thermostats for reducing AC load during a control event. Participating customers receive incentives for purchasing and/or enrolling eligible thermostats in AC Rewards. They also receive annual bill credits for their participation. Unlike Saver's Switch®, participants have the ability to override a control event.

Deviation from Target

The Saver's Switch® offering has been in existence since 2000 and has approximately 198,000 active participants. The product had four control events in 2017 for a total of 15.5 control hours. Despite receiving approximately 12,000 customer sign-ups, the product fell short of its installation target of 12,000 new switches. In all, approximately 6,000 new switches were deployed during the year.

AC Rewards was launched in the spring of 2017 and ended the year with about 1,300 participants. The Company projects that more than half of eligible customers in Colorado are already enrolled in Saver's Switch®. In addition, approximately 44% of the new AC Rewards participants were previously on, and removed from, Saver's Switch®.

Evaluation, Measurement, and Verification: 2017 Results

Background

An Evaluation, Measurement, and Verification (EM&V) Plan is necessary to help ensure that Public Service's DSM programs are delivering reliable energy and demand savings and to improve overall program design and operation. Public Service developed its EM&V Plan to evaluate, measure, and verify savings for gas and electric DSM products during and after each performance year, in order to confirm that savings and technical assumptions are accurate. The robustness of any EM&V Plan must be balanced against the cost of performing EM&V, keeping in mind the objectives of ensuring accurate savings calculations while keeping expenditures prudent and maintaining the cost-effectiveness of programs.

Description of Process

Public Service uses a variety of providers to conduct its measurement and verification activities. In 2017, measurement and verification for the majority of direct-impact prescriptive products was conducted by a verification contractor (Nexant). For other products, such as ENERGY STAR New Homes, Home Performance with ENERGY STAR, and New Construction, the third-party product implementer verified all of the installations to ensure that reported gross savings were accurate. Custom projects were verified through internal engineering reviews, as described below.

The Company's EM&V approach includes both performance year and post-performance year activities. Performance year activities are conducted on an ongoing basis during the reporting year and include rebate application validation and ongoing M&V. Post-performance year activities occur in the year following the reporting year and include all comprehensive product (process and impact) evaluations. Each of these EM&V activities is described in more detail below.

Performance Year EM&V Activities

- **Rebate Application Validation** takes place on a daily basis during the program year and involves auditing all rebate applications received by the Company. The Company's Rebate Operations Department has a two-step process (described in the EM&V section of the 2015/16 and 2017/18 DSM Plans). The first step entails validating every application for accuracy and completeness as it is received prior to processing. In the second step, all rebates that have been entered into a tracking system are audited each day prior to issuing a rebate. The objective of this validation is to ensure that the rebate forms and the reported gross savings that are entered into the Company's databases are as accurate as possible and that customers are receiving the correct rebates.
- **Ongoing Measurement and Verification** is conducted with the primary objective of ensuring that the gross energy and demand savings reported by the Company are accurate. Ongoing M&V takes place during and just after the performance year. Ongoing measurement and verification of savings differs for prescriptive, custom, load management, and pilot products. For direct impact prescriptive products, Public Service contracts with third-party verification contractors and product implementers to perform M&V. Custom projects are verified through either engineering reviews of savings or through pre- and post-metering, depending on the size of the savings. The following sections describe the general

M&V methods that have been used for prescriptive, custom, load management, and pilot products.

- For Prescriptive products, the verification activities follow a Deemed Savings approach, where the primary goal is to conduct field inspections for a sample of projects to determine that the measures are properly installed and have the potential to generate savings. The contractor selects a statistically valid number of projects to verify through field inspections or phone surveys. The sample size is designed to achieve accuracy levels of between 10% and 20% given a confidence level of 90% around the "realization rate" and is weighted to select larger projects. Inspection parameters gathered onsite will vary based on the product and sector, but will generally confirm that the installed equipment matches equipment listed on rebate application. If they don't match, the product's reported savings are adjusted using the realization rate which reflects the actual results of these inspections.

- For Custom products, the M&V process depends on the size and scope of the project. Each project is typically pre-approved through an engineering analysis performed by one of the Company's internal energy efficiency engineers. Within the initial engineering analysis, the expected project savings and payback are calculated using technical assumptions that fit the specific measure(s) being implemented. Depending on the size of the project, these calculations are then reviewed by a second internal energy efficiency engineer and/or manager and a random sampling is sent for third-party review. After installation of the efficiency measure, an internal engineer reviews the efficiency measure invoices to determine if the project savings remained within ± 10% of its original scope. If the project did not remain within scope, then the project is re-analyzed. For projects with savings greater than or equal to 1 GWh and/or 20,000 Dth, pre- and post-installation metering is performed for a minimum of two weeks to measure and verify savings. For all metered projects, the analysis of the metering data is conducted by one of the Company's internal energy efficiency engineers, and then reviewed by a team of internal engineers and a manager. For all custom projects, installation and realization rates of 100% are applied and a net-to-gross of 87% is used.

- For Load Management products (Saver's Switch), Public Service selected a third-party contractor to monitor air conditioning usage for randomly selected customer sites. The data collected were analyzed by another third-party consultant to determine the available load relief provided by the load management program.

- For direct impact Pilot products, the M&V treatment depends on the measures or services being tested. Often, additional testing beyond that performed for prescriptive or custom products is required. Typically, a control group is established and then a third-party contractor compares the results from the test group to those in the control group.

Post-Performance Year EM&V Activities

- **Comprehensive Product Process and Impact Evaluations** are conducted periodically for individual products to assess their overall effectiveness and to determine what improvements or other changes should be implemented in the future. The objectives of the process

evaluation include: determining customer satisfaction with the product; identifying the populations that participate in the product and target markets that are potentially receptive, but do not currently participate in the product; identifying areas where the product, processes, or marketing could be improved; quantifying the product's market saturation levels; suggesting appropriate rebate design; and determining attribution factors, such as free-ridership and spillover. The objectives of the impact evaluation include estimating net product impacts. These evaluations do not verify the savings of a specific performance year and are not applied retrospectively to performance year activities. Comprehensive evaluations are not conducted on every product each year, but instead are staggered over several years in order to comprehensively evaluate most of the portfolio of products.

Outline of Requirements

The Commission has provided overarching guidance on the requirements for Public Service's EM&V activities in a number of places, including the Gas Rule (4 Code of Colorado Regulations (C.C.R.) 723-4-4755), the approved Settlement Agreement for the Company's 2012/2013 DSM Plan (Proceeding No. 11A-631EG), the approved Settlement Agreement for the Company's 2015/2016 DSM Plan (Proceeding No. 14A-1057EG), and the approved Settlement Agreement for the Company's 2017/2018 DSM Plan (Proceeding No. 16A-0512EG).

The Gas Rule contains the following requirements:

4755. Measurement and Verification.

(a) Each utility shall implement a measurement and verification (M&V) program to evaluate the actual performance of its DSM program. The utility shall present its M&V plan as a part of its DSM plan application, pursuant to rule 4753, and shall include the complete M&V evaluation results with its annual DSM report in those years when the M&V is conducted.

(b) As a part of its M&V process, the utility shall, at a minimum, design an M&V plan to evaluate the effectiveness of the actual DSM measures and programs implemented by the utility. The M&V plan shall address: sampling bias; a data gathering process sufficient to yield statistically significant results; and generally accepted methods of data analysis. The M&V plan shall also include an evaluation of free ridership, spillover, and the net-to-gross ratio. The M&V evaluation shall be implemented at least once per DSM plan period. Subsequent DSM plan applications shall reflect the results of all completed M&V evaluations.

(c) The M&V evaluation shall, at a minimum, include the following:

(I) An assessment of whether the DSM programs have been implemented as set forth in its Commission approved DSM plan;

(II) A measurement of the actual energy savings for each DSM program, in dekatherms per dollar expended and in total dollars, and a comparison to the corresponding utility projections in the approved DSM plan;

(III) To the extent feasible, an assessment of the period of time that each DSM measure actually remains in service, and a comparison to the corresponding utility projections in the approved DSM plan;

(IV) A summary of the actual benefit/cost ratio for each DSM program within the approved DSM plan;

(V) An assessment of the extent to which education and market transformation efforts are achieving the desired results; and

(VI) Recommendations for how the utility can improve the market penetration and cost effectiveness of individual DSM programs.

In compliance with these requirements, Public Service has applied the following concepts to its EM&V Plan:

- The ongoing M&V Plan will be conducted annually for all products. Comprehensive evaluations will be conducted on a staggered schedule over several years.
- The ongoing M&V Plan results will be reported with each annual DSM Status Report.
- For products that use a sampling methodology for M&V, the Plan will address sampling bias and all samples will be designed to yield statistically significant results.
- For products that are selected for a comprehensive evaluation, an evaluation of free ridership, spillover, and the net-to-gross ratio will be included as a study objective.
- Subsequent DSM Plan applications shall reflect the results of ongoing M&V, results of completed comprehensive evaluations, and results of any other DSM studies that are reviewed.
- The annual M&V evaluation report will include an assessment of whether the DSM products have been implemented as set forth in the Commission-approved Plan.

M&V Assessment Year & Technical Assumptions

As discussed and approved as part of the 2015/16 DSM Plan, the Company has transitioned to a different M&V assessment period. Previously, the Company utilized a January 1 through December 31 M&V period to coincide with the product year. However, with the calendar year M&V period it was difficult to complete all required M&V and obtain the final results prior to the DSM Annual Status Report deadline on April 1. Beginning in 2016, the Company used the November 1 – October 31 time period to collect the M&V data utilized in the DSM Annual Status Report. This November through October M&V data collection time period was used for 2017 results and the will continue to be used going forward.

For 2017, the product year is split into two distinct segments, and different technical assumptions are applied to each time period. For the achievements realized between January 1 and February 28, 2017, the 2015/16 DSM Plan technical assumptions were applied to calculate net savings. For the achievements realized between March 1 and December 31, 2017, the 2017/18 DSM Plan technical assumptions were applied to calculate net savings. All savings achieved in 2017 have the same realization and installation rates applied to them, resulting from M&V conducted for the 2017 M&V assessment period.

2017 M&V Results

The following paragraphs provide the M&V activities and results for each of the DSM products offered by the Company in 2017. All M&V activities followed the processes described above and outlined in the M&V Plan filed with the 2017/18 DSM Plan, unless noted below. Where sampling was used in the M&V process for prescriptive measures, the achieved precision and confidence level is provided.

Portfolio Results

With its best efforts, Public Service achieved portfolio realization rates of 98.7% for electric demand, 99.4% for electric energy, and 99.9% for natural gas energy in 2017. Applying the results to the portfolio's gross savings, the Company achieved 97,074 net generator kW, 415,369,902 net generator kWh, and 626,978 net Dth of DSM savings.

Business Products

Commercial Refrigeration Efficiency

The Commercial Refrigeration Efficiency product offers prescriptive and custom rebates, as well as direct installation of several refrigeration efficiency measures. M&V of the prescriptive component of the product was performed by Nexant, following the prescriptive protocols described above. Public Service rebated 1,512 electric prescriptive, as well as 362 electric and 597 gas direct install electric Commercial Refrigeration Efficiency measures. For these measures, Nexant performed 29 field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final electric demand and energy realization rates, as well as the gas realization rate for the 2017 Commercial Refrigeration Efficiency prescriptive measures were all 100.0% ± 0.0% around the targeted 90% confidence level. The Company rebated five custom Commercial Refrigeration Efficiency projects in 2017. The custom component was reviewed by internal engineers following the custom protocols described above.

Compressed Air Efficiency

The Compressed Air Efficiency product offers prescriptive, custom, and study rebates. M&V of the prescriptive component of the product was performed by Nexant, following the prescriptive protocols described above. In 2017, Public Service rebated 76 prescriptive Compressed Air Efficiency measures. Of these projects, Nexant performed 23 field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final demand and energy realization rates for the 2017 Compressed Air Efficiency prescriptive measures were 103.0% ± 4.7% and 105.1% ± 7.8%, respectively, around the targeted 90% confidence level. The Company completed 21 studies and 11 custom Compressed Air Efficiency projects in 2017. The custom component was reviewed by internal engineers following the custom protocols described above.

Computer Efficiency

The Computer Efficiency product offers prescriptive rebates, which were measured and verified in a multi-step process. First, Public Service confirmed that all computers reported by the third-party implementer, Ecova, were shipped to Public Service zip codes. Then product performance was reviewed by Nexant, following the prescriptive protocols described above. In 2017, the Computer Efficiency product provided 24,804 upstream manufacturer incentives (for high efficiency power supplies, desktop PCs, and servers) with a final installation rate of 100%. In addition, Public Service rebated a total of 382 virtual desktop infrastructure ("thin client") installations. Nexant conducted field inspections of both projects to determine whether the measures were properly installed and had the potential to generate savings. The final demand and energy realization rates for the 2017 Computer Efficiency prescriptive measures were 100.0% ± 0.0% around the targeted 90% confidence level.

Cooling Efficiency

The Cooling Efficiency product offers prescriptive, custom, and study rebates. M&V of the prescriptive component of the product was performed by Nexant, following the prescriptive protocols described above. Public Service rebated 3,358 prescriptive Cooling Efficiency measures. For these measures, Nexant performed 41 field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final demand and energy realization rates for the 2017 Cooling Efficiency prescriptive measures were 100.5% ± 1.0% and 100.1% ± 0.2%, respectively, around the targeted 90% confidence level. The Company completed two custom Cooling Efficiency projects in 2017. The custom component was reviewed by internal engineers following the custom protocols described above.

Custom Efficiency

The Custom Efficiency product offers custom rebates. Public Service rebated eight electric and two gas Custom Efficiency projects in 2017. All Custom projects were reviewed by internal engineers following the custom protocols described above.

Data Center Efficiency

The Data Center Efficiency product offers rebates for study-driven and non-study-driven prescriptive and custom projects. The Data Center Efficiency product completed 78 prescriptive projects and 111 EC Plug Fans, as well as seven custom projects in 2017. The final aggregated demand and energy realization rates for the 2017 Data Center Efficiency prescriptive measures were 104.1% ± 7.4% and 104.0% ± 7.2%, respectively. All Custom projects were reviewed by internal engineers following the custom protocols described above.

Energy Management Systems

The Energy Management Systems product provides custom rebates. Measurement and verification of this product follows the custom protocols. In 2017, the EMS product completed 49 electric EMS projects and 2 electric Energy Information Systems (EIS) measures, as well as 10 gas projects. All projects were reviewed by internal engineers following the custom protocols described above.

Heating Efficiency

The Heating Efficiency product provides prescriptive and custom rebates for efficient heating equipment. In 2017, M&V of the prescriptive component of the product was performed by Nexant, following the prescriptive protocols described above. Public Service rebated 451 prescriptive boilers, furnaces, and water heaters, and nine electrically commutated motors. Of these projects, Nexant performed 34 field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final realization rates for the 2017 Heating Efficiency prescriptive measures were 100.0% ± 0.0% for electric demand and energy, and 100.1% ± 0.2% for gas, around the targeted 90% confidence level. The Company completed no custom Heating Efficiency projects in 2017.

LED Street Lighting

The LED Street Lighting product captures energy savings for local municipalities on the Street Lighting Service (SL) Rate by replacing legacy Company-owned street lights with LED fixtures.

Lighting Efficiency

The Lighting Efficiency product offers prescriptive, custom, and study rebates. In 2017, M&V of the prescriptive component of the product were performed by Nexant, following the prescriptive protocols described above. Public Service rebated 611,587 prescriptive Lighting Efficiency measures. Of these projects, Nexant performed 47 prescriptive field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final demand and energy realization rates for the 2017 Lighting Efficiency prescriptive measures were 100.0% ± 0.0% and 100.0 ± 0.1%, respectively, around the targeted 90% confidence level. The Company rebated 342 custom Lighting Efficiency measures in 2017. The custom component was reviewed by internal engineers following the custom protocols described above.

Lighting - Small Business

The Lighting - Small Business product offers prescriptive, direct install, and custom rebates. In 2017, M&V of the prescriptive and midstream components of the product was performed by Nexant, following the prescriptive protocols described above. Public Service rebated 200,158 prescriptive Lighting - Small Business measures. Of these projects, Nexant performed 43 prescriptive field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final demand and energy realization rates for the 2017 Small Business Lighting prescriptive measures were 99.0% ± 0.3% and 99.5% ± 0.2%, respectively, around the targeted 90% confidence level. The product resulted in the direct installation of 3,816 electric and 1,634 gas measures. The Company completed 319 custom Lighting - Small Business projects in 2017. The custom component was reviewed by internal engineers following the custom protocols described above.

Motor & Drive Efficiency

The Motor & Drive Efficiency product offers prescriptive and custom rebates. In 2017, M&V of the prescriptive component of the product was performed by Nexant, following the prescriptive protocols described above. Public Service rebated 756 prescriptive Motor & Drive Efficiency measures. Of these measures, Nexant performed 37 field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final demand and energy realization rates for the 2017 Motor & Drive Efficiency prescriptive measures were 100.0% ± 0.1% and 100.1% ± 0.2%, respectively, around the targeted 90% confidence level. The Company completed two custom Motor & Drive Efficiency projects in 2017. The custom component was reviewed by internal engineers following the custom protocols described above.

New Construction

Public Service's New Construction product offers prescriptive Energy Efficient Buildings and custom Energy Design Assistance rebates. Measurement and verification are performed on all New Construction projects, whether prescriptive or custom. The Company rebated 1,679 electric projects and 327 gas projects under the Energy Efficient Buildings component in 2017. M&V for these projects was performed by Nexant. Public Service completed 266 electric projects and 194 gas projects under Energy Design Assistance. The Weidt Group and Group 14 conducted verification on these projects. All adopted measures received a visual verification. This information was used in our savings reports and for rebate payment. Since all project savings are calculated based on independent verification, this product has a realization rate of 100%.

Process Efficiency

The Process Efficiency product offers prescriptive and custom rebates. Prescriptive rebates are identified by their end-use. Measurement and verification of those measures is performed with the end-use product. In 2017, M&V of the prescriptive component of the product was performed by Nexant, following the prescriptive protocols described above. In 2017, Public Service rebated 10,955 prescriptive Process Efficiency measures. These projects were included in the pool of prescriptive projects on which Nexant performed field inspections. The Company completed 20 custom Process Efficiency projects in 2017. The custom component was reviewed by internal engineers following the custom protocols described above.

Recommissioning

The Recommissioning product offers study and custom rebates. Public Service completed six electric and two natural gas Recommissioning projects in 2017. The measurement and verification of these projects was relatively simple because each implemented measure resulted from a previous Recommissioning study completed by an independent party. The customer hired an engineering firm to conduct a study of the building to determine energy savings for each measure; an internal engineer then reviewed and verified 100% of projects for savings calculation accuracy. In turn, each study was thoroughly reviewed and approved by a qualified Public Service engineer.

Self-Direct

The Self-Direct product offers custom rebates. Customers completed eight Self-Direct projects in 2017. The projects were measured and verified using individualized customer-developed and Public-Service approved M&V Plans. All measurement and verification was required to be performed in accordance with the International Performance Measurement and Verification Protocol guidelines. Upon project completion, participants submitted project completion reports that include raw metering results and engineering calculations to demonstrate actual energy and demand savings based on pre- and post-monitoring results. All projects were reviewed by the internal energy efficiency engineers and/or managers, depending on their size. The rebate amount was based on these results.

Residential Products

Energy Efficient Showerheads

The Energy Efficient Showerheads product provides customers with up to two free 1.5 gpm showerheads (primary and secondary), a 1.5 gpm kitchen faucet aerator, and up to two 1.0 gpm bathroom faucet aerators (primary and secondary). In 2017, Public Service provided 5,102 measures to electric customers and 83,883 measures to gas customers. Public Service performed a phone survey of a random sampling of customers who received a free showerhead and aerators. Based on the phone survey results, the2017 installation rates were 75.2% for showerheads, 27.3% for kitchen aerators, and 35.9% for bathroom aerators.

Energy Feedback Residential

The Energy Feedback Residential product offers customers a variety of methods of feedback on their energy consumption in order to quantify how these different forms of feedback impact customers' energy use. This product was implemented by a third-party provider, Oracle Utilities Opower, which utilizes a Randomized Control Trial with Random Encouragement (RCT) process that compares the consumption data of participants to an appropriately sized group of non-

participants (Control Group) to determine the energy savings. The Control Group are uninformed by any direct action of this product. In addition to determining the savings, the third-party implementer tracked and adjusted savings for participant's incremental participation in other energy efficiency products. This RCT methodology is recommended by the State and Local Energy Efficiency Action Network (SEE Action). A small portion of the product savings were derived from the online tool called My Energy. Propensity Score Matching was used to construct a comparison group for My Energy login customers to non-login customers. Propensity score matching is recommended by the SEE Action guidelines for evaluating behavior-based programs when it is not feasible to construct a randomized control group. In 2017, the realization rate for the Energy Feedback Pilot was 100.0%.

ENERGY STAR New Homes

Public Service's ENERGY STAR New Homes product offers prescriptive rebates. In 2017, the product was administered by a third-party implementer, Residential Science Resources, Inc. (RSR). All homes rebated through this product were subject to verification by a qualified Home Energy Rating Service (HERS) Rater and their associated Residential Energy Services Network Provider. The HERS Rater completed a minimum of two site visits to each home during the construction phase. Hundreds of data points are collected and submitted for each home, including the duct blaster test results and the final HERS rating. Upon completion, RSR reviewed each home and it's HERS rating to confirm the accuracy of the energy modeling. Energy saving impacts for each home rebated were calculated based on the actual construction as compared to the reference (baseline) home for that particular jurisdiction. As a result, the realization rate for this product is 100%. In 2017, 4,671 electric and 3,836 gas rebates were issued for the product.

Evaporative Cooling

The Evaporative Cooling Rebate product provides prescriptive rebates to customers who purchase efficient evaporative cooling units. In 2017, M&V of this product was performed by Nexant, following the prescriptive protocols described above. Public Service rebated 3,476 evaporative coolers. Of these projects, Nexant performed 43 field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final demand and energy realization rates for the 2017 Evaporative Cooling product were 100.0% ± 0.0% around the targeted 90% confidence level.

High Efficiency Air Conditioning

The High Efficiency Air Conditioning Product provides rebates to customers who purchase high-efficiency equipment, properly install high efficiency air-conditioning equipment, or trade-in their old, inefficient equipment and purchase of high-efficiency equipment. Because air conditioners can only be field tested when the ambient outdoor temperature is above 70°F (or 55°F with a Field Diagnostic Services Inc. tool), this product maintains a slightly different M&V calendar than Public Service's other DSM products. Specifically, air conditioners that are installed after October 1 of each year will not be inspected until the following spring, and thus, the M&V period for this product runs from October 1 to September 30 of each year.

The three product components have different M&V processes. M&V for the new equipment purchase and quality installation were considered together and performed by Group 14 Engineering. The M&V process was designed to verify that the installed equipment matched what was rebated and that the equipment was installed according to quality installation standards, as described by the

Air Conditioning Contractors of America. The M&V involved an ongoing random sampling of rebated projects, following the prescriptive protocols described above. To verify a quality installation, the Verification Contractor confirmed that a Manual J calculation was performed and that the participant's refrigeration charge, airflow, and duct leakage were within acceptable ranges. Public Service rebated a total of 5,571 HEAC measures in 2017. The final demand and energy savings realization rates for the New Equipment component of the product in 2017 were 100.0% ± 0.0% and 100.0% ± 0.0%, respectively, around the targeted confidence level of 90%. The final demand and energy savings realization rates for the Quality Installation component of the product in 2017 were 93.14% and 93.11%, respectively, around the targeted confidence level of 90%.

M&V for the Trade-In component of the High Efficiency Air Conditioning Product was performed by Public Service since the original equipment removal was conducted by independent HVAC contractors. For each of the retirements rebated, the contractor was required to report to Public Service the type and age of equipment being removed. Public Service then spot-checked the provided paperwork to confirm that the removed equipment met product requirements. The final demand and energy savings realization rates for the Trade-In component of the product in 2017 were 100.0% ± 0.0% and 100.0% ± 0.0%, respectively, around the targeted confidence level of 90%.

Home Energy Squad

The Home Energy Squad product offers installation services and discounted equipment to residential customers. The third-party implementer verifies and reports implemented measures to the Company. The final demand and energy realization rates for the 2017 Home Energy Squad product were 100.0% ± 0.0% and 100.0% ± 0.0%, respectively, around the targeted 90% confidence level.

Home Lighting & Recycling

The Home Lighting & Recycling product provides prescriptive point-of-sale rebates to customers who purchase qualifying CFL and LED light bulbs. In 2017, Nexant performed the Home Lighting & Recycling product measurement and verification. The verification process consisted of cross-checking Public Service's tracking databases with a sample of monthly or weekly invoices and invoice details from various manufacturers submitted to retailers. These invoices contained product buy-down dollar amounts and counts for each item SKU. No customer contact was made for the measurement and verification of this product. There were 485,273 CFLs and 1,787,913 LEDs sold in 2017. Nexant examined and verified 44 invoice line detail items out of the total 44,005 residential records contained within the Company's program tracking database. The 44 line items were taken from a sample of monthly manufacturer invoices and associated invoice details. This effort uncovered two discrepancies between Xcel Energy's database and the invoice data. The final demand and energy realization rates for the 2017 Home Lighting & Recycling product were 99.5% ± 0.5% and 99.9% ± 0.1%, respectively, around the targeted 90% confidence level.

Home Performance with ENERGY STAR®

The Home Performance with ENERGY STAR product provides prescriptive rebates to residential customers. In 2017, Public Service's third-party product implementer, CLEAResult, performed verification of home improvements, including a blower door test to verify the natural air changes per hour, a Combustion Appliance Zone test, and inspections of all work performed. There were 304 electric and 398 gas measures rebated in 2017. Due to the extensive testing performed on each home, this product is assumed to have a realization rate of 100%.

Insulation & Air Sealing

The Insulation & Air Sealing product provides prescriptive rebates to customers who add insulation to their homes. In 2017, M&V of this product was performed by Nexant, following the prescriptive protocols described above. Public Service rebated 555 electric and 1,492 gas measures. Of these projects, Nexant performed 35 field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final demand, energy, and gas realization rates for the 2017 Insulation & Air Sealing product were 98.8% ± 10.2%, 93.2% ± 13.0%, and 96.1% ± 9.5%, respectively, around the targeted 90% confidence level.

Refrigerator & Freezer Recycling

The Refrigerator & Freezer Recycling product provides a rebate to customers who retire their old, inefficient, but operational refrigerators and freezers. In 2017, M&V of this product was performed by Nexant, following the prescriptive protocols described above. The Company recycled 5,121 refrigerators and 1,090 freezers. To verify these results, Nexant performed phone of 43 randomly-selected participants and confirmed that the old refrigerator or freezer was operational and removed from the home as reported. The final realization rates for the 2017 Refrigerator & Freezer Recycling product were 100.0% ± 0.0% for both demand and energy savings.

Residential Heating

The Residential Heating product provides prescriptive rebates to customers who install efficient furnaces, boilers, and EC motor furnace fans. In 2017, M&V of this product was performed by Nexant, following the prescriptive protocols described above. Public Service rebated 7,316 electric and 4,425 gas units. Of these projects, Nexant performed 44 field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final demand, energy, and gas realization rates for the 2017 Residential Heating product were 100.2% ± 0.1%, 99.5% ± 0.1%, and 100.0% ± 0.0%, respectively, around the targeted 90% confidence level.

School Education Kits

The School Education Kits product provides curriculum and educational materials to teachers and efficiency measures to school children to teach them more about energy efficiency. In 2017, the product shipped 38,633 electric/gas kits and 1,033 gas-only kits to school children. Product administration, measurement, and verification for School Education Kits were conducted by a third-party vendor, AM Conservation. AM Conservation used parental surveys to determine which measures were installed in the home. The 2017 year-end savings for the program were determined using the following installation rates determined by AM Conservation: 92.1% for 11W LEDs, 93.1% for 9W LEDs, 73.0% for showerheads, 66.0% for kitchen aerators, and 68.9% for bathroom aerators.

Water Heating

The Water Heating product provides prescriptive rebates to customers who purchase new, energy efficient water heaters. In 2017, M&V of this product was performed by Nexant, following the prescriptive protocols described above. Public Service provided 36 electric and 939 gas rebates in 2017. Of these projects, Nexant performed 42 field inspections of installed energy efficient equipment at randomly-selected participant locations to verify key savings factors. The final

demand, energy, and gas realization rates for the 2017 Water Heating product were 100.0% ± 0.0%, 100.0% ± 0.0%, and 100.2% ± 0.9% around the targeted 90% confidence level.

Residential Demand Response

The Residential Demand Response product includes Saver's Switch and smart thermostats, both of which the Company controls during times of high system load. For the purposes of the Status Report, Public Service assumes a deemed savings value for both the Saver's Switch and smart thermostat devices. For load management purposes, the Company uses data logging on a sample of installed Saver's Switches to identify the available system controllable load per switch. These data loggers record the actual load of the air-conditioning units controlled by the installed switches. This recorded load is used to estimate the available system controllable load at typical system peaking conditions. This estimated available system controllable load can vary over time due to changes in air conditioner efficiencies and residential conservation efforts. Additionally, performance of the switches varies over time due to the disconnection or mechanical failure of switches. In 2017, the Company installed 5,829 new Saver's Switches and 1,251 smart thermostats.

Low-Income Products

Energy Savings Kit

The Energy Savings Kits product provides energy efficiency kits to low-income customers. In 2017, the product delivered 354 gas kits. This product was implemented by a third-party provider, Energy Federation Inc., who identified income-qualified customers to receive kits. CustomerLink performed a phone survey to those customers who received a kit. Installation rates were found to be 66.6% for LEDs, 64.3% for showerheads, 54.7% for kitchen aerators, and 58.1% for bathroom aerators.

Multifamily Weatherization

The Multifamily Weatherization product offers weatherization measures to qualifying low-income multi-family buildings. In 2017, Public Service rebated 45 electric and 58 gas Multifamily Weatherization projects. The third-party program implementer, Energy Outreach of Colorado, audited each building to confirm that all work was completed correctly. Savings were calculated for each project based on the measures installed. As a result, the realization rate for this program is 100%.

Non-Profit

The Non-Profit product offers weatherization services to non-profit organizations. In 2017, the product completed 44 electric and 34 gas projects. Public Service's third-party program implementer, Energy Outreach of Colorado, audited each building to confirm that all work was completed correctly. Savings were calculated for each project based on the measures installed. As a result, the realization rate for this program is 100%.

Single-Family Weatherization

The Single-Family Weatherization product provides weatherization to low-income single-family homes. In 2017, 35,966 electric and 8,790 gas weatherization measures were performed. Public Service's third-party product implementers, the Colorado Energy Office and Energy Outreach Colorado, managed the weatherization agencies that performed energy savings measures in each

income-qualified single-family home. 100% of homes weatherized were subject to verification from Public Service at any given time. The Company received a signed or electronic form from each customer attesting to the work performed. Energy savings were calculated on a per-measure, per-home basis. Savings were calculated for each project based on the measures installed. As a result, the realization rate for this program is 100%.

Pilot Products

The 2017 direct impact energy efficiency pilot products included:

- ENERGY STAR® Retail Products Platform Pilot,
- Multifamily Building Pilot, and
- Smart Thermostat Pilot – EE.

The 2017 direct impact demand response pilot products included:

- Building Optimization Pilot – DR;
- Critical Peak Pricing Pilot;
- Small Business Smart Thermostat Pilot – DR; and
- Smart Thermostat Pilot – DR.

ENERGY STAR Retail Products Platform Pilot

The ENERGY STAR Retail Products Platform Pilot engaged retailers through midstream incentive payments to increase the demand and supply for the most energy efficient residential plug-load and appliance products on the market, driving greater sales of select ENERGY STAR certified products to customers. The third-party implementer is responsible for the measurement and verification of the pilot. In 2017, the third-party implementer used the deemed savings of the direct installation measures to calculate savings and reported those savings to the Company on a quarterly basis. This product follows the Company's standard prescriptive product measurement and verification process.

Multifamily Building Pilot

The Multifamily Building pilot is testing delivery of energy efficiency resources to the residential multifamily housing market via an energy assessment, direct-install of energy savings measures, and custom projects. The third-party implementer is responsible for the measurement and verification of the pilot. In 2017, the third-party implementer used the deemed savings of the direct installation measures to calculate savings and reported those savings to the Company on a quarterly basis. This product follows the Company's standard prescriptive product measurement and verification process.

Building Optimization DR Pilot

This pilot will determine whether software tools designed for "Predictive Energy Optimization" of commercial building control systems can be leveraged to provide Demand Response resources. This pilot did not have any participation or savings in 2017.

Critical Peak Pricing Pilot

The Critical Peak Pricing (CPP) Pilot will introduce a tariff rate for commercial and industrial customers that will send price signals for those customers to reduce their demand at times of high system loads. This pilot did not have any savings in 2017.

Small Business and Residential Smart Thermostat Pilot

The pilot provides customers with rebates for the purchase and installation of qualifying Wi-Fi connected thermostats in order to study the demand response benefits associated with those devices. The third-party implementer is responsible for the measurement and verification of the pilot. In 2017, the third-party implementer used the deemed savings of the direct installation measures to calculate savings and reported those savings to the Company on a quarterly basis. This product follows the Company's standard prescriptive product measurement and verification process.

Post-Program Year Activities

All measurement and verification activities for the 2017 performance year were completed in late 2016 through 2017 and all results are included in this report. Public Service intends to complete all future M&V activities annually prior to filing its M&V Report.

Product Process and Impact Evaluations Performed in 2017

Public Service contracted for evaluators to perform process and impact evaluations on four direct impact products in 2017: Cooling Efficiency, Data Center Efficiency, Insulation and Air Sealing, and Residential Heating, as well as a process-only evaluation of Commercial Refrigeration. The following sections provide an overview of the findings of the evaluations and the evaluators' recommendations. The Company intends to address any recommended changes coming from these comprehensive evaluations through 60-Day Notices corresponding to the evaluation recommendations and Company responses.

Cooling Efficiency

An evaluation team led by EMI Consulting conducted a comprehensive process and impact evaluation of the Cooling Efficiency product, in which they assessed: participant experiences, product influence on customer decisions and the cooling market in general, similarity to peer programs, and opportunities for improving both the downstream and midstream delivery channels. The evaluation was conducted through interviews with staff, distributors, trade partners, participating customers, and peer program staff, as well as through peer product research. Overall, the evaluation team found that the Cooling Efficiency product is operating effectively, with generally high levels of satisfaction among participating customers, trade partners, and distributors. There is evidence that both the midstream and downstream delivery channels have had a positive net impact on energy efficiency within the Xcel Energy Colorado service. The team had the following key findings:

- Overall product satisfaction is high among distributors and contractors, providing a foundation to build on in future years. Maintaining relationships with distributors will continue to be especially critical in the success of the midstream delivery channel.
- Following up with customers who recently completed a rebated project may help Xcel Energy increase participation across products. Post-project communications should make sure customers are aware of additional energy saving opportunities offered by Xcel Energy.
- Although designed to address availability barriers by changing stocking practices, the midstream product is also having an impact on first cost barriers via price discounting. Knowing how distributors are using the incentive dollars will be important for tracking market transformation over time.

- As with many similar programs around the country, the Cooling Efficiency product faces challenges related to estimating baselines and tracking sales penetration of incented equipment. Market characterization work may assist in addressing these challenges.

The team had the following recommendations:

- The recommended overall prospective midstream NTGR is 0.89 (subject to the midstream product offering staying ahead of the market). The recommended overall prospective downstream NTGR is 0.71.
- Conduct periodic surveys with customers immediately after they receive their rebate check. These surveys would serve three purposes: (1) To collect immediate feedback related to net-to-gross estimation, (2) ensure that customers are aware of other related energy efficiency opportunities available through Xcel Energy, and (3) help keep customer contact information up to date.
- Efficiency tiers for the midstream delivery channel should continue to be periodically increased, with plenty of forewarning for distributors.
- To counter possible contractor concerns that midstream benefits do not accrue to the end-use customer, make sure that contractors understand the rationale behind offering this type of product.
- Consider the cost effectiveness ramifications of splitting the existing midstream incentive into: (1) an incentive for small equipment, and (2) a point-of-sale (POS) rebate for large equipment.
- Develop and document a more detailed strategy for how the midstream and downstream delivery channels should function.
- Define and begin tracking a set of key performance indicators that can be used to measure market transformation of the Colorado HVAC market over time.
- Perform a market baseline study to estimate the penetration of energy efficient measures (installed base and sales) in Xcel Energy's service territory in Colorado.

All of these recommendations are currently being reviewed by Public Service. Any changes that might affect impact assumptions will be publicized through 60-Day Notice prior to implementation.

Data Center Efficiency

An evaluation team led by EMI Consulting conducted a comprehensive process and impact evaluation of Xcel Energy's Minnesota Data Center Efficiency product, in which they assessed: participant and trade partner experiences, product influence on customer decisions, similarity to peer programs, and opportunities to improve the product. Since the product is offered similarly in Colorado, it is assumed that this evaluation pertains to Xcel Energy's Colorado Data Center Efficiency product as well.

The evaluation was conducted through interviews with participants, non-participants, trade partners, peer program benchmarking, and staff. Overall, the evaluation team found that the Data Center Efficiency product is operating effectively, with generally high levels of satisfaction among participating customers, trade partners, and distributors. There is evidence that both the midstream and downstream delivery channels have had a positive net impact on energy efficiency within the Xcel Energy Colorado service. The team had the following key findings:

- The product is an important product, but there is room to improve its influence in an industry that is rapidly evolving. Some customers derive a lot of value from the product, and more targeted engagement can increase influence in the market.
- Overall product satisfaction is high for both participants and trade partners. Both groups find determining eligibility and filling out forms the most challenging aspects of participating in the product.
- Personal contact, technical assistance, and recommendations of contractors, more than incentives, are what influence customers' decisions to install energy efficient equipment.
- Most peer programs have a similar NTGR. They also report that personal outreach is best for customer engagement, and product ease-of-use promotes customer participation.

The team had the following recommendations:

- Conduct a targeted market characterization study. The goals of this study would be to: (1) identify potential new participants, (2) understand the characteristics of trade partners who influence data center decision-makers, and (3) identify other market actors that may be worth developing relationships with.
- The recommended prospective NTGR is 0.65. Consider setting stricter product eligibility requirements. Devise a method for documenting the counterfactual in the customer journey.
- Target outreach efforts towards customers, trade partners, or other market actors with characteristics that indicate increased barriers to energy efficiency.
- Consider hiring an outreach firm with strong existing and trusted relationships to promote the product to potential participants.
- Incentivize trade partners for recruiting first-time participants and for upselling projects, increasing the value proposition for trade partner participation.
- Target outreach efforts on trade partners with greater ability to influence customer decision-making.
- Consider implementing a pre-qualified trade partner list to ensure that contractors have gone through training on how to include or upsell energy efficiency in projects.
- Review study content to increase the efficiency of projects or identify additional opportunities not already under consideration.
- Promote technologies that are not well accepted through implementing a tiered incentive structure.
- Implement a method for tracking the customer journey to document existing equipment and efficiency levels, what the customers would have installed without the program, and what was actually installed.
- 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.

All of these recommendations are currently being reviewed by Public Service. Any changes that might affect impact assumptions will be publicized through 60-Day Notice prior to implementation.

Insulation and Air Sealing

An evaluation team led by EMI Consulting conducted a comprehensive process and impact evaluation of the Insulation and Air Sealing product, in which they assessed: customer satisfaction with the product; Xcel Energy influence on customers' decisions to upgrade insulation and improve air sealing; the customer journey paths that lead to such upgrades; the roles, successes, and challenges faced by participating trade partners; and opportunities to increase product cost-effectiveness and influence on customer decisions. The evaluation was conducted through participant telephone surveys, non-participant telephone surveys, trade partner interviews, peer program benchmarking interviews, and staff interviews. The team had the following key findings:

- Both participants and trade partners are satisfied with the product. 93% of participant respondents were somewhat or very satisfied with the product overall. Trade partners consider the product an important, positive, and fundamental part of their business.
- The product influences home upgrades through participating trade partner recommendations to customers. Median product influence scores for contractor scope recommendations were 8 on a 0-10 scale, higher than the customer-reported influence of rebates or general outreach.
- Customer selection of their potential contractor is a key determining factor in whether they will participate in the product or upgrade their home to recommended levels of insulation and air sealing. Shopping for contractors generally involves inquiries to 1, 2, or 3 contractors.
- The product's structure is sound and in line with those of peer utilities. Adherence to BPI standards follows best practices in the industry.

The team had the following recommendations:

- Conduct more customer-facing outreach designed to steer customers considering an insulation upgrade to participating trade partners.
- Explore ways to strengthen the market differentiation that participating trade partners receive and facilitate trade partner-based marketing.
- Increase targeting of customers with the greatest and most cost effective insulation and air sealing opportunities, such as those in older homes or with high usage.
- Explore ways to increase flexibility in the measure structure without compromising on the product's use of BPI standards or its emphasis on comprehensive shell upgrades.

All of these recommendations are currently being reviewed by Public Service. Any changes that might affect impact assumptions will be publicized through 60-Day Notice prior to implementation.

Residential Heating

An evaluation team led by EMI Consulting conducted a comprehensive process evaluation of the Residential Heating product, in which they assessed: customer satisfaction with the product, Xcel Energy influence on customers' decisions to install high-efficiency gas furnaces, information sources customers rely on when making decisions on heating equipment, and the efficacy of contractors' efforts to provide customers with information on and options for high-efficiency furnaces. The evaluation was conducted through participant telephone surveys, trade partner interviews, peer program benchmarking interviews, and staff interviews. The team had the following key findings:

- Both customer participants and trade partners are satisfied with the product. 94% of participant respondents were somewhat or very satisfied with the product overall and 97% of trade partners were somewhat or very satisfied with the product.

- Customers who installed a high-efficiency gas furnace and an ECM through the product had a lower rate of free-ridership relative to participating customers who only installed a high efficiency gas furnace.
- Trade partners that completed the greatest number of high-efficiency furnace installations view the product as an integral part of their business model. Three-quarters of these trade partners stated that a majority of their total furnace installations are completed through the product.
- Unlike Xcel Energy, none of the five peer utilities interviewed requires NATE certification for contractors installing high-efficiency gas furnaces through their respective residential heating programs.

The team had the following recommendations:

- Meet internally and with external stakeholders to determine the importance of NATE certification in the success of the Residential Heating product.
- Determine barriers to greater participation by installation contractors in the Residential Heating product.
- In bill inserts, print, and/or other forms of advertisement make explicit the difference between standard efficiency and high-efficiency gas furnaces (defined as 95% or greater AFUE).
- The evaluation team recommends that Xcel Energy increase the NTGR for high-efficiency gas furnaces installed through the Residential Heating product to 0.86 for the 2018 program year.
- Conduct semi-annual or continuous evaluation of the Residential Heating product focused on market testing of customer satisfaction and the impact of rebate levels on free-ridership and the NTG ratio for high-efficiency furnaces.
- Continue or even expand resources—such as more extensive online promotion and marketing material to distribute to customers—to these "primary" trade partners.
- Continue or even expand the practice of promoting on the product website that the "primary" trade partners are so customers can more easily identify contractors with the most experience with the product.
- Consider an alternative energy efficient measure to take the place of the ECM.
- Maintain strong channel management to continue to effectively communicate and coordinate with trade partners throughout the rebate process, and ensure trade partners have the most current product information.
- Develop an "early-replacement" marketing campaign to promote replacing old and inefficient gas furnaces during the summer.

All of these recommendations are currently being reviewed by Public Service. Any changes that might affect impact assumptions will be publicized through 60-Day Notice prior to implementation.

<u>Commercial Refrigeration</u>

An evaluation team led by EMI Consulting conducted a process-only evaluation of the Commercial Refrigeration product, in which they assessed: product satisfaction, paths to customer participation, the effectiveness of the product at encouraging customers to move beyond direct install measures and make deep retrofits at their facilities, the effectiveness of engagement with trade partners, and opportunities for optimization. The evaluation was conducted through telephone surveys, trade

partner interviews, peer program benchmarking interviews, and staff interviews. The team had the following key findings:

- Both participants and trade partners are satisfied with the product. 84% of participant respondents were satisfied with the product overall and trade partners were somewhat or highly satisfied with all elements discussed.
- Trade partners are not aware of the audit. Though all interviewed trade partners were aware of the Commercial Refrigeration Product, only 2 of the 10 were aware of the audit.
- Only a few trade partners can install all audit recommendations. 7 of the 10 interviewed trade partners can only install some of the audit recommendations. Trade partners typically specialized in either refrigeration or lighting.
- Equipment costs remain a barrier. About two-thirds of participant respondents reported that equipment costs were a barrier to pursuing a recommendation (60%).

The team had the following recommendations:

- Define the purpose of the audit as either high-level walk-through or in-depth assessment with clear trade partner hand-off.
- Coordinate outreach with other products as in-person visits are most effective but expensive.
- Increase outreach to other trade partners through one-on-one meetings, trainings, and collaborations with distributors.
- Explore developing a tiered trade partner network list for the product that includes project counts and types of measures trade partners install.
- Include equipment reliability in sales pitches.
- Plan for participants to complete recommended upgrades over the long-term.
- Explore diversifying rebate options based on business type.

M&V Results

The following pages provide Tables 17a and 17b, which describe the installation rates and realization rates used to calculate net, verified savings by program component. The column headings of Tables 17a and 17b are defined in the following table:

Table 21: Defined Terms

Column Heading	Definition
2017 Product	The DSM product offered by Public Service in 2017.
End-Use Measure Type	Whether the product was prescriptive or custom, or the product components, if the M&V process differed for different projects within a single product.
Gross Gen kW	The gross electric demand savings at the generator after line losses and coincidence with peak are factored in.
Gross Gen kWh	The gross electric energy savings at the generator after line losses are removed.
Gross Dth	The gross natural gas energy savings.
Installation Rate	The percent of measures that were installed, as opposed to purchased.
Demand (kW) Realization Rate	The ratio of gross electric demand savings measured in the M&V process to the electric demand savings claimed in the rebate application, expressed as a percentage.
Energy (kWh) Realization Rate	The ratio of gross electric energy savings measured in the M&V process to the electric energy savings claimed in the rebate application, expressed as a percentage.
Energy (Dth) Realization Rate	The ratio of gross natural gas energy savings measured in the M&V process to the gas energy savings claimed in the rebate application, expressed as a percentage.
Verified Gross Gen kW	The gross demand savings at the generator after the installation and demand realization rates have been applied.
Verified Gross Gen kWh	The gross energy savings at the generator after the installation and energy realization rates have been applied.
Verified Gross Dth	The gross savings after the installation and gas realization rates have been applied.
Electric Demand NTG	The net-to-gross ratio (percentage) applied to the Verified Gross Gen kW value to arrive at the Verified Net Gen kW value.
Electric Energy NTG	The net-to-gross ratio (percentage) applied to the Verified Gross Gen kWh value to arrive at the Verified Net Gen kWh value.
Gas NTG	The net-to-gross ratio (percentage) applied to the Verified Gross Dth value to arrive at the Verified Net Dth value.
Verified Net Gen kW	The final demand savings at the generator achieved once the installation rate, realization rate, and net-to-gross ratio were applied.
Verified Net Gen kWh	The final energy savings at the generator achieved once the installation rate, realization rate, and net-to-gross ratio were applied.
Verified Net Dth	The final gas savings achieved once the installation rate, realization rate, and net-to-gross ratio were applied.

Table 22a: Business Segment Installation Rates, Realization Rates, and Final Net, Verified Savings by Program Component (Full Year)

2017 Products	End-Use/Measure Type	Gross Customer kW	Peak Coincident Customer kW	LL	Gross Peak Gen kW	Customer kWh	Gross Gen kWh	Gross Dth	Installation Rate	Demand (kW) Realization Rate	Energy (kWh) Realization Rate	Energy (Dth) Realization Rate	Verified Gross Gen kW	Verified Gross Gen kWh	Verified Gross Dth	Elec Demand NTG	Elec Energy NTG	Gas NTG	Verified Net Gen kW	Verified Net Gen kWh	Verified Net Dth
Business Program																					
Commercial Refrigeration	Prescriptive and Custom	1,515	1,308	6.5%	1,399	6,323,786	6,763,407	3,842	100.0%	100.0%	100.0%	100.0%	1,399	6,763,407	3,842	100.0%	100.0%	100.0%	1,399	6,763,482	3,842
Compressed Air Efficiency	Prescriptive	177	155	6.5%	166	718,617	768,574	N/A	100.0%	103.0%	105.1%	N/A	171	807,772	N/A	73.0%	73.0%	N/A	125	589,684	N/A
	Studies & Custom	512	391	6.5%	418	2,403,463	2,570,549	N/A	100.0%	100.0%	100.0%	N/A	418	2,570,549	N/A	87.0%	87.0%	N/A	364	2,236,389	N/A
Computer Efficiency	Prescriptive	476	349	6.5%	374	3,736,454	3,996,207	N/A	100.0%	100.0%	100.0%	N/A	374	3,996,207	N/A	87.7%	85.8%	N/A	328	3,428,263	N/A
Cooling	Prescriptive	3,025	3,010	6.5%	3,220	8,854,329	9,469,871	N/A	100.0%	100.5%	100.1%	N/A	3,236	9,479,340	N/A	91.9%	91.9%	N/A	2,433	8,708,925	N/A
	Other Prescriptive	885	742	6.5%	793	1,451,221	1,552,108	N/A	100.0%	100.5%	100.1%	N/A	798	1,553,820	N/A	88.8%	88.2%	N/A	709	1,371,169	N/A
	Custom	256	208	6.5%	222	1,250,784	1,337,737	N/A	100.0%	100.0%	100.0%	N/A	222	1,337,737	N/A	87.0%	87.0%	N/A	193	1,163,831	N/A
Custom Efficiency	Custom	352	195	6.5%	208	1,432,997	1,532,617	9,523	100.0%	100.0%	100.0%	100.0%	208	1,532,617	9,523	87.0%	87.0%	87.0%	181	1,333,399	8,285
Data Center Efficiency	Prescriptive and Custom	183	183	6.5%	196	1,546,034	1,653,512	N/A	100.0%	104.1%	104.0%	N/A	204	1,719,653	N/A	100.0%	100.0%	N/A	847	6,002,025	N/A
Energy Management Systems	Custom	710	30	6.5%	32	6,012,935	6,430,947	9,010	100.0%	100.0%	100.0%	100.0%	32	6,430,947	9,010	87.0%	87.5%	90.0%	28	5,628,760	8,109
Heating Efficiency	Prescriptive	N/A	N/A	6.5%	N/A	N/A	N/A	18,660	100.0%	N/A	N/A	100.1%	N/A	N/A	18,678	N/A	N/A	86.0%	8	29,786	16,063
LED Street Lighting		1,627	0	6.5%	0	6,751,772	7,221,147	N/A	100.0%	100.0%	100.0%	N/A	0	7,221,147	N/A	100.0%	100.0%	N/A	0	6,499,032	0
Lighting Efficiency	Prescriptive & Custom	25,614	17,277	6.5%	18,478	116,020,495	124,086,091	N/A	100.0%	100.0%	100.0%	N/A	18,478	124,092,425	N/A	99.2%	99.2%	N/A	18,099	121,727,021	N/A
Lighting - Small Business	Prescriptive	10,024	6,420	6.5%	6,866	36,789,765	39,347,342	8,325	100.0%	87.0%	93.9%	100.0%	7,897	39,182,630	8,325	93.5%	92.0%	100.0%	6,307	36,150,372	7,529
Motor & Drive Efficiency	Prescriptive and Custom	1,212	993	6.5%	1,062	5,844,656	6,250,969	N/A	100.0%	100.0%	100.1%	N/A	1,062	6,254,866	N/A	65.0%	65.0%	N/A	1,879	11,552,197	N/A
Mutifamily Building Pilot		1,933	163	6.5%	174	1,884,519	2,015,528	14,094	100.0%	100.0%	100.0%	100.0%	174	2,015,528	14,094	100.0%	100.0%	100.0%	174	2,015,528	14,094
New Construction	Energy Efficient Buildings	2,122	1,784	6.5%	1,907	7,114,422	7,609,007	39,082	100.0%	100.0%	100.0%	100.0%	1,907	7,609,007	39,082	95.0%	95.0%	97.0%	1,812	7,228,772	37,910
	Energy Design Assistance	6,091	5,626	6.5%	6,018	23,825,092	25,481,382	42,612	100.0%	99.4%	99.8%	100.0%	5,982	25,430,419	42,612	94.1%	94.1%	99.0%	5,629	23,930,460	42,186
Process Efficiency	Prescriptive and Custom	3,656	1,135	6.5%	1,214	9,201,398	9,841,067	N/A	100.0%	100.0%	100.0%	N/A	1,214	9,841,067	N/A	90.0%	90.0%	N/A	1,093	8,857,219	N/A
Recommissioning	Custom	422	306	6.5%	327	1,201,333	1,284,848	2,896	100.0%	100.0%	100.0%	100.0%	327	1,284,848	2,896	90.0%	90.0%	90.0%	294	1,156,436	2,607
Self Direct	Custom	1,397	1,123	6.5%	1,201	10,398,682	11,121,585	N/A	100.0%	100.0%	100.0%	N/A	1,201	11,121,585	N/A	91.0%	91.0%	N/A	1,093	10,120,786	N/A
Business Program Total		**62,189**	**41,397**	**6.5%**	**44,275**	**252,762,754**	**270,334,496**	**148,045**	**100.0%**	**98.0%**	**99.1%**	**100.0%**	**45,304**	**270,245,572**	**148,064**	**94.9%**	**98.6%**	**95.0%**	**42,994**	**266,493,539**	**140,626**

Table 22b: Business Segment Installation Rates, Realization Rates, and Final Net, Verified Savings by Program Component (Jan. – Feb. 2017)

2017 Products	End-Use/Measure Type	Gross Customer kW	Peak Coincident Customer kW	LL	Gross Peak Gen kW	Customer kWh	Gross Gen kWh	Gross Dth	Installation Rate	Demand (kW) Realization Rate	Energy (kWh) Realization Rate	Energy (Dth) Realization Rate	Verified Gross Gen kW	Verified Gross Gen kWh	Verified Gross Dth	Elec Demand NTG	Elec Energy NTG	Gas NTG	Verified Net Gen kW	Verified Net Gen kWh	Verified Net Dth
Business Program																					
Commercial Refrigeration	Prescriptive and Custom	86	79	6.51%	85	654,953	700,559	19	100.0%	100.0%	100.0%	100.0%	85	700,559	19	100.0%	100.0%	100.0%	85	700,559	19
Compressed Air Efficiency	Prescriptive	26	23	6.51%	25	119,768	128,108	N/A	100.0%	103.00%	105.10%	N/A	25	134,641	N/A	73.00%	73.00%	N/A	19	98,288	N/A
	Studies & Custom	36	28	6.51%	30	118,424	126,670	N/A	100.0%	100.00%	100.00%	N/A	30	126,670	N/A	87.00%	87.00%	N/A	26	110,203	N/A
Computer Efficiency	Prescriptive	146	146	6.51%	156	1,155,928	1,236,419	N/A	100.0%	100.00%	100.00%	N/A	156	1,236,419	N/A	88.00%	88.00%	N/A	138	1,088,049	N/A
Cooling	Air-Cooled Equipment	151	135	6.51%	145	376,940	403,188	N/A	100.0%	100.50%	100.10%	N/A	146	403,591	N/A	89.00%	89.00%	N/A	130	359,196	N/A
	Other Prescriptive	869	727	6.51%	777	1,393,042	1,490,044	N/A	100.0%	100.50%	100.10%	N/A	781	1,491,534	N/A	80.00%	80.00%	N/A	693	1,308,884	N/A
Custom Efficiency	Custom	58	8	6.51%	8	226,004	241,741	0	100.0%	100.00%	100.00%	100.0%	8	241,741	0	87.0%	87.0%	93.0%	7	210,315	0
Data Center Efficiency	Study-Driven	50	50	6.51%	53	417,072	446,114	N/A	100.0%	104.10%	104.00%	N/A	55	463,959	N/A	100.0%	100.0%	N/A	55	463,959	N/A
	Non-Study Driven	536	415	6.51%	443	1,811,270	1,937,394	N/A	100.0%	100.0%	100.0%	N/A	443	1,937,394	N/A	87.0%	87.0%	N/A	386	1,685,533	N/A
	Other Prescriptive	3	2	6.51%	2	10,138	10,844	N/A	100.0%	104.10%	104.00%	N/A	2	11,278	N/A	99.0%	99.0%	N/A	2	11,165	N/A
Energy Feedback Business		0	0	6.51%	0	0	0	0	100.0%	100.0%	100.0%	N/A	0	0	N/A	100.0%	100.0%	N/A	0	0	N/A
Energy Management Systems	EIS	216	3	6.51%	3	1,871,418	2,001,731	2,917	100.0%	100.0%	100.0%	100.0%	3	2,001,731	2,917	87.0%	87.0%	90.0%	3	1,741,506	2,625
Heating Efficiency	Prescriptive	N/A	N/A	N/A	N/A	N/A	N/A	3,943	100.0%	N/A	N/A	100.1%	N/A	N/A	3,947	100.0%	100.0%	86.0%	N/A	N/A	3,394
LED Street Lights		0	0	6.51%	0	0	0	0	100.0%	100.0%	100.0%	N/A	0	0	N/A	100.0%	100.0%	N/A	0	0	N/A
Lighting Efficiency	Prescriptive & Custom	4,605	2,482	6.51%	2,655	14,179,703	15,167,080	N/A	100.0%	100.0%	100.0%	N/A	2,655	15,173,415	N/A	99.2%	99.2%	N/A	2,634	15,045,743	N/A
Lighting - Small Business	Prescriptive	2,425	1,399	6.51%	2,594	7,138,395	7,635,464	368	100.0%	99.00%	99.50%	100.0%	2,568	7,597,286	368	100.0%	100.0%	100.0%	1,480.96	7,597,286	368
	Direct Install	93	39	6.51%	41	192,584	205,994	N/A	100.0%	100.0%	100.0%	N/A	41	205,994	N/A	100.0%	100.0%	N/A	41.31	205,994	N/A
	Custom	584	416	6.51%	445	1,843,078	1,971,417	N/A	100.0%	100.0%	100.0%	N/A	445	1,971,417	N/A	96.0%	96.0%	N/A	427.51	1,892,561	N/A
Motor & Drive Efficiency	Prescriptive & Custom	803	626	6.51%	670	3,643,602	3,897,317	N/A	100.0%	100.0%	100.1%	N/A	670	3,901,215	N/A	65.0%	65.0%	N/A	435	2,535,790	N/A
Mutifamily Buildings Pilot		0	0	6.51%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
New Construction	Energy Efficient Buildings	529	463	6.51%	495	1,978,116	2,115,858	1,735	100.0%	100.0%	100.0%	100.0%	495	2,115,858	1,735	95.0%	95.0%	97.0%	471	2,010,065	1,683
	Energy Design Assistance	1,174	1,089	6.51%	1,165	4,054,791	4,337,139	4,768	100.0%	99.4%	99.8%	100.0%	1,158	4,328,464	4,768	94.1%	94.1%	99.0%	1,090	4,073,085	4,720
Process Efficiency	Prescriptive and Custom	478	373	6.51%	399	2,506,712	2,681,262	N/A	100.0%	100.0%	100.0%	N/A	399	2,681,262	N/A	90.0%	90.0%	N/A	359	2,413,136	N/A
Recommissioning	Custom	181	97	6.51%	103	709,889	759,321	0	100.0%	100.0%	100.0%	100.0%	103	759,321	0	90.0%	90.0%	90.0%	93	683,389	0
Self Direct	Custom	178	178	6.51%	191	1,384,012	1,480,385	N/A	100.0%	100.0%	100.0%	N/A	191	1,480,385	N/A	91.0%	91.0%	N/A	174	1,347,150	N/A
Business Program Total		**13,227**	**8,778**	**6.50%**	**10,487**	**45,785,839**	**48,974,050**	**13,749**	**100.0%**	**99.8%**	**100.0%**	**100.0%**	**10,462**	**48,964,136**	**13,753**	**83.6%**	**93.1%**	**93.1%**	**8,748**	**45,581,855**	**12,809**

Table 22c: Business Segment Installation Rates, Realization Rates, and Final Net, Verified Savings by Program Component (Mar. – Dec. 2017)

2017 Products	End-Use/Measure Type	Gross Customer kW	Peak Coincident Customer kW	LL	Gross Peak Gen kW	Customer kWh	Gross Gen kWh	Gross Dth	Installation Rate	Demand (kW) Realization Rate	Energy (kWh) Realization Rate	Energy (Dth) Realization Rate	Verified Gross Gen kW	Verified Gross Gen kWh	Verified Gross Dth	Elec Demand NTG	Elec Energy NTG	Gas NTG	Verified Net Gen kW	Verified Net Gen kWh	Verified Net Dth
Business Program																					
Commercial Refrigeration	Prescriptive & Custom	1,429	1,228	6.50%	1,314	5,668,833	6,062,923	3,823	100.0%	100.0%	100.0%	100.0%	1,313.7	6,062,923	3,823	100.0%	100.0%	100.0%	1,314	6,062,923	3,823
Compressed Air Efficiency	Prescriptive	151	132	6.50%	141	598,849	640,480	N/A	100.0%	103.0%	105.1%	N/A	146	673,145	N/A	73.00%	73.00%	N/A	106	491,396	N/A
	Studies & Custom	476	363	6.50%	388	2,285,039	2,443,892	N/A	100.0%	100.0%	100.0%	N/A	388	2,443,892	N/A	87.00%	87.00%	N/A	338	2,126,186	N/A
Computer Efficiency	Prescriptive	330	203	6.50%	217	2,580,526	2,759,921	N/A	100.0%	100.0%	100.0%	N/A	217	2,759,921	N/A	87.5%	84.8%	N/A	190	2,340,215	N/A
Cooling	Prescriptive	2,875	2,329	6.50%	3,075	8,477,389	9,066,726	N/A	100.0%	100.5%	100.1%	N/A	3,090	9,075,793	N/A	92.0%	92.0%	N/A	2,303	8,349,729	N/A
	MSHP, Anti-Sweat & ECM	16	15	6.50%	17	58,179.00	62,224	N/A	100.0%	100.5%	100.1%	N/A	17	62,286	N/A	100.00%	100.00%	N/A	16	62,286	N/A
	Custom	256	208	6.50%	222	1,250,784	1,337,737	N/A	100.0%	100.0%	100.0%	N/A	222	1,337,737	N/A	87.0%	87.0%	N/A	193	1,163,831	N/A
Custom Efficiency	Custom	294	187	6.50%	200	1,206,993	1,290,902	9,523	100.0%	100.0%	100.0%	100.0%	200	1,290,902	9,523	87.0%	87.0%	87.0%	174	1,123,084	8,285
Data Center Efficiency	Prescriptive	134	133	6.50%	143	1,128,962	1,207,446	N/A	100.0%	104.1%	104.0%	N/A	148	1,255,744	N/A	100.0%	100.0%	N/A	148	1,255,332	N/A
	Custom	332	274	6.50%	293	2,779,247	2,972,457	N/A	100.0%	100.0%	100.0%	N/A	293	2,972,457	N/A	87.0%	87.0%	N/A	255	2,586,037	N/A
Energy Management Systems		493	27	6.50%	29	4,141,517	4,429,430	6,094	100.0%	100.0%	100.0%	100.0%	29	4,429,430	6,094	87.0%	87.8%	90.0%	25	3,887,254	5,484
Heating Efficiency	Prescriptive	5	7	6.50%	8	27,850	29,786	14,717	100.0%	100.0%	100.0%	100.1%	8	29,786	14,732	100.0%	100.0%	86.0%	8	29,786	12,669
LED Street Lights		1,627	0	6.50%	0	6,751,772	7,221,147	N/A	100.0%	100.0%	100.0%	N/A	0	7,221,147	N/A	90.0%	90.0%	N/A	0	6,499,032	N/A
Lighting Efficiency	Prescriptive & Custom	21,009	14,795	6.50%	15,823	101,840,792	108,920,633	N/A	100.0%	100.0%	100.0%	N/A	15,823	108,920,633	N/A	99.2%	99.2%	N/A	15,466	106,681,278	N/A
Lighting - Small Business	Prescriptive & Custom	6,922	4,567	6.50%	4,884	27,615,708	29,535,517	7,957	100.0%	99.1%	99.6%	100.0%	4,842	29,407,932	7,957	90.0%	90.0%	90.0%	4,357	26,454,531	7,161
Motor & Drive Efficiency	Enhanced Motors	0.178	0.137	6.50%	0	457	489	N/A	100.0%	100.0%	100.1%	N/A	0	489	N/A	65.0%	65.0%	N/A	0.095	318	N/A
	Prescriptive	2,194	1,710.046	6.50%	1,829	10,757,487	11,505,334	N/A	100.0%	100.0%	100.1%	N/A	1,829	11,516,839	N/A	65.0%	65.0%	N/A	1,189	7,485,945	N/A
	Custom	409	367	6.50%	393	2,201,054	2,354,068	N/A	100.0%	100.0%	100.0%	N/A	393	2,354,068	N/A	65.0%	65.0%	N/A	255.26	1,530,144	N/A
Multifamily Buildings	Prescriptive and Custom	1,933	163	6.50%	174	1,884,519	2,015,528	14,094	100.0%	100.0%	100.0%	100.0%	174	2,015,528	14,094	100.0%	100.0%	100.0%	174.33	2,015,528	14,094
New Construction	Energy Efficient Buildings	1,592	1,320	6.50%	1,412	5,136,306	5,493,375	37,348	100.0%	100.0%	100.0%	100.0%	1,412	5,493,375	37,348	95.0%	95.0%	97.0%	1,342	5,218,707	36,227
	Energy Design Assistance	4,917	4,537	6.50%	4,852	19,770,301	21,144,707	37,844	100.0%	99.4%	99.8%	100.0%	4,823	21,102,418	37,844	94.1%	94.1%	99.0%	4,539	19,857,375	37,466
Process Efficiency	Prescriptive & Custom	3,178	762	6.50%	815	6,694,686	7,160,092	N/A	100.0%	100.0%	100.0%	N/A	815	7,160,092	N/A	90.0%	90.0%	N/A	733	6,444,083	N/A
Recommissioning	Custom	240	209	6.50%	224	491,444	525,609	2,896	100.0%	100.0%	100.0%	100.0%	224	525,609	2,896	90.0%	90.0%	90.0%	201	473,048	2,607
Self Direct	Custom	1,219	945	6.50%	1,010	9,014,670	9,641,358	N/A	100.0%	100.0%	100.0%	N/A	1,010	9,641,358	N/A	91.0%	91.0%	N/A	920	8,773,636	N/A
Business Program Total		**52,032**	**34,482**	**6.50%**	**37,464**	**222,363,364**	**237,821,780**	**134,297**	**100.0%**	**99.9%**	**100.0%**	**100.0%**	**37,419**	**237,753,503**	**134,311**	**91.5%**	**92.9%**	**95.2%**	**34,247**	**220,911,683**	**127,817**

Table 23a: Residential Segment and Low-Income Segment Installation Rates, Realization Rates, and Final Net, Verified Savings by Program Component (Full Year)

2017 Products	End-Use/Measure Type	Gross Customer kW	Peak Coincident Customer kW	LL	Gross Peak Gen kW	Customer kWh	Gross Gen kWh	Gross Dth	Installation Rate	Demand (kW) Realization Rate	Energy (kWh) Realization Rate	Energy (Dth) Realization Rate	Verified Gross Gen kW	Verified Gross Gen kWh	Verified Gross Dth	Elec Demand NTG	Elec Energy NTG	Gas NTG	Verified Net Gen kW	Verified Net Gen kWh	Verified Net Dth
Residential Program																					
Energy Efficient Showerheads	Showerhead	118	83	7.7%	90	964,941	1,045,440	67,611	75.2%	100.0%	100.0%	100.0%	68	785,941	50,829	99.0%	99.0%	99.0%	67	762,131	49,538
	Kitchen Aerator	5	7	7.7%	8	51,156	55,424	3,398	27.3%	100.0%	100.0%	100.0%	2	15,131	928	99.0%	99.0%	99.0%	2	14,978	918
	Bath Aerator	10	14	7.7%	15	89,244	96,689	7,552	35.9%	100.0%	100.0%	100.0%	5	34,726	2,712	99.0%	99.0%	99.0%	5	34,372	2,684
Energy Feedback Residential		0	4,990	7.7%	5,407	19,027,024	20,614,327	54,543	100.0%	100.0%	100.0%	100.0%	5,407	20,614,327	70,854	100.0%	100.0%	100.0%	5,406	20,612,094	70,854
ENERGY STAR New Homes		3,271	1,438	7.7%	1,558	4,839,080	5,242,774	116,688	100.0%	100.0%	100.0%	100.0%	1,558	5,242,774	116,688	92.0%	92.0%	92.0%	1,433	4,822,829	107,353
Evaporative Cooling		9,367	6,556	7.7%	7,103	4,582,683	4,964,987	N/A	100.0%	100.0%	100.0%	N/A	7,103	4,964,987	N/A	69.1%	68.9%	N/A	4,905	3,419,956	N/A
High Efficiency Air Conditioning	AC, ASHP	7,272	6,646	7.7%	7,201	5,200,202	5,634,022	N/A	100.0%	97.6%	98.2%	N/A	7,029	5,532,609	N/A	67.6%	67.6%	N/A	4,751	3,739,639	N/A
	GSHP	85	67	7.7%	73	73,674	79,820	N/A	100.0%	100.0%	100.0%	N/A	73	79,820	N/A	100.0%	100.0%	N/A	73	79,812	N/A
Home Energy Squad		1,005	154	7.7%	167	937,677	1,015,901	6,316	100.0%	100.0%	100.0%	100.0%	167	1,015,901	6,316	100.0%	100.0%	100.0%	167	1,015,791	6,316
Home Lighting & Recycling	All	83,858	9,688	7.7%	10,497	90,687,537	98,253,019	N/A	99.0%	99.5%	99.9%	N/A	10,340	97,173,219	N/A	79.0%	79.0%	N/A	9,136	86,310,620	N/A
Home Performance w/ ENERGY STAR		270	199	7.7%	216	165,713	179,537	10,288	100.0%	100.0%	100.0%	100.0%	216	179,537	10,288	116.0%	116.0%	116.0%	250	208,241	11,934
Insulation & Air Sealing		539	438	7.7%	475	292,158	316,531	27,207	100.0%	98.8%	93.2%	96.1%	469	295,007	26,157	89.0%	89.0%	89.0%	417	262,528	23,270
Refrigerator & Freezer Recycling		1,018	638	7.7%	691	5,592,510	6,059,057	N/A	100.0%	100.0%	100.0%	N/A	691	6,059,057	N/A	57.8%	57.8%	N/A	400	3,501,380	N/A
Residential Heating		1,517	1,061	7.7%	1,150	5,693,041	6,167,975	81,314	100.0%	100.2%	99.5%	100.0%	1,152	6,137,135	81,314	94.0%	94.0%	77.0%	1,083	5,768,282	62,612
School Education Kits	Lightbulb	8,495	676	7.7%	733	7,684,422	8,325,484	N/A	92.7%	100.0%	100.0%	N/A	679	7,717,376	N/A	100.0%	100.0%	N/A	679	7,717,376	N/A
	Showerhead	146	93	7.7%	101	1,278,354	1,384,999	72,436	73.0%	100.0%	100.0%	100.0%	73	1,011,049	52,878	100.0%	100.0%	100.0%	73	1,010,940	52,878
	Kitchen Aerator	16	20	7.7%	22	143,692	155,679	8,142	66.0%	100.0%	100.0%	100.0%	14	102,748	5,374	100.0%	100.0%	100.0%	14	102,737	5,374
	Bathroom Aerator	19	24	7.7%	26	167,874	181,879	9,512	68.9%	100.0%	100.0%	100.0%	18	125,314	6,554	100.0%	100.0%	100.0%	18	125,301	6,554
Water Heating		18	18	7.7%	19	120,848	130,930	5,876	100.0%	100.0%	100.0%	100.2%	19	130,930	5,891	100.0%	100.0%	90.0%	19	130,915	5,299
Residential Program Total		**117,028**	**32,812**	**7.7%**	**35,549**	**147,591,830**	**159,904,475**	**470,883**	**99.3%**	**99.4%**	**99.8%**	**99.8%**	**35,083**	**157,217,589**	**436,782**	**82.4%**	**88.8%**	**92.9%**	**28,899**	**139,639,920**	**405,584**
Low-Income Program																					
Energy Savings Kits	CFL	1,343	107	7.7%	116	1,220,160	1,321,950	N/A	66.6%	100.0%	100.0%	N/A	77	880,419	N/A	100.0%	100.0%	N/A	77	880,323	N/A
	Showerhead	46	29	7.7%	31	397,196	430,332	11,081	64.3%	100.0%	100.0%	100.0%	20	276,703	7,125	100.0%	100.0%	100.0%	20	276,673	7,125
	Kitchen Aerator	5	6	7.7%	7	45,268	49,044	1,129	54.7%	100.0%	100.0%	100.0%	4	26,827	618	100.0%	100.0%	100.0%	4	26,824	618
	Bathroom Aerator	6	8	7.7%	9	51,700	56,013	1,599	58.1%	100.0%	100.0%	100.0%	5	32,544	929	100.0%	100.0%	100.0%	5	32,540	929
Multifamily Weatherization		698	293	7.7%	318	1,872,179	2,028,363	10,716	100.0%	100.0%	100.0%	100.0%	318	2,028,363	10,716	100.0%	100.0%	100.0%	318	2,028,143	14,373
Non-Profit		603	398	7.7%	431	1,757,573	1,904,196	3,700	100.0%	100.0%	100.0%	100.0%	431	1,904,196	3,700	100.0%	100.0%	100.0%	426	1,879,757	5,380
Single-Family Weatherization		1,319	113	7.7%	122	1,397,724	1,514,327	43,552	100.0%	100.0%	100.0%	100.0%	122	1,514,327	52,107	100.0%	100.0%	100.0%	122	1,514,163	52,107
Low-Income Program Total		**4,019**	**954**	**7.7%**	**1,034**	**6,741,800**	**7,304,225**	**71,775**	**94.5%**	**100.0%**	**100.0%**	**100.0%**	**977**	**6,663,379**	**75,193**	**99.4%**	**99.6%**	**107.1%**	**972**	**6,638,425**	**80,531**

Table 23b: Residential Segment and Low-Income Segment Installation Rates, Realization Rates, and Final Net, Verified Savings by Program Component (Jan. – Feb. 2017)

2017 Products	End-Use/Measure Type	Gross Customer kW	Peak Coincident Customer kW	LL	Gross Peak Gen kW	Customer kWh	Gross Gen kWh	Gross Dth	Installation Rate	Demand (kW) Realization Rate	Energy (kWh) Realization Rate	Energy (Dth) Realization Rate	Verified Gross Gen kW	Verified Gross Gen kWh	Verified Gross Dth	Elec Demand NTG	Elec Energy NTG	Gas NTG	Verified Net Gen kW	Verified Net Gen kWh	Verified Net Dth
Residential Program																					
Energy Efficient Showerhead	Showerhead	0	0	7.69%	0	0	0	0	75.2%	100.0%	100.0%	100.0%	0	0	0	99.0%	99.0%	99.0%	0	0	0
	Kitchen Aerator	0	0	7.69%	0	0	0	0	27.3%	100.0%	100.0%	100.0%	0	0	0	99.0%	99.0%	99.0%	0	0	0
	Bath Aerator	0	0	7.69%	0	0	0	0	35.9%	100.0%	100.0%	100.0%	0	0	0	99.0%	99.0%	99.0%	0	0	0
Energy Feedback Residential		0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
ENERGY STAR New Homes		474	194	7.69%	210	565,172	612,254	15,163	100.0%	100.0%	100.0%	100.0%	210	612,254	15,163	92.0%	92.0%	92.0%	193	563,274	13,950
Evaporative Cooling		853	597	7.69%	647	539,132	584,045	N/A	100.0%	100.0%	100.0%	N/A	647	584,045	N/A	67.8%	67.5%	N/A	439	394,115	N/A
High Efficiency Air Conditioning	AC, ASHP	1,311	1,229	7.69%	1,332	916,885	993,267	N/A	100.0%	97.6%	98.2%	N/A	1,300	975,388	N/A	67.6%	67.6%	N/A	879	659,363	N/A
	GSHP	0	0	7.69%	0	0	0	N/A	100.0%	97.6%	98.2%	N/A	0	0	N/A	100.0%	100.0%	N/A	0	0	N/A
Home Energy Squad		0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
Home Lighting & Recycling	Residential CFLs	13,984	1,119	7.69%	1,212	11,942,325	12,937,195	N/A	99.0%	99.5%	99.9%	N/A	1,194	12,795,015	N/A	79.0%	79.0%	N/A	943	10,108,062	N/A
	Small Business CFLs	888	643	6.51%	688	2,135,608	2,284,317	N/A	99.0%	99.5%	99.9%	N/A	678	2,259,212	N/A	79.0%	79.0%	N/A	535	1,784,777	N/A
	Residential LEDs	21,433	1,715	7.69%	1,857	19,482,343	21,105,344	N/A	99.0%	99.5%	99.9%	N/A	1,830	20,873,397	N/A	91.0%	91.0%	N/A	1,665	18,994,791	N/A
	Small Business LEDs	1,343	973	6.51%	1,041	3,290,563	3,519,696	N/A	99.0%	99.5%	99.9%	N/A	1,025	3,481,014	N/A	91.0%	91.0%	N/A	933	3,167,723	N/A
	Res Non-ENERGY STAR LEDs	64	5	7.69%	6	58,103	62,944	N/A	99.0%	99.5%	99.9%	N/A	5	62,252	N/A	85.0%	85.0%	N/A	5	52,914	N/A
	SB Non-ENERGY STAR LEDs	4	3	6.51%	3	9,998	10,694	N/A	99.0%	99.5%	99.9%	N/A	3	10,577	N/A	85.0%	85.0%	N/A	3	8,990	N/A
Home Performance w/ ENERGY STAR		52	36	7.69%	39	37,211	40,311	2,283	100.0%	100.0%	100.0%	100.0%	39	40,311	2,283	116.0%	116.0%	116.0%	46	46,761	2,647.93
Insulation & Air Sealing		99	60	7.69%	65	72,967	79,046	5,142	100.0%	98.8%	93.2%	96.1%	64	73,671	4,941	89.0%	89.0%	89.0%	56.78	65,567	4,398
Refrigerator & Freezer Recycling		0	0	7.69%	0	0	0	N/A	100.0%	100.0%	100.0%	N/A	0	0	N/A	60.0%	60.0%	N/A	0	0	N/A
Residential Heating		385	240	7.69%	260	1,190,852	1,290,057	8,791	100.0%	100.2%	99.5%	100.0%	260	1,283,607	8,791	94.0%	94.0%	77.0%	245	1,206,591	6,769
School Education Kits	13W CFL	0	0	7.69%	0	0	0	N/A	100.0%	100.0%	100.0%	N/A	0	0	N/A	100.0%	100.0%	N/A	0	0	N/A
	18W CFL	0	0	7.69%	0	0	0	N/A	100.0%	100.0%	100.0%	N/A	0	0	N/A	100.0%	100.0%	N/A	0	0	N/A
	LED	0	0	7.69%	0	0	0	N/A	100.0%	100.0%	100.0%	N/A	0	0	N/A	100.0%	100.0%	N/A	0	0	N/A
	Showerhead	0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
	Kitchen Aerator	0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
	Bathroom Aerator	0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
Water Heating		7	7	7.69%	7	49,336	53,446	1,068	100.0%	100.0%	100.0%	100.2%	7	53,446	1,070	100.0%	100.0%	90.0%	7	53,446	963
Residential Program Total		**40,897**	**6,821**	**7.69%**	**7,367**	**40,290,496**	**43,572,616**	**32,447**	**99.3%**	**99.2%**	**99.8%**	**99.4%**	**7,263**	**43,104,189**	**32,248**	**81.9%**	**86.1%**	**89.1%**	**5,949**	**37,106,374**	**28,728**
Low-Income Program																					
Energy Savings Kits	CFL	0	0	7.69%	0	0	0	N/A	100.0%	100.0%	100.0%	N/A	0	0	N/A	100.0%	100.0%	N/A	0	0	N/A
	Showerhead	0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
	1.5 gpm Aerator	0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
	1.0 gpm Aerator	0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
Multifamily Weatherization		0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
Non-Profit		0	0	6.51%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
Single-Family Weatherization		0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
Low-Income Program Total		**0**	**0**	**7.69%**	**0**	**0**	**0**	**0**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**0**	**0**	**0**	**100.0%**	**100.0%**	**100.0%**	**0**	**0**	**0**

Table 23c: Residential Segment and Low-Income Segment Installation Rates, Realization Rates, and Final Net, Verified Savings by Program Component (Mar. – Dec. 2017)

2017 Products	End-Use/Measure Type	Gross Customer kW	Peak Coincident Customer kW	LL	Gross Peak Gen kW	Customer kWh	Gross Gen kWh	Gross Dth	Installation Rate	Demand (kW) Realization Rate	Energy (kWh) Realization Rate	Energy (Dth) Realization Rate	Verified Gross Gen kW	Verified Gross Gen kWh	Verified Gross Dth	Elec Demand NTG	Elec Energy NTG	Gas NTG	Verified Net Gen kW	Verified Net Gen kWh	Verified Net Dth
Residential Program																					
Energy Efficient Showerhead	Showerhead	118	83	7.69%	90	964,941	1,045,327	67,611	75.2%	100.0%	100.0%	100.0%	68	785,855	50,829	99.0%	99.0%	99.0%	67.223	762,131	49,538
	Kitchen Aerator	5	7	7.69%	8	51,156	55,418	3,398	27.3%	100.0%	100.0%	100.0%	2	15,129	928	99.0%	99.0%	99.0%	2.176	14,978	918
	Bath Aerator	10	14	7.69%	15	89,244	96,679	7,552	35.9%	100.0%	100.0%	100.0%	5	34,723	2,712	99.0%	99.0%	99.0%	5.432	34,372	2,684
Energy Feedback Residential		0	4,990	7.69%	5,406	19,027,024	20,612,094	70,854	100.0%	100.0%	100.0%	100.0%	5,406	20,612,094	70,854	100.0%	100.0%	100.0%	5,406	20,612,094	70,854
ENERGY STAR New Homes		2,797	1,244	7.69%	1,348	4,273,908	4,629,951	101,524	100.0%	100.0%	100.0%	100.0%	1,348	4,629,951	101,524	92.0%	92.0%	92.0%	1,240	4,259,555	93,402
Evaporative Cooling		8,514	5,959	7.69%	6,455	4,043,551	4,380,404	N/A	100.0%	100.0%	100.0%	N/A	6,455	4,380,404	N/A	69.2%	69.1%	N/A	4,466	3,025,840	N/A
High Efficiency Air Conditioning	AC, ASHP	5,961	5,417	7.69%	5,868	4,283,317	4,640,144	N/A	100.0%	97.6%	98.2%	N/A	5,729	4,556,621	N/A	67.6%	67.6%	N/A	3,873	3,080,276	N/A
	GSHP	85	67	7.69%	73	73,674	79,812	N/A	100.0%	100.0%	100.0%	N/A	73	79,812	N/A	100.0%	100.0%	N/A	73	79,812	N/A
Home Energy Squad		1,005	154	7.69%	167	937,677	1,015,791	6,316	100.0%	100.0%	100.0%	100.0%	167	1,015,791	6,316	100.0%	100.0%	100.0%	167	1,015,791	6,316
Home Lighting & Recycling	Residential CFLs	339	27	7.69%	29	289,470	313,584	N/A	99.0%	99.5%	99.9%	N/A	29	310,138	N/A	79.0%	79.0%	N/A	23	245,009	N/A
	Small Business CFLs	22	14	6.50%	15	112,224	120,025	N/A	99.0%	99.5%	99.9%	N/A	14	118,706	N/A	79.0%	79.0%	N/A	11	93,778	N/A
	Residential LEDs	43,035	3,443	7.69%	3,730	39,118,698	42,377,530	N/A	99.0%	99.5%	99.9%	N/A	3,674	41,911,801	N/A	91.0%	91.0%	N/A	3,343	38,139,739	N/A
	Small Business LEDs	2,747	1,747	6.50%	1,868	14,248,205	15,238,722	N/A	99.0%	99.5%	99.9%	N/A	1,841	15,071,248	N/A	91.0%	91.0%	N/A	1,675	13,714,836	N/A
Home Performance w/ ENERGY STAR		218.28	163	7.69%	176	128,502	139,207	8,005	100.0%	100.0%	100.0%	100.0%	176	139,207	8,005	116.0%	116.0%	116.0%	204.54	161,480	9,286.26
Insulation & Air Sealing		439	379	7.69%	410	219,191	237,451	22,065	100.0%	98.8%	93.2%	96.1%	405	221,304	21,204	89.0%	89.0%	89.0%	360.66	196,961	18,872
Refrigerator & Freezer Recycling		1,018	638	7.69%	691	5,592,510	6,058,401	N/A	100.0%	100.0%	100.0%	N/A	691	6,058,401	N/A	57.8%	57.8%	N/A	400	3,501,380	N/A
Residential Heating		1,132	821	7.69%	889	4,502,189	4,877,249	72,523	100.0%	100.2%	99.5%	100.00%	891	4,852,863	72,523	94.0%	94.0%	77.0%	838	4,561,691	55,843
School Education Kits	11W LED	3,332	267	7.69%	289	3,028,737	3,281,050	N/A	92.1%	100.0%	100.0%	N/A	266	3,021,847	N/A	100.0%	100.0%	N/A	266	3,021,847	N/A
	9W LED	5,163	410	7.69%	444	4,655,685	5,043,533	N/A	93.1%	100.0%	100.0%	N/A	413	4,695,529	N/A	100.0%	100.0%	N/A	413	4,695,529	N/A
	Showerhead	146	93	7.69%	101	1,278,354	1,384,849	72,436	73.0%	100.0%	100.0%	100.0%	73	1,010,940	52,878	100.0%	100.0%	100.0%	73	1,010,940	52,878
	Kitchen Aerator	16	20	7.69%	22	143,692	155,662	8,142	66.0%	100.0%	100.0%	100.0%	14	102,737	5,374	100.0%	100.0%	100.0%	14	102,737	5,374
	Bathroom Aerator	19	24	7.69%	26	167,874	181,859	9,512	68.9%	100.0%	100.0%	100.0%	18	125,301	6,554	100.0%	100.0%	100.0%	18	125,301	6,554
Water Heating		11	11	7.69%	11	71,512	77,469	4,809	100.0%	100.0%	100.0%	100.2%	11	77,469	4,818	100.0%	100.0%	90.0%	11	77,469	4,336
Residential Program Total		**76,131**	**25,991**	**7.69%**	**28,132**	**107,301,334**	**116,042,211**	**454,747**	**99.3%**	**99.4%**	**99.8%**	**99.8%**	**27,771**	**113,827,873**	**404,520**	**82.6%**	**90.1%**	**93.2%**	**22,950**	**102,533,546**	**376,856**
Low-Income Program																					
Energy Savings Kits	LEDs	1,343	107	7.69%	116	1,220,160	1,321,807	N/A	66.6%	100.0%	100.0%	100.0%	77	880,323	N/A	100.0%	100.0%	100.0%	77	880,323	N/A
	Showerhead	46	29	7.69%	31	397,196	430,285	11,081	64.3%	100.0%	100.0%	100.0%	20	276,673	7,125	100.0%	100.0%	100.0%	20	276,673	7,125
	Kitchen Aerator	5	6	7.69%	7	45,268	49,039	1,129	54.7%	100.0%	100.0%	100.0%	4	26,824	618	100.0%	100.0%	100.0%	4	26,824	618
	Bathroom Aerator	6	8	7.69%	9	51,700	56,007	1,599	58.1%	100.0%	100.0%	100.0%	5	32,540	929	100.0%	100.0%	100.0%	5	32,540	929
Multifamily Weatherization		698	293	7.69%	318	1,872,179	2,028,143	14,373	100.0%	100.0%	100.0%	100.0%	318	2,028,143	14,373	100.0%	100.0%	100.0%	318	2,028,143	14,373
Non-Profit		603	398	6.50%	426	1,757,573	1,879,757	5,380	100.0%	100.0%	100.0%	100.0%	426	1,879,757	5,380	100.0%	100.0%	100.0%	426	1,879,757	5,380
Single-Family Weatherization		1,319	113	7.69%	122	1,397,724	1,514,163	52,107	100.0%	100.0%	100.0%	100.0%	122	1,514,163	52,107	100.0%	100.0%	100.0%	122	1,514,163	52,107
Low-Income Program Total		**4,019**	**954**	**7.69%**	**1,028**	**6,741,800**	**7,279,201**	**85,668**	**94.5%**	**100.0%**	**100.0%**	**100.0%**	**972**	**6,638,425**	**80,531**	**100.0%**	**100.0%**	**100.0%**	**972**	**6,638,425**	**80,531**

Table 24a: Indirect Segment and Demand Response Segment Installation Rates, Realization Rates, and Final Net, Verified Savings by Program Component (Full Year)

Planning and Research																					
Building Optimization DR Pilot		0	0	6.5%	0	0	0	0													
ENERGY STAR Retail Products Platform Pilot		9,006	745	7.7%	807	3,992,833	4,325,930	284	100.0%	100.0%	100.0%	100.0%	807	4,325,930	284	100.0%	100.0%	100.0%	575	2,537,004	236
Planning and Research Total		**9,006**	**745**	**7.7%**	**807**	**3,992,833**	**4,325,930**	**284**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**807**	**4,325,930**	**284**	**100.0%**	**100.0%**	**100.0%**	**575**	**2,537,004**	**236**
Demand Response Program																					
Building Optimization DR Pilot		0	0	6.5%	0	0	0	0													
Critical Peak Pricing Pilot				6.5%															3,201	4,179	
Peak Partner Rewards				6.5%															12,543		
Residential Demand Response		20,349	7,283	7.7%	7,891	52,465	56,842	N/A	100.0%	100.0%	100.0%	N/A	7,891	56,842	N/A	100.0%	100.0%	N/A	7,890	56,836	N/A
Demand Response Program Total		**20,349**	**7,283**	**7.7%**	**7,891**	**52,465**	**56,842**	**N/A**	**100.0%**	**100.0%**	**100.0%**	**N/A**	**7,891**	**56,842**	**N/A**	**100.0%**	**100.0%**	**N/A**	**23,634**	**61,014**	**N/A**

Table 24b: Indirect Segment and Demand Response Segment Installation Rates, Realization Rates, and Final Net, Verified Savings by Program Component (Jan. – Feb. 2017)

Planning and Research																					
Building Optimization Pilot - EE		0	0	6.51%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
ENERGY STAR Retail Products Platform Pilot		0	0	7.69%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	100.0%	0	0	0
Planning and Research Total		**0**	**0**		**0**	**0**	**0**	**0**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**0**	**0**	**0**	**100.0%**	**100.0%**	**100.0%**	**0**	**0**	**0**
Demand Response Program																					
Building Optimization Pilot - DR		0	0	6.51%	0	0	0	0	100.0%	100.0%	100.0%	100.0%	0	0	0	100.0%	100.0%	N/A	0	0	N/A
Saver's Switch		586	201	7.69%	218	1,512	1,638	N/A	100.0%	100.0%	100.0%	N/A	218	1,638	N/A	100.0%	100.0%	N/A	218	1,638	N/A
Demand Response Program Total		**586**	**201**	**7.69%**	**218**	**1,512**	**1,638**	**N/A**	**100.0%**	**100.0%**	**100.0%**	**N/A**	**218**	**1,638**	**N/A**	**100.0%**	**100.0%**	**N/A**	**218**	**1,638**	**N/A**

Table 24c: Indirect Segment and Demand Response Segment Installation Rates, Realization Rates, and Final Net, Verified Savings by Program Component (Mar. – Dec. 2017)

Planning & Research																					
Building Optimization Pilot - EE		0	0	6.50%	0	0	0	N/A	100.0%	100.0%	100.0%	N/A	0	0	N/A	100.0%	100.0%	N/A	0	0	N/A
ENERGY STAR Retail Products Platform Pilot		9,006	745	7.69%	807	3,992,833	4,325,461	284	100.0%	100.0%	100.0%	100.0%	807	4,325,461	284	71.3%	58.7%	83.0%	575	2,537,004	236
Planning and Research Total		**9,006**	**745**	**7.69%**	**807**	**3,992,833**	**4,325,461**	**284**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**807**	**4,325,461**	**284**	**71.3%**	**58.7%**	**83.0%**	**575**	**2,537,004**	**236**
Demand Response Program																					
Building Optimization Pilot - DR		0	0	6.50%	0	0	0	N/A	100.0%	100.0%	100.0%	N/A	0	0	N/A	100.0%	100.0%	N/A	0	0	N/A
Critical Peak Pricing Pilot		0	0	6.50%	0	0	0	N/A	100.0%	100.0%	100.0%	N/A	0	0	N/A	100.0%	100.0%	N/A	3,201	4,179	N/A
Peak Partner Rewards																			12,543		N/A
Residential Demand Response		19,762	7,082	7.69%	7,672	50,953	55,198	N/A	100.0%	100.0%	100.0%	N/A	7,672	55,198	N/A	100.0%	100.0%	N/A	7,672	55,198	N/A
Demand Response Program Total		**19,762**	**7,082**	**7.69%**	**7,672**	**50,953**	**55,198**	**N/A**	**100.0%**	**100.0%**	**100.0%**	**N/A**	**7,672**	**55,198**	**N/A**	**100.0%**	**100.0%**	**N/A**	**23,416**	**59,376**	**N/A**

Cost-Effectiveness

Cost-effectiveness ("cost-benefit") analyses represent the ratio of a product's benefits to its costs. By varying which benefits and costs are included in the calculation, the ratio can show how beneficial a DSM portfolio, program, product, or measure might be from a number of different perspectives (the Participant, Utility, Rate Impact, or Total Resource Cost). In Colorado, the Commission calls for utilities to use the Modified Total Resource Cost ("MTRC") test for evaluating the cost-effectiveness of DSM programs. The MTRC test takes into account system and other benefits, utility and participant costs, as well as environmental adders. These analyses are performed in a multi-step process that takes into account, among other factors, the:

- Savings achieved by the program;
- Participant and utility expenditures on the product, by budget category;
- Avoided costs for the product (discussed in more detail in the next section of this report);
- Incremental O&M, and capital spending and savings, of the product; and
- Lifetime, operating hours, coincidence of savings with summer peak, net-to-gross, transmission loss factors, and realization rates for the product.

The cost-benefit analysis is first determined at the measure level; individual measures are then combined to produce the product-level MTRC, and further the program-level MTRC. All of the products in the portfolio (electric and natural gas) are then combined to create the portfolio-level cost-benefit analysis, as provided in Tables 20 and 21 below.

The Company is reporting 2017 electric and natural gas portfolio MTRC test ratio results of 1.95 and 1.61, respectively. These results are shown in Table 23 and Table 24. The portfolio results are based upon electric net economic benefits of $152.1 million and natural gas net economic benefits $21.0 million. The Company has provided the cost-effectiveness results (MTRC test ratios) for electric and natural gas products in the following tables within this report:[16]

- Business Program: Tables 14a (electric) and 14b (gas)
- Residential Program: Tables 15a (electric) and 15b (gas)
- Low-Income Program: Tables 16a (electric) and 16b (gas)
- Indirect Program: Tables 17a (electric) and 17b (gas)
- Demand Response Program: Table 20 (electric)

[16] C.R.S. 40-3.2-104(6)(d) requires that the Company submit an annual report to the Commission that estimates the cost-effectiveness and net economic benefits of DSM programs, among other documentation.

Table 25: 2017 Electric DSM Portfolio Cost-Benefit Analysis (CBA)

PORTFOLIO TOTAL						2017 ELECTRIC		ACTUAL
2017 Net Present Cost Benefit Summary Analysis For All Participants						**Input Summary and Totals**		
			Rate	Modified		**Program Inputs per Customer kW**		
	Participant Test	Utility Test	Impact Test	TRC Test		Lifetime (Weighted on Generator kWh)	A	13.4 years
	($Total)	($Total)	($Total)	($Total)		Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
						Generator Peak Coincidence Factor	D	38.25%
						Gross Load Factor at Customer	E	21.96%
Avoided Revenue Requirements						Net-to-Gross (Energy)	F	91.4%
Generation Capacity	N/A	$74,513,979	$74,513,979	$74,513,979		Net-to-Gross (Demand)	G	89.4%
Transmission & Distribution Capacity	N/A	$6,146,178	$6,146,178	$6,146,178		Transmission Loss Factor (Energy)	H	6.886%
Marginal Energy	N/A	$154,419,912	$154,419,912	$154,419,912		Transmission Loss Factor (Demand)	I	7.314%
Avoided Emissions (CO2)	N/A	N/A	N/A	$0		**Installation Rate (Energy)**	**J**	**99.2%**
Subtotal				$235,080,069		**Installation Rate (Demand)**	**K**	**99.4%**
Non-Energy Benefits Adder (10.2%)				$23,975,710		MTRC Net Benefit (Cost)	**L**	$546
Subtotal	N/A	$235,080,069	$235,080,069	$259,055,779		MTRC Non-Energy Benefit Adder	**M**	$108
						Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3669 kW
Other Benefits						Gross Annual kWh Saved at Customer	(B x E x C)	1,924 kWh
Bill Reduction - Electric	$403,651,528	N/A	N/A	N/A		Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,745 kWh
Participant Rebates and Incentives	$52,490,323	N/A	N/A	$52,490,323		Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,874 kWh
Incremental Capital Savings	$0	N/A	N/A	$0				
Incremental O&M Savings	$4,352,744	N/A	N/A	$0		**Program Summary All Participants**		
Subtotal	$460,494,595	N/A	N/A	$52,490,323		**Total Budget**	N	**$88,260,328**
						Gross kW Saved at Customer	O	221,689 kW
Total Benefits	$460,494,595	$235,080,069	$235,080,069	$311,546,102		**Net coincident kW Saved at Generator**	**(G x O x K) x D / (1 - I)**	**81,330 kW**
Costs						Gross Annual kWh Saved at Customer	(B x E x O)	426,528,131 kWh
						Gross Installed Annual kWh Saved at Customer	**(B x E x O x J)**	423,199,577 kWh
Utility Project Costs						Net Annual kWh Saved at Customer	(F x (B x E x O x J))	386,762,573 kWh
Program Planning & Design	N/A	$1,353,172	$1,353,172	$1,353,172		**Net Annual kWh Saved at Generator**	**((F x (B x E x O x J)) / (1 - H))**	**415,365,723 kWh**
Administration & Program Delivery	N/A	$27,352,285	$27,352,285	$27,352,285		**TRC Net Benefits with Adder**	(O x L)	**$121,117,694**
Advertising/Promotion/Customer Ed	N/A	$4,797,637	$4,797,637	$4,797,637		**TRC Net Benefits without Adder**	(O x (L - M))	**$97,141,983**
Participant Rebates and Incentives	N/A	$52,490,323	$52,490,323	$52,490,323				
Equipment & Installation	N/A	$641,792	$641,792	$641,792		**Utility Program Cost per kWh Lifetime**		**$0.0158**
Measurement and Verification	N/A	$1,625,120	$1,625,120	$1,625,120		**Utility Program Cost per kW at Gen**		**$1,085**
Subtotal	N/A	$88,260,328	$88,260,328	$88,260,328				
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	$363,025,559	N/A				
Subtotal	N/A	N/A	$363,025,559	N/A				
Participant Costs								
Incremental Capital Costs	$110,998,249	N/A	N/A	$101,526,137				
Incremental O&M Costs	$0	N/A	N/A	$641,944				
Subtotal	$110,998,249	N/A	N/A	$102,168,081				
Total Costs	$110,998,249	$88,260,328	$451,285,887	$190,428,409				
Net Benefit (Cost)	$349,496,347	$146,819,741	($216,205,818)	$121,117,694				
Benefit/Cost Ratio	4.15	2.66	0.52	1.64				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Table 26: 2017 Natural Gas DSM Portfolio Cost-Benefit Analysis (CBA)

PORTFOLIO TOTAL						2017 GAS		ACTUAL
2017 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
			Rate	Modified		Program Assumptions:		
	Participant Test	Utility Test	Impact Test	TRC Test		Lifetime (Weighted on Dth)	A	14.48 years
	($Total)	($Total)	($Total)	($Total)		Net-to-Gross (Weighted on Dth)	B	93.35%
						Install Rate (Weighted on Dth)	C	94.3%
Benefits								
Avoided Revenue Requirements						**Program Totals:**		
Commodity Cost Reduction	N/A	$23,806,814	$23,806,814	$23,806,814		**Total Dth/Yr Saved**	F	**626,978**
Variable O&M Savings	N/A	$282,689	$282,689	$282,689		Utility Costs per Net Dth/Yr	G	$23.81
Demand Savings	N/A	$2,656,388	$2,656,388	$2,656,388		Net Benefit (Cost) per Gross Dth/Yr	H	$33.50
Subtotal				$26,745,891		Non-Energy Benefits Adder per Gross Dth/Yr	I	$3.26
Emissions Non-Energy Benefits Adder (7.6%)				$2,042,158		**Annual Dth/$M**	($1M / G)	**41,994**
Subtotal	N/A	$26,745,891	$26,745,891	$28,788,049		**Total Utility Budget**	(G x F)	**$14,930,042**
						Total MTRC Net Benefits with Adder	(F x H)	**$21,002,456**
Other Benefits						**Total MTRC Net Benefits without Adder**	(H - I) x F	**$18,960,298**
Bill Reduction - Gas	$51,674,962	N/A	N/A	N/A				
Participant Rebates and Incentives	$9,110,739	N/A	N/A	$9,110,739		**Utility Program Cost per Net Dth Lifetime**	(G / A)	**$1.64**
Incremental Capital Savings	$0	N/A	N/A	$0				
Incremental O&M Savings	$43,099,641	N/A	N/A	$16,127,987				
Subtotal	$103,885,342	N/A	N/A	$25,238,726				
Total Benefits	$103,885,342	$26,745,891	$26,745,891	$54,026,775				
Costs								
Utility Project Costs								
Program Planning & Design	N/A	$121,369	$121,369	$121,369				
Administration & Program Delivery	N/A	$4,121,804	$4,121,804	$4,121,804				
Advertising/Promotion/Customer Ed	N/A	$605,151	$605,151	$605,151				
Participant Rebates and Incentives	N/A	$9,110,739	$9,110,739	$9,110,739				
Equipment & Installation	N/A	$238,809	$238,809	$238,809				
Measurement and Verification	N/A	$732,169	$732,169	$732,169				
Subtotal	N/A	$14,930,042	$14,930,042	$14,930,042				
Utility Revenue Reduction								
Revenue Reduction - Gas	N/A	N/A	$45,996,699	N/A				
Subtotal	N/A	N/A	$45,996,699	N/A				
Participant Costs								
Incremental Capital Costs	$19,769,779	N/A	N/A	$18,094,277				
Incremental O&M Costs	$0	N/A	N/A	$0				
Subtotal	$19,769,779	N/A	N/A	$18,094,277				
Total Costs	$19,769,779	$14,930,042	$60,926,740	$33,024,319				
Net Benefit (Cost)	$84,115,563	$11,815,850	($34,180,849)	$21,002,456				
Benefit/Cost Ratio	5.25	1.79	0.44	1.64				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Appendix A: Avoided Cost Assumptions

The following sections summarize the avoided cost assumptions Public Service has made in order to perform the cost-effectiveness tests for electric and gas programs, and for which the Company asked approval of and received for use in the status report and incentives calculations for 2017 calendar year achievements.

A. 2017 Electric Programs (Pre-3.1.2017)

In order to determine the cost-effectiveness of its electric energy efficiency and load management programs from January 1, 2017 through February 28, 2017 Public Service must first calculate the avoided generation, transmission, distribution, and marginal energy costs these programs avoid. Below are tables showing the avoided cost assumptions used in this plan.

1. Estimated Annual Avoided Generation Capacity Costs (*Source:* Public Service Resource Planning)

Capacity costs reflect current generic capacity cost estimates used in Phase II of the Public Service Company of Colorado's 2011 Electric Resource Plan (Docket No. 11A-869E) for a gas-fired combustion turbine (CT) referred to as a "Resource Acquisition Period (RAP) CT" in compliance with paragraph 96 in Decision C14-0731 (Docket No. 13A-0686EG). These values exclude the ancillary services adjustments per paragraph 97 in this same decision.

	CT		CT
Year	Gen Capacity $/kW-mo	Year	Gen Capacity $/kW-mo
		2027	$10.77
2017	$8.38	2028	$11.02
2018	$8.77	2029	$11.27
2019	$8.97	2030	$11.53
2020	$9.18	2031	$11.80
2021	$9.39	2032	$12.07
2022	$9.61	2033	$12.35
2023	$9.83	2034	$12.64
2024	$10.06	2035	$12.93
2025	$10.29	2036	$13.23
2026	$10.29		

2. Estimated Annual Avoided Transmission and Distribution (T&D) Capacity Costs (*Source:* Public Service Resource Planning)

Paragraph 97 in Decision C14-0731 (Docket No. 13A-0686EG) required the Company to "….study the avoided transmission and distribution capacity costs and propose values in its DSM Biennial Plan for 2015 through 2017."

For avoided transmission capacity costs, the assumed avoided generation plant is a Combustion Turbine ("CT") plant, which can be located within the Company's footprint and generally does not require any transmission investment. Therefore avoidance of this generation capacity does not entail any avoidance of transmission; the avoided transmission capacity cost should be set to $0/kW-yr.

Public Service plans the distribution system for existing system upgrades and also develops plans for new developments using standard design practices. In order for Public Service to size its distribution system differently, the specific DSM locations and types of DSM measures would need to be known and guaranteed during the initial engineering and design phase. However, the installation of energy efficiency measures is a customer choice that occurs after the distribution system is designed and constructed. Therefore, sizing the system differently after it is constructed is not feasible. Given this, the Company has set the avoided distribution value to $0/kW-yr.

Thus, the Company utilized a zero value for avoidance of T&D capacity costs attributable to energy efficiency and demand response achievements in this Plan.

3. **Estimated Annual Avoided Energy Costs (*Source:* Public Service Resource** Planning Analytics**)**

In order to determine avoided energy costs, the Company's Resource Planning Analytics group produced two Strategist runs, one with and one without the level of DSM that is expected to be acquired from January 1, 2015 through 2020. These runs simulated the economic dispatch of the Company's generation fleet using assumptions regarding must-run plants, must-take resources, minimum and maximum generator output capability, unit heat rates, and unit fuel prices consistent with what the Company had used in the Prosym model runs that had been used by the Company to determine the avoided energy costs as initially proposed in this Proceeding. Consistent with the method proposed by the Company in Proceeding No. 13A-0686EG, the avoided energy costs attributable to future DSM were determined using a comparison of the annual total system variable costs (with and without future DSM), to the annual total energy served (MWh) with and without future DSM. Including variable O&M, fuel (including a gas price volatility mitigation adder (GPVM)), wind integration and cycling costs, and dump energy.

Simple-Average Hourly DSM Avoided Energy			
Year	**$/MWh**	**Year**	**$/MWh**
		2027	$57.21
2017	$32.98	**2028**	$58.14
2018	$40.66	**2029**	$59.97
2019	$43.11	**2030**	$61.94
2020	$47.19	**2031**	$63.72
2021	$51.13	**2032**	$62.06
2022	$51.80	**2033**	$65.32
2023	$54.38	**2034**	$64.86
2024	$56.59	**2035**	$66.19
2025	$55.31	**2036**	$66.19
2026	$57.47		

4. Estimated Annual Avoided Emissions Costs (includes CO_2) (*Source:* Public Service Resource Planning)

In the Public Services Company of Colorado's 2012 Renewable Energy Standard Compliance Plan (Docket No. 11A-418E), the base-case assumed zero cost for CO_2 emissions. For this reason, this value is set to $0 for all future years.

B. 2017 Electric Programs (Post-3.1.2017)

In order to determine the cost-effectiveness of its electric energy efficiency and load management programs from March 1, 2017 through December 31, 2017 Public Service must first calculate the avoided generation, transmission, distribution, and marginal energy costs these programs avoid. Below are tables showing the avoided cost assumptions used in this plan.

1. Estimated Annual Avoided Generation Capacity Costs (*Source:* Public Service Resource Planning)

Capacity costs reflect current generic capacity cost estimates used in Phase II of the Public Service Company of Colorado's 2011 Electric Resource Plan (Docket No. 11A-869E) for a gas-fired CT referred to as a "Resource Acquisition Period (RAP) CT" in compliance with paragraph 96 in Decision C14-0731 (Docket No. 13A-0686EG). These values exclude the ancillary services adjustments per paragraph 97 in this same decision.

	CT		CT
Year	**Gen Capacity $/kW-mo**	**Year**	**Gen Capacity $/kW-mo**
		2027	$10.77
2017	$8.57	**2028**	$11.02
2018	$8.77	**2029**	$11.27
2019	$8.97	**2030**	$11.53
2020	$9.18	**2031**	$11.80
2021	$9.39	**2032**	$12.07
2022	$9.61	**2033**	$12.35
2023	$9.83	**2034**	$12.64
2024	$10.06	**2035**	$12.93
2025	$10.29	**2036**	$13.23
2026	$10.29		

2. **Estimated Annual Avoided Transmission and Distribution ("T&D") Capacity Costs (*Source:* Proceeding No. 16A-0512EG)**
   Paragraph 153 in Decision R17-0028 (Proceeding No. 16A-00512EG) approved "the avoided cost assumptions in Appendix E of the Modified Plan."

3. **Estimated Annual Avoided Energy Costs (*Source:* Public Service Resource** Planning Analytics**)**
   In order to determine avoided energy costs, the Company's Resource Planning Analytics group produced two Strategist runs, one with and one without the current approved goal level of DSM of 400 GWh/yr expected to be acquired from January 1, 2017 through 2037. These runs simulated the economic dispatch of the Company's generation fleet using assumptions regarding must-run plants, must-take resources, minimum and maximum generator output capability, unit heat rates, and unit fuel prices. Consistent with the method proposed by the Company in Proceeding No. 13A-0686EG, the avoided energy costs attributable to future DSM were determined using a comparison of the annual total system variable costs (with and without future DSM), to the annual total energy served (MWh) with and without future DSM. Including variable O&M, fuel, and dump energy.

Simple-Average Hourly DSM Avoided Energy			
Year	**$/MWh**	**Year**	**$/MWh**
		2027	$47.46
2017	$25.18	**2028**	$48.87
2018	$28.86	**2029**	$40.79
2019	$30.52	**2030**	$40.82
2020	$36.43	**2031**	$41.69
2021	$39.09	**2032**	$41.60
2022	$41.10	**2033**	$45.88

2023	$42.41	**2034**	$49.34
2024	$43.92	**2035**	$50.22
2025	$45.86	**2036**	$51.98
2026	$48.15		

4. **Estimated Annual Avoided Emissions Costs (includes CO_2) (*Source:* Public Service Resource Planning)**
   In the Public Services Company of Colorado's 2016 Electric Resource Plan (Docket No. 16A-0396E), the base-case assumed zero cost for CO2 emissions. This value is set to $0 for all future years.

C. 2017 Natural Gas Programs (Pre-3.1.2017)

In order to determine the cost-effectiveness of its electric energy efficiency and load management programs from January 1, 2017 through February 28, 2017 Public Service must first calculate the avoided generation, transmission, distribution, and marginal energy costs these programs avoid. Below are tables showing the avoided cost assumptions used in this plan.

1. **Estimated Commodity Cost of Gas (*Source:* Public Service Gas Resource Planning)**
   The following table outlines the gas price forecast as approved in Proceeding No. 14A-1057EG.

Year	$/Dth	Year	$/Dth
		2027	$6.17
2017	$3.93	**2028**	$6.28
2018	$4.31	**2029**	$6.51
2019	$4.50	**2030**	$6.69
2020	$4.71	**2031**	$6.86
2021	$4.94	**2032**	$6.98
2022	$5.13	**2033**	$7.17
2023	$5.37	**2034**	$7.39
2024	$5.70	**2035**	$7.52
2025	$5.83	**2036**	--
2026	$6.02		

2. **Estimated Avoided Variable O&M Costs (*Source:* Public Service Pricing and Planning)**

   The following table outlines the gas price forecast as approved in Proceeding No. 14A-1057EG.

Year	$/Dth
2017-2035	$0.05

3. **Estimated Annual Avoided Reservation Costs (used to estimate capacity savings – Peak Day Dth savings estimated as 1% of annual Dth savings) (*Source:* Public Service Gas Resource Planning)**
   The following table outlines the gas price forecast as approved in Proceeding No. 14A-1057EG.

Year	$/Dth
2017-2035	$50.37

D. 2017 Natural Gas Programs (Post-3.1.2017)

In order to determine the cost-effectiveness of its electric energy efficiency and load management programs from March 1, 2017 through December 31, 2017 Public Service must first calculate the avoided generation, transmission, distribution, and marginal energy costs these programs avoid. Below are tables showing the avoided cost assumptions used in this plan.

1. Estimated Commodity Cost of Gas (*Source:* Public Service Gas Resource Planning)

The following table outlines the gas price forecast as approved in Proceeding No. 16A-0512EG.

Year	$/Dth	Year	$/Dth
		2027	$5.04
2017	$2.60	2028	$5.29
2018	$2.75	2029	$5.52
2019	$2.98	2030	$5.68
2020	$3.57	2031	$5.93
2021	$4.03	2032	$6.19
2022	$4.21	2033	$6.38
2023	$4.38	2034	$6.55
2024	$4.50	2035	$6.70
2025	$4.65	2036	$6.84
2026	$4.81		

2. Estimated Avoided Variable O&M Costs (*Source:* Public Service Pricing and Planning)

The Company used the following value provided by the Company's Pricing and Planning department to determine variable O&M costs avoided with a reduction in gas usage.

Year	$/Dth
2017-2035	$0.05

3. Estimated Annual Avoided Reservation Costs (used to estimate capacity savings – Peak Day Dth savings estimated as 1% of annual Dth savings) (*Source:* Public Service Gas Resource Planning)

The following annual avoided reservation costs was used to determine the cost of service to transport incremental gas supplies to the metropolitan Denver area. The Company uses the CIG firm transportation rate to estimate this cost.

Year	$/Dth
2017-2035	$46.67

Appendix B: Cost-Benefit Analyses

The following section provides the cost-effectiveness analyses for all products and programs included in the Company's 2017 DSM Plan.

PORTFOLIO TOTAL — 2017 ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$74,513,979	$74,513,979	$74,513,979
Transmission & Distribution Capaci	N/A	$6,146,178	$6,146,178	$6,146,178
Marginal Energy	N/A	$154,419,912	$154,419,912	$154,419,912
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$235,080,069
Non-Energy Benefits Adder (10.2%)				$23,975,710
Subtotal	N/A	$235,080,069	$235,080,069	$259,055,779
Other Benefits				
Bill Reduction - Electric	$403,651,528	N/A	N/A	N/A
Participant Rebates and Incentives	$52,490,323	N/A	N/A	$52,490,323
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$4,352,744	N/A	N/A	$0
Subtotal	$460,494,595	N/A	N/A	$52,490,323
Total Benefits	$460,494,595	$235,080,069	$235,080,069	$311,546,102
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$1,353,172	$1,353,172	$1,353,172
Administration & Program Delivery	N/A	$27,352,285	$27,352,285	$27,352,285
Advertising/Promotion/Customer Ed	N/A	$4,797,637	$4,797,637	$4,797,637
Participant Rebates and Incentives	N/A	$52,490,323	$52,490,323	$52,490,323
Equipment & Installation	N/A	$641,792	$641,792	$641,792
Measurement and Verification	N/A	$1,625,120	$1,625,120	$1,625,120
Subtotal	N/A	$88,260,328	$88,260,328	$88,260,328
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$363,025,559	N/A
Subtotal	N/A	N/A	$363,025,559	N/A
Participant Costs				
Incremental Capital Costs	$110,998,249	N/A	N/A	$101,526,137
Incremental O&M Costs	$0	N/A	N/A	$641,944
Subtotal	$110,998,249	N/A	N/A	$102,168,081
Total Costs	$110,998,249	$88,260,328	$451,285,887	$190,428,409
Net Benefit (Cost)	$349,496,347	$146,819,741	($216,205,818)	$121,117,694
Benefit/Cost Ratio	4.15	2.66	0.52	1.64

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	13.4 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	38.25%
Gross Load Factor at Customer	E	21.96%
Net-to-Gross (Energy)	F	91.4%
Net-to-Gross (Demand)	G	89.4%
Transmission Loss Factor (Energy)	H	6.886%
Transmission Loss Factor (Demand)	I	7.314%
Installation Rate (Energy)	**J**	**99.2%**
Installation Rate (Demand)	**K**	**99.4%**
MTRC Net Benefit (Cost)	**L**	$546
MTRC Non-Energy Benefit Adder	**M**	$108
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3669 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,924 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,745 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,874 kWh

Program Summary All Participants

Total Budget	N	**$88,260,328**
Gross kW Saved at Customer	O	221,689 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**81,330 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	426,528,131 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	423,199,577 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	386,762,573 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**415,365,723 kWh**
TRC Net Benefits with Adder	(O x L)	**$121,117,694**
TRC Net Benefits without Adder	(O x (L - M))	**$97,141,983**
Utility Program Cost per kWh Lifetime		**$0.0158**
Utility Program Cost per kW at Gen		**$1,085**

EE PORTFOLIO TOTAL — 2017 ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$66,722,040	$66,722,040	$66,722,040
Transmission & Distribution Capaci	N/A	$5,377,714	$5,377,714	$5,377,714
Marginal Energy	N/A	$154,399,981	$154,399,981	$154,399,981
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$226,499,735
Non-Energy Benefits Adder (10.2%)				$23,117,677
Subtotal	N/A	$226,499,735	$226,499,735	$249,617,412
Other Benefits				
Bill Reduction - Electric	$403,507,769	N/A	N/A	N/A
Participant Rebates and Incentives	$43,980,121	N/A	N/A	$43,980,121
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$4,352,744	N/A	N/A	$0
Subtotal	$451,840,634	N/A	N/A	$43,980,121
Total Benefits	$451,840,634	$226,499,735	$226,499,735	$293,597,533
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$1,337,375	$1,337,375	$1,337,375
Administration & Program Delivery	N/A	$23,812,154	$23,812,154	$23,812,154
Advertising/Promotion/Customer Ed	N/A	$3,754,270	$3,754,270	$3,754,270
Participant Rebates and Incentives	N/A	$43,980,121	$43,980,121	$43,980,121
Equipment & Installation	N/A	$641,792	$641,792	$641,792
Measurement and Verification	N/A	$1,506,920	$1,506,920	$1,506,920
Subtotal	N/A	$75,032,631	$75,032,631	$75,032,631
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$362,881,800	N/A
Subtotal	N/A	N/A	$362,881,800	N/A
Participant Costs				
Incremental Capital Costs	$110,998,249	N/A	N/A	$101,526,137
Incremental O&M Costs	$0	N/A	N/A	$641,944
Subtotal	$110,998,249	N/A	N/A	$102,168,081
Total Costs	$110,998,249	$75,032,631	$437,914,431	$177,200,712
Net Benefit (Cost)	$340,842,385	$151,467,104	($211,414,696)	$116,396,821
Benefit/Cost Ratio	4.07	3.02	0.52	1.66

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	13.4 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	38.50%
Gross Load Factor at Customer	E	24.18%
Net-to-Gross (Energy)	F	91.4%
Net-to-Gross (Demand)	G	88.5%
Transmission Loss Factor (Energy)	H	6.886%
Transmission Loss Factor (Demand)	I	7.275%
Installation Rate (Energy)	**J**	**99.2%**
Installation Rate (Demand)	**K**	**99.3%**
MTRC Net Benefit (Cost)	**L**	$578
MTRC Non-Energy Benefit Adder	**M**	$115
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3648 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,118 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,921 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,063 kWh

Program Summary All Participants

Total Budget	N	**$75,032,631**
Gross kW Saved at Customer	O	201,340 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**73,440 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	426,475,666 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	423,147,070 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	386,710,066 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**415,308,887 kWh**
TRC Net Benefits with Adder	(O x L)	**$116,396,821**
TRC Net Benefits without Adder	(O x (L - M))	**$93,279,144**
Utility Program Cost per kWh Lifetime		**$0.0135**
Utility Program Cost per kW at Gen		**$1,022**

BUSINESS PROGRAM TOTAL — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$45,375,680	$45,375,680	$45,375,680
Transmission & Distribution Capaci	N/A	$3,668,369	$3,668,369	$3,668,369
Marginal Energy	N/A	$111,181,752	$111,181,752	$111,181,752
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$160,225,802
Non-Energy Benefits Adder (10%)				$16,022,580
Subtotal	N/A	$160,225,802	$160,225,802	$176,248,382
Other Benefits				
Bill Reduction - Electric	$261,363,058	N/A	N/A	N/A
Participant Rebates and Incentives	$27,844,484	N/A	N/A	$27,844,484
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$4,093,552	N/A	N/A	$0
Subtotal	$293,301,095	N/A	N/A	$27,844,484
Total Benefits	$293,301,095	$160,225,802	$160,225,802	$204,092,866
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$798,428	$798,428	$798,428
Administration & Program Delivery	N/A	$12,762,822	$12,762,822	$12,762,822
Advertising/Promotion/Customer Ed	N/A	$1,321,017	$1,321,017	$1,321,017
Participant Rebates and Incentives	N/A	$27,844,484	$27,844,484	$27,844,484
Equipment & Installation	N/A	$395,613	$395,613	$395,613
Measurement and Verification	N/A	$526,579	$526,579	$526,579
Subtotal	N/A	$43,648,943	$43,648,943	$43,648,943
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$240,986,614	N/A
Subtotal	N/A	N/A	$240,986,614	N/A
Participant Costs				
Incremental Capital Costs	$88,886,994	N/A	N/A	$82,555,448
Incremental O&M Costs	$0	N/A	N/A	$431,920
Subtotal	$88,886,994	N/A	N/A	$82,987,367
Total Costs	$88,886,994	$43,648,943	$284,635,557	$126,636,310
Net Benefit (Cost)	$204,414,101	$116,576,859	($124,409,755)	$77,456,556
Benefit/Cost Ratio	3.30	3.67	0.56	1.61

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.6 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	66.29%
Gross Load Factor at Customer	E	46.91%
Net-to-Gross (Energy)	F	93.0%
Net-to-Gross (Demand)	G	93.1%
Transmission Loss Factor (Energy)	H	6.502%
Transmission Loss Factor (Demand)	I	6.502%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**99.9%**
MTRC Net Benefit (Cost)	**L**	$1,187
MTRC Non-Energy Benefit Adder	**M**	$246
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6588 kW
Gross Annual kWh Saved at Customer	(B x E x C)	4,109 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,818 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,084 kWh

Program Summary All Participants

Total Budget	N	**$43,648,943**
Gross kW Saved at Customer	O	65,259 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**42,994 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	268,149,203 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	268,062,885 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	249,166,908 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**266,493,539 kWh**
TRC Net Benefits with Adder	(O x L)	**$77,456,556**
TRC Net Benefits without Adder	(O x (L - M))	**$61,433,976**
Utility Program Cost per kWh Lifetime		**$0.0105**
Utility Program Cost per kW at Gen		**$1,015**

RESIDENTIAL PROGRAM ENERGY EFFICIENCY TOTAL — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$20,008,213	$20,008,213	$20,008,213
Transmission & Distribution Capaci	N/A	$1,572,962	$1,572,962	$1,572,962
Marginal Energy	N/A	$39,839,278	$39,839,278	$39,839,278
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$61,420,453
Non-Energy Benefits Adder (10%)				$6,142,045
Subtotal	N/A	$61,420,453	$61,420,453	$67,562,498
Other Benefits				
Bill Reduction - Electric	$130,440,841	N/A	N/A	N/A
Participant Rebates and Incentives	$13,270,001	N/A	N/A	$13,270,001
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$38,050	N/A	N/A	$0
Subtotal	$143,748,891	N/A	N/A	$13,270,001
Total Benefits	$143,748,891	$61,420,453	$61,420,453	$80,832,499
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$20,287	$20,287	$20,287
Administration & Program Delivery	N/A	$6,853,843	$6,853,843	$6,853,843
Advertising/Promotion/Customer Ed	N/A	$1,424,718	$1,424,718	$1,424,718
Participant Rebates and Incentives	N/A	$13,270,001	$13,270,001	$13,270,001
Equipment & Installation	N/A	$246,164	$246,164	$246,164
Measurement and Verification	N/A	$209,526	$209,526	$209,526
Subtotal	N/A	$22,024,540	$22,024,540	$22,024,540
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$112,266,347	N/A
Subtotal	N/A	N/A	$112,266,347	N/A
Participant Costs				
Incremental Capital Costs	$15,994,953	N/A	N/A	$13,853,319
Incremental O&M Costs	$0	N/A	N/A	$358,028
Subtotal	$15,994,953	N/A	N/A	$14,211,347
Total Costs	$15,994,953	$22,024,540	$134,290,887	$36,235,887
Net Benefit (Cost)	$127,753,939	$39,395,913	($72,870,434)	$44,596,611
Benefit/Cost Ratio	8.99	2.79	0.46	2.23

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	9.7 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	26.65%
Gross Load Factor at Customer	E	13.69%
Net-to-Gross (Energy)	F	89.1%
Net-to-Gross (Demand)	G	82.5%
Transmission Loss Factor (Energy)	H	7.533%
Transmission Loss Factor (Demand)	I	7.642%
Installation Rate (Energy)	**J**	**98.2%**
Installation Rate (Demand)	**K**	**98.7%**
MTRC Net Benefit (Cost)	**L**	$362
MTRC Non-Energy Benefit Adder	**M**	$50
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.2349 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,200 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,049 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,135 kWh

Program Summary All Participants

Total Budget	N	**$22,024,540**
Gross kW Saved at Customer	O	123,041 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**28,899 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	147,591,830 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	144,954,792 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	129,121,534 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**139,639,920 kWh**
TRC Net Benefits with Adder	(O x L)	**$44,596,611**
TRC Net Benefits without Adder	(O x (L - M))	**$38,454,566**
Utility Program Cost per kWh Lifetime		**$0.0162**
Utility Program Cost per kW at Gen		**$762**

LOW-INCOME PROGRAM TOTAL — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$903,347	$903,347	$903,347
Transmission & Distribution Capaci	N/A	$91,941	$91,941	$91,941
Marginal Energy	N/A	$2,122,735	$2,122,735	$2,122,735
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$3,118,023
Non-Energy Benefits Adder (25%)				$779,506
Subtotal	N/A	$3,118,023	$3,118,023	$3,897,529
Other Benefits				
Bill Reduction - Electric	$7,350,087	N/A	N/A	N/A
Participant Rebates and Incentives	$2,679,485	N/A	N/A	$2,679,485
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$221,142	N/A	N/A	$148,004
Subtotal	$10,250,713	N/A	N/A	$2,827,488
Total Benefits	$10,250,713	$3,118,023	$3,118,023	$6,725,017
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$58,892	$58,892	$58,892
Administration & Program Delivery	N/A	$562,122	$562,122	$562,122
Advertising/Promotion/Customer Ed	N/A	$143,236	$143,236	$143,236
Participant Rebates and Incentives	N/A	$2,679,485	$2,679,485	$2,679,485
Equipment & Installation	N/A	$15	$15	$15
Measurement and Verification	N/A	$75,368	$75,368	$75,368
Subtotal	N/A	$3,519,119	$3,519,119	$3,519,119
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$6,869,788	N/A
Subtotal	N/A	N/A	$6,869,788	N/A
Participant Costs				
Incremental Capital Costs	$3,261,657	N/A	N/A	$3,261,657
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$3,261,657	N/A	N/A	$3,261,657
Total Costs	$3,261,657	$3,519,119	$10,388,906	$6,780,775
Net Benefit (Cost)	$6,989,056	($401,096)	($7,270,883)	($55,758)
Benefit/Cost Ratio	3.14	0.89	0.30	0.99

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	11.4 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	23.58%
Gross Load Factor at Customer	E	19.08%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	7.383%
Transmission Loss Factor (Demand)	I	7.514%
Installation Rate (Energy)	**J**	**91.2%**
Installation Rate (Demand)	**K**	**94.5%**
MTRC Net Benefit (Cost)	**L**	-$14
MTRC Non-Energy Benefit Adder	**M**	$193
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.2409 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,671 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,524 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,646 kWh

Program Summary All Participants

Total Budget	N	**$3,519,119**
Gross kW Saved at Customer	O	4,034 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**972 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	6,741,800 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	6,148,330 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	6,148,330 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**6,638,425 kWh**
TRC Net Benefits with Adder	(O x L)	**($55,758)**
TRC Net Benefits without Adder	(O x (L - M))	**($835,264)**
Utility Program Cost per kWh Lifetime		**$0.0464**
Utility Program Cost per kW at Gen		**$3,622**

DR PORTFOLIO TOTAL — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$7,791,939	$7,791,939	$7,791,939
Transmission & Distribution Capaci	N/A	$768,463	$768,463	$768,463
Marginal Energy	N/A	$19,932	$19,932	$19,932
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$8,580,334
Non-Energy Benefits Adder (10%)				$858,033
Subtotal	N/A	$8,580,334	$8,580,334	$9,438,367
Other Benefits				
Bill Reduction - Electric	$143,759	N/A	N/A	N/A
Participant Rebates and Incentives	$8,510,203	N/A	N/A	$8,510,203
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$8,653,961	N/A	N/A	$8,510,203
Total Benefits	$8,653,961	$8,580,334	$8,580,334	$17,948,570
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$15,797	$15,797	$15,797
Administration & Program Delivery	N/A	$3,540,130	$3,540,130	$3,540,130
Advertising/Promotion/Customer Ed	N/A	$1,043,367	$1,043,367	$1,043,367
Participant Rebates and Incentives	N/A	$8,510,203	$8,510,203	$8,510,203
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$118,200	$118,200	$118,200
Subtotal	N/A	$13,227,697	$13,227,697	$13,227,697
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$143,759	N/A
Subtotal	N/A	N/A	$143,759	N/A
Participant Costs				
Incremental Capital Costs	$0	N/A	N/A	$0
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$0	N/A	N/A	$0
Total Costs	$0	$13,227,697	$13,371,456	$13,227,697
Net Benefit (Cost)	$8,653,961	($4,647,363)	($4,791,122)	$4,720,873
Benefit/Cost Ratio	INF	0.65	0.64	1.36

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.1 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	35.79%
Gross Load Factor at Customer	E	0.03%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$232
MTRC Non-Energy Benefit Adder	**M**	$42
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3877 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3 kWh

Program Summary All Participants

Total Budget	N	**$13,227,697**
Gross kW Saved at Customer	O	20,349 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**7,890 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	52,465 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	52,465 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	52,465 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**56,836 kWh**
TRC Net Benefits with Adder	(O x L)	**$4,720,873**
TRC Net Benefits without Adder	(O x (L - M))	**$3,862,839**
Utility Program Cost per kWh Lifetime		**$16.4966**
Utility Program Cost per kW at Gen		**$1,677**

COMMERCIAL REFRIGERATION EFFICIENCY — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$1,460,206	$1,460,206	$1,460,206
Transmission & Distribution Capaci	N/A	$140,237	$140,237	$140,237
Marginal Energy	N/A	$2,491,830	$2,491,830	$2,491,830
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$4,092,273
Non-Energy Benefits Adder (10%)				$409,227
Subtotal	N/A	$4,092,273	$4,092,273	$4,501,500
Other Benefits				
Bill Reduction - Electric	$4,618,249	N/A	N/A	N/A
Participant Rebates and Incentives	$558,089	N/A	N/A	$558,089
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$12,646	N/A	N/A	$12,646
Subtotal	$5,188,985	N/A	N/A	$570,736
Total Benefits	$5,188,985	$4,092,273	$4,092,273	$5,072,236
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$30,608	$30,608	$30,608
Administration & Program Delivery	N/A	$353,235	$353,235	$353,235
Advertising/Promotion/Customer Ed	N/A	$16,714	$16,714	$16,714
Participant Rebates and Incentives	N/A	$558,089	$558,089	$558,089
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$14,890	$14,890	$14,890
Subtotal	N/A	$973,537	$973,537	$973,537
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$4,618,249	N/A
Subtotal	N/A	N/A	$4,618,249	N/A
Participant Costs				
Incremental Capital Costs	$1,274,312	N/A	N/A	$1,274,312
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$1,274,312	N/A	N/A	$1,274,312
Total Costs	$1,274,312	$973,537	$5,591,786	$2,247,849
Net Benefit (Cost)	$3,914,673	$3,118,736	($1,499,513)	$2,824,387
Benefit/Cost Ratio	4.07	4.20	0.73	2.26

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.8 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	86.31%
Gross Load Factor at Customer	E	47.65%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	6.501%
Transmission Loss Factor (Demand)	I	6.501%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$1,864
MTRC Non-Energy Benefit Adder	**M**	$270
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.9231 kW
Gross Annual kWh Saved at Customer	(B x E x C)	4,174 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,174 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,464 kWh

Program Summary All Participants

Total Budget	N	**$973,537**
Gross kW Saved at Customer	O	1,515 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**1,399 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	6,323,786 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	6,323,786 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	6,323,786 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**6,763,482 kWh**
TRC Net Benefits with Adder	(O x L)	**$2,824,387**
TRC Net Benefits without Adder	(O x (L - M))	**$2,415,160**
Utility Program Cost per kWh Lifetime		**$0.0097**
Utility Program Cost per kW at Gen		**$696**

COMPRESSED AIR EFFICIENCY — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$560,147	$560,147	$560,147
Transmission & Distribution Capaci	N/A	$49,264	$49,264	$49,264
Marginal Energy	N/A	$1,334,797	$1,334,797	$1,334,797
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$1,944,208
Non-Energy Benefits Adder (10%)				$194,421
Subtotal	N/A	$1,944,208	$1,944,208	$2,138,629
Other Benefits				
Bill Reduction - Electric	$2,608,688	N/A	N/A	N/A
Participant Rebates and Incentives	$467,028	N/A	N/A	$467,028
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$1,841	N/A	N/A	$1,406
Subtotal	$3,077,557	N/A	N/A	$468,435
Total Benefits	$3,077,557	$1,944,208	$1,944,208	$2,607,064
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$48,345	$48,345	$48,345
Administration & Program Delivery	N/A	$137,268	$137,268	$137,268
Advertising/Promotion/Customer Ed	N/A	$32,906	$32,906	$32,906
Participant Rebates and Incentives	N/A	$467,028	$467,028	$467,028
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$10,741	$10,741	$10,741
Subtotal	N/A	$696,289	$696,289	$696,289
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$2,205,139	N/A
Subtotal	N/A	N/A	$2,205,139	N/A
Participant Costs				
Incremental Capital Costs	$1,221,670	N/A	N/A	$1,021,440
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$1,221,670	N/A	N/A	$1,021,440
Total Costs	$1,221,670	$696,289	$2,901,428	$1,717,729
Net Benefit (Cost)	$1,855,887	$1,247,919	($957,220)	$889,335
Benefit/Cost Ratio	2.52	2.79	0.67	1.52

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	16.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	79.26%
Gross Load Factor at Customer	E	51.75%
Net-to-Gross (Energy)	F	83.8%
Net-to-Gross (Demand)	G	83.0%
Transmission Loss Factor (Energy)	H	6.501%
Transmission Loss Factor (Demand)	I	6.501%
Installation Rate (Energy)	**J**	**101.0%**
Installation Rate (Demand)	**K**	**100.7%**
MTRC Net Benefit (Cost)	**L**	$1,291
MTRC Non-Energy Benefit Adder	**M**	$282
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.7090 kW
Gross Annual kWh Saved at Customer	(B x E x C)	4,533 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,836 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,103 kWh

Program Summary All Participants

Total Budget	N	**$696,289**
Gross kW Saved at Customer	O	689 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**488 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	3,122,080 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	3,154,015 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	2,642,357 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**2,826,073 kWh**
TRC Net Benefits with Adder	(O x L)	**$889,335**
TRC Net Benefits without Adder	(O x (L - M))	**$694,914**
Utility Program Cost per kWh Lifetime		**$0.0154**
Utility Program Cost per kW at Gen		**$1,426**

COMPUTER EFFICIENCY — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$152,095	$152,095	$152,095
Transmission & Distribution Capaci	N/A	$8,941	$8,941	$8,941
Marginal Energy	N/A	$632,842	$632,842	$632,842
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$793,877
Non-Energy Benefits Adder (10%)				$79,388
Subtotal	N/A	$793,877	$793,877	$873,265
Other Benefits				
Bill Reduction - Electric	$979,037	N/A	N/A	N/A
Participant Rebates and Incentives	$40,847	N/A	N/A	$40,847
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$1,019,884	N/A	N/A	$40,847
Total Benefits	$1,019,884	$793,877	$793,877	$914,111
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$91	$91	$91
Administration & Program Delivery	N/A	$204,041	$204,041	$204,041
Advertising/Promotion/Customer Ed	N/A	$361	$361	$361
Participant Rebates and Incentives	N/A	$40,847	$40,847	$40,847
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$2,800	$2,800	$2,800
Subtotal	N/A	$248,140	$248,140	$248,140
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$838,182	N/A
Subtotal	N/A	N/A	$838,182	N/A
Participant Costs				
Incremental Capital Costs	$612,866	N/A	N/A	$527,548
Incremental O&M Costs	$54,876	N/A	N/A	$26,767
Subtotal	$667,742	N/A	N/A	$554,316
Total Costs	$667,742	$248,140	$1,086,322	$802,455
Net Benefit (Cost)	$352,142	$545,737	($292,445)	$111,656
Benefit/Cost Ratio	1.53	3.20	0.73	1.14

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	5.4 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	73.37%
Gross Load Factor at Customer	E	89.59%
Net-to-Gross (Energy)	F	85.8%
Net-to-Gross (Demand)	G	87.7%
Transmission Loss Factor (Energy)	H	6.503%
Transmission Loss Factor (Demand)	I	6.503%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$235
MTRC Non-Energy Benefit Adder	**M**	$167
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6884 kW
Gross Annual kWh Saved at Customer	(B x E x C)	7,848 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	6,732 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	7,200 kWh

Program Summary All Participants

Total Budget	N	**$248,140**
Gross kW Saved at Customer	O	476 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**328 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	3,736,454 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	3,736,454 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	3,205,320 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**3,428,263 kWh**
TRC Net Benefits with Adder	(O x L)	**$111,656**
TRC Net Benefits without Adder	(O x (L - M))	**$32,268**
Utility Program Cost per kWh Lifetime		**$0.0135**
Utility Program Cost per kW at Gen		**$757**

COOLING — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$3,845,863	$3,845,863	$3,845,863
Transmission & Distribution Capaci	N/A	$294,284	$294,284	$294,284
Marginal Energy	N/A	$5,548,966	$5,548,966	$5,548,966
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$9,689,113
Non-Energy Benefits Adder (10%)				$968,911
Subtotal	N/A	$9,689,113	$9,689,113	$10,658,024
Other Benefits				
Bill Reduction - Electric	$11,825,776	N/A	N/A	N/A
Participant Rebates and Incentives	$1,254,308	N/A	N/A	$1,254,308
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$13,080,084	N/A	N/A	$1,254,308
Total Benefits	$13,080,084	$9,689,113	$9,689,113	$11,912,333
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$61,723	$61,723	$61,723
Administration & Program Delivery	N/A	$1,921,476	$1,921,476	$1,921,476
Advertising/Promotion/Customer Ed	N/A	$74,990	$74,990	$74,990
Participant Rebates and Incentives	N/A	$1,254,308	$1,254,308	$1,254,308
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$18,525	$18,525	$18,525
Subtotal	N/A	$3,331,022	$3,331,022	$3,331,022
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$10,776,221	N/A
Subtotal	N/A	N/A	$10,776,221	N/A
Participant Costs				
Incremental Capital Costs	$4,926,447	N/A	N/A	$4,479,963
Incremental O&M Costs	$2,198	N/A	N/A	$2,030
Subtotal	$4,928,645	N/A	N/A	$4,481,993
Total Costs	$4,928,645	$3,331,022	$14,107,243	$7,813,015
Net Benefit (Cost)	$8,151,439	$6,358,091	($4,418,130)	$4,099,318
Benefit/Cost Ratio	2.65	2.91	0.69	1.52

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	18.6 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	81.95%
Gross Load Factor at Customer	E	31.66%
Net-to-Gross (Energy)	F	90.9%
Net-to-Gross (Demand)	G	90.9%
Transmission Loss Factor (Energy)	H	6.502%
Transmission Loss Factor (Demand)	I	6.502%
Installation Rate (Energy)	**J**	**100.1%**
Installation Rate (Demand)	**K**	**100.5%**
MTRC Net Benefit (Cost)	**L**	$984
MTRC Non-Energy Benefit Adder	**M**	$233
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.8005 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,774 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,523 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,699 kWh

Program Summary All Participants

Total Budget	N	**$3,331,022**
Gross kW Saved at Customer	O	4,166 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**3,335 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	11,556,334 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	11,566,693 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	10,512,898 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**11,243,926 kWh**
TRC Net Benefits with Adder	(O x L)	**$4,099,318**
TRC Net Benefits without Adder	(O x (L - M))	**$3,130,406**
Utility Program Cost per kWh Lifetime		**$0.0160**
Utility Program Cost per kW at Gen		**$999**

CUSTOM EFFICIENCY — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$226,855	$226,855	$226,855
Transmission & Distribution Capaci	N/A	$22,413	$22,413	$22,413
Marginal Energy	N/A	$668,485	$668,485	$668,485
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$917,753
Non-Energy Benefits Adder (10%)				$91,775
Subtotal	N/A	$917,753	$917,753	$1,009,528
Other Benefits				
Bill Reduction - Electric	$1,437,362	N/A	N/A	N/A
Participant Rebates and Incentives	$145,174	N/A	N/A	$145,174
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$134,949	N/A	N/A	$117,405
Subtotal	$1,717,485	N/A	N/A	$262,580
Total Benefits	$1,717,485	$917,753	$917,753	$1,272,107
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$136,451	$136,451	$136,451
Administration & Program Delivery	N/A	$361,979	$361,979	$361,979
Advertising/Promotion/Customer Ed	N/A	$75,631	$75,631	$75,631
Participant Rebates and Incentives	N/A	$145,174	$145,174	$145,174
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$3,821	$3,821	$3,821
Subtotal	N/A	$723,056	$723,056	$723,056
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$1,250,505	N/A
Subtotal	N/A	N/A	$1,250,505	N/A
Participant Costs				
Incremental Capital Costs	$559,198	N/A	N/A	$486,502
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$559,198	N/A	N/A	$486,502
Total Costs	$559,198	$723,056	$1,973,561	$1,209,558
Net Benefit (Cost)	$1,158,287	$194,696	($1,055,809)	$62,549
Benefit/Cost Ratio	3.07	1.27	0.47	1.05

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	19.5 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	55.32%
Gross Load Factor at Customer	E	46.46%
Net-to-Gross (Energy)	F	87.0%
Net-to-Gross (Demand)	G	87.0%
Transmission Loss Factor (Energy)	H	6.502%
Transmission Loss Factor (Demand)	I	6.502%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$178
MTRC Non-Energy Benefit Adder	**M**	$261
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.5148 kW
Gross Annual kWh Saved at Customer	(B x E x C)	4,070 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,541 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,787 kWh

Program Summary All Participants

Total Budget	N	**$723,056**
Gross kW Saved at Customer	O	352 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**181 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	1,432,997 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	1,432,997 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	1,246,707 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**1,333,399 kWh**
TRC Net Benefits with Adder	(O x L)	**$62,549**
TRC Net Benefits without Adder	(O x (L - M))	**($29,226)**
Utility Program Cost per kWh Lifetime		**$0.0277**
Utility Program Cost per kW at Gen		**$3,989**

DATA CENTER EFFICIENCY — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$820,502	$820,502	$820,502
Transmission & Distribution Capaci	N/A	$42,212	$42,212	$42,212
Marginal Energy	N/A	$2,427,766	$2,427,766	$2,427,766
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$3,290,480
Non-Energy Benefits Adder (10%)				$329,048
Subtotal	N/A	$3,290,480	$3,290,480	$3,619,528
Other Benefits				
Bill Reduction - Electric	$3,839,651	N/A	N/A	N/A
Participant Rebates and Incentives	$655,037	N/A	N/A	$655,037
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$4,494,688	N/A	N/A	$655,037
Total Benefits	$4,494,688	$3,290,480	$3,290,480	$4,274,565
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$49,313	$49,313	$49,313
Administration & Program Delivery	N/A	$194,699	$194,699	$194,699
Advertising/Promotion/Customer Ed	N/A	$134,725	$134,725	$134,725
Participant Rebates and Incentives	N/A	$655,037	$655,037	$655,037
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$5,623	$5,623	$5,623
Subtotal	N/A	$1,039,397	$1,039,397	$1,039,397
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$3,557,719	N/A
Subtotal	N/A	N/A	$3,557,719	N/A
Participant Costs				
Incremental Capital Costs	$2,073,429	N/A	N/A	$1,924,619
Incremental O&M Costs	$144,327	N/A	N/A	$125,856
Subtotal	$2,217,757	N/A	N/A	$2,050,475
Total Costs	$2,217,757	$1,039,397	$4,597,115	$3,089,872
Net Benefit (Cost)	$2,276,931	$2,251,084	($1,306,635)	$1,184,694
Benefit/Cost Ratio	2.03	3.17	0.72	1.38

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	13.7 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	82.91%
Gross Load Factor at Customer	E	66.57%
Net-to-Gross (Energy)	F	90.3%
Net-to-Gross (Demand)	G	89.7%
Transmission Loss Factor (Energy)	H	6.504%
Transmission Loss Factor (Demand)	I	6.506%
Installation Rate (Energy)	**J**	**101.1%**
Installation Rate (Demand)	**K**	**101.0%**
MTRC Net Benefit (Cost)	**L**	$1,124
MTRC Non-Energy Benefit Adder	**M**	$312
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.8036 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,831 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	5,324 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	5,694 kWh

Program Summary All Participants

Total Budget	N	**$1,039,397**
Gross kW Saved at Customer	O	1,054 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**847 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	6,146,689 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	6,215,613 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	5,611,675 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**6,002,025 kWh**
TRC Net Benefits with Adder	(O x L)	**$1,184,694**
TRC Net Benefits without Adder	(O x (L - M))	**$855,646**
Utility Program Cost per kWh Lifetime		**$0.0126**
Utility Program Cost per kW at Gen		**$1,227**

ENERGY EFFICIENT SHOWERHEAD — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$57,935	$57,935	$57,935
Transmission & Distribution Capaci	N/A	$5,924	$5,924	$5,924
Marginal Energy	N/A	$326,905	$326,905	$326,905
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$390,764
Non-Energy Benefits Adder (10%)				$39,076
Subtotal	N/A	$390,764	$390,764	$429,840
Other Benefits				
Bill Reduction - Electric	$1,086,881	N/A	N/A	N/A
Participant Rebates and Incentives	$13,061	N/A	N/A	$13,061
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$513,911	N/A	N/A	$359,421
Subtotal	$1,613,853	N/A	N/A	$372,482
Total Benefits	$1,613,853	$390,764	$390,764	$802,322
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$304	$304	$304
Administration & Program Delivery	N/A	$20,156	$20,156	$20,156
Advertising/Promotion/Customer Ed	N/A	$4,600	$4,600	$4,600
Participant Rebates and Incentives	N/A	$13,061	$13,061	$13,061
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$38,121	$38,121	$38,121
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$736,567	N/A
Subtotal	N/A	N/A	$736,567	N/A
Participant Costs				
Incremental Capital Costs	$11,821	N/A	N/A	$11,703
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$11,821	N/A	N/A	$11,703
Total Costs	$11,821	$38,121	$774,689	$49,824
Net Benefit (Cost)	$1,602,032	$352,642	($383,925)	$752,498
Benefit/Cost Ratio	136.52	10.25	0.50	16.10

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	10.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	78.70%
Gross Load Factor at Customer	E	94.65%
Net-to-Gross (Energy)	F	99.0%
Net-to-Gross (Demand)	G	99.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**68.5%**
Installation Rate (Demand)	**K**	**66.5%**
MTRC Net Benefit (Cost)	**L**	$5,645
MTRC Non-Energy Benefit Adder	**M**	$293
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.5613 kW
Gross Annual kWh Saved at Customer	(B x E x C)	8,292 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	5,619 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	6,087 kWh

Program Summary All Participants

Total Budget	N	**$38,121**
Gross kW Saved at Customer	O	133 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**75 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	1,105,341 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	756,644 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	749,078 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**811,481 kWh**
TRC Net Benefits with Adder	(O x L)	**$752,498**
TRC Net Benefits without Adder	(O x (L - M))	**$713,422**
Utility Program Cost per kWh Lifetime		**$0.0047**
Utility Program Cost per kW at Gen		**$509**

ENERGY FEEDBACK RESIDENTIAL — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$1,539,711	$1,539,711	$1,539,711
Transmission & Distribution Capaci	N/A	$159,274	$159,274	$159,274
Marginal Energy	N/A	$1,678,674	$1,678,674	$1,678,674
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$3,377,659
Non-Energy Benefits Adder (10%)				$337,766
Subtotal	N/A	$3,377,659	$3,377,659	$3,715,425
Other Benefits				
Bill Reduction - Electric	$7,024,537	N/A	N/A	N/A
Participant Rebates and Incentives	$0	N/A	N/A	$0
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$7,024,537	N/A	N/A	$0
Total Benefits	$7,024,537	$3,377,659	$3,377,659	$3,715,425
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$651	$651	$651
Administration & Program Delivery	N/A	$3,118,047	$3,118,047	$3,118,047
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$0	$0	$0
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$3,118,698	$3,118,698	$3,118,698
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$7,024,537	N/A
Subtotal	N/A	N/A	$7,024,537	N/A
Participant Costs				
Incremental Capital Costs	$0	N/A	N/A	$0
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$0	N/A	N/A	$0
Total Costs	$0	$3,118,698	$10,143,235	$3,118,698
Net Benefit (Cost)	$7,024,537	$258,961	($6,765,576)	$596,727
Benefit/Cost Ratio	INF	1.08	0.33	1.19

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	3.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	82.99%
Gross Load Factor at Customer	E	36.12%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$99
MTRC Non-Energy Benefit Adder	**M**	$56
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.8991 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,164 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,164 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,428 kWh

Program Summary All Participants

Total Budget	N	**$3,118,698**
Gross kW Saved at Customer	O	6,013 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**5,406 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	19,027,024 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	19,027,024 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	19,027,024 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**20,612,094 kWh**
TRC Net Benefits with Adder	(O x L)	**$596,727**
TRC Net Benefits without Adder	(O x (L - M))	**$258,961**
Utility Program Cost per kWh Lifetime		**$0.0504**
Utility Program Cost per kW at Gen		**$577**

ENERGY MANAGEMENT SYSTEMS — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$29,430	$29,430	$29,430
Transmission & Distribution Capaci	N/A	$2,696	$2,696	$2,696
Marginal Energy	N/A	$2,464,993	$2,464,993	$2,464,993
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$2,497,119
Non-Energy Benefits Adder (10%)				$249,712
Subtotal	N/A	$2,497,119	$2,497,119	$2,746,831
Other Benefits				
Bill Reduction - Electric	$5,478,421	N/A	N/A	N/A
Participant Rebates and Incentives	$409,940	N/A	N/A	$409,940
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$2,223,527	N/A	N/A	$1,609,727
Subtotal	$8,111,888	N/A	N/A	$2,019,667
Total Benefits	$8,111,888	$2,497,119	$2,497,119	$4,766,498
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$33,098	$33,098	$33,098
Administration & Program Delivery	N/A	$522,533	$522,533	$522,533
Advertising/Promotion/Customer Ed	N/A	$84,284	$84,284	$84,284
Participant Rebates and Incentives	N/A	$409,940	$409,940	$409,940
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$19,273	$19,273	$19,273
Subtotal	N/A	$1,069,128	$1,069,128	$1,069,128
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$4,770,386	N/A
Subtotal	N/A	N/A	$4,770,386	N/A
Participant Costs				
Incremental Capital Costs	$2,316,859	N/A	N/A	$2,015,667
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$2,316,859	N/A	N/A	$2,015,667
Total Costs	$2,316,859	$1,069,128	$5,839,514	$3,084,795
Net Benefit (Cost)	$5,795,029	$1,427,992	($3,342,395)	$1,681,703
Benefit/Cost Ratio	3.50	2.34	0.43	1.55

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.6 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	4.22%
Gross Load Factor at Customer	E	96.69%
Net-to-Gross (Energy)	F	87.5%
Net-to-Gross (Demand)	G	87.0%
Transmission Loss Factor (Energy)	H	6.503%
Transmission Loss Factor (Demand)	I	6.503%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$2,369
MTRC Non-Energy Benefit Adder	**M**	$352
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.0393 kW
Gross Annual kWh Saved at Customer	(B x E x C)	8,470 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	7,413 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	7,929 kWh

Program Summary All Participants

Total Budget	N	**$1,069,128**
Gross kW Saved at Customer	O	710 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**28 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	6,012,935 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	6,012,935 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	5,262,715 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**5,628,760 kWh**
TRC Net Benefits with Adder	(O x L)	**$1,681,703**
TRC Net Benefits without Adder	(O x (L - M))	**$1,431,991**
Utility Program Cost per kWh Lifetime		**$0.0130**
Utility Program Cost per kW at Gen		**$38,352**

ENERGY SAVINGS KIT | **2017** | **ELECTRIC** | **ACTUAL**

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$67,743	$67,743	$67,743
Transmission & Distribution Capaci	N/A	$6,944	$6,944	$6,944
Marginal Energy	N/A	$406,656	$406,656	$406,656
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$481,342
Non-Energy Benefits Adder (25%)				$120,336
Subtotal	N/A	$481,342	$481,342	$601,678
Other Benefits				
Bill Reduction - Electric	$1,382,014	N/A	N/A	N/A
Participant Rebates and Incentives	$157,173	N/A	N/A	$157,173
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$196,754	N/A	N/A	$123,616
Subtotal	$1,735,942	N/A	N/A	$280,789
Total Benefits	$1,735,942	$481,342	$481,342	$882,467
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$243	$243	$243
Administration & Program Delivery	N/A	$79,101	$79,101	$79,101
Advertising/Promotion/Customer Ed	N/A	$21,878	$21,878	$21,878
Participant Rebates and Incentives	N/A	$157,173	$157,173	$157,173
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$4,750	$4,750	$4,750
Subtotal	N/A	$263,145	$263,145	$263,145
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$901,715	N/A
Subtotal	N/A	N/A	$901,715	N/A
Participant Costs				
Incremental Capital Costs	$116,248	N/A	N/A	$116,248
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$116,248	N/A	N/A	$116,248
Total Costs	$116,248	$263,145	$1,164,860	$379,393
Net Benefit (Cost)	$1,619,694	$218,197	($683,518)	$503,074
Benefit/Cost Ratio	14.93	1.83	0.41	2.33

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	7.9 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	10.75%
Gross Load Factor at Customer	E	13.99%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**65.5%**
Installation Rate (Demand)	**K**	**65.2%**
MTRC Net Benefit (Cost)	**L**	$360
MTRC Non-Energy Benefit Adder	**M**	$86
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.0759 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,225 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	802 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	869 kWh

Program Summary All Participants

Total Budget	N	**$263,145**
Gross kW Saved at Customer	O	1,399 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**106 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	1,714,324 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	1,122,823 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	1,122,823 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**1,216,361 kWh**
TRC Net Benefits with Adder	(O x L)	**$503,074**
TRC Net Benefits without Adder	(O x (L - M))	**$382,738**
Utility Program Cost per kWh Lifetime		**$0.0273**
Utility Program Cost per kW at Gen		**$2,477**

ENERGY STAR NEW HOMES — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$1,706,518	$1,706,518	$1,706,518
Transmission & Distribution Capaci	N/A	$150,004	$150,004	$150,004
Marginal Energy	N/A	$2,020,269	$2,020,269	$2,020,269
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$3,876,790
Non-Energy Benefits Adder (10%)				$387,679
Subtotal	N/A	$3,876,790	$3,876,790	$4,264,469
Other Benefits				
Bill Reduction - Electric	$6,860,764	N/A	N/A	N/A
Participant Rebates and Incentives	$706,131	N/A	N/A	$706,131
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$306,031	N/A	N/A	$8,196
Subtotal	$7,872,927	N/A	N/A	$714,327
Total Benefits	$7,872,927	$3,876,790	$3,876,790	$4,978,796
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$2,773	$2,773	$2,773
Administration & Program Delivery	N/A	$200,478	$200,478	$200,478
Advertising/Promotion/Customer Ed	N/A	$188	$188	$188
Participant Rebates and Incentives	N/A	$706,131	$706,131	$706,131
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$106,965	$106,965	$106,965
Subtotal	N/A	$1,016,535	$1,016,535	$1,016,535
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$6,311,903	N/A
Subtotal	N/A	N/A	$6,311,903	N/A
Participant Costs				
Incremental Capital Costs	$2,291,668	N/A	N/A	$2,108,334
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$2,291,668	N/A	N/A	$2,108,334
Total Costs	$2,291,668	$1,016,535	$7,328,438	$3,124,870
Net Benefit (Cost)	$5,581,259	$2,860,255	($3,451,648)	$1,853,927
Benefit/Cost Ratio	3.44	3.81	0.53	1.59

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	16.4 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	43.97%
Gross Load Factor at Customer	E	16.89%
Net-to-Gross (Energy)	F	92.0%
Net-to-Gross (Demand)	G	92.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$567
MTRC Non-Energy Benefit Adder	**M**	$119
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.4383 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,479 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,361 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,474 kWh

Program Summary All Participants

Total Budget	N	**$1,016,535**
Gross kW Saved at Customer	O	3,271 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**1,433 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	4,839,080 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	4,839,080 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	4,451,954 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**4,822,829 kWh**
TRC Net Benefits with Adder	(O x L)	**$1,853,927**
TRC Net Benefits without Adder	(O x (L - M))	**$1,466,248**
Utility Program Cost per kWh Lifetime		**$0.0128**
Utility Program Cost per kW at Gen		**$709**

ENERGY STAR RETAIL PRODUCTS PLATFORM PILOT — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$434,800	$434,800	$434,800
Transmission & Distribution Capaci	N/A	$44,442	$44,442	$44,442
Marginal Energy	N/A	$1,256,215	$1,256,215	$1,256,215
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$1,735,457
Non-Energy Benefits Adder (10%)				$173,546
Subtotal	N/A	$1,735,457	$1,735,457	$1,909,003
Other Benefits				
Bill Reduction - Electric	$4,353,784	N/A	N/A	N/A
Participant Rebates and Incentives	$0	N/A	N/A	$0
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$4,353,784	N/A	N/A	$0
Total Benefits	$4,353,784	$1,735,457	$1,735,457	$1,909,003
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$1,679	$1,679	$1,679
Administration & Program Delivery	N/A	$1,196,300	$1,196,300	$1,196,300
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$0	$0	$0
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$1,197,979	$1,197,979	$1,197,979
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$2,759,052	N/A
Subtotal	N/A	N/A	$2,759,052	N/A
Participant Costs				
Incremental Capital Costs	$2,854,645	N/A	N/A	$1,855,713
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$2,854,645	N/A	N/A	$1,855,713
Total Costs	$2,854,645	$1,197,979	$3,957,030	$3,053,692
Net Benefit (Cost)	$1,499,139	$537,478	($2,221,573)	($1,144,689)
Benefit/Cost Ratio	1.53	1.45	0.44	0.63

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	11.2 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	8.27%
Gross Load Factor at Customer	E	5.06%
Net-to-Gross (Energy)	F	58.7%
Net-to-Gross (Demand)	G	71.3%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	-$127
MTRC Non-Energy Benefit Adder	**M**	$19
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.0639 kW
Gross Annual kWh Saved at Customer	(B x E x C)	443 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	260 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	282 kWh

Program Summary All Participants

Total Budget	N	**$1,197,979**
Gross kW Saved at Customer	O	9,006 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**575 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	3,992,833 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	3,992,833 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	2,341,908 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**2,537,004 kWh**
TRC Net Benefits with Adder	(O x L)	**($1,144,689)**
TRC Net Benefits without Adder	(O x (L - M))	**($1,318,235)**
Utility Program Cost per kWh Lifetime		**$0.0423**
Utility Program Cost per kW at Gen		**$2,083**

EVAPORATIVE COOLING — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$5,067,989	$5,067,989	$5,067,989
Transmission & Distribution Capaci	N/A	$473,735	$473,735	$473,735
Marginal Energy	N/A	$1,961,842	$1,961,842	$1,961,842
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$7,503,567
Non-Energy Benefits Adder (10%)				$750,357
Subtotal	N/A	$7,503,567	$7,503,567	$8,253,923
Other Benefits				
Bill Reduction - Electric	$7,508,441	N/A	N/A	N/A
Participant Rebates and Incentives	$2,000,810	N/A	N/A	$2,000,810
Incremental Capital Savings	$941,319	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$10,450,570	N/A	N/A	$2,000,810
Total Benefits	$10,450,570	$7,503,567	$7,503,567	$10,254,733
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$935	$935	$935
Administration & Program Delivery	N/A	$709,488	$709,488	$709,488
Advertising/Promotion/Customer Ed	N/A	$389,149	$389,149	$389,149
Participant Rebates and Incentives	N/A	$2,000,810	$2,000,810	$2,000,810
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$18,150	$18,150	$18,150
Subtotal	N/A	$3,118,533	$3,118,533	$3,118,533
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$5,166,445	N/A
Subtotal	N/A	N/A	$5,166,445	N/A
Participant Costs				
Incremental Capital Costs	$0	N/A	N/A	$19,370
Incremental O&M Costs	$486,808	N/A	N/A	$315,540
Subtotal	$486,808	N/A	N/A	$334,910
Total Costs	$486,808	$3,118,533	$8,284,977	$3,453,442
Net Benefit (Cost)	$9,963,762	$4,385,034	($781,410)	$6,801,291
Benefit/Cost Ratio	21.47	2.41	0.91	2.97

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	69.99%
Gross Load Factor at Customer	E	5.58%
Net-to-Gross (Energy)	F	68.9%
Net-to-Gross (Demand)	G	69.1%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$726
MTRC Non-Energy Benefit Adder	**M**	$80
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.5236 kW
Gross Annual kWh Saved at Customer	(B x E x C)	489 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	337 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	365 kWh

Program Summary All Participants

Total Budget	N	**$3,118,533**
Gross kW Saved at Customer	O	9,367 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**4,905 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	4,582,683 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	4,582,683 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	3,156,961 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**3,419,956 kWh**
TRC Net Benefits with Adder	(O x L)	**$6,801,291**
TRC Net Benefits without Adder	(O x (L - M))	**$6,050,935**
Utility Program Cost per kWh Lifetime		**$0.0608**
Utility Program Cost per kW at Gen		**$636**

HEATING EFFICIENCY — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$8,061	$8,061	$8,061
Transmission & Distribution Capaci	N/A	$819	$819	$819
Marginal Energy	N/A	$11,122	$11,122	$11,122
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$20,003
Non-Energy Benefits Adder (10%)				$2,000
Subtotal	N/A	$20,003	$20,003	$22,003
Other Benefits				
Bill Reduction - Electric	$38,616	N/A	N/A	N/A
Participant Rebates and Incentives	$1,325	N/A	N/A	$1,325
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$39,941	N/A	N/A	$1,325
Total Benefits	$39,941	$20,003	$20,003	$23,328
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$13,442	$13,442	$13,442
Advertising/Promotion/Customer Ed	N/A	$2,210	$2,210	$2,210
Participant Rebates and Incentives	N/A	$1,325	$1,325	$1,325
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$16,978	$16,978	$16,978
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$38,616	N/A
Subtotal	N/A	N/A	$38,616	N/A
Participant Costs				
Incremental Capital Costs	$1,908	N/A	N/A	$1,908
Incremental O&M Costs	$929	N/A	N/A	$929
Subtotal	$2,837	N/A	N/A	$2,837
Total Costs	$2,837	$16,978	$55,594	$19,815
Net Benefit (Cost)	$37,104	$3,025	($35,591)	$3,513
Benefit/Cost Ratio	14.08	1.18	0.36	1.18

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	150.64%
Gross Load Factor at Customer	E	67.17%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	6.500%
Transmission Loss Factor (Demand)	I	6.500%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$742
MTRC Non-Energy Benefit Adder	**M**	$423
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	1.6112 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,884 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	5,884 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	6,293 kWh

Program Summary All Participants

Total Budget	N	**$16,978**
Gross kW Saved at Customer	O	5 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**8 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	27,850 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	27,850 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	27,850 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**29,786 kWh**
TRC Net Benefits with Adder	(O x L)	**$3,513**
TRC Net Benefits without Adder	(O x (L - M))	**$1,513**
Utility Program Cost per kWh Lifetime		**$0.0380**
Utility Program Cost per kW at Gen		**$2,226**

HIGH EFFICIENCY AIR CONDITIONING — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$3,188,049	$3,188,049	$3,188,049
Transmission & Distribution Capaci	N/A	$274,882	$274,882	$274,882
Marginal Energy	N/A	$1,329,976	$1,329,976	$1,329,976
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$4,792,907
Non-Energy Benefits Adder (10%)				$479,291
Subtotal	N/A	$4,792,907	$4,792,907	$5,272,198
Other Benefits				
Bill Reduction - Electric	$4,450,127	N/A	N/A	N/A
Participant Rebates and Incentives	$4,700,830	N/A	N/A	$4,700,830
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$9,150,957	N/A	N/A	$4,700,830
Total Benefits	$9,150,957	$4,792,907	$4,792,907	$9,973,028
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$10,794	$10,794	$10,794
Administration & Program Delivery	N/A	$376,010	$376,010	$376,010
Advertising/Promotion/Customer Ed	N/A	$1,362	$1,362	$1,362
Participant Rebates and Incentives	N/A	$4,700,830	$4,700,830	$4,700,830
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$50,315	$50,315	$50,315
Subtotal	N/A	$5,139,311	$5,139,311	$5,139,311
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$2,993,739	N/A
Subtotal	N/A	N/A	$2,993,739	N/A
Participant Costs				
Incremental Capital Costs	$6,750,366	N/A	N/A	$4,488,694
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$6,750,366	N/A	N/A	$4,488,694
Total Costs	$6,750,366	$5,139,311	$8,133,051	$9,628,006
Net Benefit (Cost)	$2,400,591	($346,405)	($3,340,144)	$345,022
Benefit/Cost Ratio	1.36	0.93	0.59	1.04

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	8.3 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	91.25%
Gross Load Factor at Customer	E	8.18%
Net-to-Gross (Energy)	F	68.1%
Net-to-Gross (Demand)	G	67.9%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**98.2%**
Installation Rate (Demand)	**K**	**97.7%**
MTRC Net Benefit (Cost)	**L**	$47
MTRC Non-Energy Benefit Adder	**M**	$65
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6557 kW
Gross Annual kWh Saved at Customer	(B x E x C)	717 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	479 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	519 kWh

Program Summary All Participants

Total Budget	N	**$5,139,311**
Gross kW Saved at Customer	O	7,357 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**4,824 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	5,273,876 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	5,180,895 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	3,525,734 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**3,819,450 kWh**
TRC Net Benefits with Adder	(O x L)	**$345,022**
TRC Net Benefits without Adder	(O x (L - M))	**($134,269)**
Utility Program Cost per kWh Lifetime		**$0.1612**
Utility Program Cost per kW at Gen		**$1,065**

HOME ENERGY SQUAD — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$99,799	$99,799	$99,799
Transmission & Distribution Capaci	N/A	$10,239	$10,239	$10,239
Marginal Energy	N/A	$205,510	$205,510	$205,510
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$315,548
Non-Energy Benefits Adder (10%)				$31,555
Subtotal	N/A	$315,548	$315,548	$347,103
Other Benefits				
Bill Reduction - Electric	$687,536	N/A	N/A	N/A
Participant Rebates and Incentives	$18,006	N/A	N/A	$18,006
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$12,950	N/A	N/A	$12,950
Subtotal	$718,491	N/A	N/A	$30,956
Total Benefits	$718,491	$315,548	$315,548	$378,058
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$852	$852	$852
Administration & Program Delivery	N/A	$128,152	$128,152	$128,152
Advertising/Promotion/Customer Ed	N/A	$104,055	$104,055	$104,055
Participant Rebates and Incentives	N/A	$18,006	$18,006	$18,006
Equipment & Installation	N/A	$246,164	$246,164	$246,164
Measurement and Verification	N/A	$1,571	$1,571	$1,571
Subtotal	N/A	$498,800	$498,800	$498,800
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$687,536	N/A
Subtotal	N/A	N/A	$687,536	N/A
Participant Costs				
Incremental Capital Costs	$15,475	N/A	N/A	$15,475
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$15,475	N/A	N/A	$15,475
Total Costs	$15,475	$498,800	$1,186,336	$514,276
Net Benefit (Cost)	$703,016	($183,252)	($870,788)	($136,217)
Benefit/Cost Ratio	46.43	0.63	0.27	0.74

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	7.3 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	15.30%
Gross Load Factor at Customer	E	10.65%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	-$136
MTRC Non-Energy Benefit Adder	**M**	$31
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.1657 kW
Gross Annual kWh Saved at Customer	(B x E x C)	933 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	933 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,011 kWh

Program Summary All Participants

Total Budget	N	**$498,800**
Gross kW Saved at Customer	O	1,005 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**167 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	937,677 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	937,677 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	937,677 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**1,015,791 kWh**
TRC Net Benefits with Adder	(O x L)	**($136,217)**
TRC Net Benefits without Adder	(O x (L - M))	**($167,772)**
Utility Program Cost per kWh Lifetime		**$0.0673**
Utility Program Cost per kW at Gen		**$2,995**

HOME LIGHTING & RECYCLING — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$5,977,623	$5,977,623	$5,977,623
Transmission & Distribution Capaci	N/A	$263,536	$263,536	$263,536
Marginal Energy	N/A	$26,382,889	$26,382,889	$26,382,889
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$32,624,048
Non-Energy Benefits Adder (10%)				$3,262,405
Subtotal	N/A	$32,624,048	$32,624,048	$35,886,453
Other Benefits				
Bill Reduction - Electric	$82,380,002	N/A	N/A	N/A
Participant Rebates and Incentives	$3,529,171	N/A	N/A	$3,529,171
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$85,909,174	N/A	N/A	$3,529,171
Total Benefits	$85,909,174	$32,624,048	$32,624,048	$39,415,625
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$979,047	$979,047	$979,047
Advertising/Promotion/Customer Ed	N/A	$623,922	$623,922	$623,922
Participant Rebates and Incentives	N/A	$3,529,171	$3,529,171	$3,529,171
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$3,000	$3,000	$3,000
Subtotal	N/A	$5,135,140	$5,135,140	$5,135,140
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$72,280,719	N/A
Subtotal	N/A	N/A	$72,280,719	N/A
Participant Costs				
Incremental Capital Costs	$4,448,354	N/A	N/A	$3,940,405
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$4,448,354	N/A	N/A	$3,940,405
Total Costs	$4,448,354	$5,135,140	$77,415,859	$9,075,545
Net Benefit (Cost)	$81,460,820	$27,488,908	($44,791,810)	$30,340,080
Benefit/Cost Ratio	19.31	6.35	0.42	4.34

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	10.4 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	11.51%
Gross Load Factor at Customer	E	12.35%
Net-to-Gross (Energy)	F	89.1%
Net-to-Gross (Demand)	G	88.8%
Transmission Loss Factor (Energy)	H	7.433%
Transmission Loss Factor (Demand)	I	7.620%
Installation Rate (Energy)	**J**	**98.9%**
Installation Rate (Demand)	**K**	**98.5%**
MTRC Net Benefit (Cost)	**L**	$362
MTRC Non-Energy Benefit Adder	**M**	$39
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.1089 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,081 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	953 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,029 kWh

Program Summary All Participants

Total Budget	N	**$5,135,140**
Gross kW Saved at Customer	O	83,858 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**9,136 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	90,687,537 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	89,690,881 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	79,894,799 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**86,310,620 kWh**
TRC Net Benefits with Adder	(O x L)	**$30,340,080**
TRC Net Benefits without Adder	(O x (L - M))	**$27,077,675**
Utility Program Cost per kWh Lifetime		**$0.0057**
Utility Program Cost per kW at Gen		**$562**

HOME PERFORMANCE WITH ENERGY STAR — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$244,827	$244,827	$244,827
Transmission & Distribution Capaci	N/A	$22,520	$22,520	$22,520
Marginal Energy	N/A	$52,390	$52,390	$52,390
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$319,738
Non-Energy Benefits Adder (10%)				$31,974
Subtotal	N/A	$319,738	$319,738	$351,712
Other Benefits				
Bill Reduction - Electric	$178,798	N/A	N/A	N/A
Participant Rebates and Incentives	$74,199	N/A	N/A	$74,199
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$252,997	N/A	N/A	$74,199
Total Benefits	$252,997	$319,738	$319,738	$425,911
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$71,724	$71,724	$71,724
Advertising/Promotion/Customer Ed	N/A	$1,223	$1,223	$1,223
Participant Rebates and Incentives	N/A	$74,199	$74,199	$74,199
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$18,185	$18,185	$18,185
Subtotal	N/A	$165,331	$165,331	$165,331
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$207,406	N/A
Subtotal	N/A	N/A	$207,406	N/A
Participant Costs				
Incremental Capital Costs	$234,944	N/A	N/A	$272,536
Incremental O&M Costs	$861	N/A	N/A	$1,441
Subtotal	$235,805	N/A	N/A	$273,977
Total Costs	$235,805	$165,331	$372,737	$439,308
Net Benefit (Cost)	$17,192	$154,407	($52,999)	($13,397)
Benefit/Cost Ratio	1.07	1.93	0.86	0.97

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	73.76%
Gross Load Factor at Customer	E	7.01%
Net-to-Gross (Energy)	F	116.0%
Net-to-Gross (Demand)	G	116.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	-$50
MTRC Non-Energy Benefit Adder	**M**	$118
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.9268 kW
Gross Annual kWh Saved at Customer	(B x E x C)	614 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	712 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	772 kWh

Program Summary All Participants

Total Budget	N	**$165,331**
Gross kW Saved at Customer	O	270 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**250 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	165,713 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	165,713 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	192,227 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**208,241 kWh**
TRC Net Benefits with Adder	(O x L)	**($13,397)**
TRC Net Benefits without Adder	(O x (L - M))	**($45,371)**
Utility Program Cost per kWh Lifetime		**$0.0566**
Utility Program Cost per kW at Gen		**$661**

INSULATION & AIR SEALING — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$364,043	$364,043	$364,043
Transmission & Distribution Capaci	N/A	$36,917	$36,917	$36,917
Marginal Energy	N/A	$263,915	$263,915	$263,915
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$664,875
Non-Energy Benefits Adder (10%)				$66,488
Subtotal	N/A	$664,875	$664,875	$731,363
Other Benefits				
Bill Reduction - Electric	$839,425	N/A	N/A	N/A
Participant Rebates and Incentives	$192,085	N/A	N/A	$192,085
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$1,031,510	N/A	N/A	$192,085
Total Benefits	$1,031,510	$664,875	$664,875	$923,448
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$22,589	$22,589	$22,589
Advertising/Promotion/Customer Ed	N/A	$1,534	$1,534	$1,534
Participant Rebates and Incentives	N/A	$192,085	$192,085	$192,085
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$800	$800	$800
Subtotal	N/A	$217,008	$217,008	$217,008
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$696,286	N/A
Subtotal	N/A	N/A	$696,286	N/A
Participant Costs				
Incremental Capital Costs	$709,329	N/A	N/A	$618,206
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$709,329	N/A	N/A	$618,206
Total Costs	$709,329	$217,008	$913,294	$835,213
Net Benefit (Cost)	$322,181	$447,868	($248,418)	$88,235
Benefit/Cost Ratio	1.45	3.06	0.73	1.11

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.3 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	81.38%
Gross Load Factor at Customer	E	6.19%
Net-to-Gross (Energy)	F	89.0%
Net-to-Gross (Demand)	G	89.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**93.2%**
Installation Rate (Demand)	**K**	**98.8%**
MTRC Net Benefit (Cost)	**L**	$164
MTRC Non-Energy Benefit Adder	**M**	$123
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.7752 kW
Gross Annual kWh Saved at Customer	(B x E x C)	543 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	450 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	487 kWh

Program Summary All Participants

Total Budget	N	**$217,008**
Gross kW Saved at Customer	O	539 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**417 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	292,158 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	272,291 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	242,339 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**262,528 kWh**
TRC Net Benefits with Adder	(O x L)	**$88,235**
TRC Net Benefits without Adder	(O x (L - M))	**$21,747**
Utility Program Cost per kWh Lifetime		**$0.0539**
Utility Program Cost per kW at Gen		**$520**

LED STREET LIGHTING — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$0	$0	$0
Transmission & Distribution Capaci	N/A	$0	$0	$0
Marginal Energy	N/A	$2,696,447	$2,696,447	$2,696,447
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$2,696,447
Non-Energy Benefits Adder (10%)				$269,645
Subtotal	N/A	$2,696,447	$2,696,447	$2,966,092
Other Benefits				
Bill Reduction - Electric	$9,202,649	N/A	N/A	N/A
Participant Rebates and Incentives	$0	N/A	N/A	$0
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$9,202,649	N/A	N/A	$0
Total Benefits	$9,202,649	$2,696,447	$2,696,447	$2,966,092
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$0	$0	$0
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$0	$0	$0
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$0	$0	$0
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$8,282,384	N/A
Subtotal	N/A	N/A	$8,282,384	N/A
Participant Costs				
Incremental Capital Costs	$3,776,122	N/A	N/A	$3,398,510
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$3,776,122	N/A	N/A	$3,398,510
Total Costs	$3,776,122	$0	$8,282,384	$3,398,510
Net Benefit (Cost)	$5,426,527	$2,696,447	($5,585,937)	($432,418)
Benefit/Cost Ratio	2.44	INF	0.33	0.87

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	0.00%
Gross Load Factor at Customer	E	47.38%
Net-to-Gross (Energy)	F	90.0%
Net-to-Gross (Demand)	G	0.0%
Transmission Loss Factor (Energy)	H	6.500%
Transmission Loss Factor (Demand)	I	6.500%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**0.0%**
MTRC Net Benefit (Cost)	**L**	-$266
MTRC Non-Energy Benefit Adder	**M**	$166
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	- kW
Gross Annual kWh Saved at Customer	(B x E x C)	4,151 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,736 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,995 kWh

Program Summary All Participants

Total Budget	N	**$0**
Gross kW Saved at Customer	O	1,627 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**0 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	6,751,772 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	6,751,772 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	6,076,595 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**6,499,032 kWh**
TRC Net Benefits with Adder	(O x L)	**($432,418)**
TRC Net Benefits without Adder	(O x (L - M))	**($702,063)**
Utility Program Cost per kWh Lifetime		**$0.0000**
Utility Program Cost per kW at Gen		**#DIV/0!**

LIGHTING - SMALL BUSINESS — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$5,351,304	$5,351,304	$5,351,304
Transmission & Distribution Capaci	N/A	$412,331	$412,331	$412,331
Marginal Energy	N/A	$12,861,800	$12,861,800	$12,861,800
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$18,625,435
Non-Energy Benefits Adder (10%)				$1,862,544
Subtotal	N/A	$18,625,435	$18,625,435	$20,487,979
Other Benefits				
Bill Reduction - Electric	$63,040,760	N/A	N/A	N/A
Participant Rebates and Incentives	$5,049,689	N/A	N/A	$5,049,689
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$68,090,449	N/A	N/A	$5,049,689
Total Benefits	$68,090,449	$18,625,435	$18,625,435	$25,537,668
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$46,909	$46,909	$46,909
Administration & Program Delivery	N/A	$2,320,377	$2,320,377	$2,320,377
Advertising/Promotion/Customer Ed	N/A	$109,658	$109,658	$109,658
Participant Rebates and Incentives	N/A	$5,049,689	$5,049,689	$5,049,689
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$27,653	$27,653	$27,653
Subtotal	N/A	$7,554,286	$7,554,286	$7,554,286
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$56,214,950	N/A
Subtotal	N/A	N/A	$56,214,950	N/A
Participant Costs				
Incremental Capital Costs	$11,300,496	N/A	N/A	$10,358,487
Incremental O&M Costs	$1,425,065	N/A	N/A	$452,616
Subtotal	$12,725,561	N/A	N/A	$10,811,103
Total Costs	$12,725,561	$7,554,286	$63,769,235	$18,365,388
Net Benefit (Cost)	$55,364,888	$11,071,150	($45,143,800)	$7,172,280
Benefit/Cost Ratio	5.35	2.47	0.29	1.39

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.3 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	64.05%
Gross Load Factor at Customer	E	41.90%
Net-to-Gross (Energy)	F	92.3%
Net-to-Gross (Demand)	G	92.6%
Transmission Loss Factor (Energy)	H	6.502%
Transmission Loss Factor (Demand)	I	6.503%
Installation Rate (Energy)	**J**	**99.6%**
Installation Rate (Demand)	**K**	**99.2%**
MTRC Net Benefit (Cost)	**L**	$716
MTRC Non-Energy Benefit Adder	**M**	$186
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6292 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,670 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,372 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,606 kWh

Program Summary All Participants

Total Budget	N	**$7,554,286**
Gross kW Saved at Customer	O	10,024 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**6,307 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	36,789,765 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	36,634,606 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	33,799,696 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**36,150,372 kWh**
TRC Net Benefits with Adder	(O x L)	**$7,172,280**
TRC Net Benefits without Adder	(O x (L - M))	**$5,309,736**
Utility Program Cost per kWh Lifetime		**$0.0146**
Utility Program Cost per kW at Gen		**$1,198**

LIGHTING EFFICIENCY — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$18,268,331	$18,268,331	$18,268,331
Transmission & Distribution Capaci	N/A	$1,542,438	$1,542,438	$1,542,438
Marginal Energy	N/A	$46,133,755	$46,133,755	$46,133,755
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$65,944,523
Non-Energy Benefits Adder (10%)				$6,594,452
Subtotal	N/A	$65,944,523	$65,944,523	$72,538,976
Other Benefits				
Bill Reduction - Electric	$91,993,280	N/A	N/A	N/A
Participant Rebates and Incentives	$11,059,426	N/A	N/A	$11,059,426
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$103,052,706	N/A	N/A	$11,059,426
Total Benefits	$103,052,706	$65,944,523	$65,944,523	$83,598,402
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$157,579	$157,579	$157,579
Administration & Program Delivery	N/A	$2,916,858	$2,916,858	$2,916,858
Advertising/Promotion/Customer Ed	N/A	$494,822	$494,822	$494,822
Participant Rebates and Incentives	N/A	$11,059,426	$11,059,426	$11,059,426
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$51,932	$51,932	$51,932
Subtotal	N/A	$14,680,618	$14,680,618	$14,680,618
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$90,700,763	N/A
Subtotal	N/A	N/A	$90,700,763	N/A
Participant Costs				
Incremental Capital Costs	$29,578,132	N/A	N/A	$29,255,028
Incremental O&M Costs	$2,880,274	N/A	N/A	$1,563,100
Subtotal	$32,458,406	N/A	N/A	$30,818,128
Total Costs	$32,458,406	$14,680,618	$105,381,381	$45,498,745
Net Benefit (Cost)	$70,594,301	$51,263,906	($39,436,858)	$38,099,657
Benefit/Cost Ratio	3.17	4.49	0.63	1.84

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.6 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	67.45%
Gross Load Factor at Customer	E	51.71%
Net-to-Gross (Energy)	F	98.1%
Net-to-Gross (Demand)	G	97.9%
Transmission Loss Factor (Energy)	H	6.501%
Transmission Loss Factor (Demand)	I	6.502%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$1,487
MTRC Non-Energy Benefit Adder	**M**	$257
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.7066 kW
Gross Annual kWh Saved at Customer	(B x E x C)	4,530 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,443 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,752 kWh

Program Summary All Participants

Total Budget	N	**$14,680,618**
Gross kW Saved at Customer	O	25,614 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**18,099 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	116,020,495 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	116,020,495 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	113,813,277 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**121,727,021 kWh**
TRC Net Benefits with Adder	(O x L)	**$38,099,657**
TRC Net Benefits without Adder	(O x (L - M))	**$31,505,204**
Utility Program Cost per kWh Lifetime		**$0.0083**
Utility Program Cost per kW at Gen		**$811**

MOTOR & DRIVE EFFICIENCY — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$2,196,594	$2,196,594	$2,196,594
Transmission & Distribution Capaci	N/A	$157,522	$157,522	$157,522
Marginal Energy	N/A	$7,901,775	$7,901,775	$7,901,775
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$10,255,890
Non-Energy Benefits Adder (10%)				$1,025,589
Subtotal	N/A	$10,255,890	$10,255,890	$11,281,479
Other Benefits				
Bill Reduction - Electric	$14,390,833	N/A	N/A	N/A
Participant Rebates and Incentives	$1,751,333	N/A	N/A	$1,751,333
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$60,214	N/A	N/A	$39,139
Subtotal	$16,202,380	N/A	N/A	$1,790,472
Total Benefits	$16,202,380	$10,255,890	$10,255,890	$13,071,951
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$31,287	$31,287	$31,287
Administration & Program Delivery	N/A	$373,628	$373,628	$373,628
Advertising/Promotion/Customer Ed	N/A	$120,248	$120,248	$120,248
Participant Rebates and Incentives	N/A	$1,751,333	$1,751,333	$1,751,333
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$19,513	$19,513	$19,513
Subtotal	N/A	$2,296,009	$2,296,009	$2,296,009
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$9,362,057	N/A
Subtotal	N/A	N/A	$9,362,057	N/A
Participant Costs				
Incremental Capital Costs	$4,792,988	N/A	N/A	$3,117,370
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$4,792,988	N/A	N/A	$3,117,370
Total Costs	$4,792,988	$2,296,009	$11,658,066	$5,413,379
Net Benefit (Cost)	$11,409,391	$7,959,882	($1,402,175)	$7,658,572
Benefit/Cost Ratio	3.38	4.47	0.88	2.41

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.3 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	79.37%
Gross Load Factor at Customer	E	55.64%
Net-to-Gross (Energy)	F	65.0%
Net-to-Gross (Demand)	G	65.0%
Transmission Loss Factor (Energy)	H	6.502%
Transmission Loss Factor (Demand)	I	6.502%
Installation Rate (Energy)	**J**	**100.1%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$2,249
MTRC Non-Energy Benefit Adder	**M**	$301
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.5518 kW
Gross Annual kWh Saved at Customer	(B x E x C)	4,874 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,171 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,392 kWh

Program Summary All Participants

Total Budget	N	**$2,296,009**
Gross kW Saved at Customer	O	3,406 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**1,879 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	16,602,600 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	16,617,002 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	10,801,051 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**11,552,197 kWh**
TRC Net Benefits with Adder	(O x L)	**$7,658,572**
TRC Net Benefits without Adder	(O x (L - M))	**$6,632,983**
Utility Program Cost per kWh Lifetime		**$0.0130**
Utility Program Cost per kW at Gen		**$1,222**

MULTIFAMILY BUILDINGS — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$221,834	$221,834	$221,834
Transmission & Distribution Capaci	N/A	$22,423	$22,423	$22,423
Marginal Energy	N/A	$900,169	$900,169	$900,169
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$1,144,426
Non-Energy Benefits Adder (10%)				$114,443
Subtotal	N/A	$1,144,426	$1,144,426	$1,258,869
Other Benefits				
Bill Reduction - Electric	$3,231,303	N/A	N/A	N/A
Participant Rebates and Incentives	$164,616	N/A	N/A	$164,616
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$2,796	N/A	N/A	$2,796
Subtotal	$3,398,715	N/A	N/A	$167,412
Total Benefits	$3,398,715	$1,144,426	$1,144,426	$1,426,281
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$701	$701	$701
Administration & Program Delivery	N/A	$130,496	$130,496	$130,496
Advertising/Promotion/Customer Ed	N/A	$1,889	$1,889	$1,889
Participant Rebates and Incentives	N/A	$164,616	$164,616	$164,616
Equipment & Installation	N/A	$395,613	$395,613	$395,613
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$693,315	$693,315	$693,315
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$3,231,303	N/A
Subtotal	N/A	N/A	$3,231,303	N/A
Participant Costs				
Incremental Capital Costs	$476,552	N/A	N/A	$476,552
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$476,552	N/A	N/A	$476,552
Total Costs	$476,552	$693,315	$3,924,618	$1,169,867
Net Benefit (Cost)	$2,922,163	$451,112	($2,780,191)	$256,414
Benefit/Cost Ratio	7.13	1.65	0.29	1.22

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	20.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	8.43%
Gross Load Factor at Customer	E	11.13%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	6.500%
Transmission Loss Factor (Demand)	I	6.500%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$133
MTRC Non-Energy Benefit Adder	**M**	$59
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.0902 kW
Gross Annual kWh Saved at Customer	(B x E x C)	975 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	975 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,042 kWh

Program Summary All Participants

Total Budget	N	**$693,315**
Gross kW Saved at Customer	O	1,933 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**174 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	1,884,519 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	1,884,519 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	1,884,519 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**2,015,528 kWh**
TRC Net Benefits with Adder	(O x L)	**$256,414**
TRC Net Benefits without Adder	(O x (L - M))	**$141,971**
Utility Program Cost per kWh Lifetime		**$0.0172**
Utility Program Cost per kW at Gen		**$3,977**

MULTIFAMILY WEATHERIZATION — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$264,687	$264,687	$264,687
Transmission & Distribution Capaci	N/A	$27,030	$27,030	$27,030
Marginal Energy	N/A	$601,395	$601,395	$601,395
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$893,111
Non-Energy Benefits Adder (25%)				$223,278
Subtotal	N/A	$893,111	$893,111	$1,116,389
Other Benefits				
Bill Reduction - Electric	$2,023,476	N/A	N/A	N/A
Participant Rebates and Incentives	$944,989	N/A	N/A	$944,989
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$54,322	N/A	N/A	$54,322
Subtotal	$3,022,787	N/A	N/A	$999,311
Total Benefits	$3,022,787	$893,111	$893,111	$2,115,700
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$24,160	$24,160	$24,160
Administration & Program Delivery	N/A	$164,862	$164,862	$164,862
Advertising/Promotion/Customer Ed	N/A	$3,907	$3,907	$3,907
Participant Rebates and Incentives	N/A	$944,989	$944,989	$944,989
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$15,351	$15,351	$15,351
Subtotal	N/A	$1,153,269	$1,153,269	$1,153,269
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$2,023,476	N/A
Subtotal	N/A	N/A	$2,023,476	N/A
Participant Costs				
Incremental Capital Costs	$1,256,758	N/A	N/A	$1,256,758
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$1,256,758	N/A	N/A	$1,256,758
Total Costs	$1,256,758	$1,153,269	$3,176,744	$2,410,026
Net Benefit (Cost)	$1,766,029	($260,157)	($2,283,633)	($294,326)
Benefit/Cost Ratio	2.41	0.77	0.28	0.88

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	11.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	42.02%
Gross Load Factor at Customer	E	30.63%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	-$422
MTRC Non-Energy Benefit Adder	**M**	$320
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.4552 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,683 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,683 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,906 kWh

Program Summary All Participants

Total Budget	N	**$1,153,269**
Gross kW Saved at Customer	O	698 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**318 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	1,872,179 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	1,872,179 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	1,872,179 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**2,028,143 kWh**
TRC Net Benefits with Adder	(O x L)	**($294,326)**
TRC Net Benefits without Adder	(O x (L - M))	**($517,604)**
Utility Program Cost per kWh Lifetime		**$0.0517**
Utility Program Cost per kW at Gen		**$3,631**

NEW CONSTRUCTION — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$9,205,579	$9,205,579	$9,205,579
Transmission & Distribution Capaci	N/A	$758,734	$758,734	$758,734
Marginal Energy	N/A	$15,226,218	$15,226,218	$15,226,218
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$25,190,531
Non-Energy Benefits Adder (10%)				$2,519,053
Subtotal	N/A	$25,190,531	$25,190,531	$27,709,584
Other Benefits				
Bill Reduction - Electric	$29,750,208	N/A	N/A	N/A
Participant Rebates and Incentives	$4,321,240	N/A	N/A	$4,321,240
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$5,897,896	N/A	N/A	$0
Subtotal	$39,969,344	N/A	N/A	$4,321,240
Total Benefits	$39,969,344	$25,190,531	$25,190,531	$32,030,824
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$44,104	$44,104	$44,104
Administration & Program Delivery	N/A	$2,584,088	$2,584,088	$2,584,088
Advertising/Promotion/Customer Ed	N/A	$108,760	$108,760	$108,760
Participant Rebates and Incentives	N/A	$4,321,240	$4,321,240	$4,321,240
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$346,424	$346,424	$346,424
Subtotal	N/A	$7,404,616	$7,404,616	$7,404,616
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$28,004,638	N/A
Subtotal	N/A	N/A	$28,004,638	N/A
Participant Costs				
Incremental Capital Costs	$20,575,177	N/A	N/A	$19,324,380
Incremental O&M Costs	$0	N/A	N/A	$266,618
Subtotal	$20,575,177	N/A	N/A	$19,590,998
Total Costs	$20,575,177	$7,404,616	$35,409,254	$26,995,614
Net Benefit (Cost)	$19,394,166	$17,785,915	($10,218,723)	$5,035,210
Benefit/Cost Ratio	1.94	3.40	0.71	1.19

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	20.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	90.23%
Gross Load Factor at Customer	E	43.01%
Net-to-Gross (Energy)	F	94.3%
Net-to-Gross (Demand)	G	94.3%
Transmission Loss Factor (Energy)	H	6.502%
Transmission Loss Factor (Demand)	I	6.502%
Installation Rate (Energy)	**J**	**99.8%**
Installation Rate (Demand)	**K**	**99.5%**
MTRC Net Benefit (Cost)	**L**	$613
MTRC Non-Energy Benefit Adder	**M**	$307
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.9060 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,767 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,547 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,794 kWh

Program Summary All Participants

Total Budget	N	**$7,404,616**
Gross kW Saved at Customer	O	8,213 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**7,441 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	30,939,514 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	30,891,969 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	29,133,274 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**31,159,232 kWh**
TRC Net Benefits with Adder	(O x L)	**$5,035,210**
TRC Net Benefits without Adder	(O x (L - M))	**$2,516,157**
Utility Program Cost per kWh Lifetime		**$0.0119**
Utility Program Cost per kW at Gen		**$995**

NON-PROFIT **2017 ELECTRIC ACTUAL**

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$489,486	$489,486	$489,486
Transmission & Distribution Capaci	N/A	$49,637	$49,637	$49,637
Marginal Energy	N/A	$757,958	$757,958	$757,958
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$1,297,082
Non-Energy Benefits Adder (25%)				$324,270
Subtotal	N/A	$1,297,082	$1,297,082	$1,621,352
Other Benefits				
Bill Reduction - Electric	$2,679,871	N/A	N/A	N/A
Participant Rebates and Incentives	$1,092,491	N/A	N/A	$1,092,491
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$3,772,362	N/A	N/A	$1,092,491
Total Benefits	$3,772,362	$1,297,082	$1,297,082	$2,713,843
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$32,158	$32,158	$32,158
Administration & Program Delivery	N/A	$213,323	$213,323	$213,323
Advertising/Promotion/Customer Ed	N/A	$3,833	$3,833	$3,833
Participant Rebates and Incentives	N/A	$1,092,491	$1,092,491	$1,092,491
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$27,825	$27,825	$27,825
Subtotal	N/A	$1,369,629	$1,369,629	$1,369,629
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$2,679,871	N/A
Subtotal	N/A	N/A	$2,679,871	N/A
Participant Costs				
Incremental Capital Costs	$1,316,934	N/A	N/A	$1,316,934
Incremental O&M Costs	$30,950	N/A	N/A	$30,950
Subtotal	$1,347,884	N/A	N/A	$1,347,884
Total Costs	$1,347,884	$1,369,629	$4,049,501	$2,717,513
Net Benefit (Cost)	$2,424,479	($72,547)	($2,752,419)	($3,670)
Benefit/Cost Ratio	2.80	0.95	0.32	1.00

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	17.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	66.06%
Gross Load Factor at Customer	E	33.29%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	6.500%
Transmission Loss Factor (Demand)	I	6.500%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	-$6
MTRC Non-Energy Benefit Adder	**M**	$538
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.7065 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,916 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,916 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,119 kWh

Program Summary All Participants

Total Budget	N	**$1,369,629**
Gross kW Saved at Customer	O	603 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**426 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	1,757,573 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	1,757,573 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	1,757,573 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**1,879,757 kWh**
TRC Net Benefits with Adder	(O x L)	**($3,670)**
TRC Net Benefits without Adder	(O x (L - M))	**($327,940)**
Utility Program Cost per kWh Lifetime		**$0.0429**
Utility Program Cost per kW at Gen		**$3,216**

PROCESS EFFICIENCY — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$1,566,019	$1,566,019	$1,566,019
Transmission & Distribution Capaci	N/A	$90,874	$90,874	$90,874
Marginal Energy	N/A	$4,810,753	$4,810,753	$4,810,753
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$6,467,647
Non-Energy Benefits Adder (10%)				$646,765
Subtotal	N/A	$6,467,647	$6,467,647	$7,114,411
Other Benefits				
Bill Reduction - Electric	$8,497,021	N/A	N/A	N/A
Participant Rebates and Incentives	$778,955	N/A	N/A	$778,955
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$137,076	N/A	N/A	$123,368
Subtotal	$9,413,052	N/A	N/A	$902,324
Total Benefits	$9,413,052	$6,467,647	$6,467,647	$8,016,735
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$92,387	$92,387	$92,387
Administration & Program Delivery	N/A	$419,272	$419,272	$419,272
Advertising/Promotion/Customer Ed	N/A	$20,538	$20,538	$20,538
Participant Rebates and Incentives	N/A	$778,955	$778,955	$778,955
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$5,385	$5,385	$5,385
Subtotal	N/A	$1,316,537	$1,316,537	$1,316,537
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$7,647,319	N/A
Subtotal	N/A	N/A	$7,647,319	N/A
Participant Costs				
Incremental Capital Costs	$2,116,577	N/A	N/A	$1,904,919
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$2,116,577	N/A	N/A	$1,904,919
Total Costs	$2,116,577	$1,316,537	$8,963,856	$3,221,456
Net Benefit (Cost)	$7,296,476	$5,151,109	($2,496,210)	$4,795,278
Benefit/Cost Ratio	4.45	4.91	0.72	2.49

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	18.2 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	31.04%
Gross Load Factor at Customer	E	28.73%
Net-to-Gross (Energy)	F	90.0%
Net-to-Gross (Demand)	G	90.0%
Transmission Loss Factor (Energy)	H	6.503%
Transmission Loss Factor (Demand)	I	6.501%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$1,312
MTRC Non-Energy Benefit Adder	**M**	$177
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.2988 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,517 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,265 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,423 kWh

Program Summary All Participants

Total Budget	N	**$1,316,537**
Gross kW Saved at Customer	O	3,656 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**1,093 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	9,201,398 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	9,201,398 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	8,281,258 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**8,857,219 kWh**
TRC Net Benefits with Adder	(O x L)	**$4,795,278**
TRC Net Benefits without Adder	(O x (L - M))	**$4,148,514**
Utility Program Cost per kWh Lifetime		**$0.0082**
Utility Program Cost per kW at Gen		**$1,205**

RECOMMISSIONING **2017 ELECTRIC ACTUAL**

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$143,111	$143,111	$143,111
Transmission & Distribution Capaci	N/A	$12,113	$12,113	$12,113
Marginal Energy	N/A	$360,154	$360,154	$360,154
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$515,377
Non-Energy Benefits Adder (10%)				$51,538
Subtotal	N/A	$515,377	$515,377	$566,915
Other Benefits				
Bill Reduction - Electric	$421,221	N/A	N/A	N/A
Participant Rebates and Incentives	$164,963	N/A	N/A	$164,963
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$20,928	N/A	N/A	$0
Subtotal	$607,112	N/A	N/A	$164,963
Total Benefits	$607,112	$515,377	$515,377	$731,878
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$61,534	$61,534	$61,534
Administration & Program Delivery	N/A	$182,831	$182,831	$182,831
Advertising/Promotion/Customer Ed	N/A	$32,008	$32,008	$32,008
Participant Rebates and Incentives	N/A	$164,963	$164,963	$164,963
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$441,336	$441,336	$441,336
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$379,099	N/A
Subtotal	N/A	N/A	$379,099	N/A
Participant Costs				
Incremental Capital Costs	$43,558	N/A	N/A	$39,202
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$43,558	N/A	N/A	$39,202
Total Costs	$43,558	$441,336	$820,435	$480,538
Net Benefit (Cost)	$563,554	$74,041	($305,058)	$251,340
Benefit/Cost Ratio	13.94	1.17	0.63	1.52

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	7.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	72.52%
Gross Load Factor at Customer	E	32.53%
Net-to-Gross (Energy)	F	90.0%
Net-to-Gross (Demand)	G	90.0%
Transmission Loss Factor (Energy)	H	6.506%
Transmission Loss Factor (Demand)	I	6.504%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$596
MTRC Non-Energy Benefit Adder	**M**	$122
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6981 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,850 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,565 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,743 kWh

Program Summary All Participants		
Total Budget	N	**$441,336**
Gross kW Saved at Customer	O	422 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**294 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	1,201,333 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	1,201,333 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	1,081,200 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**1,156,436 kWh**
TRC Net Benefits with Adder	(O x L)	**$251,340**
TRC Net Benefits without Adder	(O x (L - M))	**$199,802**
Utility Program Cost per kWh Lifetime		**$0.0545**
Utility Program Cost per kW at Gen		**$1,500**

REFRIGERATOR & FREEZER RECYCLING — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$260,041	$260,041	$260,041
Transmission & Distribution Capaci	N/A	$26,649	$26,649	$26,649
Marginal Energy	N/A	$1,352,371	$1,352,371	$1,352,371
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$1,639,061
Non-Energy Benefits Adder (10%)				$163,906
Subtotal	N/A	$1,639,061	$1,639,061	$1,802,967
Other Benefits				
Bill Reduction - Electric	$4,560,153	N/A	N/A	N/A
Participant Rebates and Incentives	$311,450	N/A	N/A	$311,450
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$4,871,603	N/A	N/A	$311,450
Total Benefits	$4,871,603	$1,639,061	$1,639,061	$2,114,417
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$528,961	$528,961	$528,961
Advertising/Promotion/Customer Ed	N/A	$219,537	$219,537	$219,537
Participant Rebates and Incentives	N/A	$311,450	$311,450	$311,450
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$3,000	$3,000	$3,000
Subtotal	N/A	$1,062,948	$1,062,948	$1,062,948
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$2,638,129	N/A
Subtotal	N/A	N/A	$2,638,129	N/A
Participant Costs				
Incremental Capital Costs	$0	N/A	N/A	$0
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$0	N/A	N/A	$0
Total Costs	$0	$1,062,948	$3,701,077	$1,062,948
Net Benefit (Cost)	$4,871,603	$576,113	($2,062,017)	$1,051,469
Benefit/Cost Ratio	INF	1.54	0.44	1.99

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	8.1 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	62.68%
Gross Load Factor at Customer	E	62.71%
Net-to-Gross (Energy)	F	57.8%
Net-to-Gross (Demand)	G	57.8%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$1,033
MTRC Non-Energy Benefit Adder	**M**	$161
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3925 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,494 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,175 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,439 kWh

Program Summary All Participants

Total Budget	N	**$1,062,948**
Gross kW Saved at Customer	O	1,018 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**400 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	5,592,510 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	5,592,510 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	3,232,124 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**3,501,380 kWh**
TRC Net Benefits with Adder	(O x L)	**$1,051,469**
TRC Net Benefits without Adder	(O x (L - M))	**$887,563**
Utility Program Cost per kWh Lifetime		**$0.0375**
Utility Program Cost per kW at Gen		**$2,660**

RESIDENTIAL DEMAND RESPONSE — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$7,791,939	$7,791,939	$7,791,939
Transmission & Distribution Capaci	N/A	$768,463	$768,463	$768,463
Marginal Energy	N/A	$19,932	$19,932	$19,932
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$8,580,334
Non-Energy Benefits Adder (10%)				$858,033
Subtotal	N/A	$8,580,334	$8,580,334	$9,438,367
Other Benefits				
Bill Reduction - Electric	$143,759	N/A	N/A	N/A
Participant Rebates and Incentives	$8,366,215	N/A	N/A	$8,366,215
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$8,509,973	N/A	N/A	$8,366,215
Total Benefits	$8,509,973	$8,580,334	$8,580,334	$17,804,582
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$12,732	$12,732	$12,732
Administration & Program Delivery	N/A	$3,107,838	$3,107,838	$3,107,838
Advertising/Promotion/Customer Ed	N/A	$993,189	$993,189	$993,189
Participant Rebates and Incentives	N/A	$8,366,215	$8,366,215	$8,366,215
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$118,200	$118,200	$118,200
Subtotal	N/A	$12,598,174	$12,598,174	$12,598,174
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$143,759	N/A
Subtotal	N/A	N/A	$143,759	N/A
Participant Costs				
Incremental Capital Costs	$0	N/A	N/A	$0
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$0	N/A	N/A	$0
Total Costs	$0	$12,598,174	$12,741,933	$12,598,174
Net Benefit (Cost)	$8,509,973	($4,017,840)	($4,161,599)	$5,206,408
Benefit/Cost Ratio	INF	0.68	0.67	1.41

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.1 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	35.79%
Gross Load Factor at Customer	E	0.03%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$256
MTRC Non-Energy Benefit Adder	**M**	$42
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3877 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3 kWh

Program Summary All Participants

Total Budget	N	**$12,598,174**
Gross kW Saved at Customer	O	20,349 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**7,890 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	52,465 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	52,465 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	52,465 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**56,836 kWh**
TRC Net Benefits with Adder	(O x L)	**$5,206,408**
TRC Net Benefits without Adder	(O x (L - M))	**$4,348,374**
Utility Program Cost per kWh Lifetime		**$15.7115**
Utility Program Cost per kW at Gen		**$1,597**

RESIDENTIAL HEATING — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$1,013,038	$1,013,038	$1,013,038
Transmission & Distribution Capaci	N/A	$99,170	$99,170	$99,170
Marginal Energy	N/A	$2,132,528	$2,132,528	$2,132,528
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$3,244,736
Non-Energy Benefits Adder (10%)				$324,474
Subtotal	N/A	$3,244,736	$3,244,736	$3,569,209
Other Benefits				
Bill Reduction - Electric	$7,615,343	N/A	N/A	N/A
Participant Rebates and Incentives	$783,950	N/A	N/A	$783,950
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$8,399,293	N/A	N/A	$783,950
Total Benefits	$8,399,293	$3,244,736	$3,244,736	$4,353,159
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$68,650	$68,650	$68,650
Advertising/Promotion/Customer Ed	N/A	$80,542	$80,542	$80,542
Participant Rebates and Incentives	N/A	$783,950	$783,950	$783,950
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$7,540	$7,540	$7,540
Subtotal	N/A	$940,682	$940,682	$940,682
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$7,122,630	N/A
Subtotal	N/A	N/A	$7,122,630	N/A
Participant Costs				
Incremental Capital Costs	$1,550,992	N/A	N/A	$1,455,273
Incremental O&M Costs	$918,837	N/A	N/A	$862,107
Subtotal	$2,469,829	N/A	N/A	$2,317,380
Total Costs	$2,469,829	$940,682	$8,063,312	$3,258,062
Net Benefit (Cost)	$5,929,464	$2,304,054	($4,818,576)	$1,095,098
Benefit/Cost Ratio	3.40	3.45	0.40	1.34

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	18.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	69.93%
Gross Load Factor at Customer	E	42.83%
Net-to-Gross (Energy)	F	94.0%
Net-to-Gross (Demand)	G	94.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**99.5%**
Installation Rate (Demand)	**K**	**100.2%**
MTRC Net Benefit (Cost)	**L**	$722
MTRC Non-Energy Benefit Adder	**M**	$214
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.7135 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,752 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,509 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,802 kWh

Program Summary All Participants

Total Budget	N	**$940,682**
Gross kW Saved at Customer	O	1,517 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**1,083 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	5,693,041 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	5,664,576 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	5,324,701 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**5,768,282 kWh**
TRC Net Benefits with Adder	(O x L)	**$1,095,098**
TRC Net Benefits without Adder	(O x (L - M))	**$770,624**
Utility Program Cost per kWh Lifetime		**$0.0091**
Utility Program Cost per kW at Gen		**$869**

SCHOOL EDUCATION KITS — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$479,741	$479,741	$479,741
Transmission & Distribution Capaci	N/A	$49,203	$49,203	$49,203
Marginal Energy	N/A	$2,110,858	$2,110,858	$2,110,858
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$2,639,803
Non-Energy Benefits Adder (10%)				$263,980
Subtotal	N/A	$2,639,803	$2,639,803	$2,903,783
Other Benefits				
Bill Reduction - Electric	$7,178,507	N/A	N/A	N/A
Participant Rebates and Incentives	$924,107	N/A	N/A	$924,107
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$619,932	N/A	N/A	$443,549
Subtotal	$8,722,546	N/A	N/A	$1,367,656
Total Benefits	$8,722,546	$2,639,803	$2,639,803	$4,271,439
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$628,007	$628,007	$628,007
Advertising/Promotion/Customer Ed	N/A	($1,395)	($1,395)	($1,395)
Participant Rebates and Incentives	N/A	$924,107	$924,107	$924,107
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$1,550,719	$1,550,719	$1,550,719
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$6,330,123	N/A
Subtotal	N/A	N/A	$6,330,123	N/A
Participant Costs				
Incremental Capital Costs	$877,921	N/A	N/A	$877,921
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$877,921	N/A	N/A	$877,921
Total Costs	$877,921	$1,550,719	$7,880,842	$2,428,640
Net Benefit (Cost)	$7,844,625	$1,089,084	($5,241,039)	$1,842,799
Benefit/Cost Ratio	9.94	1.70	0.33	1.76

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	7.6 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	9.37%
Gross Load Factor at Customer	E	12.20%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**89.1%**
Installation Rate (Demand)	**K**	**89.1%**
MTRC Net Benefit (Cost)	**L**	$212
MTRC Non-Energy Benefit Adder	**M**	$30
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.0905 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,069 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	953 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,032 kWh

Program Summary All Participants

Total Budget	N	**$1,550,719**
Gross kW Saved at Customer	O	8,676 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**785 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	9,274,342 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	8,267,610 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	8,267,610 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**8,956,353 kWh**
TRC Net Benefits with Adder	(O x L)	**$1,842,799**
TRC Net Benefits without Adder	(O x (L - M))	**$1,578,819**
Utility Program Cost per kWh Lifetime		**$0.0228**
Utility Program Cost per kW at Gen		**$1,976**

SELF DIRECT **2017 ELECTRIC ACTUAL**

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$1,319,749	$1,319,749	$1,319,749
Transmission & Distribution Capaci	N/A	$111,069	$111,069	$111,069
Marginal Energy	N/A	$4,709,880	$4,709,880	$4,709,880
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$6,140,699
Non-Energy Benefits Adder (10%)				$614,070
Subtotal	N/A	$6,140,699	$6,140,699	$6,754,768
Other Benefits				
Bill Reduction - Electric	$10,009,984	N/A	N/A	N/A
Participant Rebates and Incentives	$1,022,513	N/A	N/A	$1,022,513
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$109,350	N/A	N/A	$99,508
Subtotal	$11,141,846	N/A	N/A	$1,122,021
Total Benefits	$11,141,846	$6,140,699	$6,140,699	$7,876,789
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$4,297	$4,297	$4,297
Administration & Program Delivery	N/A	$126,596	$126,596	$126,596
Advertising/Promotion/Customer Ed	N/A	$11,274	$11,274	$11,274
Participant Rebates and Incentives	N/A	$1,022,513	$1,022,513	$1,022,513
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$1,164,681	$1,164,681	$1,164,681
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$9,109,085	N/A
Subtotal	N/A	N/A	$9,109,085	N/A
Participant Costs				
Incremental Capital Costs	$3,240,704	N/A	N/A	$2,949,041
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$3,240,704	N/A	N/A	$2,949,041
Total Costs	$3,240,704	$1,164,681	$10,273,766	$4,113,721
Net Benefit (Cost)	$7,901,142	$4,976,018	($4,133,067)	$3,763,068
Benefit/Cost Ratio	3.44	5.27	0.60	1.91

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	18.1 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	80.37%
Gross Load Factor at Customer	E	84.94%
Net-to-Gross (Energy)	F	91.0%
Net-to-Gross (Demand)	G	91.0%
Transmission Loss Factor (Energy)	H	6.501%
Transmission Loss Factor (Demand)	I	6.501%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	$2,693
MTRC Non-Energy Benefit Adder	**M**	$439
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.7822 kW
Gross Annual kWh Saved at Customer	(B x E x C)	7,441 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	6,771 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	7,242 kWh

Program Summary All Participants

Total Budget	N	**$1,164,681**
Gross kW Saved at Customer	O	1,397 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**1,093 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	10,398,682 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	10,398,682 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	9,462,801 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**10,120,786 kWh**
TRC Net Benefits with Adder	(O x L)	**$3,763,068**
TRC Net Benefits without Adder	(O x (L - M))	**$3,148,998**
Utility Program Cost per kWh Lifetime		**$0.0063**
Utility Program Cost per kW at Gen		**$1,065**

SINGLE-FAMILY WEATHERIZATION — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$81,431	$81,431	$81,431
Transmission & Distribution Capaci	N/A	$8,331	$8,331	$8,331
Marginal Energy	N/A	$356,726	$356,726	$356,726
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$446,487
Non-Energy Benefits Adder (25%)				$111,622
Subtotal	N/A	$446,487	$446,487	$558,109
Other Benefits				
Bill Reduction - Electric	$1,264,725	N/A	N/A	N/A
Participant Rebates and Incentives	$484,832	N/A	N/A	$484,832
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$1,015	N/A	N/A	$1,015
Subtotal	$1,750,572	N/A	N/A	$485,847
Total Benefits	$1,750,572	$446,487	$446,487	$1,043,957
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$2,331	$2,331	$2,331
Administration & Program Delivery	N/A	$104,837	$104,837	$104,837
Advertising/Promotion/Customer Ed	N/A	$113,618	$113,618	$113,618
Participant Rebates and Incentives	N/A	$484,832	$484,832	$484,832
Equipment & Installation	N/A	$15	$15	$15
Measurement and Verification	N/A	$27,442	$27,442	$27,442
Subtotal	N/A	$733,075	$733,075	$733,075
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$1,264,725	N/A
Subtotal	N/A	N/A	$1,264,725	N/A
Participant Costs				
Incremental Capital Costs	$571,717	N/A	N/A	$571,717
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$571,717	N/A	N/A	$571,717
Total Costs	$571,717	$733,075	$1,997,801	$1,304,793
Net Benefit (Cost)	$1,178,855	($286,588)	($1,551,313)	($260,836)
Benefit/Cost Ratio	3.06	0.61	0.22	0.80

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	9.3 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	8.44%
Gross Load Factor at Customer	E	11.96%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	-$196
MTRC Non-Energy Benefit Adder	**M**	$84
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.0914 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,048 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,048 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,135 kWh

Program Summary All Participants

Total Budget	N	**$733,075**
Gross kW Saved at Customer	O	1,334 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**122 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	1,397,724 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	1,397,724 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	1,397,724 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**1,514,163 kWh**
TRC Net Benefits with Adder	(O x L)	**($260,836)**
TRC Net Benefits without Adder	(O x (L - M))	**($372,458)**
Utility Program Cost per kWh Lifetime		**$0.0521**
Utility Program Cost per kW at Gen		**$6,013**

WATER HEATING — 2017 — ELECTRIC — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$8,898	$8,898	$8,898
Transmission & Distribution Capaci	N/A	$910	$910	$910
Marginal Energy	N/A	$21,150	$21,150	$21,150
Avoided Emissions (CO2)	N/A	N/A	N/A	$0
Subtotal				$30,957
Non-Energy Benefits Adder (10%)				$3,096
Subtotal	N/A	$30,957	$30,957	$34,053
Other Benefits				
Bill Reduction - Electric	$70,326	N/A	N/A	N/A
Participant Rebates and Incentives	$16,200	N/A	N/A	$16,200
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$86,526	N/A	N/A	$16,200
Total Benefits	$86,526	$30,957	$30,957	$50,253
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$3,979	$3,979	$3,979
Administration & Program Delivery	N/A	$2,535	$2,535	$2,535
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$16,200	$16,200	$16,200
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$22,714	$22,714	$22,714
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$70,326	N/A
Subtotal	N/A	N/A	$70,326	N/A
Participant Costs				
Incremental Capital Costs	$45,402	N/A	N/A	$45,402
Incremental O&M Costs	$8,268	N/A	N/A	$3,057
Subtotal	$53,670	N/A	N/A	$48,459
Total Costs	$53,670	$22,714	$93,040	$71,172
Net Benefit (Cost)	$32,856	$8,244	($62,083)	($20,919)
Benefit/Cost Ratio	1.61	1.36	0.33	0.71

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	10.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	100.00%
Gross Load Factor at Customer	E	78.75%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	7.690%
Transmission Loss Factor (Demand)	I	7.690%
Installation Rate (Energy)	**J**	**100.0%**
Installation Rate (Demand)	**K**	**100.0%**
MTRC Net Benefit (Cost)	**L**	-$1,194
MTRC Non-Energy Benefit Adder	**M**	$177
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	1.0833 kW
Gross Annual kWh Saved at Customer	(B x E x C)	6,899 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	6,899 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	7,474 kWh

Program Summary All Participants

Total Budget	N	**$22,714**
Gross kW Saved at Customer	O	18 kW
Net coincident kW Saved at Generator	**(G x O x K) x D / (1 - I)**	**19 kW**
Gross Annual kWh Saved at Customer	(B x E x O)	120,848 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x O x J)**	120,848 kWh
Net Annual kWh Saved at Customer	(F x (B x E x O x J))	120,848 kWh
Net Annual kWh Saved at Generator	**((F x (B x E x O x J)) / (1 - H))**	**130,915 kWh**
TRC Net Benefits with Adder	(O x L)	**($20,919)**
TRC Net Benefits without Adder	(O x (L - M))	**($24,015)**
Utility Program Cost per kWh Lifetime		**$0.0174**
Utility Program Cost per kW at Gen		**$1,197**

PORTFOLIO TOTAL **2017** **GAS** **ACTUAL**

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$23,806,814	$23,806,814	$23,806,814
Variable O&M Savings	N/A	$282,689	$282,689	$282,689
Demand Savings	N/A	$2,656,388	$2,656,388	$2,656,388
Subtotal				$26,745,891
Emissions Non-Energy Benefits Adder (7.6%)				$2,042,158
Subtotal	N/A	$26,745,891	$26,745,891	$28,788,049
Other Benefits				
Bill Reduction - Gas	$51,674,962	N/A	N/A	N/A
Participant Rebates and Incentives	$9,110,739	N/A	N/A	$9,110,739
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$43,099,641	N/A	N/A	$16,127,987
Subtotal	$103,885,342	N/A	N/A	$25,238,726
Total Benefits	$103,885,342	$26,745,891	$26,745,891	$54,026,775
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$121,369	$121,369	$121,369
Administration & Program Delivery	N/A	$4,121,804	$4,121,804	$4,121,804
Advertising/Promotion/Customer Ed	N/A	$605,151	$605,151	$605,151
Participant Rebates and Incentives	N/A	$9,110,739	$9,110,739	$9,110,739
Equipment & Installation	N/A	$238,809	$238,809	$238,809
Measurement and Verification	N/A	$732,169	$732,169	$732,169
Subtotal	N/A	$14,930,042	$14,930,042	$14,930,042
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$45,996,699	N/A
Subtotal	N/A	N/A	$45,996,699	N/A
Participant Costs				
Incremental Capital Costs	$19,769,779	N/A	N/A	$18,094,277
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$19,769,779	N/A	N/A	$18,094,277
Total Costs	$19,769,779	$14,930,042	$60,926,740	$33,024,319
Net Benefit (Cost)	$84,115,563	$11,815,850	($34,180,849)	$21,002,456
Benefit/Cost Ratio	5.25	1.79	0.44	1.64

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	14.48 years
Net-to-Gross (Weighted on Dth)	B	93.35%
Install Rate (Weighted on Dth)	C	94.3%

Program Totals:		
Total Dth/Yr Saved	F	**626,978**
Utility Costs per Net Dth/Yr	G	$23.81
Net Benefit (Cost) per Gross Dth/Yr	H	$33.50
Non-Energy Benefits Adder per Gross Dth/Yr	I	$3.26
Annual Dth/$M	($1M / G)	**41,994**
Total Utility Budget	(G x F)	**$14,930,042**
Total MTRC Net Benefits with Adder	(F x H)	**$21,002,456**
Total MTRC Net Benefits without Adder	(H - I) x F	**$18,960,298**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$1.64**

BUSINESS PROGRAM TOTAL — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$6,403,340	$6,403,340	$6,403,340
Variable O&M Savings	N/A	$72,969	$72,969	$72,969
Demand Savings	N/A	$686,178	$686,178	$686,178
Subtotal				$7,162,487
Emissions Non-Energy Benefits Adder (5%)				$358,124
Subtotal	N/A	$7,162,487	$7,162,487	$7,520,611
Other Benefits				
Bill Reduction - Gas	$13,562,179	N/A	N/A	N/A
Participant Rebates and Incentives	$1,236,240	N/A	N/A	$1,236,240
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$5,546,840	N/A	N/A	$2,705,921
Subtotal	$20,345,259	N/A	N/A	$3,942,161
Total Benefits	$20,345,259	$7,162,487	$7,162,487	$11,462,772
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$25,150	$25,150	$25,150
Administration & Program Delivery	N/A	$1,158,280	$1,158,280	$1,158,280
Advertising/Promotion/Customer Ed	N/A	$46,836	$46,836	$46,836
Participant Rebates and Incentives	N/A	$1,236,240	$1,236,240	$1,236,240
Equipment & Installation	N/A	$159,889	$159,889	$159,889
Measurement and Verification	N/A	$97,048	$97,048	$97,048
Subtotal	N/A	$2,723,443	$2,723,443	$2,723,443
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$12,925,889	N/A
Subtotal	N/A	N/A	$12,925,889	N/A
Participant Costs				
Incremental Capital Costs	$5,043,957	N/A	N/A	$4,781,855
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$5,043,957	N/A	N/A	$4,781,855
Total Costs	$5,043,957	$2,723,443	$15,649,332	$7,505,298
Net Benefit (Cost)	$15,301,302	$4,439,044	($8,486,845)	$3,957,474
Benefit/Cost Ratio	4.03	2.63	0.46	1.53

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	17.59 years
Net-to-Gross (Weighted on Dth)	B	95.29%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**140,626**
Utility Costs per Net Dth/Yr	G	$19.37
Net Benefit (Cost) per Gross Dth/Yr	H	$28.14
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.55
Annual Dth/$M	($1M / G)	**51,635**
Total Utility Budget	(G x F)	**$2,723,443**
Total MTRC Net Benefits with Adder	(F x H)	**$3,957,474**
Total MTRC Net Benefits without Adder	(H - I) x F	**$3,599,350**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$1.10**

RESIDENTIAL PROGRAM TOTAL — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$14,264,181	$14,264,181	$14,264,181
Variable O&M Savings	N/A	$171,618	$171,618	$171,618
Demand Savings	N/A	$1,614,544	$1,614,544	$1,614,544
Subtotal				$16,050,343
Emissions Non-Energy Benefits Adder (5%)				$802,517
Subtotal	N/A	$16,050,343	$16,050,343	$16,852,860
Other Benefits				
Bill Reduction - Gas	$31,550,257	N/A	N/A	N/A
Participant Rebates and Incentives	$4,382,395	N/A	N/A	$4,382,395
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$33,835,508	N/A	N/A	$12,038,477
Subtotal	$69,768,160	N/A	N/A	$16,420,872
Total Benefits	$69,768,160	$16,050,343	$16,050,343	$33,273,733
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$12,807	$12,807	$12,807
Administration & Program Delivery	N/A	$1,818,915	$1,818,915	$1,818,915
Advertising/Promotion/Customer Ed	N/A	$309,099	$309,099	$309,099
Participant Rebates and Incentives	N/A	$4,382,395	$4,382,395	$4,382,395
Equipment & Installation	N/A	$78,247	$78,247	$78,247
Measurement and Verification	N/A	$328,111	$328,111	$328,111
Subtotal	N/A	$6,929,574	$6,929,574	$6,929,574
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$26,697,238	N/A
Subtotal	N/A	N/A	$26,697,238	N/A
Participant Costs				
Incremental Capital Costs	$11,098,422	N/A	N/A	$9,704,573
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$11,098,422	N/A	N/A	$9,704,573
Total Costs	$11,098,422	$6,929,574	$33,626,811	$16,634,146
Net Benefit (Cost)	$58,669,738	$9,120,769	($17,576,468)	$16,639,587
Benefit/Cost Ratio	6.29	2.32	0.48	2.00

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	13.31 years
Net-to-Gross (Weighted on Dth)	B	91.29%
Install Rate (Weighted on Dth)	C	91.5%

Program Totals:		
Total Dth/Yr Saved	F	**405,584**
Utility Costs per Net Dth/Yr	G	$17.09
Net Benefit (Cost) per Gross Dth/Yr	H	$41.03
Non-Energy Benefits Adder per Gross Dth/Yr	I	$1.98
Annual Dth/$M	($1M / G)	**58,529**
Total Utility Budget	(G x F)	**$6,929,574**
Total MTRC Net Benefits with Adder	(F x H)	**$16,639,587**
Total MTRC Net Benefits without Adder	(H - I) x F	**$15,837,069**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$1.28**

LOW-INCOME PROGRAM TOTAL — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$3,131,581	$3,131,581	$3,131,581
Variable O&M Savings	N/A	$38,001	$38,001	$38,001
Demand Savings	N/A	$354,733	$354,733	$354,733
Subtotal				$3,524,315
Emissions Non-Energy Benefits Adder (25%)				$881,079
Subtotal	N/A	$3,524,315	$3,524,315	$4,405,394
Other Benefits				
Bill Reduction - Gas	$6,543,108	N/A	N/A	N/A
Participant Rebates and Incentives	$3,135,646	N/A	N/A	$3,135,646
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$3,717,293	N/A	N/A	$1,383,589
Subtotal	$13,396,047	N/A	N/A	$4,519,235
Total Benefits	$13,396,047	$3,524,315	$3,524,315	$8,924,629
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$17,145	$17,145	$17,145
Administration & Program Delivery	N/A	$439,400	$439,400	$439,400
Advertising/Promotion/Customer Ed	N/A	$91,026	$91,026	$91,026
Participant Rebates and Incentives	N/A	$3,135,646	$3,135,646	$3,135,646
Equipment & Installation	N/A	$674	$674	$674
Measurement and Verification	N/A	$122,050	$122,050	$122,050
Subtotal	N/A	$3,805,941	$3,805,941	$3,805,941
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$6,357,454	N/A
Subtotal	N/A	N/A	$6,357,454	N/A
Participant Costs				
Incremental Capital Costs	$3,512,394	N/A	N/A	$3,512,394
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$3,512,394	N/A	N/A	$3,512,394
Total Costs	$3,512,394	$3,805,941	$10,163,395	$7,318,335
Net Benefit (Cost)	$9,883,653	($281,626)	($6,639,080)	$1,606,294
Benefit/Cost Ratio	3.81	0.93	0.35	1.22

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	14.96 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	95.9%

Program Totals:		
Total Dth/Yr Saved	F	**80,531**
Utility Costs per Net Dth/Yr	G	$47.26
Net Benefit (Cost) per Gross Dth/Yr	H	$19.95
Non-Energy Benefits Adder per Gross Dth/Yr	I	$10.94
Annual Dth/$M	($1M / G)	**21,159**
Total Utility Budget	(G x F)	**$3,805,941**
Total MTRC Net Benefits with Adder	(F x H)	**$1,606,294**
Total MTRC Net Benefits without Adder	(H - I) x F	**$725,216**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$3.16**

COMMERCIAL REFRIGERATION EFFICIENCY — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$106,084	$106,084	$106,084
Variable O&M Savings	N/A	$1,438	$1,438	$1,438
Demand Savings	N/A	$13,426	$13,426	$13,426
Subtotal				$120,948
Emissions Non-Energy Benefits Adder (5%)				$6,047
Subtotal	N/A	$120,948	$120,948	$126,995
Other Benefits				
Bill Reduction - Gas	$221,366	N/A	N/A	N/A
Participant Rebates and Incentives	$3,156	N/A	N/A	$3,156
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$729,878	N/A	N/A	$365,832
Subtotal	$954,400	N/A	N/A	$368,988
Total Benefits	$954,400	$120,948	$120,948	$495,983
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$33,348	$33,348	$33,348
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$3,156	$3,156	$3,156
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$36,504	$36,504	$36,504
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$221,366	N/A
Subtotal	N/A	N/A	$221,366	N/A
Participant Costs				
Incremental Capital Costs	$3,023	N/A	N/A	$3,023
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$3,023	N/A	N/A	$3,023
Total Costs	$3,023	$36,504	$257,870	$39,527
Net Benefit (Cost)	$951,377	$84,444	($136,922)	$456,457
Benefit/Cost Ratio	315.74	3.31	0.47	12.55

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	9.97 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**3,842**
Utility Costs per Net Dth/Yr	G	$9.50
Net Benefit (Cost) per Gross Dth/Yr	H	$118.80
Non-Energy Benefits Adder per Gross Dth/Yr	I	$1.57
Annual Dth/$M	($1M / G)	**105,252**
Total Utility Budget	(G x F)	**$36,504**
Total MTRC Net Benefits with Adder	(F x H)	**$456,457**
Total MTRC Net Benefits without Adder	(H - I) x F	**$450,409**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$0.95**

CUSTOM EFFICIENCY	2017	GAS	ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$414,034	$414,034	$414,034
Variable O&M Savings	N/A	$4,678	$4,678	$4,678
Demand Savings	N/A	$43,672	$43,672	$43,672
Subtotal				$462,384
Emissions Non-Energy Benefits Adder (5%)				$23,119
Subtotal	N/A	$462,384	$462,384	$485,503
Other Benefits				
Bill Reduction - Gas	$994,097	N/A	N/A	N/A
Participant Rebates and Incentives	$74,286	N/A	N/A	$74,286
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$77,835	N/A	N/A	$33,858
Subtotal	$1,146,219	N/A	N/A	$108,145
Total Benefits	$1,146,219	$462,384	$462,384	$593,648
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$2,062	$2,062	$2,062
Administration & Program Delivery	N/A	$44,454	$44,454	$44,454
Advertising/Promotion/Customer Ed	N/A	$1,331	$1,331	$1,331
Participant Rebates and Incentives	N/A	$74,286	$74,286	$74,286
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$216	$216	$216
Subtotal	N/A	$122,349	$122,349	$122,349
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$864,865	N/A
Subtotal	N/A	N/A	$864,865	N/A
Participant Costs				
Incremental Capital Costs	$352,823	N/A	N/A	$306,956
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$352,823	N/A	N/A	$306,956
Total Costs	$352,823	$122,349	$987,213	$429,305
Net Benefit (Cost)	$793,396	$340,035	($524,829)	$164,343
Benefit/Cost Ratio	3.25	3.78	0.47	1.38

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	20.00 years
Net-to-Gross (Weighted on Dth)	B	87.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**8,285**
Utility Costs per Net Dth/Yr	G	$14.77
Net Benefit (Cost) per Gross Dth/Yr	H	$19.84
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.79
Annual Dth/$M	($1M / G)	**67,719**
Total Utility Budget	(G x F)	**$122,349**
Total MTRC Net Benefits with Adder	(F x H)	**$164,343**
Total MTRC Net Benefits without Adder	(H - I) x F	**$141,224**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$0.74**

ENERGY EFFICIENT SHOWERHEAD — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$1,469,181	$1,469,181	$1,469,181
Variable O&M Savings	N/A	$19,928	$19,928	$19,928
Demand Savings	N/A	$186,023	$186,023	$186,023
Subtotal				$1,675,133
Emissions Non-Energy Benefits Adder (5%)				$83,757
Subtotal	N/A	$1,675,133	$1,675,133	$1,758,890
Other Benefits				
Bill Reduction - Gas	$3,102,055	N/A	N/A	N/A
Participant Rebates and Incentives	$170,251	N/A	N/A	$170,251
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$16,417,514	N/A	N/A	$5,700,221
Subtotal	$19,689,820	N/A	N/A	$5,870,472
Total Benefits	$19,689,820	$1,675,133	$1,675,133	$7,629,361
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$2,153	$2,153	$2,153
Administration & Program Delivery	N/A	$216,209	$216,209	$216,209
Advertising/Promotion/Customer Ed	N/A	$72,898	$72,898	$72,898
Participant Rebates and Incentives	N/A	$170,251	$170,251	$170,251
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$461,511	$461,511	$461,511
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$2,250,087	N/A
Subtotal	N/A	N/A	$2,250,087	N/A
Participant Costs				
Incremental Capital Costs	$191,051	N/A	N/A	$189,140
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$191,051	N/A	N/A	$189,140
Total Costs	$191,051	$461,511	$2,711,598	$650,652
Net Benefit (Cost)	$19,498,769	$1,213,622	($1,036,465)	$6,978,710
Benefit/Cost Ratio	103.06	3.63	0.62	11.73

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	10.00 years
Net-to-Gross (Weighted on Dth)	B	99.00%
Install Rate (Weighted on Dth)	C	68.3%

Program Totals:		
Total Dth/Yr Saved	F	**53,141**
Utility Costs per Net Dth/Yr	G	$8.68
Net Benefit (Cost) per Gross Dth/Yr	H	$131.32
Non-Energy Benefits Adder per Gross Dth/Yr	I	$1.58
Annual Dth/$M	($1M / G)	**115,146**
Total Utility Budget	(G x F)	**$461,511**
Total MTRC Net Benefits with Adder	(F x H)	**$6,978,710**
Total MTRC Net Benefits without Adder	(H - I) x F	**$6,894,953**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$0.87**

ENERGY FEEDBACK RESIDENTIAL — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$605,128	$605,128	$605,128
Variable O&M Savings	N/A	$10,974	$10,974	$10,974
Demand Savings	N/A	$103,454	$103,454	$103,454
Subtotal				$719,556
Emissions Non-Energy Benefits Adder (5%)				$35,978
Subtotal	N/A	$719,556	$719,556	$755,533
Other Benefits				
Bill Reduction - Gas	$1,189,651	N/A	N/A	N/A
Participant Rebates and Incentives	$0	N/A	N/A	$0
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$1,189,651	N/A	N/A	$0
Total Benefits	$1,189,651	$719,556	$719,556	$755,533
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$496,894	$496,894	$496,894
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$0	$0	$0
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$496,894	$496,894	$496,894
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$1,189,651	N/A
Subtotal	N/A	N/A	$1,189,651	N/A
Participant Costs				
Incremental Capital Costs	$0	N/A	N/A	$0
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$0	N/A	N/A	$0
Total Costs	$0	$496,894	$1,686,545	$496,894
Net Benefit (Cost)	$1,189,651	$222,661	($966,989)	$258,639
Benefit/Cost Ratio	INF	1.45	0.43	1.52

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	3.04 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**70,854**
Utility Costs per Net Dth/Yr	G	$7.01
Net Benefit (Cost) per Gross Dth/Yr	H	$3.65
Non-Energy Benefits Adder per Gross Dth/Yr	I	$0.51
Annual Dth/$M	($1M / G)	**142,593**
Total Utility Budget	(G x F)	**$496,894**
Total MTRC Net Benefits with Adder	(F x H)	**$258,639**
Total MTRC Net Benefits without Adder	(H - I) x F	**$222,661**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$2.31**

ENERGY MANAGEMENT SYSTEMS — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$346,262	$346,262	$346,262
Variable O&M Savings	N/A	$3,928	$3,928	$3,928
Demand Savings	N/A	$37,603	$37,603	$37,603
Subtotal				$387,793
Emissions Non-Energy Benefits Adder (5%)				$19,390
Subtotal	N/A	$387,793	$387,793	$407,182
Other Benefits				
Bill Reduction - Gas	$714,036	N/A	N/A	N/A
Participant Rebates and Incentives	$29,732	N/A	N/A	$29,732
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$743,768	N/A	N/A	$29,732
Total Benefits	$743,768	$387,793	$387,793	$436,914
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$17,973	$17,973	$17,973
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$29,732	$29,732	$29,732
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$47,705	$47,705	$47,705
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$642,633	N/A
Subtotal	N/A	N/A	$642,633	N/A
Participant Costs				
Incremental Capital Costs	$297,709	N/A	N/A	$267,938
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$297,709	N/A	N/A	$267,938
Total Costs	$297,709	$47,705	$690,337	$315,643
Net Benefit (Cost)	$446,059	$340,088	($302,545)	$121,272
Benefit/Cost Ratio	2.50	8.13	0.56	1.38

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	15.00 years
Net-to-Gross (Weighted on Dth)	B	90.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**8,109**
Utility Costs per Net Dth/Yr	G	$5.88
Net Benefit (Cost) per Gross Dth/Yr	H	$14.95
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.39
Annual Dth/$M	($1M / G)	**169,989**
Total Utility Budget	(G x F)	**$47,705**
Total MTRC Net Benefits with Adder	(F x H)	**$121,272**
Total MTRC Net Benefits without Adder	(H - I) x F	**$101,882**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$0.39**

ENERGY SAVINGS KIT	2017	GAS	ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$239,734	$239,734	$239,734
Variable O&M Savings	N/A	$3,252	$3,252	$3,252
Demand Savings	N/A	$30,354	$30,354	$30,354
Subtotal				$273,340
Emissions Non-Energy Benefits Adder (25%)				$68,335
Subtotal	N/A	$273,340	$273,340	$341,675
Other Benefits				
Bill Reduction - Gas	$501,117	N/A	N/A	N/A
Participant Rebates and Incentives	$35,724	N/A	N/A	$35,724
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$2,555,914	N/A	N/A	$802,899
Subtotal	$3,092,755	N/A	N/A	$838,623
Total Benefits	$3,092,755	$273,340	$273,340	$1,180,299
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$47,941	$47,941	$47,941
Advertising/Promotion/Customer Ed	N/A	$9,641	$9,641	$9,641
Participant Rebates and Incentives	N/A	$35,724	$35,724	$35,724
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$4,750	$4,750	$4,750
Subtotal	N/A	$98,057	$98,057	$98,057
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$315,464	N/A
Subtotal	N/A	N/A	$315,464	N/A
Participant Costs				
Incremental Capital Costs	$30,009	N/A	N/A	$30,009
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$30,009	N/A	N/A	$30,009
Total Costs	$30,009	$98,057	$413,521	$128,066
Net Benefit (Cost)	$3,062,746	$175,283	($140,181)	$1,052,232
Benefit/Cost Ratio	103.06	2.79	0.66	9.22

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	10.00 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	62.8%

Program Totals:		
Total Dth/Yr Saved	F	**8,671**
Utility Costs per Net Dth/Yr	G	$11.31
Net Benefit (Cost) per Gross Dth/Yr	H	$121.35
Non-Energy Benefits Adder per Gross Dth/Yr	I	$7.88
Annual Dth/$M	($1M / G)	**88,431**
Total Utility Budget	(G x F)	**$98,057**
Total MTRC Net Benefits with Adder	(F x H)	**$1,052,232**
Total MTRC Net Benefits without Adder	(H - I) x F	**$983,897**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$1.13**

ENERGY STAR NEW HOMES — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$5,501,330	$5,501,330	$5,501,330
Variable O&M Savings	N/A	$60,506	$60,506	$60,506
Demand Savings	N/A	$570,564	$570,564	$570,564
Subtotal				$6,132,400
Emissions Non-Energy Benefits Adder (5%)				$306,620
Subtotal	N/A	$6,132,400	$6,132,400	$6,439,020
Other Benefits				
Bill Reduction - Gas	$11,854,133	N/A	N/A	N/A
Participant Rebates and Incentives	$1,617,159	N/A	N/A	$1,617,159
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$27,397	N/A	N/A	$15,089
Subtotal	$13,498,689	N/A	N/A	$1,632,247
Total Benefits	$13,498,689	$6,132,400	$6,132,400	$8,071,267
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$348	$348	$348
Administration & Program Delivery	N/A	$453,194	$453,194	$453,194
Advertising/Promotion/Customer Ed	N/A	$60,844	$60,844	$60,844
Participant Rebates and Incentives	N/A	$1,617,159	$1,617,159	$1,617,159
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$249,585	$249,585	$249,585
Subtotal	N/A	$2,381,130	$2,381,130	$2,381,130
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$10,905,803	N/A
Subtotal	N/A	N/A	$10,905,803	N/A
Participant Costs				
Incremental Capital Costs	$4,301,687	N/A	N/A	$3,957,552
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$4,301,687	N/A	N/A	$3,957,552
Total Costs	$4,301,687	$2,381,130	$13,286,932	$6,338,682
Net Benefit (Cost)	$9,197,002	$3,751,270	($7,154,533)	$1,732,585
Benefit/Cost Ratio	3.14	2.58	0.46	1.27

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	19.99 years
Net-to-Gross (Weighted on Dth)	B	92.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**107,353**
Utility Costs per Net Dth/Yr	G	$22.18
Net Benefit (Cost) per Gross Dth/Yr	H	$16.14
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.86
Annual Dth/$M	($1M / G)	**45,085**
Total Utility Budget	(G x F)	**$2,381,130**
Total MTRC Net Benefits with Adder	(F x H)	**$1,732,585**
Total MTRC Net Benefits without Adder	(H - I) x F	**$1,425,965**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$1.11**

ENERGY STAR RETAIL PRODUCTS PLATFORM PILOT — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$7,712	$7,712	$7,712
Variable O&M Savings	N/A	$100	$100	$100
Demand Savings	N/A	$934	$934	$934
Subtotal				$8,746
Emissions Non-Energy Benefits Adder (5%)				$437
Subtotal	N/A	$8,746	$8,746	$9,183
Other Benefits				
Bill Reduction - Gas	$19,419	N/A	N/A	N/A
Participant Rebates and Incentives	$0	N/A	N/A	$0
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$19,419	N/A	N/A	$0
Total Benefits	$19,419	$8,746	$8,746	$9,183
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$46,143	$46,143	$46,143
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$0	$0	$0
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$46,143	$46,143	$46,143
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$16,117	N/A
Subtotal	N/A	N/A	$16,117	N/A
Participant Costs				
Incremental Capital Costs	$115,007	N/A	N/A	$95,456
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$115,007	N/A	N/A	$95,456
Total Costs	$115,007	$46,143	$62,260	$141,599
Net Benefit (Cost)	($95,589)	($37,397)	($53,514)	($132,416)
Benefit/Cost Ratio	0.17	0.19	0.14	0.06

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	12.00 years
Net-to-Gross (Weighted on Dth)	B	83.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**236**
Utility Costs per Net Dth/Yr	G	$195.55
Net Benefit (Cost) per Gross Dth/Yr	H	($561.16)
Non-Energy Benefits Adder per Gross Dth/Yr	I	$1.85
Annual Dth/$M	($1M / G)	**5,114**
Total Utility Budget	(G x F)	**$46,143**
Total MTRC Net Benefits with Adder	(F x H)	**-$132,416**
Total MTRC Net Benefits without Adder	(H - I) x F	**-$132,853**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$16.30**

HEATING EFFICIENCY — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$687,438	$687,438	$687,438
Variable O&M Savings	N/A	$7,646	$7,646	$7,646
Demand Savings	N/A	$72,708	$72,708	$72,708
Subtotal				$767,791
Emissions Non-Energy Benefits Adder (5%)				$38,390
Subtotal	N/A	$767,791	$767,791	$806,181
Other Benefits				
Bill Reduction - Gas	$1,528,259	N/A	N/A	N/A
Participant Rebates and Incentives	$505,456	N/A	N/A	$505,456
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$2,033,715	N/A	N/A	$505,456
Total Benefits	$2,033,715	$767,791	$767,791	$1,311,636
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$16,357	$16,357	$16,357
Administration & Program Delivery	N/A	$319,569	$319,569	$319,569
Advertising/Promotion/Customer Ed	N/A	$23,589	$23,589	$23,589
Participant Rebates and Incentives	N/A	$505,456	$505,456	$505,456
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$16,500	$16,500	$16,500
Subtotal	N/A	$881,471	$881,471	$881,471
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$1,315,617	N/A
Subtotal	N/A	N/A	$1,315,617	N/A
Participant Costs				
Incremental Capital Costs	$934,057	N/A	N/A	$804,093
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$934,057	N/A	N/A	$804,093
Total Costs	$934,057	$881,471	$2,197,088	$1,685,564
Net Benefit (Cost)	$1,099,658	($113,680)	($1,429,297)	($373,927)
Benefit/Cost Ratio	2.18	0.87	0.35	0.78

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	16.03 years
Net-to-Gross (Weighted on Dth)	B	86.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**16,063**
Utility Costs per Net Dth/Yr	G	$54.87
Net Benefit (Cost) per Gross Dth/Yr	H	($23.28)
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.39
Annual Dth/$M	($1M / G)	**18,223**
Total Utility Budget	(G x F)	**$881,471**
Total MTRC Net Benefits with Adder	(F x H)	**-$373,927**
Total MTRC Net Benefits without Adder	(H - I) x F	**-$412,317**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$3.42**

HOME ENERGY SQUAD — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$170,417	$170,417	$170,417
Variable O&M Savings	N/A	$2,325	$2,325	$2,325
Demand Savings	N/A	$21,701	$21,701	$21,701
Subtotal				$194,442
Emissions Non-Energy Benefits Adder (5%)				$9,722
Subtotal	N/A	$194,442	$194,442	$204,165
Other Benefits				
Bill Reduction - Gas	$356,232	N/A	N/A	N/A
Participant Rebates and Incentives	$29,396	N/A	N/A	$29,396
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$463,129	N/A	N/A	$231,565
Subtotal	$848,758	N/A	N/A	$260,961
Total Benefits	$848,758	$194,442	$194,442	$465,125
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$261	$261	$261
Administration & Program Delivery	N/A	$93,345	$93,345	$93,345
Advertising/Promotion/Customer Ed	N/A	$89,197	$89,197	$89,197
Participant Rebates and Incentives	N/A	$29,396	$29,396	$29,396
Equipment & Installation	N/A	$78,247	$78,247	$78,247
Measurement and Verification	N/A	$2,356	$2,356	$2,356
Subtotal	N/A	$292,802	$292,802	$292,802
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$356,232	N/A
Subtotal	N/A	N/A	$356,232	N/A
Participant Costs				
Incremental Capital Costs	$673	N/A	N/A	$673
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$673	N/A	N/A	$673
Total Costs	$673	$292,802	$649,035	$293,475
Net Benefit (Cost)	$848,085	($98,360)	($454,592)	$171,650
Benefit/Cost Ratio	1,261.98	0.66	0.30	1.58

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	9.74 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**6,316**
Utility Costs per Net Dth/Yr	G	$46.36
Net Benefit (Cost) per Gross Dth/Yr	H	$27.18
Non-Energy Benefits Adder per Gross Dth/Yr	I	$1.54
Annual Dth/$M	($1M / G)	**21,570**
Total Utility Budget	(G x F)	**$292,802**
Total MTRC Net Benefits with Adder	(F x H)	**$171,650**
Total MTRC Net Benefits without Adder	(H - I) x F	**$161,928**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$4.76**

HOME PERFORMANCE WITH ENERGY STAR — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$518,853	$518,853	$518,853
Variable O&M Savings	N/A	$5,864	$5,864	$5,864
Demand Savings	N/A	$55,693	$55,693	$55,693
Subtotal				$580,411
Emissions Non-Energy Benefits Adder (5%)				$29,021
Subtotal	N/A	$580,411	$580,411	$609,431
Other Benefits				
Bill Reduction - Gas	$853,944	N/A	N/A	N/A
Participant Rebates and Incentives	$171,343	N/A	N/A	$171,343
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$334	N/A	N/A	$194
Subtotal	$1,025,621	N/A	N/A	$171,537
Total Benefits	$1,025,621	$580,411	$580,411	$780,968
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$5,436	$5,436	$5,436
Administration & Program Delivery	N/A	$54,462	$54,462	$54,462
Advertising/Promotion/Customer Ed	N/A	$2,835	$2,835	$2,835
Participant Rebates and Incentives	N/A	$171,343	$171,343	$171,343
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$18,185	$18,185	$18,185
Subtotal	N/A	$252,260	$252,260	$252,260
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$990,575	N/A
Subtotal	N/A	N/A	$990,575	N/A
Participant Costs				
Incremental Capital Costs	$559,874	N/A	N/A	$649,454
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$559,874	N/A	N/A	$649,454
Total Costs	$559,874	$252,260	$1,242,836	$901,714
Net Benefit (Cost)	$465,747	$328,150	($662,425)	($120,746)
Benefit/Cost Ratio	1.83	2.30	0.47	0.87

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	16.19 years
Net-to-Gross (Weighted on Dth)	B	116.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**11,934**
Utility Costs per Net Dth/Yr	G	$21.14
Net Benefit (Cost) per Gross Dth/Yr	H	($10.12)
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.43
Annual Dth/$M	($1M / G)	**47,309**
Total Utility Budget	(G x F)	**$252,260**
Total MTRC Net Benefits with Adder	(F x H)	**-$120,746**
Total MTRC Net Benefits without Adder	(H - I) x F	**-$149,766**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$1.31**

INSULATION & AIR SEALING — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$998,081	$998,081	$998,081
Variable O&M Savings	N/A	$11,347	$11,347	$11,347
Demand Savings	N/A	$107,685	$107,685	$107,685
Subtotal				$1,117,113
Emissions Non-Energy Benefits Adder (5%)				$55,856
Subtotal	N/A	$1,117,113	$1,117,113	$1,172,968
Other Benefits				
Bill Reduction - Gas	$2,228,848	N/A	N/A	N/A
Participant Rebates and Incentives	$499,671	N/A	N/A	$499,671
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$2,728,519	N/A	N/A	$499,671
Total Benefits	$2,728,519	$1,117,113	$1,117,113	$1,672,639
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$577	$577	$577
Administration & Program Delivery	N/A	$39,104	$39,104	$39,104
Advertising/Promotion/Customer Ed	N/A	$5,887	$5,887	$5,887
Participant Rebates and Incentives	N/A	$499,671	$499,671	$499,671
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$29,200	$29,200	$29,200
Subtotal	N/A	$574,439	$574,439	$574,439
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$1,906,312	N/A
Subtotal	N/A	N/A	$1,906,312	N/A
Participant Costs				
Incremental Capital Costs	$1,710,277	N/A	N/A	$1,462,783
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$1,710,277	N/A	N/A	$1,462,783
Total Costs	$1,710,277	$574,439	$2,480,751	$2,037,222
Net Benefit (Cost)	$1,018,243	$542,674	($1,363,638)	($364,582)
Benefit/Cost Ratio	1.60	1.94	0.45	0.82

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	16.22 years
Net-to-Gross (Weighted on Dth)	B	89.00%
Install Rate (Weighted on Dth)	C	99.1%

Program Totals:		
Total Dth/Yr Saved	F	**23,270**
Utility Costs per Net Dth/Yr	G	$24.69
Net Benefit (Cost) per Gross Dth/Yr	H	($15.67)
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.40
Annual Dth/$M	($1M / G)	**40,509**
Total Utility Budget	(G x F)	**$574,439**
Total MTRC Net Benefits with Adder	(F x H)	**-$364,582**
Total MTRC Net Benefits without Adder	(H - I) x F	**-$420,438**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$1.52**

LIGHTING - SMALL BUSINESS — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$210,932	$210,932	$210,932
Variable O&M Savings	N/A	$2,823	$2,823	$2,823
Demand Savings	N/A	$26,449	$26,449	$26,449
Subtotal				$240,204
Emissions Non-Energy Benefits Adder (5%)				$12,010
Subtotal	N/A	$240,204	$240,204	$252,214
Other Benefits				
Bill Reduction - Gas	$478,734	N/A	N/A	N/A
Participant Rebates and Incentives	$849	N/A	N/A	$849
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$1,681,779	N/A	N/A	$777,557
Subtotal	$2,161,362	N/A	N/A	$778,406
Total Benefits	$2,161,362	$240,204	$240,204	$1,030,620
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$42,196	$42,196	$42,196
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$849	$849	$849
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$43,045	$43,045	$43,045
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$432,750	N/A
Subtotal	N/A	N/A	$432,750	N/A
Participant Costs				
Incremental Capital Costs	$889	N/A	N/A	$804
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$889	N/A	N/A	$804
Total Costs	$889	$43,045	$475,795	$43,849
Net Benefit (Cost)	$2,160,473	$197,159	($235,591)	$986,771
Benefit/Cost Ratio	2,430.35	5.58	0.50	23.50

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	10.00 years
Net-to-Gross (Weighted on Dth)	B	90.44%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**7,529**
Utility Costs per Net Dth/Yr	G	$5.72
Net Benefit (Cost) per Gross Dth/Yr	H	$131.06
Non-Energy Benefits Adder per Gross Dth/Yr	I	$1.60
Annual Dth/$M	($1M / G)	**174,912**
Total Utility Budget	(G x F)	**$43,045**
Total MTRC Net Benefits with Adder	(F x H)	**$986,771**
Total MTRC Net Benefits without Adder	(H - I) x F	**$974,761**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$0.57**

MULTIFAMILY BUILDINGS — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$521,620	$521,620	$521,620
Variable O&M Savings	N/A	$6,521	$6,521	$6,521
Demand Savings	N/A	$60,877	$60,877	$60,877
Subtotal				$589,019
Emissions Non-Energy Benefits Adder (5%)				$29,451
Subtotal	N/A	$589,019	$589,019	$618,469
Other Benefits				
Bill Reduction - Gas	$1,089,971	N/A	N/A	N/A
Participant Rebates and Incentives	$209,556	N/A	N/A	$209,556
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$3,057,347	N/A	N/A	$1,528,674
Subtotal	$4,356,875	N/A	N/A	$1,738,230
Total Benefits	$4,356,875	$589,019	$589,019	$2,356,700
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$701	$701	$701
Administration & Program Delivery	N/A	$153,934	$153,934	$153,934
Advertising/Promotion/Customer Ed	N/A	$1,661	$1,661	$1,661
Participant Rebates and Incentives	N/A	$209,556	$209,556	$209,556
Equipment & Installation	N/A	$159,889	$159,889	$159,889
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$525,740	$525,740	$525,740
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$1,089,971	N/A
Subtotal	N/A	N/A	$1,089,971	N/A
Participant Costs				
Incremental Capital Costs	$270,826	N/A	N/A	$270,826
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$270,826	N/A	N/A	$270,826
Total Costs	$270,826	$525,740	$1,615,711	$796,566
Net Benefit (Cost)	$4,086,049	$63,278	($1,026,692)	$1,560,133
Benefit/Cost Ratio	16.09	1.12	0.36	2.96

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	13.81 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**14,094**
Utility Costs per Net Dth/Yr	G	$37.30
Net Benefit (Cost) per Gross Dth/Yr	H	$110.70
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.09
Annual Dth/$M	($1M / G)	**26,808**
Total Utility Budget	(G x F)	**$525,740**
Total MTRC Net Benefits with Adder	(F x H)	**$1,560,133**
Total MTRC Net Benefits without Adder	(H - I) x F	**$1,530,682**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$2.70**

MULTIFAMILY WEATHERIZATION — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$433,909	$433,909	$433,909
Variable O&M Savings	N/A	$5,754	$5,754	$5,754
Demand Savings	N/A	$53,708	$53,708	$53,708
Subtotal				$493,371
Emissions Non-Energy Benefits Adder (25%)				$123,343
Subtotal	N/A	$493,371	$493,371	$616,714
Other Benefits				
Bill Reduction - Gas	$906,911	N/A	N/A	N/A
Participant Rebates and Incentives	$980,745	N/A	N/A	$980,745
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$275,013	N/A	N/A	$137,507
Subtotal	$2,162,669	N/A	N/A	$1,118,251
Total Benefits	$2,162,669	$493,371	$493,371	$1,734,965
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$6,972	$6,972	$6,972
Administration & Program Delivery	N/A	$132,360	$132,360	$132,360
Advertising/Promotion/Customer Ed	N/A	$4,084	$4,084	$4,084
Participant Rebates and Incentives	N/A	$980,745	$980,745	$980,745
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$13,065	$13,065	$13,065
Subtotal	N/A	$1,137,226	$1,137,226	$1,137,226
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$906,911	N/A
Subtotal	N/A	N/A	$906,911	N/A
Participant Costs				
Incremental Capital Costs	$1,206,601	N/A	N/A	$1,206,601
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$1,206,601	N/A	N/A	$1,206,601
Total Costs	$1,206,601	$1,137,226	$2,044,137	$2,343,827
Net Benefit (Cost)	$956,067	($643,855)	($1,550,766)	($608,862)
Benefit/Cost Ratio	1.79	0.43	0.24	0.74

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	11.00 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**14,373**
Utility Costs per Net Dth/Yr	G	$79.12
Net Benefit (Cost) per Gross Dth/Yr	H	($42.36)
Non-Energy Benefits Adder per Gross Dth/Yr	I	$8.58
Annual Dth/$M	($1M / G)	**12,639**
Total Utility Budget	(G x F)	**$1,137,226**
Total MTRC Net Benefits with Adder	(F x H)	**-$608,862**
Total MTRC Net Benefits without Adder	(H - I) x F	**-$732,205**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$7.19**

NEW CONSTRUCTION — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$4,065,956	$4,065,956	$4,065,956
Variable O&M Savings	N/A	$45,185	$45,185	$45,185
Demand Savings	N/A	$424,437	$424,437	$424,437
Subtotal				$4,535,577
Emissions Non-Energy Benefits Adder (5%)				$226,779
Subtotal	N/A	$4,535,577	$4,535,577	$4,762,356
Other Benefits				
Bill Reduction - Gas	$8,417,179	N/A	N/A	N/A
Participant Rebates and Incentives	$405,096	N/A	N/A	$405,096
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$8,822,275	N/A	N/A	$405,096
Total Benefits	$8,822,275	$4,535,577	$4,535,577	$5,167,452
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$5,219	$5,219	$5,219
Administration & Program Delivery	N/A	$513,125	$513,125	$513,125
Advertising/Promotion/Customer Ed	N/A	$20,111	$20,111	$20,111
Participant Rebates and Incentives	N/A	$405,096	$405,096	$405,096
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$80,332	$80,332	$80,332
Subtotal	N/A	$1,023,884	$1,023,884	$1,023,884
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$8,252,005	N/A
Subtotal	N/A	N/A	$8,252,005	N/A
Participant Costs				
Incremental Capital Costs	$3,181,033	N/A	N/A	$3,124,979
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$3,181,033	N/A	N/A	$3,124,979
Total Costs	$3,181,033	$1,023,884	$9,275,888	$4,148,863
Net Benefit (Cost)	$5,641,242	$3,511,694	($4,740,311)	$1,018,590
Benefit/Cost Ratio	2.77	4.43	0.49	1.25

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	20.00 years
Net-to-Gross (Weighted on Dth)	B	98.04%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**80,096**
Utility Costs per Net Dth/Yr	G	$12.78
Net Benefit (Cost) per Gross Dth/Yr	H	$12.72
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.83
Annual Dth/$M	($1M / G)	**78,228**
Total Utility Budget	(G x F)	**$1,023,884**
Total MTRC Net Benefits with Adder	(F x H)	**$1,018,590**
Total MTRC Net Benefits without Adder	(H - I) x F	**$791,811**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$0.64**

NON-PROFIT **2017 GAS** **ACTUAL**

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$237,207	$237,207	$237,207
Variable O&M Savings	N/A	$2,801	$2,801	$2,801
Demand Savings	N/A	$26,146	$26,146	$26,146
Subtotal				$266,154
Emissions Non-Energy Benefits Adder (25%)				$66,538
Subtotal	N/A	$266,154	$266,154	$332,692
Other Benefits				
Bill Reduction - Gas	$495,564	N/A	N/A	N/A
Participant Rebates and Incentives	$429,451	N/A	N/A	$429,451
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$96,565	N/A	N/A	$48,283
Subtotal	$1,021,580	N/A	N/A	$477,733
Total Benefits	$1,021,580	$266,154	$266,154	$810,425
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$8,174	$8,174	$8,174
Administration & Program Delivery	N/A	$122,115	$122,115	$122,115
Advertising/Promotion/Customer Ed	N/A	$4,232	$4,232	$4,232
Participant Rebates and Incentives	N/A	$429,451	$429,451	$429,451
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$17,058	$17,058	$17,058
Subtotal	N/A	$581,030	$581,030	$581,030
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$495,564	N/A
Subtotal	N/A	N/A	$495,564	N/A
Participant Costs				
Incremental Capital Costs	$554,831	N/A	N/A	$554,831
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$554,831	N/A	N/A	$554,831
Total Costs	$554,831	$581,030	$1,076,595	$1,135,861
Net Benefit (Cost)	$466,749	($314,877)	($810,441)	($325,436)
Benefit/Cost Ratio	1.84	0.46	0.25	0.71

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	17.00 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**5,380**
Utility Costs per Net Dth/Yr	G	$108.00
Net Benefit (Cost) per Gross Dth/Yr	H	($60.49)
Non-Energy Benefits Adder per Gross Dth/Yr	I	$12.37
Annual Dth/$M	($1M / G)	**9,259**
Total Utility Budget	(G x F)	**$581,030**
Total MTRC Net Benefits with Adder	(F x H)	**-$325,436**
Total MTRC Net Benefits without Adder	(H - I) x F	**-$391,974**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$6.35**

PROCESS EFFICIENCY — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$0	$0	$0
Variable O&M Savings	N/A	$0	$0	$0
Demand Savings	N/A	$0	$0	$0
Subtotal				$0
#DIV/0!				$0
Subtotal	N/A	$0	$0	$0
Other Benefits				
Bill Reduction - Gas	$0	N/A	N/A	N/A
Participant Rebates and Incentives	$0	N/A	N/A	$0
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$0	N/A	N/A	$0
Total Benefits	$0	$0	$0	$0
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$0	$0	$0
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$0	$0	$0
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$0	$0	$0
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$0	N/A
Subtotal	N/A	N/A	$0	N/A
Participant Costs				
Incremental Capital Costs	$0	N/A	N/A	$0
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$0	N/A	N/A	$0
Total Costs	$0	$0	$0	$0
Net Benefit (Cost)	$0	$0	$0	$0
Benefit/Cost Ratio	INF	INF	INF	INF

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	0.00 years
Net-to-Gross (Weighted on Dth)	B	0.00%
Install Rate (Weighted on Dth)	C	#DIV/0!

Program Totals:		
Total Dth/Yr Saved	F	-
Utility Costs per Net Dth/Yr	G	#DIV/0!
Net Benefit (Cost) per Gross Dth/Yr	H	#DIV/0!
Non-Energy Benefits Adder per Gross Dth/Yr	I	#DIV/0!
Annual Dth/$M	($1M / G)	**#DIV/0!**
Total Utility Budget	(G x F)	**$0**
Total MTRC Net Benefits with Adder	(F x H)	**#DIV/0!**
Total MTRC Net Benefits without Adder	(H - I) x F	**#DIV/0!**
Utility Program Cost per Net Dth Lifetime	(G / A)	**#DIV/0!**

RECOMMISSIONING **2017** **GAS** **ACTUAL**

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$51,015	$51,015	$51,015
Variable O&M Savings	N/A	$751	$751	$751
Demand Savings	N/A	$7,006	$7,006	$7,006
Subtotal				$58,771
Emissions Non-Energy Benefits Adder (5%)				$2,939
Subtotal	N/A	$58,771	$58,771	$61,710
Other Benefits				
Bill Reduction - Gas	$118,537	N/A	N/A	N/A
Participant Rebates and Incentives	$8,108	N/A	N/A	$8,108
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$126,645	N/A	N/A	$8,108
Total Benefits	$126,645	$58,771	$58,771	$69,818
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$812	$812	$812
Administration & Program Delivery	N/A	$33,681	$33,681	$33,681
Advertising/Promotion/Customer Ed	N/A	$144	$144	$144
Participant Rebates and Incentives	N/A	$8,108	$8,108	$8,108
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$42,745	$42,745	$42,745
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$106,684	N/A
Subtotal	N/A	N/A	$106,684	N/A
Participant Costs				
Incremental Capital Costs	$3,597	N/A	N/A	$3,237
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$3,597	N/A	N/A	$3,237
Total Costs	$3,597	$42,745	$149,429	$45,982
Net Benefit (Cost)	$123,049	$16,026	($90,658)	$23,835
Benefit/Cost Ratio	35.21	1.37	0.39	1.52

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	7.00 years
Net-to-Gross (Weighted on Dth)	B	90.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**2,607**
Utility Costs per Net Dth/Yr	G	$16.40
Net Benefit (Cost) per Gross Dth/Yr	H	$9.14
Non-Energy Benefits Adder per Gross Dth/Yr	I	$1.13
Annual Dth/$M	($1M / G)	**60,983**
Total Utility Budget	(G x F)	**$42,745**
Total MTRC Net Benefits with Adder	(F x H)	**$23,835**
Total MTRC Net Benefits without Adder	(H - I) x F	**$20,897**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$2.34**

RESIDENTIAL HEATING — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$2,954,768	$2,954,768	$2,954,768
Variable O&M Savings	N/A	$33,541	$33,541	$33,541
Demand Savings	N/A	$315,753	$315,753	$315,753
Subtotal				$3,304,061
Emissions Non-Energy Benefits Adder (5%)				$165,203
Subtotal	N/A	$3,304,061	$3,304,061	$3,469,264
Other Benefits				
Bill Reduction - Gas	$7,671,655	N/A	N/A	N/A
Participant Rebates and Incentives	$1,621,030	N/A	N/A	$1,621,030
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$9,292,685	N/A	N/A	$1,621,030
Total Benefits	$9,292,685	$3,304,061	$3,304,061	$5,090,294
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$2,653	$2,653	$2,653
Administration & Program Delivery	N/A	$106,959	$106,959	$106,959
Advertising/Promotion/Customer Ed	N/A	$77,880	$77,880	$77,880
Participant Rebates and Incentives	N/A	$1,621,030	$1,621,030	$1,621,030
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$11,310	$11,310	$11,310
Subtotal	N/A	$1,819,832	$1,819,832	$1,819,832
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$5,907,174	N/A
Subtotal	N/A	N/A	$5,907,174	N/A
Participant Costs				
Incremental Capital Costs	$3,657,370	N/A	N/A	$2,816,175
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$3,657,370	N/A	N/A	$2,816,175
Total Costs	$3,657,370	$1,819,832	$7,727,007	$4,636,007
Net Benefit (Cost)	$5,635,315	$1,484,229	($4,422,946)	$454,286
Benefit/Cost Ratio	2.54	1.82	0.43	1.10

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	18.00 years
Net-to-Gross (Weighted on Dth)	B	77.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**62,612**
Utility Costs per Net Dth/Yr	G	$29.07
Net Benefit (Cost) per Gross Dth/Yr	H	$7.26
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.64
Annual Dth/$M	($1M / G)	**34,405**
Total Utility Budget	(G x F)	**$1,819,832**
Total MTRC Net Benefits with Adder	(F x H)	**$454,286**
Total MTRC Net Benefits without Adder	(H - I) x F	**$289,083**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$1.61**

RESIDENTIAL PROGRAM ENERGY EFFICIENCY TOTAL — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$14,264,181	$14,264,181	$14,264,181
Variable O&M Savings	N/A	$171,618	$171,618	$171,618
Demand Savings	N/A	$1,614,544	$1,614,544	$1,614,544
Subtotal				$16,050,343
Emissions Non-Energy Benefits Adder (5%)				$802,517
Subtotal	N/A	$16,050,343	$16,050,343	$16,852,860
Other Benefits				
Bill Reduction - Gas	$31,550,257	N/A	N/A	N/A
Participant Rebates and Incentives	$4,382,395	N/A	N/A	$4,382,395
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$33,835,508	N/A	N/A	$12,038,477
Subtotal	$69,768,160	N/A	N/A	$16,420,872
Total Benefits	$69,768,160	$16,050,343	$16,050,343	$33,273,733
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$12,807	$12,807	$12,807
Administration & Program Delivery	N/A	$1,818,915	$1,818,915	$1,818,915
Advertising/Promotion/Customer Ed	N/A	$309,099	$309,099	$309,099
Participant Rebates and Incentives	N/A	$4,382,395	$4,382,395	$4,382,395
Equipment & Installation	N/A	$78,247	$78,247	$78,247
Measurement and Verification	N/A	$328,111	$328,111	$328,111
Subtotal	N/A	$6,929,574	$6,929,574	$6,929,574
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$26,697,238	N/A
Subtotal	N/A	N/A	$26,697,238	N/A
Participant Costs				
Incremental Capital Costs	$11,098,422	N/A	N/A	$9,704,573
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$11,098,422	N/A	N/A	$9,704,573
Total Costs	$11,098,422	$6,929,574	$33,626,811	$16,634,146
Net Benefit (Cost)	$58,669,738	$9,120,769	($17,576,468)	$16,639,587
Benefit/Cost Ratio	6.29	2.32	0.48	2.00

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	13.31 years
Net-to-Gross (Weighted on Dth)	B	91.29%
Install Rate (Weighted on Dth)	C	91.5%

Program Totals:		
Total Dth/Yr Saved	F	**405,584**
Utility Costs per Net Dth/Yr	G	$17.09
Net Benefit (Cost) per Gross Dth/Yr	H	$41.03
Non-Energy Benefits Adder per Gross Dth/Yr	I	$1.98
Annual Dth/$M	($1M / G)	**58,529**
Total Utility Budget	(G x F)	**$6,929,574**
Total MTRC Net Benefits with Adder	(F x H)	**$16,639,587**
Total MTRC Net Benefits without Adder	(H - I) x F	**$15,837,069**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$1.28**

SCHOOL EDUCATION KITS — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$1,791,689	$1,791,689	$1,791,689
Variable O&M Savings	N/A	$24,302	$24,302	$24,302
Demand Savings	N/A	$226,858	$226,858	$226,858
Subtotal				$2,042,850
Emissions Non-Energy Benefits Adder (5%)				$102,142
Subtotal	N/A	$2,042,850	$2,042,850	$2,144,992
Other Benefits				
Bill Reduction - Gas	$3,745,173	N/A	N/A	N/A
Participant Rebates and Incentives	$193,425	N/A	N/A	$193,425
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$16,927,134	N/A	N/A	$6,091,409
Subtotal	$20,865,732	N/A	N/A	$6,284,835
Total Benefits	$20,865,732	$2,042,850	$2,042,850	$8,429,827
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$332,256	$332,256	$332,256
Advertising/Promotion/Customer Ed	N/A	($443)	($443)	($443)
Participant Rebates and Incentives	N/A	$193,425	$193,425	$193,425
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$525,238	$525,238	$525,238
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$2,696,709	N/A
Subtotal	N/A	N/A	$2,696,709	N/A
Participant Costs				
Incremental Capital Costs	$181,621	N/A	N/A	$181,621
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$181,621	N/A	N/A	$181,621
Total Costs	$181,621	$525,238	$3,221,947	$706,860
Net Benefit (Cost)	$20,684,111	$1,517,611	($1,179,097)	$7,722,968
Benefit/Cost Ratio	114.89	3.89	0.63	11.93

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	10.00 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	71.9%

Program Totals:		
Total Dth/Yr Saved	F	**64,806**
Utility Costs per Net Dth/Yr	G	$8.10
Net Benefit (Cost) per Gross Dth/Yr	H	$119.17
Non-Energy Benefits Adder per Gross Dth/Yr	I	$1.58
Annual Dth/$M	($1M / G)	**123,384**
Total Utility Budget	(G x F)	**$525,238**
Total MTRC Net Benefits with Adder	(F x H)	**$7,722,968**
Total MTRC Net Benefits without Adder	(H - I) x F	**$7,620,825**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$0.81**

SELF DIRECT **2017 GAS** **ACTUAL**

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$0	$0	$0
Variable O&M Savings	N/A	$0	$0	$0
Demand Savings	N/A	$0	$0	$0
Subtotal				$0
#DIV/0!				$0
Subtotal	N/A	$0	$0	$0
Other Benefits				
Bill Reduction - Gas	$0	N/A	N/A	N/A
Participant Rebates and Incentives	$0	N/A	N/A	$0
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$0	N/A	N/A	$0
Total Benefits	$0	$0	$0	$0
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$0	$0	$0
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$0	$0	$0
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$0	$0	$0
Subtotal	N/A	$0	$0	$0
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$0	N/A
Subtotal	N/A	N/A	$0	N/A
Participant Costs				
Incremental Capital Costs	$0	N/A	N/A	$0
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$0	N/A	N/A	$0
Total Costs	$0	$0	$0	$0
Net Benefit (Cost)	$0	$0	$0	$0
Benefit/Cost Ratio	INF	INF	INF	INF

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	0.00 years
Net-to-Gross (Weighted on Dth)	B	0.00%
Install Rate (Weighted on Dth)	C	#DIV/0!

Program Totals:		
Total Dth/Yr Saved	F	-
Utility Costs per Net Dth/Yr	G	#DIV/0!
Net Benefit (Cost) per Gross Dth/Yr	H	#DIV/0!
Non-Energy Benefits Adder per Gross Dth/Yr	I	#DIV/0!
Annual Dth/$M	($1M / G)	**#DIV/0!**
Total Utility Budget	(G x F)	**$0**
Total MTRC Net Benefits with Adder	(F x H)	**#DIV/0!**
Total MTRC Net Benefits without Adder	(H - I) x F	**#DIV/0!**
Utility Program Cost per Net Dth Lifetime	(G / A)	**#DIV/0!**

SINGLE-FAMILY WEATHERIZATION — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$2,220,731	$2,220,731	$2,220,731
Variable O&M Savings	N/A	$26,195	$26,195	$26,195
Demand Savings	N/A	$244,524	$244,524	$244,524
Subtotal				$2,491,451
Emissions Non-Energy Benefits Adder (25%)				$622,863
Subtotal	N/A	$2,491,451	$2,491,451	$3,114,313
Other Benefits				
Bill Reduction - Gas	$4,639,515	N/A	N/A	N/A
Participant Rebates and Incentives	$1,689,726	N/A	N/A	$1,689,726
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$789,801	N/A	N/A	$394,901
Subtotal	$7,119,043	N/A	N/A	$2,084,627
Total Benefits	$7,119,043	$2,491,451	$2,491,451	$5,198,940
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$1,998	$1,998	$1,998
Administration & Program Delivery	N/A	$136,984	$136,984	$136,984
Advertising/Promotion/Customer Ed	N/A	$73,068	$73,068	$73,068
Participant Rebates and Incentives	N/A	$1,689,726	$1,689,726	$1,689,726
Equipment & Installation	N/A	$674	$674	$674
Measurement and Verification	N/A	$87,177	$87,177	$87,177
Subtotal	N/A	$1,989,628	$1,989,628	$1,989,628
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$4,639,515	N/A
Subtotal	N/A	N/A	$4,639,515	N/A
Participant Costs				
Incremental Capital Costs	$1,720,952	N/A	N/A	$1,720,952
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$1,720,952	N/A	N/A	$1,720,952
Total Costs	$1,720,952	$1,989,628	$6,629,143	$3,710,580
Net Benefit (Cost)	$5,398,091	$501,823	($4,137,692)	$1,488,360
Benefit/Cost Ratio	4.14	1.25	0.38	1.40

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	16.67 years
Net-to-Gross (Weighted on Dth)	B	100.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**52,107**
Utility Costs per Net Dth/Yr	G	$38.18
Net Benefit (Cost) per Gross Dth/Yr	H	$28.56
Non-Energy Benefits Adder per Gross Dth/Yr	I	$11.95
Annual Dth/$M	($1M / G)	**26,189**
Total Utility Budget	(G x F)	**$1,989,628**
Total MTRC Net Benefits with Adder	(F x H)	**$1,488,360**
Total MTRC Net Benefits without Adder	(H - I) x F	**$865,498**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$2.29**

WATER HEATING — 2017 — GAS — ACTUAL

2017 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified TRC Test ($Total)
Benefits				
Avoided Revenue Requirements				
Commodity Cost Reduction	N/A	$254,734	$254,734	$254,734
Variable O&M Savings	N/A	$2,832	$2,832	$2,832
Demand Savings	N/A	$26,812	$26,812	$26,812
Subtotal				$284,378
Emissions Non-Energy Benefits Adder (5%)				$14,219
Subtotal	N/A	$284,378	$284,378	$298,597
Other Benefits				
Bill Reduction - Gas	$548,564	N/A	N/A	N/A
Participant Rebates and Incentives	$80,120	N/A	N/A	$80,120
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$0	N/A	N/A	$0
Subtotal	$628,684	N/A	N/A	$80,120
Total Benefits	$628,684	$284,378	$284,378	$378,717
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$1,379	$1,379	$1,379
Administration & Program Delivery	N/A	$26,493	$26,493	$26,493
Advertising/Promotion/Customer Ed	N/A	$0	$0	$0
Participant Rebates and Incentives	N/A	$80,120	$80,120	$80,120
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$17,475	$17,475	$17,475
Subtotal	N/A	$125,466	$125,466	$125,466
Utility Revenue Reduction				
Revenue Reduction - Gas	N/A	N/A	$494,695	N/A
Subtotal	N/A	N/A	$494,695	N/A
Participant Costs				
Incremental Capital Costs	$495,869	N/A	N/A	$447,175
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$495,869	N/A	N/A	$447,175
Total Costs	$495,869	$125,466	$620,162	$572,641
Net Benefit (Cost)	$132,815	$158,912	($335,783)	($193,924)
Benefit/Cost Ratio	1.27	2.27	0.46	0.66

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Assumptions:		
Lifetime (Weighted on Dth)	A	18.28 years
Net-to-Gross (Weighted on Dth)	B	90.00%
Install Rate (Weighted on Dth)	C	100.0%

Program Totals:		
Total Dth/Yr Saved	F	**5,299**
Utility Costs per Net Dth/Yr	G	$23.68
Net Benefit (Cost) per Gross Dth/Yr	H	($36.59)
Non-Energy Benefits Adder per Gross Dth/Yr	I	$2.68
Annual Dth/$M	($1M / G)	**42,237**
Total Utility Budget	(G x F)	**$125,466**
Total MTRC Net Benefits with Adder	(F x H)	**-$193,924**
Total MTRC Net Benefits without Adder	(H - I) x F	**-$208,143**
Utility Program Cost per Net Dth Lifetime	(G / A)	**$1.30**