Black Hills Power, Inc. d/b/a Black Hills Energy

Energy Efficiency Solutions Status Report Program Year 2016

Docket No. xxx

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Executive Summary

Black Hills Power, Inc. d/b/a Black Hills Energy ("BHP" or the "Company") is a South Dakota corporation regulated by the South Dakota Public Utilities Commission (the "Commission") that provides electricity to approximately 70,000 customers in western South Dakota, northern Wyoming and southeastern Montana. BHP is a wholly owned subsidiary of Black Hills Corporation, which provides natural gas and electricity to more than 1.2 million customers throughout the Midwest region of the United States.

This report presents a status report of Program Year 2016 ("PY2016"), which ran from September 1, 2016 through August 31, 2017, for BHP's Commission approved Energy Efficiency Solution Plan. BHP's Energy Efficiency Solutions portfolio is composed of residential and non-residential programs. Each program has been designed to address the needs of various customer types. The programs include:

Residential

- Residential Lighting
- Appliance Recycling
- Residential High Efficiency HVAC
- Whole House Efficiency
- Residential Audits
- School-Based Education
- Weatherization

Commercial & Industrial (C&I)

- Prescriptive
- Custom

PORTFOLIO SUMMARY

Overall results for PY2016 show that BHP spent approximately 86 percent of total budget and achieved 66 percent of the energy savings goal and 66 percent of the demand savings goal. Table ES1 presents projected budgets and actual expenditures by sector for PY2016. Any costs that can be directly assignable to a program are included within Residential and Non-Residential. The goals presented in the tables below represent the goals that were originally approved in the plan. The difference between the actual savings attained and the budget spent is largely attributed to differences in program design of the Plan compared to actual measures installed.

For ease of administration, BHP established two work orders associated with Cross Marketing & Training and General Administration – these dollars were allocated back to the two categories (Residential and Commercial & Industrial Programs) of the Energy Efficiency Solutions Adjustment (EESA) rate(s). The General Administration budget includes all administrative costs that were included in the original plan design for each measure. The Cross Marketing & Training budget comprised of all the marketing costs included in the original plan design for each measure plus additional Cross Marketing & Training costs for the entire Energy Efficiency Solutions plan.

Table ES1 provides an overall summary of PY2016 sector goals and actual sector expenditures.

TABLE ES1: PY2016 PORTFOLIO SUMMARY OF ACTUAL SPEND VS PROJECTED BUDGET BY SECTOR

Sector	PY2016 Goal	PY2016 Actual	% of Budget
Residential	$241,733	$126,028	52%
Commercial & Industrial	$477,290	$480,083	101%
Cross Marketing & Training[1]	$119,987	$78,509	65%
General Administration[2]	$64,047	$82,178	128%
Total	**$903,057**	**$766,797**	**85%**

Table ES2 provides PY2016 sector budgets and actual sector expenditures.

TABLE ES2: PY2016 PORTFOLIO SUMMARY OF PROGRAM BUDGET VS ACTUAL EXPENDITURES BY PROGRAM

	PY2016 Budget	PY2016 Expenditures	% of Budget
Residential Programs			
Residential Lighting	$36,203	$13,113	36%
Residential Appliance Recycling	$12,630	$7,544	60%
Residential HVAC	$62,480	$15,471	25%
Whole House Efficiency	$33,016	$14,766	45%
Residential Audit	$23,203	$12,780	55%
School-Based Energy Education	$63,150	$62,223	99%
Weatherization	$11,051	$131	1%
C&I Programs			
Prescriptive	$217,562	$240,109	110%
Custom	$259,727	$239,974	92%
Cross Marketing & Training	$119,987	$78,509	65%
General Administration	$64,047	$82,178	128%
Total	**$903,057**	**$766,797**	**85%**

Tables ES3 provides PY2016 sector energy saving goals and actual energy savings.

TABLE ES3: PY2016 ENERGY SAVINGS (KWH) BY SECTOR

	PY2016 Goal	PY2016 Actual	% of Goal
Residential Programs	1,332,461	807,391	61%
C&I Programs	5,759,482	3,843,017	67%
Total	**7,091,942**	**4,650,409**	**66%**

[1] Allocated 50% residential and 50% C&I for cost-effectiveness purposes.

[2] Allocated 70% residential and 30% C&I for cost-effectiveness purposes.

Table ES4 provides PY2016 energy saving goals and actual energy savings by program.

TABLE ES4: PY2016 ENERGY SAVINGS (KWH) BY PROGRAM

	PY2016 Goal	PY2016 Actual	% of Goal
Residential Programs			
Residential Lighting	193,951	72,337	37%
Residential Appliance Recycling	97,600	55,428	57%
Residential HVAC	321,874	111,459	35%
Whole House Efficiency	113,463	36,257	32%
Residential Audit	79,400	47,025	59%
School-Based Energy Education	476,397	477,194	100%
Weatherization	49,776	7,692	15%
C&I Programs			
Prescriptive	3,384,728	1,831,274	54%
Custom	2,374,754	2,011,743	85%
Total	**7,091,942**	**4,650,409**	**66%**

Table ES5 provides PY2016 demand saving goals and actual demand savings by sector.

TABLE ES5: PY2016 DEMAND SAVINGS (KW) BY SECTOR

	PY2016 Goal	PY2016 Actual	% of Goal
Residential Programs	238	120	51%
C&I Programs	1,315	892	68%
Total	**1,553**	**1,012**	**65%**

Table ES6 provides PY2016 demand saving goals and actual demand savings by program.

TABLE ES6: PY2016 DEMAND SAVINGS (KW) BY PROGRAM

	PY2016 Goal	PY2016 Actual	% of Goal
Residential Programs			
Residential Lighting	23	9	37%
Residential Appliance Recycling	11	6	57%
Residential HVAC	112	42	37%
Whole House Efficiency	29	9	33%
Residential Audit	8	5	62%
School-Based Energy Education	48	48	100%
Weatherization	7	1	17%
C&I Programs			
Prescriptive	726	398	55%
Custom	589	494	84%
Total	**1,553**	**1,012**	**65%**

Table ES7 provides PY2016 sector cost-effectiveness and overall portfolio cost-effectiveness results.

TABLE ES7: TOTAL PORTFOLIO COST-EFFECTIVENESS RESULTS

Sector	TRC	UCT	SCT	PCT	RIM
Residential Programs	0.83	0.98	1.04	10.72	0.25
C&I Programs	1.99	3.17	2.45	5.81	0.39
Portfolio	**1.72**	**2.53**	**2.12**	**6.19**	**0.36**

Residential Programs

BHP's residential Energy Efficiency Solutions programs serve residential customers, encouraging investment in energy efficient measures such as lighting, water heating, heating and cooling equipment and whole house efficiency.

Residential Lighting

The Residential Lighting program's primary objective is to secure energy savings by incentivizing the purchase of ENERGY STAR® qualified lighting.

Table 1 provides the Residential Lighting program participation goals compared to actual program participation.

TABLE 1: RESIDENTIAL LIGHTING PY2016 SUMMARY

	Goal	Actual	% Goal Achieved
Participation			
LED	4,000	1,147	29%
ENERGY STAR LED Fixture	550	391	71%
Advanced Power Strip	10	0	0%
Expenditures	$36,203	$13,113	36%
Energy Impacts (kWh)	193,951	72,337.0	37%
Demand Impacts (kW)	22.8	8.5	37%

In PY2016, BHP achieved 71 percent of its participation goal for LED fixtures and 29 percent of its goal for LED bulbs. BHP achieved 37 percent of its energy and demand savings goals on 36 percent of budgeted expenditures.

Table 2 provides the Residential Lighting program cost-effectiveness analysis results, based on program activity.

TABLE 2: RESIDENTIAL LIGHTING PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	1.10
Utility Cost Test	1.87
Societal Cost Test	1.37
Participant Test	4.77
Ratepayer Impact Measure Test	0.28

Residential Lighting – Highlights and Challenges

LED Bulbs

The Residential Lighting program began with the Company offering LEDs bulbs for sale. Three LED bulbs were offered – a 40watt incandescent equivalent, a 60watt incandescent equivalent and a 65watt flood/recessed light equivalent. Customers could purchase LEDs through a Company sponsored online store and later pick their purchased bulbs at BHP Office. In February 2017, the option of purchasing LED bulbs via the online store was discontinued because the website was compromised. BHP customers still

can purchase LED bulbs at a reduced price from BHP, however, transactions are all completed at BHP's office locations.

Through a pilot program, BHP worked with local hardware stores to offer instant rebates towards certain LED bulb purchases. The customer received an immediate reduction in the cost of the bulb at the check-out register. The rebate amount was paid directly to each hardware store. This pilot program ran for one month in September 2016 and included 1,194 bulbs at a rebate amount of $3,373.95. BHP extended the sponsorship of LED bulbs to only the local hardware stores in Rapid City and did not approach any big box chain stores. In recognition of the potential free ridership issue, BHP chose to not claim the savings associated with 1,194 bulbs and $3,373.95 of associated costs in PY2016.

In July 2017, BHP extended the rebate program to be a rebate-after-receipt program for Energy Star rated LED bulbs purchased through any retail outlet, including big box chain stores. BHP customers can now receive a rebate after turning in their receipts and BHP has verified their account status.

We are just now starting to know the impacts of the rebate-after-receipt option. Customers now have more options to replace other types of incandescent bulbs. BHP has included additional bill messaging to remind each customer that only "Energy Star" rated bulbs qualify for a rebate-after-receipt. The BHP sold LEDs are also Energy Star rated. By sponsoring "Energy Star" rated bulbs, we can assure better quality and longer life for each rebated LED bulb.

Energy Star LED Fixtures

BHP's customers have the option to turn in receipts and receive a rebate of up to $10/fixture for purchasing "Energy Star" LED fixtures. The activity associated with the "Energy Star" rated fixtures increased in PY2016 and BHP met 71% of its participation goal for "Energy Star" fixtures. BHP expects the participation rate to continue to increase in PY2017 because customers are experiencing more fixture options and the costs of "Energy Star" fixtures are coming down.

Advance Power Strip

In PY2016, BHP did not receive any rebate applications for advance power strips. Currently, there are not any retail stores selling this equipment. Rebates will no longer be offered for advanced power strip in BHP's recently approved Energy Efficiency Plan.

Residential Appliance Recycling

The Residential Appliance Recycling program goal is to remove inefficient refrigerators and freezers from the electric system and dispose of them in an environmentally safe and responsible manner. Recycled refrigerators and/or freezers must be between 10 and 30 cubic feet in size and in operating condition. Customers received a $50 rebate per qualifying unit recycled, limited to two rebates per customer over the life of the program. The two rebate cap is for each service location and BHP monitors this activity through our rebate processing software - VisionDSM.

Table 3 provides the Residential Refrigerator Recycling program goals compared to actual program performance.

TABLE 3: RESIDENTIAL REFRIGERATOR RECYCLING PY2016 SUMMARY

	Goal	Actual	% Goal Achieved
Participation			
Refrigerator Recycle	50	37	74%
Freezer Recycle	30	7	23%
Expenditures	$12,630	$7,544	60%
Energy Impacts (kWh)	97,600	55,428.0	57%
Demand Impacts (kW)	11.1	6.3	57%

In PY2016, BHP achieved 74 percent of the participation goal for refrigerator recycling and 23 percent for freezer recycling. Overall, BHP achieved 57 percent of its energy savings goals on 60 percent of budgeted expenditures.

Table 4 provides the Residential Refrigerator Recycling cost-effectiveness analysis results, based on program activity.

TABLE 4: RESIDENTIAL REFRIGERATOR RECYCLING PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	1.69
Utility Cost Test	2.12
Societal Cost Test	2.12
Participant Test	12.42
Ratepayer Impact Measure Test	0.28

Residential Appliance Recycling – Highlights and Challenges

In PY2016, there continued to be an interest in recycling refrigerators and freezers. One challenge that BHP experiences in PY2016 was a delay between the times that our contractor picked up the refrigerator and/or freezer for customers outside of the Rapid City area compared to customer expectations. Due to the additional costs that were associated with out-of-town pickups, BHP controls the costs by having our contractor schedule the trip when there are multiple refrigerators and/or freezers to be picked up in one area. This practice was implemented since the start of the program in 2011. With outside area requests, BHP discusses the potential delay in refrigerator and/or freezer pickups with each customer when scheduling occurs.

Residential High Efficiency HVAC

The objective of the Residential High Efficiency HVAC program is to encourage residential customers to purchase and install energy efficient HVAC equipment and water heaters. Customers were eligible to receive the following rebates:

Measure	Rebate
Air Source Heat Pump (1-5 tons, SEER ≥15 & HSPF ≥8.5)	$75 per ton
Early Replacement Air Source Heat Pump (1-5 tons, SEER ≥15 & HSPF ≥8.5)	$200 per ton
Electric Furnace to Heat Pump Replacement (1-5 tons, SEER ≥15 & HSPF ≥8.5)	$1,500 per system
Ductless Mini-Split HP/AC SEER ≥19	$50 per ton
Heat Pump Water Heater (EF≥2.0)	$5/tank gallon
Electric Storage Water Heater (EF ≥ 0.95)	$1.75/tank gallon
Electric Storage Water Heater (EF<0.95)	$1.25/tank gallon
Geothermal Heat Pump (1-5 tons, EER ≥21)	$200 per ton

Early Replacement Geothermal Heat Pump (1-5 tons, EER ≥21)	$300 per ton

Table 5 provides Residential High Efficiency HVAC program goals compared to actual program performance.

TABLE 5: RESIDENTIAL HIGH EFFICIENCY HVAC PY2016 SUMMARY

	Goal	Actual	% Goal Achieved
Participation			
Air Source Heat Pump	60	8	13%
Air Source Heat Pump, Early Retirement	8	9	113%
Air Source Heat Pump, Replace Furnace	8	0	0%
Ductless Mini-Split HP	10	14	140%
Heat Pump Water Heater	15	7	47%
Electric Water Heater EF ≥ 0.95	10	32	320%
Electric Water Heater EF<0.95	10	1	10%
Geothermal Heat Pump	15	0	0%
Geothermal Heat Pump, Early Retirement	8	0	0%
Expenditures	$62,480	$15,471	25%
Energy Impacts (kWh)	321,874	111,458.9	35%
Demand Impacts (kW)	112.4	42.0	37%

In PY2016, BHP achieved 35 percent of energy savings goal on 25 percent of budgeted expenditures. Participation was highest among the electric water heater measure with an EF greater than or equal to 0.95, followed by ductless mini-split HP. The number of air source heat pumps and geothermal heat pumps installed in homes have slowed down, this is primarily due to natural gas competition. The percentage differences between expenditures and energy/demand impacts is primarily due to the portfolio mix of actual participation rate compared to the original goals.

Table 6 provides Residential High Efficiency HVAC cost-effectiveness analysis results, based on program activity.

TABLE 6: RESIDENTIAL HIGH EFFICIENCY HVAC PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	1.15
Utility Cost Test	3.19
Societal Cost Test	1.40
Participant Test	3.66
Ratepayer Impact Measure Test	0.32

Residential High Efficiency HVAC – Highlights and Challenges

BHP started PY2016 by offering rebates for electric storage water heaters, as approved in the Energy Efficiency Solution Plan. The United States Department of Energy updated their minimum manufactured

requirements for electric storage water heaters, resulting in the measures no longer being cost effective on a TRC benefit/cost basis. Therefore, BHP stopped offering rebates on electric storage water heaters as of March 2017.

As of September 2016, BHP began requiring that air source heat pumps and early retirement air source heat pumps meet SEER, EER and HSPF efficiency requirements.[1] These new requirements ensured that demand savings are achieved with the installation of the new HVAC equipment.

The majority of the outreach and education for this particular program came from the Electro-Technology Expo, which had over 300 attendees, and various home show events throughout BHP's service territory.

Whole House Efficiency Program

The Whole House Efficiency program encourages whole house improvements to existing homes, by offering comprehensive home energy audits. Customers received a whole house energy audit, air sealing, and other low-cost, easy-to-install measures at a cost of $50 per audit. The whole house energy audit identified efficiency improvements and provided the customer with information on other BHP energy efficiency programs.

Measures offered through the program will include:

- Air sealing
- Hot Water Pipe Insulation
- Water Heater Tank Wrap
- Residential Kit: LEDs, faucet aerator, low flow showerhead

Table 7 provides the Whole House Efficiency Audit program goals compared to actual program performance.

TABLE 7: WHOLE HOUSE EFFICIENCY AUDIT PROGRAM PY2016 SUMMARY

	Goal	Actual	% Goal Achieved
Participation	125	41	33%
Expenditures	$33,016	$14,766	45%
Energy Impacts (kWh)	113,463	36,257	32%
Demand Impacts (kW)	28.9	9.4	33%

In PY2016, BHP achieved about a third of its participation and energy savings of goals, while nearly 45 percent of the budget was spent.

Table 8 provides the Whole House Efficiency program cost-effectiveness analysis results, based on program activity. The program was designed to have lower program costs through a cost sharing arrangement with Montana-Dakota Utilities ("MDU"). A third-party contractor completed 21 audits at a cost to BHP of $242.06/home (the total cost was $484.12/audit with MDU's portion). BHP's service

[1] Prior to September 2016, these measures were only required to meet SEER and HSPF efficiency requirements.

technicians completed 20 audits performed on propane heated and total electric homes at a cost of $484.12/home. [2]

TABLE 8: WHOLE HOUSE EFFICIENCY PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	0.97
Utility Cost Test	0.97
Societal Cost Test	1.20
Participant Test	n/a
Ratepayer Impact Measure Test	0.26

Whole House Efficiency Program – Highlights and Challenges

In PY2016, the Whole House Efficiency program experienced lower than anticipated participation. However, the Company has received feedback from participating customers which has been positive. The reports provide the customer with valuable information to correct problems that would improve their home efficiency. Our auditors also took the time to promote other programs such as LED lighting. This program is also promoted at area home shows and other public events.

In PY2017, BHP will continue to promote the Whole House Efficiency program in all residential outreach efforts such as spring home shows, internet and social media. The goal for Whole House Efficiency program was reduced to 30 homes in recognition of the downward trend in the participation. To help control costs, BHP has plans to engage a third party auditing firm to complete all whole home audits.

Residential Audit Program

The Residential Audit program objective is to encourage energy education and conservation. The program provided customers with access to a free online tool to analyze their home's energy use along with educational materials regarding energy efficiency and conservation. In addition, BHP will offer the option to receive a Residential Kit that contains easy to install measures (LEDs, outlet gaskets, faucet aerator and low flow showerhead) at no cost.

Table 9 provides the Residential Evaluation program goals compared to actual program performance.

TABLE 9: RESIDENTIAL EVALUATION PROGRAM PY2016 SUMMARY

	Goal	Actual	% Goal Achieved
Participation	400	491	123%
Expenditures	$23,203	$12,780	55%
Energy Impacts (kWh)	79,400	47,025	59%
Demand Impacts (kW)	8.0	5.0	62%

In PY2016, BHP achieved 123 percent of its participation goal, 59 percent of its energy savings goal, and 62 percent of its demand savings goal. A little over half of the budget was spent.

[2] The Actual cost was $683.33/home but BHP chose to claim expenditures at the third party contractor rate.

Table 10 provides the Residential Audit program cost-effectiveness analysis results, based on program activity.

TABLE 10: RESIDENTIAL EVALUATION PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	1.24
Utility Cost Test	1.24
Societal Cost Test	1.55
Participant Test	n/a
Ratepayer Impact Measure Test	0.26

Residential Audit Program – Highlights and Challenges

In PY2016, the online audit program was successful. There are two factors that drove the increased participation: 1) the supplying a free weatherization kit to each participant and 2) BHP's increased promotional efforts throughout the year. BHP experienced an increase in participation after the spring home show events held in March and April and the benefit from BHP's increased social media advertising contributed to exceedance of the participation goal.

Of the total 491 participants, 225 kits were distributed. The associated savings in Table 9 reflect only the 225 distributed kits.

In PY2017, this program did not pass the TRC tests and will not be offered.

School-Based Energy Education Program

The School-Based Energy Education program seeks long-term energy savings through enhanced education and awareness of energy efficiency among fifth grade students within BHP's service territory. Students participated in a classroom lesson plan and each student received a kit of low-cost energy savings measures at no cost. The kits is designed to help each student understand energy efficiency ideas and concepts, provide each student with hands-on methods related to energy and conservation. The kit included: high efficiency showerhead, kitchen faucet aerator, filter tone alarm, a CFL light bulb, a night light, a measuring tape, a refrigerator digital temperature and other items associated with the student's homework assignment.

Table 11 provides the School-Based Education program goals compared to actual program performance.

TABLE 11: SCHOOL-BASED EDUCATION PROGRAM PY2016 SUMMARY

	Goal	Actual	% Goal Achieved
Participation	1,200	1,202	100%
Expenditures	$63,150	$62,223	99%

Energy Impacts (kWh)	476,397	477,194	100%
Demand Impacts (kW)	48.0	48.1	100%

In PY2016, BHP captured 100 percent of participation, energy and demand savings while spending 99 percent of budgeted dollars.

Table 12 provides the School-Based program cost-effectiveness analysis results, based on program activity.

TABLE 12: SCHOOL-BASED EDUCATION PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	1.52
Utility Cost Test	1.52
Societal Cost Test	1.91
Participant Test	n/a
Ratepayer Impact Measure Test	0.27

School-Based Education Program – Highlights and Challenges

The School-Based Energy Education Program continues to be very popular program among schools within BHP's service territory. The PY2016 program participation was 100 percent of goal and expenditures were 99 percent of goal.

BHP receives positive comments from participating students, teachers and parents. In PY2016, the goals were increased due to high interest in the program. The program offers a student workbooks, a teacher's guide, and a kit to educate participants on the prudent use of energy.

The School-Based Education program will be included in the newly approved Energy Efficiency Program.

Weatherization Program

The Weatherization program's goal is to deliver long-term energy savings and bill reductions to low-income customers. The program delivered weatherization measures to low income homeowners and renters, at no cost to the participant. Home efficiency is improved through the installation of energy saving measures, such as caulking, weather stripping, pipe insulation and receipt of residential kit containing easy to install measures.

Table 13 provides the Weatherization program goals compare to actual program performance.

TABLE 13: WEATHERIZATION PROGRAM PY2016 SUMMARY

	Goal	Actual	% Goal Achieved
Participation	30	6	20%
Expenditures	$11,051	$131	1%
Energy Impacts (kWh)	49,776	7,692	15%
Demand Impacts (kW)	7.1	1.2	17%

Participation decreased in PY2016 to only 20 percent of goal and only a small fraction of budgeted expenditures. The program was offered to eligible low-income customers, therefore energy and demand savings associated with the program are secondary to the underlying program goal of helping low-income customers manage their energy use.

Table 14 provides the Weatherization program cost-effectiveness analysis results, based on program activity.

TABLE 14: WEATHERIZATION PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	23.41
Utility Cost Test	23.41
Societal Cost Test	29.04
Participant Test	n/a
Ratepayer Impact Measure Test	0.33

Weatherization Program – Highlights and Challenges

In PY2016, the Weatherization program experienced lower than anticipated participation. However, the feedback from our participating customers was positive. Customers with low-income or on a fixed income were eligible to participate.

BHP utilized volunteers and left over weatherization items from last year to complete the work on the 6 homes during PY2016. Only a few items were needed to be purchased for PY2016, thus the expenditures were 1 percent of budget at $131.

In PY2017, this program did not pass the TRC tests and will not be offered.

Combined Residential Program Portfolio Cost-Effectiveness

Table 15 provides the Combined Residential program cost-effectiveness of all residential programs.

TABLE 15: COMBINED RESIDENTIAL PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	0.83
Utility Cost Test	0.98
Societal Cost Test	1.04
Participant Test	10.72
Ratepayer Impact Measure Test	0.25

Commercial & Industrial Programs

BHP's Commercial & Industrial energy efficiency programs encourage the purchase and installation of energy efficient equipment by providing incentives to lower the cost of purchasing efficient equipment for commercial and industrial facilities.

Commercial Prescriptive Rebate Program

The Commercial Prescriptive Rebate program provided pre-qualified prescriptive rebates for retrofits. The rebated measures, including lighting, HVAC equipment, and motors with proven technologies that are readily available with known performance characteristics. The same customer can participate in more than one measure during the same program year. A $25,000 incentive cap was imposed per facility per program year. Multiple rebate applications for different measures may be submitted.

Table 16 provides the Commercial Prescriptive Rebate program goals compare to actual program performance.

TABLE 16: COMMERCIAL PRESCRIPTIVE PY2016 SUMMARY

	Goal	Actual	% Goal Achieved
Participation			
C&I Lighting	100	66	66%
C&I HVAC	24	0	0%
C&I Motors	12	0	0%
Expenditures	$217,562	$240,109	110%
Energy Impacts (kWh)	3,384,728	1,831,274	54%
Demand Impacts (kW)	725.9	397.8	55%

In PY2016, BHP spent approximately 110 percent of its budget and achieved 54 percent of its energy savings goal and 55 percent of its demand savings goal. A significant majority of program impacts were attributed to lighting measures and the conversion to LEDs

Table 17 provides the Commercial Prescriptive Rebate program cost-effectiveness analysis, based on program activity.

TABLE 17: COMMERCIAL PRESCRIPTIVE PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	1.90
Utility Cost Test	3.34
Societal Cost Test	2.35
Participant Test	5.19
Ratepayer Impact Measure Test	0.39

Commercial Prescriptive Rebate Program – Highlights and Challenges

This program helped increase the awareness of LED lighting and the associated savings. There are still many BHP customers needing LED lights so the program will continue to be very visible in the public. Many of the area equipment suppliers are promoting LED lighting, so BHP is able to eliminate the need

to spend additional marketing dollars to promote this program. Most of BHP's efforts are spent with trade ally education and outreach.

The challenges that were experienced in the program were primarily when customers did not realize the anticipated energy savings in their electric bills. Some of these customers are counting on the energy savings to contribute to the payback of the LED system. The lighting estimator can assure project savings if they take the time to verify the working conditions of the existing lights, hours of operation in different parts of the building and LED replacement options. BHP has developed a worksheet to document the savings and the associated hours of operation of the lighting equipment to support payback calculations.

The percentage differences between expenditures and energy/demand impacts is primarily due to the mix of actual participation rate compared to the original goals.

In PY2017, this program will experience some significant changes with the adoption of the new Energy Efficiency Program. Many of the items that were previously Prescriptive Rebates are now included in the Custom Rebate Program.

Commercial Custom Rebate Program

The Commercial Customer Rebate program offers rebates to commercial and industrial customers that install equipment outside of any prescriptive approved measure. Applications must be pre-approved by BHP before equipment is purchased and installed to ensure the installed equipment produces a TRC benefit-cost test of 1.0 or higher and have incremental payback greater than two years. Incentives were the lesser of the following:

- A buy-down to a two-year payback; or
- 50 percent of the incremental cost

The same customer can participate in more than one measure in the same year. A $25,000 incentive cap is imposed per facility per program year. Multiple rebate applications for different measures may be submitted.

Table 18 provides the Commercial Custom Rebate program goals compared to actual program performance.

TABLE 18: COMMERCIAL CUSTOM PROGRAM PY2016 SUMMARY

	Goal	Actual	% Goal Achieved
Participation	55	48	87%
Expenditures	$259,727	$239,974	92%
Energy Impacts (kWh)	2,374,754	2,011,743	85%
Demand Impacts (kW)	589.1	493.9	84%

In PY2016, the program spent approximately 92 percent of the approved budget. The program achieved 85 percent of its energy savings goal. LED lighting conversions were the main activity seen by this program. Additional projects included geothermal heat pump systems and variable speed drives.

Table 19 provides the Commercial Customer program cost-effectiveness analysis results, based on program activity.

TABLE 19: COMMERCIAL CUSTOM PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	2.42
Utility Cost Test	3.84
Societal Cost Test	2.98
Participant Test	6.50
Ratepayer Impact Measure Test	0.40

Commercial Custom Rebate Program – Highlights and Challenges

LED lighting drove participation in this program. BHP's trade allies have embraced the Commercial Custom Rebate program for the same reasons mentioned in the Commercial Prescriptive Program.

Continued internal account manager education will provided customers the opportunity for greater participation in the C&I Custom Program in the coming years.

Combined Commercial Program Portfolio Cost-Effectiveness

Table 20 provides the Combined Commercial program cost-effectiveness.

TABLE 20: COMBINED COMMERCIAL PROGRAM COST-EFFECTIVENESS RESULTS

Test	PY2016
Total Resource Cost Test	1.99
Utility Cost Test	3.17
Societal Cost Test	2.45
Participant Test	5.81
Ratepayer Impact Measure Test	0.39