TO: COMMISSIONERS AND ADVISORS

FROM: DARREN KEARNEY, BRIAN ROUNDS, AND KRISTEN EDWARDS (STAFF)

SUBJECT: EL14-038 STAFF RECOMMENDATION

DATE: AUGUST 18, 2014

STAFF MEMORANDUM

1.0 OVERVIEW

On June 30, 2014, Black Hills Power (BHP) filed an application for commission approval to continue its Energy Efficiency Solutions Program (EESP) for planning years[1] 2014 through 2016. Included in the application were results from PY 2011 and PY 2012 of the EESP, BHP's proposed EESP for PY 2014 through PY 2016 (which includes some program modifications), revised tariff pages to reflect BHP's proposed Energy Efficiency Solutions Adjustment (EESA) rates, and other supporting data.

Specifically, BHP seeks commission approval of its EESP for PY 2014 through 2016 and approval of the company's proposed EESA rates. Currently the EESA rates are $0.0004/kWh for residential customers and $0.0002/kWh for commercial and industrial customers. Black Hills Power's proposed EESA rates to be implemented on September 1, 2014, are $0.0002/kWh for residential customers and $0.0000/kWh for commercial and industrial customers. The decrease in EESA rates is due to an over-recovery of EESP expenses that has occurred to date.

Provided in this memo is a discussion on BHP's EESP past performance and key changes to its proposed EESP for PY 2014 through PY 2016. Further, Staff provides a recommendation that the commission approve BHP's requests based on the supporting information provided by the company.

2.0 DISCUSSION

2.1 Budget

2.1.1 PY 2011 and PY 2012 EESP Budgets

Analysis of BHP's historic EESP budgets and actual spending shows that the company was under budget for PY 2011 and PY 2012. More specifically, the total EESP actual spending was 66% under budget in PY 2011 and 61% under budget for PY 2012. Results of BHP's EESP budget to actuals for PY 2011 and PY 2012 are provided in Table 1. It is Staff's opinion that the large under runs reported were not abnormal due to the fact

[1] Planning years are September 1 through August 31 and are labeled as PY in this memo.

that these budget years marked the start of BHP's energy efficiency programs in South Dakota. When starting a program, participation is estimated and Staff understands that it takes a few years of offering energy efficiency programs in order to get a handle on the number of individuals who will take advantage of incentives offered.

Table 1. EESP Budget to Actuals (PY 2011-12)

Program	PY 2011			PY 2012		
	B	A	V	B	A	V
Water Heating	$ 8,050	$ 4,143	51%	$ 2,767	$ 4,560	165%
Refrigerator Recycling	$ 25,500	$ 25,069	98%	$ 23,375	$ 10,354	44%
Heat Pumps - ASHP	$ 85,070	$ 13,800	16%	$ 39,661	$ 15,713	40%
Heat Pumps - Geothermal	$ 10,000	$ 5,200	52%	$ 5,500	$ 3,000	55%
Heat Pumps - Retro-Commissioning	$ 30,000	$ 18,244	61%	$ 5,500	$ 7,269	132%
Total Heat Pumps	$ 125,070	$ 37,244	30%	$ 50,661	$ 25,982	51%
Residential Audits	$ 46,800	$ 46,314	99%	$ 41,250	$ 10,918	26%
School-Based Education	$ 5,500	$ 14,167	258%	$ 10,083	$ 12,135	120%
Weatherization	$ 10,000	$ 10,246	102%	$ 9,167	$ 6,899	75%
Total Residential	**$220,920**	**$137,183**	62%	**$137,303**	**$ 70,848**	52%
C&I Prescriptive - Lighting	$ 50,000	$ 28,970	58%	$ 84,028	$ 65,008	77%
C&I Prescriptive - Motors	$ 10,000	$ -	0%	$ -	$ -	-
C&I Prescriptive - VFDs	$ 34,000	$ 3,105	9%	$ 1,986	$ -	0%
C&I Prescriptive - ASHPs	$ 20,000	$ 4,612	23%	$ 3,667	$ 1,424	39%
C&I Prescriptive - GSHPs	$ 50,000	$ 222	0%	$ 908	$ 2,750	303%
C&I Prescriptive - Water Heaters	$ 1,000	$ 232	23%	$ 183	$ 135	74%
C&I Prescriptive - Refridge Recycling	$ 1,304	$ 369	28%	$ 92	$ -	0%
Total C&I Prescriptive	$ 166,304	$ 37,510	23%	$ 90,864	$ 69,317	76%
C&I Custom	$ 85,000	$ 31,867	37%	$ 186,793	$ 72,279	39%
Total Nonresidential	**$251,304**	**$ 69,377**	**28%**	**$277,657**	**$141,596**	**51%**
Cross Marketing and Training	**$100,000**	**$113,366**	**113%**	**$100,000**	**$ 73,043**	**73%**
General Administration	**$ 16,000**	**$ 67,143**	**420%**	**$ 36,000**	**$ 47,857**	**133%**
Total Porfolio	**$588,224**	**$387,069**	**66%**	**$550,960**	**$333,344**	**61%**

Variance (V) = % of Budget
On Target (Green) if V is between 75% and 110%

2.1.2 PY 2014 through PY 2016 Budgets and Program Additions/Modifications

Similar to past planning years, BHP forecasted the EESP budgets for PY 2014 through PY 2016 based on estimated demand (participation) for each energy efficiency program to be offered. Table 2 shows the budgets for the energy efficiency programs BHP plans to offer during the next three years. BHP consulted with Applied Energy Group (AEG) who conducted a study and developed BHP's EESP budgets and plan offerings.[2] For the study, BHP provided AEG with an estimated participation level for each program based on either BHP's experience with the program or other utilities' experience with similarly situated programs (for the new programs).

[2] AEG's study was provided in BHP's response to Staff DR #1-1

Table 2. EESP Budgets (PY 2014-16)					
Program	PY2011 Actuals	PY2012 Actuals	PY 2014 Budgeted	PY 2015 Budgeted	PY 2016 Budgeted
Residential Lighting and Appliance (New)	-	-	$ 62,858	$ 78,110	$ 93,423
Appliance Recycling (Modified to Include Freezers)	$ 25,069	$ 10,354	$ 59,916	$ 76,256	$ 92,597
Residential HVAC (Heat Pumps and Water Heaters)	$ 41,387	$ 30,542	$ 96,134	$ 115,069	$ 134,003
Whole House Efficiency (New)	-	-	$ 28,009	$ 35,011	$ 35,011
Residential Audits	$ 46,314	$ 10,918	$ 13,860	$ 13,860	$ 13,860
School-Based Education	$ 14,167	$ 12,135	$ 18,191	$ 18,191	$ 18,191
Weatherization	$ 10,246	$ 6,899	$ 21,164	$ 25,397	$ 29,630
Total Residential	**$137,183**	**$ 70,848**	**$300,132**	**$361,894**	**$416,715**
Small Business Direct (New)	-	-	$ 319,372	$ 399,215	$ 479,058
C&I Prescriptive	$ 37,510	$ 69,317	$ 21,649	$ 27,062	$ 32,474
C&I Custom	$ 31,867	$ 72,279	$ 37,645	$ 53,713	$ 68,060
Total Nonresidential	**$ 69,377**	**$141,596**	**$378,666**	**$479,990**	**$579,592**
Total Porfolio[1]	**$387,069**	**$333,344**	**$678,798**	**$841,884**	**$996,307**

1) Includes all program budgets plus marketing, training, administration, and evaluation costs

As noted in Table 2, BHP proposes the addition of three new programs and a modification to the appliance recycling program. Modification to the appliance recycling program includes providing rebates for both refrigerators and freezers. New programs for PY 2014-16 include "Residential Lighting and Appliance," residential "Whole House Efficiency," and "Small Business Direct." Each of the new programs are explained briefly in the following paragraphs

Residential Lighting and Appliance – This program will offer rebates to residential customers for the purchase of qualifying CFLs, LEDs, refrigerators, light fixtures, and power strips. Rebates for refrigerators, light fixtures, and power strips will be mail-in rebates that typically offset 25-100% of the incremental cost of these appliances.[3] The exact method for distributing the lighting rebates (either mail-in or point of purchase) is yet to be determined by BHP; however, the incremental costs will be offset in a range similar to the appliances.

Whole House Efficiency – This program will be offered jointly by BHP and Montana Dakota Utilities, equally splitting the cost of the program. The intent of the program is to enhance home energy audits and, further, to offer a number of additional low-cost energy efficiency solutions to the customer that include air sealing, CFL light bulbs, faucet aerators, low flow shower heads, hot water pipe insulation, water heater temperature setback, and water heater tank wrap. As a result of the new Whole House Efficiency program, the original residential audit program will be modified to only include an online audit.[4]

Small Business Direct – The purpose of this program is to improve lighting efficiency for BHP's small commercial customers. The program will offer lighting energy audits at no cost to the customer. The lighting audits will be completed by a contractor who will also provide information on recommended solutions for energy savings and projected payback periods for each solution. Further, the program will offer incentives that cover up to 60% of the equipment and installation costs.

[3] See BHP response to Staff DR #1-9
[4] See BHP response to Staff DR #1-1

It is Staff's opinion that the new and modified programs will enhance BHP's overall energy efficiency portfolio. The more cost-effective energy efficiency programs that are offered helps to increase the number of opportunities available for individuals to participate in a program. For example, offering residential LED and CFL lighting rebates provides an opportunity for both homeowners and non-homeowners to take advantage of an energy efficiency program. Finally, Staff believes that the proposed budgets are reasonable based on Staff's opinion that the budgets will allow for BHP to grow its EESP, which is what the company is striving to achieve over the next few years.

2.2 Energy Savings (kWh)

2.2.1 PY 2011 and PY 2012 Energy Savings Results

Total energy savings (KWh) showed improvement over planning years 2011 and 2012. In PY 2011, BHP only achieved 38% of total portfolio targeted energy savings during the first year EESP implementation. This equated to 1,100,986 kWh of saved energy. Black Hills Power improved energy savings during PY 2012, where the company reported an increase in energy savings to 2,135,497 kWh, or 86% of the total portfolio's target for the year. Driving the improvement in energy savings was an increase in energy saved due to the residential water heating and heat pump programs. In addition, higher energy savings in the commercial and industrial lighting and water heater program also contributed to the increase in energy savings for PY 2012. Overall in PY 2012, the residential programs achieved 82% of its energy savings goal and the commercial and industrial programs achieved 87% of its energy savings goal. Table 3 provides the energy savings reported for PY 2011 and PY 2012. The energy data savings shows that increased savings were achieved as energy efficiency programs started to take hold in BHP's consumer market.

Table 3. EESP kWh Energy Savings (PY 2011-12)

	PY 2011			PY 2012		
Program	B	A	V[1, 2]	B	A	V[1, 2]
Water Heating	20,211	3,355	17%	6,947	14,596	210%
Refrigerator Recycling	185,850	149,617	81%	170,363	72,485	43%
Heat Pumps - ASHP	236,229	58,689	25%	91,669	91,973	100%
Heat Pumps - Geothermal	22,220	9,527	43%	12,221	11,260	92%
Heat Pumps - Retro-Commissioning	859,100	103,313	12%	157,502	193,754	123%
Total Heat Pumps	1,117,549	171,529	15%	261,392	296,987	114%
Residential Audits	169,784	58,581	35%	77,818	28,017	36%
School-Based Education	23,750	57,617	243%	47,500	49,443	104%
Weatherization	-	-	N/A	-	-	N/A
Total Residential	**1,517,144**	**440,699**	29%	**564,020**	**461,528**	82%
C&I Prescriptive - Lighting	468,910	336,922	72%	644,752	1,024,782	159%
C&I Prescriptive - Motors	15,998	-	N/A	-	-	N/A
C&I Prescriptive - VFDs	164,537	153,115	93%	226,238	-	N/A
C&I Prescriptive - ASHPs	87,511	14,239	16%	4,011	2,582	64%
C&I Prescriptive - GSHPs	39,996	-	N/A	-	6,377	N/A
C&I Prescriptive - Water Heaters	2,526	-	N/A	232	324	140%
C&I Prescriptive - Refridge Recycling	8,673	6,195	71%	56,784	-	N/A
Total C&I Prescriptive	788,151	510,471	65%	932,017	1,034,065	111%
C&I Custom	592,042	149,816	25%	997,828	639,904	64%
Total Nonresidential	**1,380,193**	**660,287**	**48%**	**1,929,845**	**1,673,969**	**87%**
Total Porfolio	**2,897,337**	**1,100,986**	**38%**	**2,493,865**	**2,135,497**	**86%**

1) Variance (V) = % of Budget

2) On Target (Green) if V is greater than 75% of Budget

2.2.2 Budgeted Energy Savings for PY 2014-16

Planned energy savings for PY 2014 through PY 2016 are displayed in Table 4. Energy savings were forecasted based on AEG's study and shows that BHP strives to increase energy savings throughout the next planning cycle. New programs, modified programs, and an increase in estimated participation are expected to increase energy savings realized over the next three years when compared to actual savings achieved in past years.

Table 4. EESP kWh Energy Savings (PY 2014-16)

Program	PY2011 Actuals	PY2012 Actuals	PY 2014 Budgeted	PY 2015 Budgeted	PY 2016 Budgeted
Residential Lighting and Appliance (New)	-	-	407,497	507,436	607,751
Appliance Recycling (Modified to Include Freezers)	149,617	72,485	340,675	432,750	524,825
Residential HVAC (Heat Pumps and Water Heaters)	174,884	311,583	399,246	392,042	444,838
Whole House Efficiency (New)	-	-	85,147	106,700	106,700
Residential Audits	58,581	28,017	37,787	37,787	37,787
School-Based Education	57,617	49,433	100,088	100,088	100,088
Weatherization	-	-	28,106	28,106	28,106
Total Residential	**440,699**	**461,518**	**1,398,546**	**1,604,909**	**1,850,095**
Small Business Direct (New)	-	-	893,129	1,116,411	1,339,694
C&I Prescriptive and Custom	660,287	1,673,969	1,023,605	1,378,572	1,698,922
Total Nonresidential	**660,287**	**1,673,969**	**1,916,734**	**2,494,983**	**3,038,616**
Total Porfolio	**1,100,986**	**2,135,487**	**3,315,280**	**4,099,892**	**4,888,711**

2.3 Benefit/Cost Tests

2.3.1 PY 2011 and PY 2012 Benefit/Cost Results

Table 5 provides the results of the benefit/cost tests for PY 2011 and PY 2012. Consistent with past energy efficiency plan filings, Staff focuses on the Total Resource Cost (TRC) test in order to determine the effectiveness of programs. In PY 2011 the total portfolio TRC was 0.77, indicating the need to improve on cost effectiveness. However, in PY 2012, BHP improved the cost effectiveness and the total portfolio had a TRC of 1.37. It is Staff's opinion that the low TRC results in PY 2011 resulted because it was the first year BHP offered energy efficiency programs.

As BHP gained experience with its EESP and consumers became familiar with the plan offerings, the TRC results improved. Further, only two programs (Residential Audits and School-Based Education) had a TRC less than 1.0 in PY 2012. Staff notes that it is typical for these types of programs to have poor benefit/cost test results, for those programs are designed to promote and educate consumers on energy efficiency rather than obtain a high level of savings. As a result of the promotion and education, consumers may participate in other programs and gain energy savings through those programs.

Table 5. Benefit/Cost Tests for PY 2011-12										
	PY 2011					PY 2012				
Program	TRC	Utility	Societal	Part	RIM	TRC	Utility	Societal	Part	RIM
Water Heating	0.35	0.33	0.45	4.65	0.19	2.33	1.30	2.94	7.09	0.33
Refrigerator Recycling	1.15	1.58	1.46	6.66	0.35	1.31	1.88	1.66	6.76	0.36
Heat Pumps	0.92	1.06	1.15	4.35	0.32	1.88	2.40	2.37	5.06	0.38
Residential Audits	0.23	0.23	0.29	-	0.16	0.48	0.48	0.59	-	0.25
School-Based Education	0.72	0.72	0.92	-	0.27	0.73	0.73	0.94	-	0.27
Weatherization	0.67	0.74	0.84	6.30	0.28	1.27	1.44	1.60	6.18	0.34
C&I Prescriptive	3.08	5.02	3.89	6.68	0.48	1.75	6.88	2.19	3.50	0.50
C&I Custom	0.99	1.88	1.26	2.53	0.41	1.87	3.61	2.35	4.20	0.46
Total Porfolio	**0.77**	**0.90**	**0.97**	**5.07**	**0.32**	**1.37**	**2.52**	**1.73**	**3.96**	**0.43**

2.3.2 PY 2014-16 Forecasted Benefit/Cost Test Results

Table 6 provides the forecasted benefit/cost test results for BHP's EESP to be offered in PY 2014 through PY 2016. The portfolio of energy efficiency programs is expected to be cost effective during the next three years. Only two programs have forecasted TRC results of less than 1.0 and they include the modified Residential Audit program and the Weatherization program. It is Staff's opinion that both of these programs help educate consumers on energy efficiency measures and add value to the program. Moreover, Staff believes that these programs provide an opportunity for consumers of all income classes to participate in BHP's EESP. Given this, it is Staff's opinion that these programs should continue to be offered even though they do not have strong TRC results.

Table 6. Forecasted Benefit/Cost Tests for PY2014-16															
	PY 2014					PY 2015					PY 2016				
Program	TRC	Utility	Societal	Part	RIM	TRC	Utility	Societal	Part	RIM	TRC	Utility	Societal	Part	RIM
Residential Lighting and Appliance	1.18	1.47	1.49	6.73	0.25	1.20	1.49	1.52	6.87	0.25	1.22	1.51	1.54	7.00	0.25
Appliance Recycling	1.31	1.57	1.65	12.42	0.26	1.33	1.59	1.67	12.57	0.26	1.35	1.61	1.69	12.74	0.26
Residential HE HVAC	1.04	1.93	1.28	4.12	0.28	1.04	1.91	1.29	4.15	0.28	1.06	1.91	1.30	4.19	0.28
Whole House Efficiency	1.01	1.01	1.25	-	0.25	1.03	1.03	1.27	-	0.25	1.05	1.05	1.29	-	0.03
Residential Audits	0.52	0.52	0.66	-	0.19	0.53	0.53	0.67	-	0.20	0.53	0.53	0.67	-	0.20
School-Based Education	1.04	1.04	1.31	-	0.24	1.05	1.05	1.33	-	0.24	1.07	1.07	1.35	-	0.24
Weatherization	0.48	0.18	0.60	-	0.19	0.48	0.48	0.60	-	0.19	0.49	0.49	0.61	-	0.19
Total Residential	**1.06**					**1.08**					**1.10**				
Small Business Direct	1.01	1.19	1.26	9.11	0.25	1.02	1.21	1.27	9.24	0.25	1.04	1.22	1.29	9.37	0.25
C&I Prescriptive	2.11	4.68	2.64	6.78	0.37	2.17	4.95	2.71	6.94	0.37	2.21	5.04	2.74	7.03	0.37
C&I Custom	3.21	11.81	4.01	8.94	0.39	3.25	11.98	4.05	9.08	0.39	3.30	12.16	4.10	9.21	0.39
Total Nonresidential	**1.50**					**1.36**					**1.58**				
Total Porfolio	**1.31**					**1.36**					**1.39**				

2.4 Energy Efficiency Solutions Adjustment Rates

With this filing, BHP proposes to change the Energy Efficiency Solutions Adjustment Rates (EESA) for both residential and commercial and industrial customers. Currently, the EESA rate for residential customers is $0.0004/kWh and the EESA rate for commercial and industrial customers is $0.0002/kWh. Black Hills Power proposes to reduce both of these rates for PY 2014 as a result of an over-recovery of EESP expenses that has occurred to date.[5] Given this, BHP proposes a rate of $0.0002/kWh for residential customers and $0.0000/kWh for commercial and industrial customers. It should be noted that these proposed rates include a fixed percentage incentive equal to

[5] See Attachment 7 of BHP's Application

30% of budgeted program expenses to account for lost revenues due to the EESP.[6] This financial incentive is similar to incentives awarded to other utilities offering energy efficiency programs in South Dakota. Staff reviewed BHP's EESA tracker balance[7] account and agrees with BHP's proposed reduction in EESA rates.

3.0 STAFF RECOMMENDATION

Staff recommends that the commission approve BHP's EESP for PY 2014 through PY 2016. Further, Staff recommends that the commission approve BHP's proposed EESA rates of $0.0002/kWh for residential customers and $0.0000/kWh for commercial and industrial customers, with an effective date of September 1, 2014.

[6] It should be noted that BHP was under budget for PY 2011 and PY 2012 and, therefore, the company did not recover a financial incentive greater than 30% of budgeted expenses during those years based on the monthly incentive calculation included within the EESA balancing account. The financial incentive awarded to BHP is 30% of actual program expenses, with a cap at 30% of the commission approved EESP budget.
[7] See BHP's Attachment to Staff DR #1-6