



BLACK HILLS ENERGY
ENVIRONMENTAL IMPROVEMENT ADJUSTMENT
For the Pro Forma Year End May 31, 2017

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BLACK HILLS ENERGY
COST RECOVERY RATE - ENVIRONMENTAL IMPROVEMENTS
Rate Calculation Effective June 1, 2016

Line No.	Description	Reference	South Dakota Forecast
1			
2	Environmental Improvement Year 2 Revenue Requirement (June 1, 2016 through May 31, 2017)	Schedule 4-3 line 2	\$ 273,911
3			
4	Production Capacity Allocators by Customer Class		
5	Residential	Docket No. EL14-026	38.072%
6	Small General Service	Docket No. EL14-026	30.920%
7	Large General Service and Industrial	Docket No. EL14-026	30.426%
8	Lighting	Docket No. EL14-026	0.582%
9			
10	Revenue Requirement by Customer Class		
11	Residential		
12	Forecasted 2nd Year EIA Revenue Requirement	line 2 x line 5	\$ 104,283
13	Balancing Account Under/(Over) Recovery	Schedule 4-2 line 10	(18)
14	Net Residential Revenue Requirement	line 12 + line 13	\$ 104,265
15			
16	Small General Service		
17	Forecasted 2nd Year EIA Revenue Requirement	line 2 x line 6	\$ 84,693
18	Balancing Account Under/(Over) Recovery	Schedule 4-2 line 23	12,975
19	Net Small General Service Revenue Requirement	line 17 + line 18	\$ 97,668
20			
21	Large General Service and Industrial		
22	Forecasted 2nd Year EIA Revenue Requirement	line 2 x line 7	\$ 83,340
23	Balancing Account Under/(Over) Recovery	Schedule 4-2 line 36	8,467
24	Net Large General Service and Industrial Revenue Requirement	line 22 + line 23	\$ 91,807
25			
26	Lighting		
27	Forecasted 2nd Year EIA Revenue Requirement	line 2 x line 8	\$ 1,594
28	Balancing Account Under/(Over) Recovery	Schedule 4-2 line 49	80
29	Net Lighting Revenue Requirement	line 27 + line 28	\$ 1,674
30			
31	Forecasted South Dakota kWh sales		
32	Residential	6/1/16 - 5/31/17 BHP Sales Budget	534,996,818
33	Small General Service	6/1/16 - 5/31/17 BHP Sales Budget	423,681,795
34	Large General Service and Industrial	6/1/16 - 5/31/17 BHP Sales Budget	551,372,025
35	Lighting	6/1/16 - 5/31/17 BHP Sales Budget	14,184,532
36			
37	Environmental Improvement Adjustment Rate / kWh (June 1, 2016 through May 31, 2017)		
38	Residential	line 14 ÷ line 32	\$ 0.00019
39	Small General Service	line 19 ÷ line 33	\$ 0.00023
40	Large General Service and Industrial	line 24 ÷ line 34	\$ 0.00017
41	Lighting	line 29 ÷ line 35	\$ 0.00012



BLACK HILLS ENERGY
EIA ANNUAL BALANCING ACCOUNT TRUE-UP

Line No.		Actual Jun-15	Actual Jul-15	Actual Aug-15	Actual Sep-15	Actual Oct-15	Actual Nov-15	Actual Dec-15	Actual Jan-16	Forecasted Feb-16	Forecasted Mar-16	Forecasted Apr-16	Forecasted May-16	Forecasted Jun-16
1	Residential													
2	Expected Recovery	\$ 2,218	\$ 4,436	\$ 10,744	\$ 4,436	\$ 4,436	\$ 4,436	\$ 4,436	\$ 4,436	\$ 4,436	\$ 4,436	\$ 4,436	\$ 4,436	\$ 2,218
3	Actual Revenues	\$ 1,649	\$ 4,824	\$ 5,292	\$ 4,812	\$ 3,906	\$ 4,085	\$ 5,979	6,662	5,629	5,555	4,583	4,392	2,386
4	Monthly Under/(Over) Recovery	570	(388)	5,452	(376)	530	351	(1,542)	(2,226)	(1,193)	(1,119)	(147)	44	(168)
5														
6	Days in Current Month	30	31	31	30	31	30	31	31	29	31	30	31	30
7	Interest Rate	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
8	Monthly Interest	3	1	34	30	35	36	28	15	8	1	1	1	(0)
9														
10	Balancing Account	\$ 573	\$ 186	\$ 5,671	\$ 5,326	\$ 5,891	\$ 6,278	\$ 4,764	\$ 2,553	\$ 1,368	\$ 251	\$ 105	\$ 150	\$ (18)
11														
12														
13	Small General Service													
14	Expected Recovery	\$ 1,801	\$ 3,603	\$ 17,963	\$ 3,603	\$ 3,603	\$ 3,603	\$ 3,603	\$ 3,603	\$ 3,603	\$ 3,603	\$ 3,603	\$ 3,603	\$ 1,801
15	Actual Revenues	\$ 1,320	\$ 4,207	\$ 4,766	\$ 4,284	\$ 3,757	\$ 3,357	\$ 3,989	4,039	3,370	3,610	3,339	3,416	1,976
16	Monthly Under/(Over) Recovery	482	(604)	13,197	(681)	(154)	245	(386)	(436)	233	(7)	264	187	(175)
17														
18	Interest:													
19	Days in Current Month	30	31	31	30	31	30	31	31	29	31	30	31	30
20	Interest Rate	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
21	Monthly Interest	3	(1)	78	72	74	73	74	71	68	74	73	77	74
22														
23	Balancing Account	\$ 485	\$ (120)	\$ 13,155	\$ 12,545	\$ 12,464	\$ 12,783	\$ 12,471	\$ 12,107	\$ 12,408	\$ 12,475	\$ 12,812	\$ 13,076	\$ 12,975
24														
25														
26	Large General Service and Industrial													
27	Expected Recovery	\$ 1,773	\$ 3,545	\$ 9,868	\$ 3,545	\$ 3,545	\$ 3,545	\$ 3,545	\$ 3,545	\$ 3,545	\$ 3,545	\$ 3,545	\$ 3,545	\$ 1,773
28	Actual Revenues	\$ 745	\$ 3,358	\$ 3,478	\$ 3,418	\$ 3,379	\$ 3,203	\$ 3,037	3,073	3,904	3,478	3,688	4,103	2,104
29	Monthly Under/(Over) Recovery	1,028	188	6,390	127	166	343	508	473	(359)	67	(143)	(558)	(331)
30														
31	Interest:													
32	Days in Current Month	30	31	31	30	31	30	31	31	29	31	30	31	30
33	Interest Rate	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
34	Monthly Interest	6	7	45	45	48	48	53	56	51	55	53	52	48
35														
36	Balancing Account	\$ 1,034	\$ 1,228	\$ 7,664	\$ 7,836	\$ 8,050	\$ 8,441	\$ 9,002	\$ 9,531	\$ 9,223	\$ 9,346	\$ 9,256	\$ 8,750	\$ 8,467
37														
38														
39	Lighting													
40	Expected Recovery	\$ 34	\$ 68	\$ 26	\$ 68	\$ 68	\$ 68	\$ 68	\$ 68	\$ 68	\$ 68	\$ 68	\$ 68	\$ 34
41	Actual Revenues	\$ 11	\$ 41	\$ 46	\$ 49	\$ 56	\$ 61	\$ 65	65	76	73	68	59	26
42	Monthly Under/(Over) Recovery	23	27	(21)	19	12	7	3	2	(8)	(5)	(0)	9	8
43														
44	Interest:													
45	Days in Current Month	30	31	31	30	31	30	31	31	29	31	30	31	30
46	Interest Rate	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
47	Monthly Interest	0	0	0	0	0	0	0	0	0	0	0	0	0
48														
49	Balancing Account	\$ 23	\$ 50	\$ 30	\$ 49	\$ 62	\$ 69	\$ 72	\$ 75	\$ 67	\$ 62	\$ 63	\$ 72	\$ 80



BLACK HILLS ENERGY
COST OF SERVICE - ENVIRONMENTAL IMPROVEMENTS
Year Two Revenue Requirement Calculation

Line No.	Description	Reference	South Dakota Jurisdiction
1	Operating Revenue Required		
2	Environmental Improvement Revenue		\$ 273,911
3			
4	Operating Expenses		
5	Depreciation	Schedule 4-5, line 10	69,322
6	Assessed Filing Fee	Docket EL15-008	2,505
7	Total Operating Expenses		<u>71,826</u>
8			
9	Operating Income Before Tax	(line 2 - line 7)	202,085
10			
11	Federal Income Tax	Schedule 4-5, line 21	51,276
12			
13	Return (Operating Income)	Schedule 4-5, line 18 (line 9 - line 11)	<u>\$ 150,809</u>
14			
15	Rate of Return		<u>7.76%</u>
16			
17	Rate Base		
18	Plant in Service	Schedule 4-4, line 8	2,432,507
19	Less: Accumulated Depreciation	Schedule 4-4, line 13	69,253
20	Less: Accumulated Deferred Income Taxes	Schedule 4-4, line 23	419,843
21			
22	Total Rate Base	(line 18 - line 19 - line 20)	<u>\$ 1,943,411</u>



BLACK HILLS ENERGY
RATE BASE - ENVIRONMENTAL IMPROVEMENTS
Year Two Revenue Requirement Calculation

Line No.	Description	(a) Plant in Service for Rate Base	(b) South Dakota Jurisdictional Allocation	(c) (a) * (b) South Dakota Plant in Service for Rate Base	(d) Date in Service	(e) Note (1) Allocation Based on In-Service Date	(f) (d) * (e) South Dakota Allocation Based on In-Service Date
1	Property, Plant, and Equipment						
2	Wyodak - Mercury Control System	\$ 1,146,209	89.831%	\$ 1,029,651	4/15/2015	100.00%	\$ 1,029,651
3	Wygen III - CO & O2 Grid Install	136,853	89.831%	122,936	12/31/2015	100.00%	122,936
4	NS Common - Compressed Air	701,460	89.831%	630,129	6/1/2016	100.00%	630,129
5	NSII - Electrostatic precipitator (ESP)	1,314,100	89.831%	1,180,469	4/30/2017	8.49%	100,222
6	NS Common - Amended Silicates Silo - Neil Simpson II	972,017	89.831%	873,173	12/31/2016	41.37%	361,232
7	NS Common - Amended Silicates Silo - Wygen III	506,786	89.831%	455,251	12/31/2016	41.37%	188,337
8	Total Plant in Service - Environmental Improvements	<u>\$ 4,777,425</u>		<u>\$ 4,291,608</u>			<u>\$ 2,432,507</u>
9							
10							
11	Book Depreciation Reserve Year 2 Assets					Schedule 4-5 (sum line 6 through line 9) x 50%	\$ 18,314
12	Book Depreciation Reserve Year 1 Assets					Schedule 4-9 line 6 + Schedule 4-5 (line 4 + line 5) x 50%	50,939
13	Total Book Depreciation Reserve						<u>\$ 69,253</u>
14							
15							
16	Accumulated Deferred Taxes					Year 1 Assets	Year 2 Assets
17	Environmental Improvements - Plant in Service - South Dakota					1,152,587	1,279,920
18	MACRS Table - Depreciation Rate (20 year life)					55.485%	51.875%
19	South Dakota Tax Depreciation					639,507	663,959
20	South Dakota Book Depreciation					67,286	36,628
21	Timing Difference					572,221	627,330
22	Federal Income Tax Rate					35.00%	35.00%
23	South Dakota Deferred Tax					200,277	219,566
24							
25							
26	South Dakota Rate Base					(line 8 - line 13 - line 23)	<u>\$ 1,943,411</u>
27							
28							
29	Note (1) - Allocation is for the time period 6/1/16 through 5/31/17						



BLACK HILLS ENERGY
OPERATING EXPENSES AND TAXES - ENVIRONMENTAL IMPROVEMENTS
Year 2 Revenue Requirement Calculation

Line No.	Description	Reference	South Dakota	
			Note (1)	
			South Dakota Plant in Service	Depreciation Rate
1				Depreciation Expense
2				
3	Depreciation Expense			
4	Wyodak - Mercury Control System	Schedule 4-4 ln 2	1,029,651	2.86% 29,448
5	Wygen III - CO & O2 Grid Install	Schedule 4-4 ln 3	122,936	2.64% 3,246
6	NS Common - Compressed Air	Schedule 4-4 ln 4	630,129	2.90% 18,274
7	NSII - Electrostatic precipitator (ESP)	Schedule 4-4 ln 5	100,222	2.90% 2,906
8	NS Common - Amended Silicates Silo - Neil Simpson II	Schedule 4-4 ln 6	361,232	2.90% 10,476
9	NS Common - Amended Silicates Silo - Wygen III	Schedule 4-4 ln 7	188,337	2.64% 4,972
10	Depreciation Expense - South Dakota			<u>69,322</u>
11				
12				
13	Federal Tax			
14	Rate Base - South Dakota	Schedule 4-4 line 26		1,943,411
15				
16	Interest Expense	calculated		55,582
17	Return on Equity	calculated		95,227
18	Return	line 16 + line 17		<u>150,809</u>
19				
20	Authorized Return	Docket No. EL14-026		<u>7.76%</u>
21	Federal Tax Expense - South Dakota	((line 17 x line 25) - line 17)		<u>51,276</u>
22				
23				
24	Assumptions			
25	Tax Multiplier - Federal Tax Rate at 35% - tax multiplier	(1/(1-.35))		1.5385
26				
27	Allocation Factor		<u>Total</u>	<u>South Dakota</u>
28	Demand Production (12 CP)	Docket No. EL14-026	100%	89.831%
29				
30				
31	Note (1) - Depreciation rate is from Docket No. EL14-026.			



BLACK HILLS ENERGY
REVENUE REQUIREMENT BY CUSTOMER CLASS - ENVIRONMENTAL IMPROVEMENTS
Year One Revenue Requirement Calculation

Line No.	Description	Reference	South Dakota Forecast			
1						
2	Environmental Improvement Year 1 Revenue Requirement	Schedule 4-7 line 2	\$ 139,829			
3	(June 1, 2015 through May 31, 2016)					
4						
5	Production Capacity Allocators by Customer Class					
6	Residential	Docket No. EL14-026	38.072%			
7	Small General Service	Docket No. EL14-026	30.920%			
8	Large General Service and Industrial	Docket No. EL14-026	30.426%			
9	Lighting	Docket No. EL14-026	0.582%			
10						
				EL12-062	Revised Revenue	
				Actual PIPR	Requirement by	
11	Revenue Requirement by Customer Class			Balancing Account	Customer Class	
12	Residential	line 2 x line 6	\$ 53,236	\$ 6,308	\$ 59,544	
13	Small General Service	line 2 x line 7	\$ 43,235	\$ 14,360	\$ 57,595	
14	Large General Service and Industrial	line 2 x line 8	\$ 42,544	\$ 6,323	\$ 48,867	
15	Lighting	line 2 x line 9	\$ 814	\$ (42)	\$ 772	
16						
17	Note: The actual PIPR balancing account credit/charge is supported by Exhibit 6					



BLACK HILLS ENERGY
COST OF SERVICE - ENVIRONMENTAL IMPROVEMENTS
Year One Revenue Requirement Calculation

Line No.	Description	Reference	South Dakota Jurisdiction
1	Operating Revenue Required		
2	Environmental Improvement Revenue		\$ 139,829
3			
4	Operating Expenses		
5	Depreciation	Schedule 4-9, line 6	34,592
6	Assessed Filing Fee	Docket EL15-008	2,505
7	Total Operating Expenses		<u>37,097</u>
8			
9	Operating Income Before Tax	(line 2 - line 7)	102,732
10			
11	Federal Income Tax	Schedule 4-9, line 17	26,067
12			
13	Return (Operating Income)	Schedule 4-9, line 14 (line 9 - line 11)	<u>\$ 76,665</u>
14			
15	Rate of Return		<u>7.76%</u>
16			
17	Rate Base		
18	Plant in Service	Schedule 4-8, line 4	1,213,461
19	Less: Accumulated Depreciation	Schedule 4-8, line 7	17,296
20	Less: Accumulated Deferred Income Taxes	Schedule 4-8, line 17	208,212
21			
22	Total Rate Base	(line 18 - line 19 - line 20)	<u>\$ 987,953</u>



BLACK HILLS ENERGY
RATE BASE - ENVIRONMENTAL IMPROVEMENTS
Year One Revenue Requirement Calculation

Line No.	Description	(a) Plant in Service for Rate Base	(b) South Dakota Jurisdictional Allocation	(c) (a) * (b) South Dakota Plant in Service for Rate Base	(d) Date in Service	(e) Allocation Based on In-Service Date	(f) (d) * (e) South Dakota Allocation Based on In-Service Date
1	Property, Plant, and Equipment						
2	Wyodak - Mercury Control System	\$ 1,146,209	89.831%	\$ 1,029,651	4/15/2015	112.88% (1)	\$ 1,162,270
3	Wygen III - CO & O2 Grid Install	136,853	89.831%	122,936	12/31/2015	41.64% (2)	51,191
4	Total Plant in Service - Environmental Improvements	<u>\$ 1,283,062</u>		<u>\$ 1,152,587</u>			<u>\$ 1,213,461</u>
6							
7	Book Depreciation Reserve				Schedule 4-9 line 6 x 50%		<u>17,296</u>
8							
9							
10	Accumulated Deferred Taxes						
11	Environmental Improvements - Plant in Service - South Dakota					line 4	1,213,461
12	MACRS Table - Depreciation Rate (20 year life)						<u>51.875%</u>
13	South Dakota Tax Depreciation					line 11 x line 12	629,483
14	South Dakota Book Depreciation					Schedule 4-9 line 6	<u>34,592</u>
15	Timing Difference					line 13 - line 14	594,891
16	Federal Income Tax Rate						<u>35.00%</u>
17	South Dakota Deferred Tax					line 15 x line 16	<u>208,212</u>
18							
19							
20	South Dakota Rate Base				(line 4 - line 7 - line 17)		<u>\$ 987,953</u>
21							
22							

23 Note (1) - Allocation is for the time period from the in-service date through 5/31/2016.

24 Note (2) - Allocation is for the time period of 12/31/2015 through 5/31/2016.



BLACK HILLS ENERGY
OPERATING EXPENSES AND TAXES - ENVIRONMENTAL IMPROVEMENTS
Year One Revenue Requirement Calculation

Line No.	Description	Reference	South Dakota	
			Note (1)	
			South Dakota Plant in Service	Depreciation Rate
1				Depreciation Expense
2				
3	Depreciation Expense			
4	Wyodak - Mercury Control System	Schedule 4-8 ln 2	1,162,270	2.86%
5	Wygen III - CO & O2 Grid Install	Schedule 4-8 ln 3	51,191	2.64%
6	Depreciation Expense - South Dakota			<u>34,592</u>
7				
8				
9	Federal Tax			
10	Rate Base - South Dakota	Schedule 4-8 line 20		987,953
11				
12	Interest Expense	calculated		28,255
13	Return on Equity	calculated		48,410
14	Return	line 12 + line 13		<u>76,665</u>
15				
16	Authorized Return	Docket No. EL14-026		7.76%
17	Federal Tax Expense - South Dakota	((line 13 x line 21) - line 13)		<u>26,067</u>
18				
19	Assumptions			
20				
21	Tax Multiplier - Federal Tax Rate at 35% - tax multiplier		(1/(1-.35))	1.5385
22				
23	Allocation Factor		<u>Total</u>	<u>South Dakota</u>
24	Demand Production (12 CP)	Docket No. EL14-026	100%	89.831%
25				
26				
27	Note (1) - Depreciation rate is from Docket No. EL14-026.			



**BLACK HILLS ENERGY
RESIDENTIAL CUSTOMER IMPACT
EIA Rate Change**

<u>LINE NO.</u>	<u>CUSTOMER IMPACT</u>	<u>CURRENT RATES</u>	<u>PROPOSED EIA RATE</u>	<u>INCREASE OR (DECREASE)</u>
1				
2	<u>Residential Service</u>			
3	ENVIRONMENTAL IMPROVEMENT ADJUSTMENT RATE			
4	EIA Rate	\$ / kWh \$ 0.00012	\$ 0.00019	\$ 0.00007
5				
6				
7				
8	Monthly Customer Charge	\$ 9.25		\$ 9.25
9	Energy Charge - Base Rate at average monthly kWh	\$ 0.09989 x	650 kWh	64.93
10	Base Costs	\$ 0.02270 x	650 kWh	14.76
11	Energy Cost Adjustment at average monthly kWh	\$ 0.00960 x	650 kWh	6.24
12	Transmission Facility Adjustment at average monthly kWh	\$ 0.00010 x	650 kWh	0.07
13	Environmental Improvement Adjustment at average monthly kWh	\$ 0.00012 x	650 kWh	0.08
14	Energy Efficiency at average monthly kWh	\$ 0.00040 x	650 kWh	0.26
15	Current Total Bill at monthly average			\$ 95.59
16	EIA Rate Change at monthly average kWh	\$ 0.00007 x	650 kWh	0.05
17	Proposed Total Residential Bill			\$ 95.64
18	Percent Change			0.05%