

## **Appendix A: Tables**



**SOUTH DAKOTA ENERGY EFFICIENCY PLAN - 2018**

**Otter Tail Power Company**

**Net Benefits**

	Approved Savings, Costs, and Benefits				Actual Savings, Costs, and Benefits			
	Energy Savings (kWh)	Proposed Budget	Total Benefits	Utility Net Benefits	Energy Savings (kWh)	Actual Expenses	Total Benefits	Utility Net Benefits
<b>Residential</b>								
Air Conditioning Control	19,413	\$14,000	\$47,294	\$33,294	19,630	\$3,476	\$56,381	\$52,906
Air Source Heat Pumps	298,204	\$20,000	\$169,043	\$149,043	201,963	\$19,410	\$113,066	\$93,656
Geothermal Heat Pumps	321,779	\$30,000	\$228,330	\$198,330	50,907	\$4,813	\$21,226	\$16,413
Lighting	33,209	\$11,000	\$18,149	\$7,149	131,560	\$6,724	\$68,668	\$61,945
<b>Total - Residential</b>	672,605	\$75,000	\$462,816	\$387,816	404,060	\$34,422	\$259,341	\$224,918
<b>Commercial</b>								
Air Source Heat Pumps	291,112	\$18,000	\$147,829	\$129,829	80,731	\$6,657	\$42,322	\$35,664
Custom Efficiency Projects	130,729	\$40,000	\$119,087	\$79,087	1,064,853	\$77,252	\$685,620	\$608,368
Drive Power	1,013,339	\$79,000	\$542,416	\$463,416	1,370,254	\$158,374	\$789,336	\$630,962
Geothermal Heat Pumps	730,265	\$73,000	\$497,382	\$424,382	212,994	\$20,126	\$167,205	\$147,079
Lighting	957,826	\$127,000	\$594,692	\$467,692	2,193,782	\$170,651	\$1,304,865	\$1,134,214
<b>Total - Commercial</b>	3,123,271	\$337,000	\$1,901,406	\$1,564,406	4,922,614	\$433,059	\$2,989,347	\$2,556,288
<b>Total - Direct Impact</b>	3,795,876	\$412,000	\$2,364,222	\$1,952,222	5,326,674	\$467,482	\$3,248,688	\$2,781,206
<b>Indirect Impact</b>								
Advertising & Education		\$12,000	\$0	(\$12,000)		\$13,227	\$0	(\$13,227)
EEP Development - 2018		\$25,000	\$0	(\$25,000)		\$12,644	\$0	(\$12,644)
<b>Total - Indirect Impact</b>		\$37,000	\$0	(\$37,000)		\$25,871	\$0	(\$25,871)
<b>Total - All Programs (Including Development)</b>	3,795,876	\$449,000	\$2,364,222	\$1,915,222	5,326,674	\$493,353	\$3,248,688	\$2,755,335

**Benefit/Cost Results  
2018 SD EEP**

<b>Data discounted to 2018</b>	<b>AS FILED Utility Test</b>	<b>ACTUAL 2018 Utility Test</b>
NPV Method: Midyear		
Discount Rates:	8.50%	8.50%
Benefit/Cost Ratio	5.27	6.58
Total Costs	\$449,000	\$493,353
Total Benefits	\$2,364,222	\$3,248,688
Net Benefits	\$1,915,222	\$2,755,335
Total Benefits:		
Utility Elec. Production Cost Decr	\$1,362,429	\$1,842,771
Utility Ancillary	\$0	\$0
Utility Generation Cap. Credit	\$593,490	\$847,344
Utility Transmission & Distrib. Credit	\$519,226	\$573,599
Total Benefits	\$2,475,145	\$3,263,714
Total Costs:		
Utility Rebates Paid	\$297,743	\$410,395
Utility Fixed Admin Cost	\$151,257	\$82,958
Total Costs	\$449,000	\$493,353

SOUTH DAKOTA ENERGY EFFICIENCY PLAN - 2018

Otter Tail Power Company  
Benefit/Cost Ratios

	Approved Budget Benefit / Cost Test Results					Actual Benefit / Cost Test Results				
	Utility Test	Total Resource Test	Ratepayer Impact Test	Societal Test	Participant Test	Utility Test	TRC Test	RIM Test	Societal Test	Participant Test
<b>Residential</b>										
Air Conditioning Control	3.38	3.38	3.02	3.38	inf.	16.22	16.22	11.19	16.22	inf.
Air Source Heat Pumps	8.45	1.81	0.51	2.90	6.18	5.83	1.41	0.56	2.26	4.51
Geothermal Heat Pumps	7.61	1.61	0.62	2.55	4.34	4.41	0.68	0.42	1.09	2.67
Lighting	1.65	4.27	0.43	6.37	inf.	10.21	6.72	0.61	9.96	18.84
<b>Total - Residential</b>	<b>6.17</b>	<b>1.83</b>	<b>0.61</b>	<b>2.79</b>	<b>5.32</b>	<b>7.53</b>	<b>2.08</b>	<b>0.70</b>	<b>2.98</b>	<b>5.23</b>
<b>Commercial</b>										
Air Source Heat Pumps	8.21	1.61	0.57	2.40	3.18	6.36	6.30	0.63	9.33	19.76
Custom Efficiency Projects	2.98	0.71	0.78	1.07	0.96	8.88	5.15	0.92	6.67	5.85
Drive Power	6.87	2.98	0.75	4.45	4.61	4.98	1.58	0.82	2.34	2.06
Geothermal Heat Pumps	6.81	1.35	0.72	1.99	2.03	8.31	1.82	0.93	2.67	2.12
Lighting	4.68	1.63	0.81	2.39	2.23	7.65	8.87	0.90	13.15	11.92
<b>Total - Commercial</b>	<b>5.64</b>	<b>1.62</b>	<b>0.74</b>	<b>2.40</b>	<b>2.42</b>	<b>6.90</b>	<b>3.43</b>	<b>0.88</b>	<b>4.92</b>	<b>4.23</b>
<b>Indirect Impact</b>										
Advertising & Education										
EEP Development - 2018										
<b>Total - Indirect Impact</b>										
<b>Total - All Programs</b>	<b>5.27</b>	<b>1.61</b>	<b>0.70</b>	<b>2.40</b>	<b>2.91</b>	<b>6.58</b>	<b>3.18</b>	<b>0.85</b>	<b>4.57</b>	<b>4.35</b>

**SOUTH DAKOTA ENERGY EFFICIENCY PLAN - 2018**

**APPENDIX A, TABLE 4**

**Otter Tail Power Company**

**Lifetime Savings**

	Energy Savings			Demand Savings		
	Proposed Energy Savings (kWh)	Actual Energy Savings (kWh)	% of Goal	Proposed Summer Coincident kW Savings	Actual Summer Coincident kW Savings	% of Goal
<b>Residential</b>						
Air Conditioning Control	18,328	19,630	107%	437.0	468.1	107%
Air Source Heat Pumps	5,367,667	3,635,327	68%	28.3	15.7	56%
Geothermal Heat Pumps	5,792,020	916,334	16%	23.9	0.0	0%
Lighting	498,136	1,973,397	396%	3.9	11.4	295%
<b>Total - Residential</b>	11,676,150	6,544,687	56%	493.1	495.3	100%
<b>Commercial</b>						
Air Source Heat Pumps	4,366,686	1,210,968	28%	25.6	7.3	28%
Custom Efficiency Projects	1,960,932	16,293,098	831%	45.3	233.1	515%
Drive Power	15,200,082	20,553,816	135%	133.5	193.5	145%
Geothermal Heat Pumps	10,953,976	3,194,912	29%	93.0	27.1	29%
Lighting	11,717,502	32,469,073	277%	210.0	345.6	165%
<b>Total - Commercial</b>	44,199,177	73,721,867	167%	507.4	806.6	159%
<b>Total - Direct Impact</b>	55,875,327	80,266,554	144%	1,000.5	1,301.9	130%
<b>Indirect Impact</b>						
Advertising & Education						
<b>Total - Indirect Impact</b>						
<b>Total - Without Development Costs</b>	55,875,327	80,266,554	144%	1,000.5	1,301.9	130%
<b>Development</b>						
EEP Development						
<b>Total - Development</b>						
<b>Total - All Programs (Including Development)</b>	55,875,327	80,266,554	144%	1,000.5	1,301.87	130%

**SOUTH DAKOTA ENERGY EFFICIENCY PLAN - 2018**

**APPENDIX A, TABLE 5**

**Otter Tail Power Company**

**Incentive Calculation**

**Calculated Incentive Based on Pre-Year Inputs**

1	Original EEP Expense Budget	\$449,000
2	Original EEP Expense Budget multiplied by 30%	\$134,700

**Calculated Incentive Based on Post-Year Inputs**

3	Actual EEP Expenses	\$493,353
4	Actual EEP Expenses multiplied by 30%	\$148,006

5	<b>Financial Incentive:</b> lesser of lines 2 and 4.	<b>\$134,700</b>
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**SOUTH DAKOTA ENERGY EFFICIENCY PLAN - 2018**

**APPENDIX A, TABLE 6**

**Otter Tail Power Company  
EEP Tracker Account / Cost Recovery**

**EEP AUTOMATIC RECOVERY MECHANISM**

	FILING DATE										
	May 1										
	2008/09 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Actual	
1	Estimated EEP Tracker Account Balance - end of prior year	\$27,487	(\$43,107)	(\$31,900)	\$45,767	\$134,194	\$110,115	\$111,762	\$77,456	(\$15,484)	\$24,284
2	Accounting Adjustments	\$0	(\$45)	\$45	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3	True up from Previous Year (sum of lines 1 and 2)	\$27,487	(\$43,152)	(\$31,855)	\$45,767	\$134,194	\$110,115	\$111,762	\$77,456	(\$15,484)	\$24,284
4	EEP Program expenditures	\$252,677	\$243,816	\$272,093	\$309,911	\$281,549	\$351,483	\$371,902	\$362,330	\$463,357	\$493,353
5	Previous Year EEP Financial Incentives	\$0	\$47,130	\$73,145	\$78,900	\$84,000	\$84,000	\$105,445	\$105,900	\$105,900	\$134,700
6	EEP Carrying Charge	(\$726)	(\$6,503)	(\$4,286)	\$6,412	\$7,950	\$7,195	\$11,110	\$3,485	\$6,166	\$4,562
7	EEP Cost Recovery through EE Adjustment Factor	(\$322,545)	(\$273,190)	(\$263,330)	(\$306,796)	(\$397,578)	(\$441,030)	(\$522,763)	(\$564,655)	(\$535,655)	(\$656,837)
8	Recoverable Tracker Balance (Line 4 Plus Lines 5 thru 8)	(\$43,107)	(\$31,900)	\$45,767	\$134,194	\$110,115	\$111,762	\$77,456	(\$15,484)	\$24,284	\$62
9											
10	SD Sales (KWH budget)										
11	Conservation Surcharge (1)	\$0.00063	\$0.00063	\$0.00063	\$0.00088	\$0.00103	\$0.00103	\$0.00152	\$0.00114	\$0.00138	\$0.00155
12	Estimated EEP Tracker Account Balances										

(1) Effective for 12-month period July 1 through June 30

	2019 Budget Financial Incentive	
1	Estimated EEP Tracker Account Balance - end of prior year	\$62
2	Accounting Adjustments	\$0
3	True up from Previous Year (sum of lines 1 and 2)	\$62
4		
5	EEP Program expenditures	\$699,000
6	Previous Year EEP Financial Incentives	\$134,700
7	Projected EEP Carrying Charge	\$6,603
8	EEP Cost Recovery through EE Adjustment Factor	(\$768,005)
9	Recoverable Tracker Balance (Line 4 Plus Lines 5 thru 8)	\$72,360
10		
11	SD Sales (KWH budget)	482,907,745
12	Conservation Surcharge (1)	\$0.00169
13	Estimated EEP Tracker Account Balances	

(1) Effective for 12-month period July 1 through June 30

Otter Tail Power Company

EEP TRACKER AND CALCULATION OF PROPOSED EEP

	January 2019	February 2019	March* 2019	April 2019	May 2019	June 2019	Total
1 Beginning of Period Balance	\$62	\$62,309	\$27,214	(\$11,022)	\$5,333	(\$9,139)	
2 Monthly Carrying Charge	0.71%	0.71%	0.71%	0.71%	0.71%	0.71%	
3 Monthly Carrying Charge	\$0	\$441	\$193	(\$78)	\$38	(\$65)	\$530
4 EEP Program Charges	\$138,360	\$47,966	\$24,059	\$72,981	\$36,203	\$36,078	\$355,647
5 EEP Incentive	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7 Less: Energy Efficiency Adjustment (EEP Revenue)	(\$76,114)	(\$83,502)	(\$62,489)	(\$56,547)	(\$50,713)	(\$51,393)	(\$380,758)
8 End of Period Balance	\$62,309	\$27,214	(\$11,022)	\$5,333	(\$9,139)	(\$24,519)	
9 CURRENT EEP FACTOR (\$/kWh)	<b>\$0.00155</b>						
10 Projected sales (kWh)				36,482,192	32,717,995	33,156,999	

1. EEP TRACKER PROPOSED \$/kWh Method

	July 2019	August 2019	September 2019	October 2019	November 2019	December 2019	January 2020	February 2020	March 2020	April 2020	May 2020	June 2020	Total
1 Beginning of Period Balance	(\$24,519)	\$110,833	\$166,510	\$259,379	\$203,714	\$141,513	\$72,360	\$124,013	\$87,006	\$32,626	\$32,382	\$2,835	
2 Monthly Carrying Charge Rate	0.71%	0.71%	0.71%	0.71%	0.71%	0.71%	0.71%	0.71%	0.71%	0.71%	0.71%	0.71%	
3 Monthly Carrying Charge	(\$174)	\$785	\$1,179	\$1,837	\$1,443	\$1,002	\$513	\$878	\$616	\$231	\$229	\$20	\$8,561
4 EEP Program Charges	\$61,710	\$118,639	\$154,835	\$2,311	\$3,435	\$2,423	\$138,360	\$47,966	\$24,059	\$72,981	\$36,203	\$36,078	\$699,000
5 EEP Incentive	\$134,700	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$134,700
7 Less: Energy Efficiency Adjustment (EEP Revenue)	(\$60,884)	(\$63,747)	(\$63,146)	(\$59,813)	(\$67,079)	(\$72,578)	(\$87,220)	(\$85,851)	(\$79,055)	(\$73,456)	(\$65,980)	(\$65,633)	(\$844,442)
8 End of Period Balance	\$110,833	\$166,510	\$259,379	\$203,714	\$141,513	\$72,360	\$124,013	\$87,006	\$32,626	\$32,382	\$2,835	(\$26,700)	
9 PROPOSED EEP FACTOR (\$ / kWh)	<b>\$0.00169</b>												
12 Projected sales (kWh)	32,717,995	33,156,999	36,025,743	37,720,334	37,364,251	35,392,475	51,609,587	50,799,587	46,778,246	43,465,122	39,041,170	38,836,238	

\*Actual data was used through March 2019