

**SOUTH DAKOTA ENERGY EFFICIENCY PLAN - 2017**

**Otter Tail Power Company**

**Net Benefits**

**APPENDIX A, TABLE 2 (Revised)**

	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	18,328	\$14,000	\$47,294	\$33,294	19,537	\$9,326	\$50,415	\$41,090
Air Source Heat Pumps	298,204	\$20,000	\$169,043	\$149,043	310,718	\$20,086	\$170,113	\$150,027
Geothermal Heat Pumps	321,779	\$30,000	\$228,330	\$198,330	153,739	\$12,408	\$114,782	\$102,374
Lighting	33,209	\$11,000	\$18,149	\$7,149	130,948	\$14,652	\$58,861	\$44,209
<b>Total - Residential</b>	<b>671,519</b>	<b>\$75,000</b>	<b>\$462,816</b>	<b>\$387,816</b>	<b>614,942</b>	<b>\$56,471</b>	<b>\$394,171</b>	<b>\$337,700</b>
<b>Commercial</b>								
Air Source Heat Pumps	291,112	\$18,000	\$147,829	\$129,829	57,504	\$4,163	\$26,733	\$22,570
Custom Efficiency Projects	130,729	\$40,000	\$119,087	\$79,087	1,277,412	\$60,171	\$685,620	\$625,448
Drive Power	1,013,339	\$79,000	\$542,416	\$463,416	622,586	\$78,878	\$344,385	\$265,508
Geothermal Heat Pumps	730,265	\$73,000	\$497,382	\$424,382	249,507	\$21,882	\$189,608	\$167,726
Lighting	957,826	\$127,000	\$594,692	\$467,692	2,119,879	\$217,741	\$1,270,574	\$1,052,832
<b>Total - Commercial</b>	<b>3,123,271</b>	<b>\$337,000</b>	<b>\$1,901,406</b>	<b>\$1,564,406</b>	<b>4,326,888</b>	<b>\$382,835</b>	<b>\$2,516,919</b>	<b>\$2,134,084</b>
<b>Total - Direct Impact</b>	<b>3,794,791</b>	<b>\$412,000</b>	<b>\$2,364,222</b>	<b>\$1,952,222</b>	<b>4,941,830</b>	<b>\$439,306</b>	<b>\$2,911,090</b>	<b>\$2,471,784</b>
<b>Indirect Impact</b>								
Advertising & Education		\$12,000	\$0	(\$12,000)		\$11,937	\$0	(\$11,937)
EEP Development - 2017		\$25,000	\$0	(\$25,000)		\$12,114	\$0	(\$12,114)
<b>Total - Indirect Impact</b>		<b>\$37,000</b>	<b>\$0</b>	<b>(\$37,000)</b>		<b>\$24,051</b>	<b>\$0</b>	<b>(\$24,051)</b>
<b>Total - All Programs (Including Development)</b>	<b>3,794,791</b>	<b>\$449,000</b>	<b>\$2,364,222</b>	<b>\$1,915,222</b>	<b>4,941,830</b>	<b>\$463,357</b>	<b>\$2,911,090</b>	<b>\$2,447,733</b>

**Benefit/Cost Results**  
**2017 SD EEP**

<b>Data discounted to 2017</b>	<b>AS FILED Utility Test</b>	<b>ACTUAL 2017 Utility Test</b>
NPV Method: Midyear		
Discount Rates:	8.50%	8.50%
Benefit/Cost Ratio	5.27	6.28
Total Costs	\$449,000	\$463,357
Total Benefits	\$2,364,222	\$2,911,090
Net Benefits	\$1,915,222	\$2,447,733
Total Benefits:		
Utility Elec. Production Cost Decr	\$1,307,538	\$1,608,642
Utility Ancillary	\$0	\$0
Utility Generation Cap. Credit	\$537,440	\$717,483
Utility Transmission & Distrib. Credit	\$519,245	\$584,965
Total Benefits	\$2,364,222	\$2,911,090
Total Costs:		
Utility Rebates Paid	\$297,743	\$356,398
Utility Fixed Admin Cost	\$151,257	\$106,959
Total Costs	\$449,000	\$463,357

**SOUTH DAKOTA ENERGY EFFICIENCY PLAN - 2017**  
**Otter Tail Power Company**  
**Benefit/Cost Ratios**

**APPENDIX A, TABLE 3 (Revised)**

	Approved 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
						Ratio	Ratio	Ratio	Ratio	Ratio
<b>Residential</b>										
Air Conditioning Control	3.38	3.38	3.02	3.38	inf.	5.41	5.41	4.66	5.41	inf.
Air Source Heat Pumps	8.45	1.81	0.51	2.90	6.18	8.47	1.49	0.58	2.39	4.38
Geothermal Heat Pumps	7.61	1.61	0.62	2.55	4.34	9.25	1.26	0.78	1.99	2.65
Lighting	1.65	4.27	0.43	6.37	inf.	4.02	4.43	0.50	6.59	23.17
<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>6.98</b>	<b>1.73</b>	<b>0.69</b>	<b>2.60</b>	<b>4.31</b>
<b>Commercial</b>										
Air Source Heat Pumps	8.21	1.61	0.57	2.40	3.18	6.42	1.20	0.58	1.79	2.30
Custom Efficiency Projects	2.98	0.71	0.78	1.07	0.96	11.39	5.15	0.92	6.67	5.85
Drive Power	6.87	2.98	0.75	4.45	4.61	4.37	2.00	0.78	2.98	2.85
Geothermal Heat Pumps	6.81	1.35	0.72	1.99	2.03	8.67	1.68	0.92	2.47	1.95
Lighting	4.68	1.63	0.81	2.39	2.23	5.84	10.82	0.87	16.17	17.80
<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>6.57</b>	<b>4.52</b>	<b>0.87</b>	<b>6.49</b>	<b>5.91</b>
<b>Indirect Impact</b>										
Advertising & Education										
EEP Development - 2017										
<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>6.28</b>	<b>3.62</b>	<b>0.83</b>	<b>5.22</b>	<b>5.45</b>