

**2017 SOUTH DAKOTA ENERGY EFFICIENCY PLAN
Otter Tail Power Company**

Appendix A, Table 1

	Total Budget	Participation	Proposed Energy Savings (kWh)	Proposed Demand Savings (kW)
DIRECT IMPACT PROJECTS				
Residential				
Air Conditioning Control	\$14,000	177	5,488.96	130.889
Air Source Heat Pumps	\$20,000	20	298,203.70	28.331
Geothermal Heat Pumps	\$30,000	9	321,778.87	23.851
Lighting	\$11,000	1,500	55,348.49	6.458
Total Residential	\$75,000	1,706	680,820.02	189.529
Commercial				
Air Source Heat Pumps	\$18,000	25	291,112.38	25.565
Custom Efficiency Projects	\$40,000	7	130,728.78	45.297
Drive Power	\$79,000	44	1,013,338.77	156.174
Geothermal Heat Pumps	\$73,000	16	730,265.07	92.984
Lighting	\$127,000	38	957,826.40	205.611
Total Commercial	\$337,000	130	3,123,271.40	525.630
TOTAL DIRECT IMPACT PROJECTS	\$412,000	1,836	3,804,091.42	715.160
INDIRECT IMPACT PROJECTS				
Advertising & Education	\$12,000	400	0.00	0.000
TOTAL INDIRECT IMPACT PROJECTS	\$12,000	400	0.00	0.000
TOTAL WITHOUT DEVELOPMENT COSTS	\$424,000	2,236	3,804,091.42	715.160
DEVELOPMENT				
EEP Development	\$25,000	0	0.00	0.000
TOTAL DEVELOPMENT	\$25,000	0	0.00	0.000
TOTAL ALL PROGRAMS	\$449,000	2,236	3,804,091.42	715.160

2017 SOUTH DAKOTA ENERGY EFFICIENCY PLAN

Appendix A, Table 2

Otter Tail Power Company

Benefit/Cost Ratios

	Utility Test	Total Resource Test	Ratepayer Impact Test	Societal Test	Participant Test
DIRECT IMPACT PROJECTS					
Residential					
Air Conditioning Control	1.04	1.04	1.00	1.04	inf.
Air Source Heat Pumps	10.04	3.33	0.61	3.48	6.12
Geothermal Heat Pumps	6.56	2.18	0.54	2.25	4.32
Lighting	2.75	7.12	0.48	10.62	inf.
Total Residential	5.90	2.63	0.58	2.77	5.42
Commercial					
Air Source Heat Pumps	8.21	2.34	0.57	2.40	3.18
Custom Efficiency Projects	2.98	1.03	0.78	1.07	0.96
Drive Power	7.32	4.54	0.80	4.75	4.57
Geothermal Heat Pumps	5.65	1.64	0.60	1.67	2.03
Lighting	4.63	2.29	0.80	2.36	2.23
Total Commercial	5.48	2.26	0.72	2.33	2.42
INDIRECT IMPACT PROJECTS					
Advertising & Education					
TOTAL INDIRECT IMPACT PROJECTS					
TOTAL ALL PROGRAMS	5.10	2.26	0.68	2.35	2.92

2018 SOUTH DAKOTA ENERGY EFFICIENCY PLAN
Otter Tail Power Company

Appendix A, Table 3

	Total Budget	Participation	Proposed Energy Savings (kWh)	Proposed Demand Savings (kW)
DIRECT IMPACT PROJECTS				
Residential				
Air Conditioning Control	\$14,000	212	6,574.35	156.771
Air Source Heat Pumps	\$20,000	20	298,203.70	28.331
Geothermal Heat Pumps	\$30,000	9	321,778.87	23.851
Lighting	\$11,000	1,500	55,348.49	6.458
Total Residential	\$75,000	1,741	681,905.41	215.411
Commercial				
Air Source Heat Pumps	\$18,000	25	291,112.38	25.565
Custom Efficiency Projects	\$40,000	7	130,728.78	45.297
Drive Power	\$79,000	44	1,013,338.77	156.174
Geothermal Heat Pumps	\$73,000	16	730,265.07	92.984
Lighting	\$127,000	38	957,826.40	205.611
Total Commercial	\$337,000	130	3,123,271.40	525.630
TOTAL DIRECT IMPACT PROJECTS	\$412,000	1,871	3,805,176.81	741.042
INDIRECT IMPACT PROJECTS				
Advertising & Education	\$12,000	400	0.00	0.000
TOTAL INDIRECT IMPACT PROJECTS	\$12,000	400	0.00	0.000
TOTAL WITHOUT DEVELOPMENT COSTS	\$424,000	2,271	3,805,176.81	741.042
DEVELOPMENT				
EEP Development	\$25,000	0	0.00	0.000
TOTAL DEVELOPMENT	\$25,000	0	0.00	0.000
TOTAL ALL PROGRAMS	\$449,000	2,271	3,805,176.81	741.042

2018 SOUTH DAKOTA ENERGY EFFICIENCY PLAN

Appendix A, Table 4

Otter Tail Power Company

Benefit/Cost Ratios

	Utility Test	Total Resource Test	Ratepayer Impact Test	Societal Test	Participant Test
DIRECT IMPACT PROJECTS					
Residential					
Air Conditioning Control	1.38	1.38	1.32	1.38	inf.
Air Source Heat Pumps	10.53	3.46	0.63	3.61	6.21
Geothermal Heat Pumps	6.87	2.27	0.56	2.33	4.38
Lighting	2.88	7.45	0.49	11.04	inf.
Total Residential	6.24	2.75	0.60	2.90	5.50
Commercial					
Air Source Heat Pumps	8.58	2.43	0.58	2.50	3.23
Custom Efficiency Projects	3.12	1.07	0.81	1.12	0.97
Drive Power	7.66	4.72	0.83	4.94	4.64
Geothermal Heat Pumps	5.91	1.70	0.61	1.73	2.07
Lighting	4.87	2.39	0.83	2.47	2.27
Total Commercial	5.74	2.35	0.74	2.43	2.46
INDIRECT IMPACT PROJECTS					
Advertising & Education					
TOTAL INDIRECT IMPACT PROJECTS					
TOTAL ALL PROGRAMS	5.35	2.36	0.70	2.45	2.97

2019 SOUTH DAKOTA ENERGY EFFICIENCY PLAN
Otter Tail Power Company

Appendix A, Table 5

	Total Budget	Participation	Proposed Energy Savings (kWh)	Proposed Demand Savings (kW)
DIRECT IMPACT PROJECTS				
Residential				
Air Conditioning Control	\$14,000	247	7,659.74	182.653
Air Source Heat Pumps	\$20,000	20	298,203.70	28.331
Geothermal Heat Pumps	\$30,000	9	321,778.87	23.851
Lighting	\$11,000	1,500	55,348.49	6.458
Total Residential	\$75,000	1,776	682,990.79	241.293
Commercial				
Air Source Heat Pumps	\$18,000	25	291,112.38	25.565
Custom Efficiency Projects	\$40,000	7	130,728.78	45.297
Drive Power	\$79,000	44	1,013,338.77	156.174
Geothermal Heat Pumps	\$73,000	16	730,265.07	92.984
Lighting	\$127,000	38	957,826.40	205.611
Total Commercial	\$337,000	130	3,123,271.40	525.630
TOTAL DIRECT IMPACT PROJECTS	\$412,000	1,906	3,806,262.19	766.924
INDIRECT IMPACT PROJECTS				
Advertising & Education	\$12,000	400	0.00	0.000
TOTAL INDIRECT IMPACT PROJECTS	\$12,000	400	0.00	0.000
TOTAL WITHOUT DEVELOPMENT COSTS	\$424,000	2,306	3,806,262.19	766.924
DEVELOPMENT				
EEP Development	\$25,000	0	0.00	0.000
TOTAL DEVELOPMENT	\$25,000	0	0.00	0.000
TOTAL ALL PROGRAMS	\$449,000	2,306	3,806,262.19	766.924

2019 SOUTH DAKOTA ENERGY EFFICIENCY PLAN

Otter Tail Power Company

Benefit/Cost Ratios

	Utility Test	Total Resource Test	Ratepayer Impact Test	Societal Test	Participant Test
DIRECT IMPACT PROJECTS					
Residential					
Air Conditioning Control	1.66	1.66	1.57	1.66	inf.
Air Source Heat Pumps	11.00	3.59	0.65	3.75	6.29
Geothermal Heat Pumps	7.17	2.35	0.57	2.42	4.44
Lighting	3.00	7.76	0.51	11.44	inf.
Total Residential	6.55	2.86	0.62	3.02	5.58
Commercial					
Air Source Heat Pumps	8.95	2.52	0.60	2.59	3.28
Custom Efficiency Projects	3.26	1.11	0.84	1.16	0.99
Drive Power	8.00	4.90	0.85	5.12	4.71
Geothermal Heat Pumps	6.16	1.77	0.63	1.79	2.10
Lighting	5.10	2.48	0.86	2.56	2.30
Total Commercial	6.00	2.44	0.77	2.52	2.49
INDIRECT IMPACT PROJECTS					
Advertising & Education					
TOTAL INDIRECT IMPACT PROJECTS					
TOTAL ALL PROGRAMS	5.59	2.45	0.72	2.54	3.01

2017-2019 SOUTH DAKOTA ENERGY EFFICIENCY PLAN

Appendix A, Table 7

Otter Tail Power Company

Benefit/Cost Ratios

	Utility Test	Total Resource Test	Ratepayer Impact Test	Societal Test	Participant Test
DIRECT IMPACT PROJECTS					
Residential					
Air Conditioning Control	1.36	1.36	1.30	1.36	inf.
Air Source Heat Pumps	10.52	3.46	0.63	3.61	6.21
Geothermal Heat Pumps	6.87	2.27	0.56	2.33	4.38
Lighting	2.88	7.44	0.49	11.04	inf.
Total Residential	6.23	2.75	0.60	2.90	5.50
Commercial					
Air Source Heat Pumps	8.58	2.43	0.58	2.50	3.23
Custom Efficiency Projects	3.12	1.07	0.81	1.12	0.97
Drive Power	7.66	4.72	0.83	4.93	4.64
Geothermal Heat Pumps	5.91	1.70	0.61	1.73	2.07
Lighting	4.87	2.38	0.83	2.47	2.26
Total Commercial	5.74	2.35	0.74	2.43	2.45
INDIRECT IMPACT PROJECTS					
Advertising & Education					
TOTAL INDIRECT IMPACT PROJECTS					
TOTAL ALL PROGRAMS					
	5.35	2.36	0.70	2.45	2.96