

2017 SOUTH DAKOTA ENERGY EFFICIENCY PLAN
Otter Tail Power Company

Appendix A, Table 1
 (Compliance)

	Total Budget	Participation	Proposed Energy Savings (kWh)	Proposed Demand Savings (kW)
DIRECT IMPACT PROJECTS				
Residential				
Air Conditioning Control	\$14,000	591	18,328	437.0
Air Source Heat Pumps	\$20,000	20	298,204	28.3
Geothermal Heat Pumps	\$30,000	9	321,779	23.9
Lighting	\$11,000	900	33,209	3.9
Total Residential	\$75,000	1,520	671,519	493.1
Commercial				
Air Source Heat Pumps	\$18,000	25	291,112	25.6
Custom Efficiency Projects	\$40,000	7	130,729	45.3
Drive Power	\$79,000	44	1,013,339	133.5
Geothermal Heat Pumps	\$73,000	16	730,265	93.0
Lighting	\$127,000	38	957,826	210.0
Total Commercial	\$337,000	130	3,123,271	507.4
TOTAL DIRECT IMPACT PROJECTS	\$412,000	1,650	3,794,791	1,000.5
INDIRECT IMPACT PROJECTS				
Advertising & Education	\$12,000	400	0	0.0
TOTAL INDIRECT IMPACT PROJECTS	\$12,000	400	0	0.0
TOTAL WITHOUT DEVELOPMENT COSTS	\$424,000	2,050	3,794,791	1,000.5
DEVELOPMENT				
EEP Development	\$25,000	0	0	0.0
TOTAL DEVELOPMENT	\$25,000	0	0	0.0
TOTAL ALL PROGRAMS	\$449,000	2,050	3,794,791	1,000.5

2017 SOUTH DAKOTA ENERGY EFFICIENCY PLAN

Appendix A, Table 2

Otter Tail Power Company

(Compliance)

Benefit/Cost Ratios

	Utility Test	Total Resource Test	Ratepayer Impact Test	Societal Test	Participant Test
DIRECT IMPACT PROJECTS					
Residential					
Air Conditioning Control	3.38	3.38	3.02	3.38	inf.
Air Source Heat Pumps	8.45	1.81	0.51	2.90	6.18
Geothermal Heat Pumps	7.61	1.61	0.62	2.55	4.34
Lighting	1.65	4.27	0.43	6.37	inf.
Total Residential	6.17	1.83	0.61	2.79	5.32
Commercial					
Air Source Heat Pumps	8.21	1.61	0.57	2.40	3.18
Custom Efficiency Projects	2.98	0.71	0.78	1.07	0.96
Drive Power	6.87	2.98	0.75	4.45	4.61
Geothermal Heat Pumps	6.81	1.35	0.72	1.99	2.03
Lighting	4.68	1.63	0.81	2.39	2.23
Total Commercial	5.64	1.62	0.74	2.40	2.42
INDIRECT IMPACT PROJECTS					
Advertising & Education					
TOTAL INDIRECT IMPACT PROJECTS					
TOTAL ALL PROGRAMS					
	5.27	1.61	0.70	2.40	2.91

2018 SOUTH DAKOTA ENERGY EFFICIENCY PLAN
Otter Tail Power Company

Appendix A, Table 3
 (Compliance)

	Total Budget	Participation	Proposed Energy Savings (kWh)	Proposed Demand Savings (kW)
DIRECT IMPACT PROJECTS				
Residential				
Air Conditioning Control	\$14,000	626	19,413	462.9
Air Source Heat Pumps	\$20,000	20	298,204	28.3
Geothermal Heat Pumps	\$30,000	9	321,779	23.9
Lighting	\$11,000	900	33,209	3.9
Total Residential	\$75,000	1,555	672,605	519.0
Commercial				
Air Source Heat Pumps	\$18,000	25	291,112	25.6
Custom Efficiency Projects	\$40,000	7	130,729	45.3
Drive Power	\$79,000	44	1,013,339	133.5
Geothermal Heat Pumps	\$73,000	16	730,265	93.0
Lighting	\$127,000	38	957,826	210.0
Total Commercial	\$337,000	130	3,123,271	507.4
TOTAL DIRECT IMPACT PROJECTS	\$412,000	1,685	3,795,876	1,026.4
INDIRECT IMPACT PROJECTS				
Advertising & Education	\$12,000	400	0	0.0
TOTAL INDIRECT IMPACT PROJECTS	\$12,000	400	0	0.0
TOTAL WITHOUT DEVELOPMENT COSTS	\$424,000	2,085	3,795,876	1,026.4
DEVELOPMENT				
EEP Development	\$25,000	0	0	0.0
TOTAL DEVELOPMENT	\$25,000	0	0	0.0
TOTAL ALL PROGRAMS	\$449,000	2,085	3,795,876	1,026.4

2018 SOUTH DAKOTA ENERGY EFFICIENCY PLAN

Appendix A, Table 4

Otter Tail Power Company

(Compliance)

Benefit/Cost Ratios

	Utility Test	Total Resource Test	Ratepayer Impact Test	Societal Test	Participant Test
DIRECT IMPACT PROJECTS					
Residential					
Air Conditioning Control	3.98	3.98	3.52	3.98	inf.
Air Source Heat Pumps	8.82	1.89	0.52	3.01	6.27
Geothermal Heat Pumps	7.85	1.66	0.63	2.62	4.41
Lighting	1.73	4.47	0.44	6.63	inf.
Total Residential	6.49	1.92	0.63	2.90	5.40
Commercial					
Air Source Heat Pumps	8.58	1.69	0.58	2.50	3.23
Custom Efficiency Projects	3.12	0.75	0.81	1.12	0.97
Drive Power	7.19	3.12	0.77	4.63	4.69
Geothermal Heat Pumps	7.07	1.40	0.73	2.05	2.07
Lighting	4.92	1.71	0.84	2.49	2.27
Total Commercial	5.90	1.69	0.76	2.49	2.46
INDIRECT IMPACT PROJECTS					
Advertising & Education					
TOTAL INDIRECT IMPACT PROJECTS					
TOTAL ALL PROGRAMS					
	5.51	1.69	0.73	2.50	2.95

2019 SOUTH DAKOTA ENERGY EFFICIENCY PLAN
Otter Tail Power Company

Appendix A, Table 5
(Compliance)

	Total Budget	Participation	Proposed Energy Savings (kWh)	Proposed Demand Savings (kW)
DIRECT IMPACT PROJECTS				
Residential				
Air Conditioning Control	\$14,000	661	20,498	488.8
Air Source Heat Pumps	\$20,000	20	298,204	28.3
Geothermal Heat Pumps	\$30,000	9	321,779	23.9
Lighting	\$11,000	900	33,209	3.9
Total Residential	\$75,000	1,590	673,690	544.9
Commercial				
Air Source Heat Pumps	\$18,000	25	291,112	25.6
Custom Efficiency Projects	\$40,000	7	130,729	45.3
Drive Power	\$79,000	44	1,013,339	133.5
Geothermal Heat Pumps	\$73,000	16	730,265	93.0
Lighting	\$127,000	38	957,826	210.0
Total Commercial	\$337,000	130	3,123,271	507.4
TOTAL DIRECT IMPACT PROJECTS	\$412,000	1,720	3,796,961	1,052.2
INDIRECT IMPACT PROJECTS				
Advertising & Education	\$12,000	400	0	0.0
TOTAL INDIRECT IMPACT PROJECTS	\$12,000	400	0	0.0
TOTAL WITHOUT DEVELOPMENT COSTS	\$424,000	2,120	3,796,961	1,052.2
DEVELOPMENT				
EEP Development	\$25,000	0	0	0.0
TOTAL DEVELOPMENT	\$25,000	0	0	0.0
TOTAL ALL PROGRAMS	\$449,000	2,120	3,796,961	1,052.2

2019 SOUTH DAKOTA ENERGY EFFICIENCY PLAN

Appendix A, Table 6

Otter Tail Power Company

(Compliance)

Benefit/Cost Ratios

	Utility Test	Total Resource Test	Ratepayer Impact Test	Societal Test	Participant Test
DIRECT IMPACT PROJECTS					
Residential					
Air Conditioning Control	4.33	4.33	3.78	4.33	inf.
Air Source Heat Pumps	9.17	1.96	0.54	3.11	6.35
Geothermal Heat Pumps	8.07	1.71	0.64	2.68	4.46
Lighting	1.80	4.66	0.46	6.87	inf.
Total Residential	6.75	2.00	0.65	3.00	5.47
Commercial					
Air Source Heat Pumps	8.95	1.76	0.60	2.59	3.28
Custom Efficiency Projects	3.26	0.78	0.84	1.16	0.99
Drive Power	7.50	3.25	0.79	4.79	4.76
Geothermal Heat Pumps	7.32	1.44	0.75	2.12	2.10
Lighting	5.15	1.79	0.87	2.59	2.30
Total Commercial	6.15	1.76	0.78	2.58	2.50
INDIRECT IMPACT PROJECTS					
Advertising & Education					
TOTAL INDIRECT IMPACT PROJECTS					
TOTAL ALL PROGRAMS	5.74	1.76	0.75	2.59	3.00

2017-2019 SOUTH DAKOTA ENERGY EFFICIENCY PLAN

Appendix A, Table 7

Otter Tail Power Company

(Compliance)

Benefit/Cost Ratios

	Utility Test	Total Resource Test	Ratepayer Impact Test	Societal Test	Participant Test
DIRECT IMPACT PROJECTS					
Residential					
Air Conditioning Control	3.90	3.90	3.45	3.90	inf.
Air Source Heat Pumps	8.81	1.88	0.52	3.01	6.27
Geothermal Heat Pumps	7.84	1.66	0.63	2.61	4.40
Lighting	1.73	4.46	0.44	6.62	inf.
Total Residential	6.47	1.91	0.63	2.90	5.40
Commercial					
Air Source Heat Pumps	8.58	1.68	0.58	2.50	3.23
Custom Efficiency Projects	3.12	0.75	0.81	1.12	0.97
Drive Power	7.18	3.11	0.77	4.62	4.69
Geothermal Heat Pumps	7.07	1.39	0.73	2.05	2.07
Lighting	4.92	1.71	0.84	2.49	2.26
Total Commercial	5.90	1.69	0.76	2.49	2.46
INDIRECT IMPACT PROJECTS					
Advertising & Education					
TOTAL INDIRECT IMPACT PROJECTS					
TOTAL ALL PROGRAMS	5.51	1.69	0.73	2.50	2.95