

**Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Lambda and Capacity Costs
2018**

Month		Lambda		Total \$/MWh
		On-Peak \$/MWh	Off-Peak \$/MWh	
January	2018		\$29.67	\$29.67
February	2018		22.29	22.29
March	2018		23.33	23.33
April	2018		23.29	23.29
May	2018		21.18	21.18
June	2018	\$21.08	19.52	19.89
July	2018	27.52	26.65	26.85
August	2018	33.18	28.50	29.66
September	2018	27.19	27.04	27.07
October	2018		25.83	25.83
November	2018		21.51	21.51
December	2018		28.15	28.15
Average		\$27.24	\$24.75	\$24.89

Monthly Capacity Payments

Rate 96 \$3.459 \$/kW-Month (Cost of an installed peaking
combustion turbine)

**Montana-Dakota Utilities Co.
Electric Utility - South Dakota
Calculation of Capacity Payments
2018**

Rate 96

Capital cost of combustion turbine	\$905	1/
Escalation rate	3.5%	
Levelized Fixed Charge	4.588%	2/
Monthly Capacity Payments:	\$3.459	\$/kW-Month 3/

Cost of combustion turbine based on Heskett III Station in 2015 dollars of \$816 escalated at a rate of 3.5% per year to 2018.

See Attachment A pages 2-5.

Rate 93 Capacity Payment formula: = \$816 x 1.035^(2018-2015) x .04588 / 12

**Montana-Dakota Utilities Co.
Electric Utility- South Dakota
2018 Avoided Cost Rate Update
Levelized Fixed Charge Rate - CT**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
	Rev. Requ. As % (Net Investment)	Return	Book Depr.	O&M	Ad Valorem Tax	Total Charge	Present Value Factor	Present Value	Accum. Present Value	LFCR	Tax Depr. Accel.	Deferred Income Tax	
1	1	1.000	0.09713	0.02500	0.00000	0.00363	0.00000	0.93270	0.00000	0.00000	0.00000	0.05000	0.00875
2	2	0.966	0.09385	0.02500	0.00000	0.00363	0.00000	0.86992	0.00000	0.00000	0.00000	0.09500	0.02450
3	3	0.917	0.08904	0.02500	0.00000	0.00363	0.00000	0.81137	0.00000	0.00000	0.00000	0.08550	0.02118
4	4	0.871	0.08456	0.02500	0.00000	0.00363	0.00000	0.75677	0.00000	0.00000	0.00000	0.07700	0.01820
5	5	0.827	0.08036	0.02500	0.00000	0.00363	0.00000	0.70583	0.00000	0.00000	0.00000	0.06930	0.01551
6	6	0.787	0.07643	0.02500	0.00000	0.00363	0.00000	0.65833	0.00000	0.00000	0.00000	0.06230	0.01306
7	7	0.749	0.07273	0.02500	0.00000	0.00363	0.10136	0.61402	0.06224	0.06224	0.01164	0.05900	0.01190
8	8	0.712	0.06915	0.02500	0.00000	0.00363	0.09778	0.57269	0.05600	0.11824	0.01997	0.05900	0.01190
9	9	0.675	0.06556	0.02500	0.00000	0.00363	0.09419	0.53415	0.05031	0.16855	0.02611	0.05910	0.01194
10	10	0.638	0.06198	0.02500	0.00000	0.00363	0.09061	0.49820	0.04514	0.21369	0.03073	0.05900	0.01190
11	11	0.601	0.05839	0.02500	0.00000	0.00363	0.08702	0.46467	0.04044	0.25413	0.03426	0.05910	0.01194
12	12	0.564	0.05481	0.02500	0.00000	0.00363	0.08344	0.43340	0.03616	0.29029	0.03697	0.05900	0.01190
13	13	0.527	0.05122	0.02500	0.00000	0.00363	0.07985	0.40423	0.03228	0.32257	0.03907	0.05910	0.01194
14	14	0.490	0.04763	0.02500	0.00000	0.00363	0.07626	0.37702	0.02875	0.35132	0.04069	0.05900	0.01190
15	15	0.454	0.04405	0.02500	0.00000	0.00363	0.07268	0.35165	0.02556	0.37688	0.04195	0.05910	0.01194
16	16	0.417	0.04046	0.02500	0.00000	0.00363	0.06909	0.32798	0.02266	0.39954	0.04290	0.02950	0.00158
17	17	0.390	0.03788	0.02500	0.00000	0.00363	0.06651	0.30591	0.02035	0.41988	0.04365	0.00000	(0.00875)
18	18	0.374	0.03630	0.02500	0.00000	0.00363	0.06493	0.28532	0.01853	0.43841	0.04427	0.00000	(0.00875)
19	19	0.357	0.03472	0.02500	0.00000	0.00363	0.06335	0.26611	0.01686	0.45527	0.04476	0.00000	(0.00875)
20	20	0.341	0.03315	0.02500	0.00000	0.00363	0.06178	0.24820	0.01533	0.47060	0.04517	0.00000	(0.00875)
21	21	0.325	0.03157	0.02500	0.00000	0.00363	0.06020	0.23150	0.01394	0.48454	0.04550	0.00000	(0.00875)
22	22	0.309	0.02999	0.02500	0.00000	0.00363	0.05862	0.21592	0.01266	0.49719	0.04576	0.00000	(0.00875)
23	23	0.292	0.02841	0.02500	0.00000	0.00363	0.05704	0.20139	0.01149	0.50868	0.04596	0.00000	(0.00875)
24	24	0.276	0.02683	0.02500	0.00000	0.00363	0.05546	0.18783	0.01042	0.51910	0.04612	0.00000	(0.00875)
25	25	0.260	0.02525	0.02500	0.00000	0.00363	0.05388	0.17519	0.00944	0.52854	0.04624	0.00000	(0.00875)
26	26	0.244	0.02368	0.02500	0.00000	0.00363	0.05231	0.16340	0.00855	0.53708	0.04633	0.00000	(0.00875)
27	27	0.227	0.02210	0.02500	0.00000	0.00363	0.05073	0.15240	0.00773	0.54482	0.04638	0.00000	(0.00875)

**Montana-Dakota Utilities Co.
Electric Utility- South Dakota
2018 Avoided Cost Rate Update
Levelized Fixed Charge Rate - CT**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
	Rev. Requ. As % (Net	Return	Book Depr.	O&M	Ad Valorem Tax	Total Charge	Present Value Factor	Present Value	Accum. Present Value	LFCR	Tax Depr. Accel.	Deferred Income Tax	
Year	(Investment)												
28	28	0.211	0.02052	0.02500	0.00000	0.00363	0.04915	0.14214	0.00699	0.55180	0.04642	0.00000	(0.00875)
29	29	0.195	0.01894	0.02500	0.00000	0.00363	0.04757	0.13258	0.00631	0.55811	0.04643	0.00000	(0.00875)
30	30	0.179	0.01736	0.02500	0.00000	0.00363	0.04599	0.12366	0.00569	0.56380	0.04642	0.00000	(0.00875)
31	31	0.162	0.01578	0.02500	0.00000	0.00363	0.04441	0.11533	0.00512	0.56892	0.04641	0.00000	(0.00875)
32	32	0.146	0.01421	0.02500	0.00000	0.00363	0.04284	0.10757	0.00461	0.57353	0.04637	0.00000	(0.00875)
33	33	0.130	0.01263	0.02500	0.00000	0.00363	0.04126	0.10033	0.00414	0.57767	0.04633	0.00000	(0.00875)
34	34	0.114	0.01105	0.02500	0.00000	0.00363	0.03968	0.09358	0.00371	0.58138	0.04628	0.00000	(0.00875)
35	35	0.097	0.00947	0.02500	0.00000	0.00363	0.03810	0.08728	0.00333	0.58470	0.04623	0.00000	(0.00875)
36	36	0.081	0.00789	0.02500	0.00000	0.00363	0.03652	0.08141	0.00297	0.58768	0.04616	0.00000	(0.00875)
37	37	0.065	0.00631	0.02500	0.00000	0.00363	0.03494	0.07593	0.00265	0.59033	0.04610	0.00000	(0.00875)
38	38	0.049	0.00474	0.02500	0.00000	0.00363	0.03337	0.07082	0.00236	0.59269	0.04603	0.00000	(0.00875)
39	39	0.032	0.00316	0.02500	0.00000	0.00363	0.03179	0.06605	0.00210	0.59479	0.04596	0.00000	(0.00875)
40	40	0.016	0.00158	0.02500	0.00000	0.00363	0.03021	0.06161	0.00186	0.59665	0.04588	0.00000	(0.00875)

**Montana-Dakota Utilities Co.
Electric Utility- South Dakota
2018 Avoided Cost Rate Update
Levelized Fixed Charge Rate - CT**

Year	(1) Rev. Requ. As % (Net Investment)	(2) Return	(3) Book Depr.	(4) O&M	(5) Ad Valorem Tax	(6) Total Charge	(7) Present Value Factor	(8) Present Value	(9) Accum. Present Value	(10) LFCR	(11) Tax Depr. Accel.	(12) Deferred Income Tax
(1)	Prior year's Net investment - Book Depreciation - Deferred Income Tax.											
(2)	Return (adjusted for taxes) x Net Investment.											
(3)	Depreciation rate based on the life of the investment.											
(4)	Distribution O&M expense as percent of distribution plant.											
(5)	Ad valorem tax rate on distribution plant.											
(6)	Sum of return, depreciation, O&M and ad valorem taxes.											
(7)	Present value factor reflecting overall rate of return.											
(8)	Present value factor x total charge.											
(9)	Accumulated present value.											
(10)	Levelized fixed charge rate = accumulated present value x $((+ROR*(1+ROR)^{book\ life})/((1+ROR)^{book\ life}-1))$											
(11)	Tax depreciation rates for a CT uses a 15 year tax life.											
(12)	(Tax life - book life) x tax rate.											

Assumptions

ROR	7.216%
ROR with taxes	9.713%
Federal Tax Rate	35.000%
State Tax Rate	
Combined Federal/State Tax Rate	35.0000%
1 - Tax Rate	65.0000%
Service Life of Asset (in years)	40
Tax Life (in years - 5, 7, 10, 15, 20 , or 39)	15
Property Tax Rate	0.363%