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Xcel Energy Information Request No. 1-12
Docket No.: EL20-015
Response To: South Dakota Public Utilities Commission
Requestor: South Dakota Public Utilities Commission Staff
Date Received: September 9, 2020

Question:

Provide the avoided energy, avoided generation, and avoided transmission and distribution cost schedules used in the 2019 and 2021 benefit/cost models.

Response:

The South Dakota benefit/cost model assumptions are based off the Minnesota Conservation Improvement Triennial plan.

We note the following sources of information for the 2019 benefit/cost models:

- **Capacity Cost (\$/kW-Year):** CT Cost Modeling in 2015 IRP update - Includes 2017 capital (\$56.29) and O&M (\$2.75) costs escalated using a 2.24 percent rate, adjusted for reserve margin (1.75%), and with a fixed gas charge (\$0.00) added.
- **T&D Cost (\$/kW-Year):** 2013 value carried over from previous triennial that was consistent with CO and NM that loosely ties back to a 2004 Nexant study - 2010 value of 31.17 escalated 3 years at prior escalation of 2.36 percent.
- **Marginal Energy System Load Weighted Average (\$/kWh):** Based off current assumptions from Resource Planning - Sept 2015.

For the 2019 benefit/cost models, please see the table below for the avoided energy, avoided generation, and avoided transmission and distribution cost schedules.

2017-2020 MN/SD Avoided Cost Streams – Nominal Dollars

Year	Capacity Cost (\$/kW-Year)	T&D Cost (\$/kW-Year)	Marginal Energy System Load Weighted Average (\$/kWh)
2017	\$60.07	\$36.23	\$0.02618
2018	\$61.41	\$37.08	\$0.02594
2019	\$62.79	\$37.96	\$0.02803
2020	\$64.19	\$38.85	\$0.03198
2021	\$65.63	\$39.77	\$0.03377
2022	\$67.09	\$40.71	\$0.03508
2023	\$68.60	\$41.67	\$0.03662
2024	\$70.13	\$42.65	\$0.04040
2025	\$71.70	\$43.66	\$0.04217
2026	\$73.30	\$44.69	\$0.04426
2027	\$74.94	\$45.74	\$0.04645
2028	\$76.62	\$46.82	\$0.04830
2029	\$78.33	\$47.93	\$0.04989
2030	\$80.09	\$49.06	\$0.05054
2031	\$81.88	\$50.22	\$0.05029
2032	\$83.71	\$51.40	\$0.05194
2033	\$85.58	\$52.62	\$0.05458
2034	\$87.50	\$53.86	\$0.05347
2035	\$89.46	\$55.13	\$0.05376
2036	\$91.46	\$56.43	\$0.05823
2037	\$93.50	\$57.76	\$0.05895
2038	\$95.59	\$59.12	\$0.05831
2039	\$97.73	\$60.51	\$0.05831

As noted above, the South Dakota benefit/cost model assumptions are based off the Minnesota Conservation Improvement Triennial plan. A new Plan was filed on July 1, 2020. The assumptions for 2021 align with the Minnesota 2021-2023 Triennial Plan.

We note the following sources of information for the 2021 benefit/cost models:

- **Capacity Cost (\$/kW-Year):** CT Cost Modeling in 2019 Minnesota IRP update - Includes capital (\$46.01) and O&M (\$3.86) escalated using a 2 percent rate, adjusted for reserve margin (1.75%), and with a fixed gas charge (\$0.00) added.
- **T&D Cost (\$/kW-Year):** value is based on a 2017 T&D study with a 2021 value of \$10.59 and escalation of 2.36 percent.
- **Marginal Energy System Load Weighted Average (\$/kWh):** Based off September 2019 assumptions from Resource Planning.

For the 2021 benefit/cost models, please see the table below for the avoided energy, avoided generation, and avoided transmission and distribution cost schedules.

2021-2023 MN/SD Avoided Cost Streams – Nominal Dollars

Year	Capacity Cost (\$/kW-Year)	T&D Cost (\$/kW-Year)	Marginal Energy System Load Weighted Average (\$/kWh)
2021	\$60.87	\$10.59	\$0.01701
2022	\$62.08	\$10.84	\$0.01582
2023	\$63.32	\$11.10	\$0.01858
2024	\$64.59	\$11.36	\$0.02299
2025	\$65.88	\$11.63	\$0.02586
2026	\$67.20	\$11.90	\$0.02761
2027	\$68.54	\$12.18	\$0.02722
2028	\$69.92	\$12.47	\$0.02787
2029	\$71.31	\$12.76	\$0.02849
2030	\$72.74	\$13.07	\$0.02809
2031	\$74.19	\$13.37	\$0.03029
2032	\$75.68	\$13.69	\$0.03033
2033	\$77.19	\$14.01	\$0.03220
2034	\$78.74	\$14.34	\$0.03464
2035	\$80.31	\$14.68	\$0.03707
2036	\$81.91	\$15.03	\$0.03950
2037	\$83.55	\$15.38	\$0.04194
2038	\$85.23	\$15.75	\$0.04437
2039	\$86.93	\$16.12	\$0.04680
2040	\$88.67	\$16.50	\$0.04923

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