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Xcel Energy

Data Request No. 2-10

Docket No.: EL21-014

Response To: South Dakota Public Utilities Commission

Requestor: Brittany Mehlhaff

Date Received: September 3, 2021

Question:

Provide the avoided energy, avoided generation, and avoided transmission and distribution cost schedules used in the 2020 and 2022 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 2020 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 2020 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 2022 align with the Minnesota 2021-2023 Triennial Plan.

We note the following sources of information for the 2022 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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