November 15, 2022

Ms. Patricia Van Gerpen
Executive Director
South Dakota Public Utilities Commission
500 East Capital Avenue
Pierre, SD 57501

Re: 18 CFR 292.302 – Avoided Cost Compliance Filing

Dear Ms. Van Gerpen,

Please find enclosed NorthWestern Energy's compliance filing of our avoided costs pursuant to 18 CFR 292.302. These avoided costs are based on the costs and projections included in NorthWestern Energy's 2022 SD Resource Plan. The capacity values of our resources have been updated to reflect our 2022 Resource Adequacy Workbook as filed with SPP on February 15, 2022.

Sincerely,

Bleau LaFave
Director of Long Term Resources
Bleau.LaFave@Northwestern.com

NorthWestern Energy
Delivering a Bright Future

NorthWestern Energy
Informational Compliance Filing with the
South Dakota Public Utilities Commission
as required by 18 CFR 292.302

18 CFR 292.302(b)(1) The estimated avoided cost on the electric utility's system, solely with respect to the energy component, for various levels of purchases from qualifying facilities. Such levels of purchases shall be stated in blocks of not more than 100 megawatts for systems with peak demand of 1000 megawatts or more, and in blocks equivalent to not more than 10 percent of the system peak demand for systems of less than 1000 megawatts. The avoided costs shall be stated on a cents per kilowatt-hour basis, during daily and seasonal peak and off-peak periods, by year, for the current calendar year and each of the next 5 years.

Avoided costs for purchases of different levels of energy from qualifying facilities were calculated by using NorthWestern's production cost modeling software PowerSimm to simulate weather, load, renewable generation and market prices at an hourly level. NWE's thermal resources are economically dispatched against the forecast SPP market price. The energy provided by the qualifying facility is valued based on either the market price or the variable cost of NWE's marginal resource, depending on whether NWE is buying or selling energy into the market. This method is the same as the modeling used in the 2022 SD Resource Plan. Table 1 displays the projections of energy and peak demand loads on which the avoided cost calculations are based. SPP is taking steps to change the Planning Reserve Margin (PRM) from the current value of 12% to 15% in 2023. This increase is reflected in the table below.

Table 1: Forecast Energy (MWh) and Peak (MW) Loads

(*Projected summer peak including new industrial load.)
(**PRM is 12% in 2022, 15% thereafter.)

	Forecast		
Year	Energy Needs (MWh)	Peak Load* (MW)	Peak + PRM** (15%)
2022	1,796,357	343	384
2023	1,816,596	347	399
2024	1,836,835	350	403
2025	1,857,074	354	407
2026	1,877,313	358	411
2027	1,897,552	361	415
2028	1,917,791	365	419
2029	1,938,030	368	424
2030	1,958,269	372	428
2031	1,978,508	376	432
2032	1,998,748	379	436
2033	2,018,987	383	440

Table 2 displays the avoided cost of energy values in 34 MW blocks of purchases (which corresponds to approximately 10 percent of NWE's peak load) for peak and off-peak periods over the next 5 years.

Table 2: Avoided Energy Costs – cents per kWh, in 34 MW blocks

Avoided Energy Costs for Various Levels of Purchases (cents/KWh), in 34 MW blocks (average energy per hour (8760) - MW)											
		34	68	102	136	170	204	238	272	306	340
2022	5x16 Peak	2.65	2.00	1.50	1.09	0.77	0.46	0.19	0.06	0.02	0.01
	Off-Peak	1.53	1.18	0.85	0.58	0.33	0.14	0.04	0.01	0.01	0.01
	ATC	2.16	1.64	1.22	0.87	0.58	0.32	0.13	0.04	0.01	0.01
2023	5x16 Peak	2.56	1.98	1.51	1.14	0.85	0.56	0.29	0.12	0.04	0.02
	Off-Peak	1.60	1.26	0.96	0.69	0.43	0.20	0.08	0.02	0.01	0.01
	ATC	2.14	1.67	1.27	0.94	0.66	0.40	0.20	0.08	0.03	0.01
2024	5x16 Peak	2.15	1.76	1.41	1.11	0.84	0.57	0.31	0.13	0.04	0.02
	Off-Peak	1.45	1.18	0.92	0.70	0.46	0.23	0.09	0.03	0.01	0.01
	ATC	1.84	1.50	1.19	0.93	0.67	0.42	0.21	0.08	0.03	0.01
2025	5x16 Peak	2.34	1.95	1.55	1.21	0.92	0.64	0.37	0.16	0.05	0.02
	Off-Peak	1.46	1.20	0.95	0.73	0.50	0.29	0.12	0.04	0.02	0.01
	ATC	1.95	1.62	1.29	1.00	0.74	0.49	0.26	0.11	0.04	0.02
2026	5x16 Peak	2.26	1.88	1.50	1.17	0.90	0.64	0.37	0.17	0.06	0.02
	Off-Peak	1.42	1.18	0.95	0.74	0.51	0.29	0.12	0.04	0.02	0.01
	ATC	1.89	1.57	1.26	0.98	0.73	0.49	0.26	0.11	0.04	0.02
2027	5x16 Peak	2.28	1.90	1.53	1.21	0.92	0.65	0.39	0.18	0.06	0.03
	Off-Peak	1.45	1.20	0.96	0.73	0.51	0.29	0.13	0.05	0.02	0.01
	ATC	1.92	1.60	1.28	1.00	0.74	0.50	0.28	0.12	0.05	0.02

18 CFR 292.302(b)(2) The electric utility's plan for the addition of capacity by amount and type, for purchases of firm energy and capacity, and for capacity retirements for each year during the succeeding 10 years.

NWE's capacity position is summarized in Table 4. NorthWestern replaced Huron Units 1 and 2 with the Bob Glanzer Generating Station which became commercially operational in 2022.

Table 4: NorthWestern's Current and Anticipated Capacity Portfolio

	Capacity					
	Thermal	Wind		Other		Capacity
	Owned	Owned	Contract	Contracts	Total	Shortfall
2022	360.7	17.7	9.6	15	403	-19
2023	360.7	17.7	9.6	0	388	11
2024	360.7	17.7	9.6	0	388	15
2025	360.7	17.7	9.6	0	388	19
2026	340.6	17.7	9.6	0	368	43
2027	340.6	17.7	9.6	0	368	48
2028	336.5	17.7	9.6	0	364	56
2029	336.5	17.7	9.6	0	364	60
2030	336.5	17.7	6.6	0	361	67
2031	336.5	17.7	6.6	0	361	71
2032	336.5	17.7	6.6	0	361	75
2033	336.5	17.7	6.6	0	361	79

In the 2022 South Dakota Resource Plan, NWE identified Aberdeen Generating Station Unit 1, Yankton Generating Station, Clark, and Faulkton as primary candidates for retirement due to costs associated with maintenance and repairs. Combined, they have provided approximately 24.2 MW of accredited capacity.

NWE intends to retire these resources in the coming years and replace them with new capacity using a competitive solicitation process, with an anticipated in-service date as early as 2024. Details about this replacement process are discussed in the 2022 Plan. Table 5 provides a summary of the resource candidates for retirements.

Table 5: Candidate Resources for Retirement

Resource	Nameplate Capacity	Capacity Value	Type
Aberdeen Generating Station Unit 1	28.8 MW	20.1 MW	CT
Yankton Generating Station	13.6 MW	5.5 MW	RICE
Clark	2.8 MW	2.1 MW	RICE
Faulkton	2.8 MW	2.0 MW	RICE
Total:	**48.0 MW**	**29.70 MW**	

18 CFR 292.302(b)(3) The estimated capacity costs at completion of the planned capacity additions and planned capacity firm purchases, on the basis of dollars per kilowatt, and the associated energy costs of each unit, expressed in cents per kilowatt hour. These costs shall be expressed in terms of individual generating units and of individual planned firm purchases.

NorthWestern used a revenue requirement calculation based on the assumptions in the 2022 SD Resource Plan. This assumes the avoided capacity resource is a new 50 MW aeroderivative combustion turbine. For this resource in 2022, the capital cost is $1481 per kW, and the fixed O&M cost is $17.98 per kW-year. The calculation uses a marginal cost of capital of 7.24%, inflation rates of 4.70% for 2022, 2.50% for 2023 and thereafter, and incorporates state and federal tax rates, and a 42 year tax life. Table 6 displays the 20-year levelized avoidable capacity costs by kilowatt-year for QF contracts signed in the current and each of the next five years. The avoided capacity cost in 2022 is $176.14 per kw-year and the 6-year average of levelized costs is $187.52 per kW-year.

Table 6: Levelized Capacity Value for 20-yr Contract, by year QF Contract is Signed

Year Contract Begins		Avoided Capacity Cost (20-yr levelized, in $/kW-yr)
2022		$176.14
2023		$180.54
2024		$185.06
2025		$189.68
2026		$194.43
2027		$199.29