



March 20, 2019

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 2018 SD Resource Plan. The capacity values of our resources have been updated to reflect our 2019 Resource Adequacy Workbook as filed with SPP on February 15, 2019.

Sincerely,

Bleau LaFave

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



**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 2018 SD Resource Plan but refined to an hourly (rather than monthly) level of simulation. Table 1 displays the projections of energy demand and peak loads on which the avoided cost calculations are based.

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

	Forecast		
	Energy Needs (MWh)	Peak Load* (MW)	Peak + PRM (12%)
2019	1,760,918	337.3	377.8
2020	1,839,482	345.9	387.4
2021	1,853,665	347.7	389.5
2022	1,867,847	349.6	391.5
2023	1,882,030	351.4	393.6
2024	1,896,212	353.2	395.6
2025	1,910,394	355.1	397.7
2026	1,924,577	356.9	399.7
2027	1,938,759	358.7	401.7
2028	1,952,941	360.5	403.8

*Projected summer peak including new industrial load.



Table 2 displays the avoided cost of energy values in 33 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 33 MW blocks

		Avoided Energy Costs for Various Levels of Purchases (average energy per hour (8760) - MW)									
		33	66	99	132	165	198	231	264	297	330
2019	Peak	1.92	1.63	1.28	0.92	0.58	0.29	0.12	0.03	0.01	0.00
	Off-Peak	0.92	0.67	0.43	0.24	0.11	0.03	0.01	0.00	0.00	0.00
	ATC	1.59	1.31	1.00	0.70	0.42	0.21	0.08	0.02	0.00	0.00
2020	Peak	1.75	1.50	1.20	0.88	0.57	0.31	0.13	0.04	0.01	0.00
	Off-Peak	0.82	0.60	0.39	0.23	0.11	0.03	0.01	0.00	0.00	0.00
	ATC	1.44	1.20	0.93	0.66	0.42	0.22	0.09	0.03	0.01	0.00
2021	Peak	1.83	1.57	1.27	0.94	0.61	0.33	0.15	0.05	0.01	0.00
	Off-Peak	0.82	0.60	0.40	0.24	0.11	0.04	0.01	0.00	0.00	0.00
	ATC	1.49	1.25	0.98	0.70	0.45	0.24	0.10	0.03	0.01	0.00
2022	Peak	1.88	1.63	1.32	0.98	0.65	0.36	0.16	0.05	0.01	0.00
	Off-Peak	0.90	0.66	0.43	0.25	0.12	0.04	0.01	0.00	0.00	0.00
	ATC	1.55	1.31	1.02	0.74	0.47	0.26	0.11	0.04	0.01	0.00
2023	Peak	1.97	1.71	1.39	1.04	0.69	0.39	0.18	0.06	0.02	0.00
	Off-Peak	0.97	0.73	0.49	0.29	0.14	0.05	0.01	0.00	0.00	0.00
	ATC	1.64	1.38	1.09	0.79	0.51	0.27	0.12	0.04	0.01	0.00
2024	Peak	2.04	1.78	1.45	1.09	0.73	0.41	0.19	0.06	0.02	0.00
	Off-Peak	1.02	0.76	0.51	0.31	0.15	0.05	0.01	0.00	0.00	0.00
	ATC	1.70	1.44	1.14	0.83	0.54	0.29	0.13	0.04	0.01	0.00

Peak periods are hours ending 7am through 10pm on Monday through Friday. ATC = Around the clock.

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. NWE is currently in the process of adding 8 MW of mobile units to its SD resource portfolio, which is expected to be in service by the end of 2019 and is reflected in the 8 MW increase of thermal resource capacity in 2020 (as shown in Table 4). NWE does not currently have any contracts to purchase firm energy or capacity.



Table 4: NorthWestern’s Current and Anticipated Capacity Portfolio

	Capacity				Total	Capacity Shortfall
	Thermal Owned	Wind Owned	Wind Contract	Other Contracts		
2019	354.0	21.2	9.0	0	384.2	-6.4
2020	362.0	21.2	9.0	0	392.2	-4.8
2021	362.0	21.2	9.0	0	392.2	-2.7
2022	362.0	21.2	10.5	0	393.7	-2.2
2023	362.0	21.2	10.5	0	393.7	-0.2
2024	362.0	21.2	10.5	0	393.7	1.9
2025	362.0	21.2	10.5	0	393.7	3.9
2026	362.0	21.2	10.5	0	393.7	6.0
2027	362.0	21.2	10.5	0	393.7	8.0
2028	362.0	21.2	10.5	0	393.7	10.0

As part of its 2018 South Dakota Resource Plan, NWE conducted a fleet assessment and identified several resources as candidates for retirement. The primary candidates for retirement include four resources that provide a total of 80.1 MW of accredited capacity value and two secondary candidates for retirement that provide 4.4 MW of accredited capacity value. NWE intends to retire these resources in the coming years and replace them one-for-one with new capacity, but the exact timing or sequence of these retirements is still uncertain and will not begin before 2021. A detailed description of this fleet assessment can be found in Chapter 4 of the 2018 SD Resource Plan. Table 5 provides a summary of the resource candidates for retirements.

Table 5: Candidate Resources for Retirement

Resource	Nominal Capacity	Capacity Value	Type
Aberdeen Generating Station Unit 1	20 MW	19.8 MW	CT
Huron Generating Station Unit 1	10 MW	10.5 MW	CT
Huron Generating Station Unit 2	50 MW	43.7 MW	CT
Yankton Generating Station	13 MW	6.1 MW	RICE
Clark*	2 MW	2.4 MW	RICE
Faulkton*	2.5 MW	2.0 MW	RICE
Total:	97.5	84.5	

*Secondary candidate for retirement.



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 the economic carrying charges based on the assumptions in the 2018 SD Resource Plan. This assumes the avoided capacity resource is a new 50 MW aeroderivative combustion turbine. The capital cost of the avoided capacity resource is \$1252 per kw and the calculation uses a marginal cost of capital of 6.87%, an inflation rate of 2.00%, and a 30-year resource carrying charge of 5.00%, which incorporates state and federal tax rates, and tax life. Table 6 displays the avoidable new generation capacity costs by year. The avoided capacity cost in 2019 is \$75.77 per kw-year and the 5-year levelized cost is \$76.15 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)
2019	\$82.92
2020	\$83.22
2021	\$83.51
2022	\$83.82
2023	\$84.13
2024	\$84.45