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Benjamin M. Clark
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June 29, 2018

FILED ELECTRONICALLY

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

Re: 18 CFR 292.302 – Avoided Cost Compliance Filing

Dear Ms. Van Gerpen:

Enclosed for filing, please find MidAmerican Energy Company's compliance filing regarding avoided costs pursuant to 18 CFR 292.302.

This report includes MidAmerican Energy Company's estimated electric avoided cost information as filed biannually with state regulatory authorities. Also, attached is Exhibit A.

Sincerely,

/s/ Benjamin M. Clark

Benjamin M. Clark
Senior Attorney

Attachments

MidAmerican Energy Company
Informational Compliance Filing
With the South Dakota Public Utilities Commission as required by 18 CFR
292.302

June 30, 2018

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 demands of 1,000 megawatts or more. 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 five years.

Avoided energy costs for various levels of purchase from qualifying facilities were calculated using MidAmerican Energy Company's (MidAmerican) generating costs from MidAmerican generating units dispatched against a market price simulating the Midcontinent Independent System Operator, Inc. (MISO) market, using a production costing model, PROMOD IV. The MidAmerican generating units selected to run in the particular hour are summarized by fuel type. The energy production and costs reflect the costs of MidAmerican's generation assets that are used to serve MidAmerican's Iowa/South Dakota customers. Energy and costs from WSEC 4, GDMEC and the Wind projects (New Generation) are not allocated to the Illinois retail jurisdiction.¹ The fuel types are allocated from lowest incremental production cost to highest incremental production cost (wind, nuclear, coal, and natural gas) to meet MidAmerican's Iowa and South Dakota retail energy requirement in each hour. In the event the hourly generation does not meet the retail energy requirement, a net market purchase is calculated and priced. The resulting average annual production costs of the hourly fuel type cost expected to meet the retail energy need is the basis for the avoided energy cost rates. Tables of the resulting avoided energy costs by block for the 0 megawatt level through the 200 megawatt level for 2018 through 2023 are shown on the attached Exhibit A.

The market dispatch methodology is identical to the methodology used in the prior avoided cost rate filing. The data used in the present filing includes the allocation of the New Generation production costs to only the Iowa and South Dakota retail jurisdictions. The data used in the market dispatch allocates the remainder of the generation to all three jurisdictions. The New Generation and generation allocated to Iowa and South Dakota are used to develop the avoided energy costs.

Exhibit A reflects the five levels of purchases evaluated; 0 megawatts, 50 megawatts, 100 megawatts, 150 megawatts and 200 megawatts. Avoided energy costs for 50 MW through 200 MW levels were calculated as a decrement to the hourly retail load requirement. Avoided energy costs for levels of purchases below 50 MW were calculated using linear interpolation between the 0 MW and 50 MW values.

1. See Docket Nos. SPU-05-9, SPU-05-12, citing RPU-01-9, RPU-02-10, RPU-03-1, and RPU-04-3. See also RPU-05-4; RPU-07-2; RPU-08-2; RPU-08-4; RPU-2009-0003; RPU-2013-0003; RPU-2014-0002; and RPU-2015-0002.

The avoided energy cost calculations were made for the summer and winter seasons for each year. The summer season is June through September, with all other months in each year in the winter season. The on-peak periods are weekdays from hour ending 7:00 A.M. to 10:00 P.M. All other hours are off-peak.

The forecast firm peak demand and system net requirements for regulated native load customers used in the calculation of avoided energy costs are shown in the following table.

Year	Firm Summer Total Company Peak (MW)	Firm Summer Iowa/South Dakota Peak (MW)	System Net Total Company Requirements (MWh)	Iowa/South Dakota Net System Requirements (MWh)
2018	4,615	4,172	25,443,200	23,000,700
2019	4,677	4,228	25,686,500	23,220,600
2020	4,737	4,282	25,984,900	23,490,300
2021	4,795	4,335	26,275,300	23,752,900
2022	4,855	4,389	26,575,500	24,024,200
2023	4,914	4,442	26,861,300	24,282,600

Purchases of firm capacity and energy during the six-year period from 2018 through 2023 are a result of a power purchase contract for the output of a 112.5 MW (nameplate) wind farm expiring November 2019 and two behind the MISO meter purchase contracts; a 20 MW (nameplate) wind farm and a 6 MW (nameplate) methane landfill producer.

Year	Summer Accredited (MW)	Total Company Annual Energy (MWh)	Iowa/South Dakota Annual Energy Share (MWh)
2018	23	305,300	292,900
2019	23	285,500	273,100
2020	12	123,100	111,200
2021	12	117,900	106,500
2022	12	118,000	106,600
2023	12	118,000	106,600

MidAmerican is currently constructing and expects to put into service in 2018 and 2019, 1,662 MW of wind generation at the following sites: North English 200 MW in-service October 2018, Arbor Hill 250 MW in-service December 2018, Beaver Creek II 170 MW in-service September 2018, Ivestor 91 MW in-service November 2018, Orient I 102 MW in-service December 2018, Orient II 398 MW in-service November 2019, Palo Alto 250 MW in-service November 2019, and Ida Grove II 201 MW in-service November 2019. All MW listed in this paragraph for wind sites are nameplate capacity. These additions and retirements were included in the 2018-2023 avoided energy cost forecast.

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.

Year	Coal Unit Capacity Additions (MW)	Natural Gas Fired Unit Capacity Additions (MW)	Wind Project Capacity Additions (Wind XI) (MW)	Natural Gas Fired Unit Capacity Retirements (MW)
2018	-	-	812.8	-
2019	-	-	849.1	-
2020	-	12.5	-	-
2021	-	12.5	-	-
2022	-	-	-	-
2023	-	-	-	-
2024	-	-	-	-
2025	-	-	-	-
2026	-	-	-	-
2027	-	-	-	-

- There are no new units planned other than the Wind Projects.
- The amounts shown under the Wind Project Capacity Additions represent installed nameplate capacity values.
- MidAmerican filed with the Iowa Utilities Board for approval of the proposed 2000 MW Wind XI project in April 2016 (RPU-2016-0001) and was approved by the Board in August 2016.

18 CFR 292.302 (b)(3). The estimated capacity costs at completion of the planned capacity additions and planning capacity from 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.

MidAmerican continually reviews its capacity needs. This review includes the forecast of load growth, demand side management programs, renewable capacity availability, a review of new regional capacity additions and Federal Energy Regulatory Commission (FERC) orders including those relative to transmission ownership and economic costs.

MidAmerican used the economic carrying charges on a new combustion turbine to calculate its long-term avoidable capacity cost. Using this methodology, the annual cost in 2018 is \$77.20/kW. The installed cost of the combustion turbine unit with a net summer capacity of 204 MW (237 MW nominal capacity rating) is \$849/kW based on the summer capacity rating and expressed in 2018 dollars. The determination by the MISO in its annual calculation of the Cost of New Entry (CONE) filed with FERC is the basis for the avoided cost calculation.²

2. The capacity price for a combustion turbine is based on MISO's CONE for the Local Resource Zone 3 (LRZ 3) in the September 1, 2017 letter to FERC, Filing of MISO regarding LRZ CONE Calculation; FERC Docket No. ER17-Page 3

The calculation of economic carrying charges and annual revenue requirements is based on a weighted-average capital cost of 7.13%, an after tax discount rate of 6.52%, a 15-year tax life, tax-depreciation basis of 100%, book life of 30 years, and fixed operation and maintenance costs of \$6.80/kW/year in 2016 escalating at 1.8% per year. The present value of annual expenses for a new combustion turbine is estimated to be \$1,362/kW installed in 2018.

Near-term capacity prices are based on opportunity pricing from the MISO capacity auction, followed by a three-year bridging period, and then based upon the economic carrying charge of a new simple cycle combustion turbine. The MISO capacity auction cleared at \$10/MW-day for Zone 3, or \$3.65/kW-year for the June 2018 through May 2019 annual auction (the 2018/19 “Planning Year”). A price of \$9.09 for the 2019/2020 Planning Year was calculated by escalating the 2018/2019 clearing price by 2.25%. The economic carrying charge-based pricing begins with a price of \$85.18/kW-year for the 2022/23 Planning Year and a price of \$87.10/kW-year for the 2023/24 Planning Year (2.25% escalation). The three-year bridging period results in a price of \$34.45/kW-year for the 2020/21 Planning Year, a price of \$59.82/kW-year for the 2021/22 Planning Year, and a price of \$85.18/kW-year for the 2022/23 Planning Year. The table below converts these values to calendar year prices.

The avoidable new generation capacity costs are as follows:

Year	Avoidable New Generating Capacity Costs (\$/kW/yr.)
2018	8.89
2019	9.00
2020	23.88
2021	49.25
2022	84.39
2023	86.29

2416-000. The capacity price for LRZ 3 is \$703.50 in 2018 dollars. That capacity price was converted to a summer-based capacity price.

MidAmerican Energy Company
Avoided Energy Costs for Various Levels of Purchase from Qualifying Facilities
Dollars Per MWH

Year	2018					
	Summer			Winter		
MW	Peak	Off-Peak	Season	Peak	Off-Peak	Season
0	\$ 23.85	\$ 17.17	\$ 20.24	\$ 15.34	\$ 12.24	\$ 13.70
10	23.76	17.13	20.17	15.31	12.18	13.65
20	23.67	17.09	20.11	15.27	12.11	13.60
30	23.57	17.04	20.04	15.24	12.05	13.55
40	23.48	17.00	19.98	15.20	11.98	13.50
50	23.39	16.96	19.91	15.17	11.92	13.45
100	22.99	16.69	19.58	14.77	11.20	12.88
150	22.34	16.32	19.08	14.26	10.84	12.45
200	21.91	16.12	18.78	13.91	10.54	12.12

Year	2019					
	Summer			Winter		
MW	Peak	Off-Peak	Season	Peak	Off-Peak	Season
0	\$ 25.11	\$ 18.32	\$ 21.44	\$ 16.51	\$ 11.39	\$ 13.79
10	25.02	18.24	21.35	16.43	11.33	13.72
20	24.93	18.16	21.27	16.35	11.27	13.65
30	24.83	18.08	21.18	16.27	11.21	13.59
40	24.74	18.00	21.10	16.19	11.15	13.52
50	24.65	17.92	21.01	16.11	11.09	13.45
100	24.17	17.57	20.60	15.69	10.79	13.09
150	23.68	17.17	20.16	15.30	10.52	12.76
200	23.24	16.80	19.75	14.96	10.26	12.46

MidAmerican Energy Company
Avoided Energy Costs for Various Levels of Purchase from Qualifying Facilities
Dollars Per MWH

Year	2020					
	Summer			Winter		
MW	Peak	Off-Peak	Season	Peak	Off-Peak	Season
0	\$ 26.44	\$ 18.64	\$ 22.35	\$ 16.46	\$ 11.03	\$ 13.55
10	26.33	18.58	22.27	16.39	10.96	13.48
20	26.23	18.52	22.18	16.33	10.89	13.41
30	26.12	18.45	22.10	16.26	10.81	13.34
40	26.02	18.39	22.01	16.20	10.74	13.27
50	25.91	18.33	21.93	16.13	10.67	13.20
100	25.35	17.93	21.46	15.77	10.35	12.86
150	24.80	17.41	20.92	15.10	10.03	12.38
200	24.21	17.08	20.47	14.71	9.76	12.06

Year	2021					
	Summer			Winter		
MW	Peak	Off-Peak	Season	Peak	Off-Peak	Season
0	\$ 28.58	\$ 19.04	\$ 23.52	\$ 16.34	\$ 12.02	\$ 14.03
10	28.45	18.96	23.42	16.23	11.96	13.95
20	28.32	18.88	23.31	16.12	11.90	13.87
30	28.18	18.79	23.21	16.00	11.84	13.78
40	28.05	18.71	23.10	15.89	11.78	13.70
50	27.92	18.63	23.00	15.78	11.72	13.62
100	27.43	18.13	22.50	15.46	11.43	13.31
150	26.75	17.91	22.06	15.06	11.16	12.98
200	25.99	17.41	21.44	14.69	10.91	12.67

MidAmerican Energy Company
Avoided Energy Costs for Various Levels of Purchase from Qualifying Facilities
Dollars Per MWH

Year	2022					
	Summer			Winter		
MW	Peak	Off-Peak	Season	Peak	Off-Peak	Season
0	\$ 29.01	\$ 19.56	\$ 24.00	\$ 17.38	\$ 12.37	\$ 14.69
10	28.89	19.49	23.91	17.27	12.31	14.61
20	28.77	19.42	23.81	17.16	12.25	14.52
30	28.66	19.34	23.72	17.04	12.19	14.44
40	28.54	19.27	23.62	16.93	12.13	14.35
50	28.42	19.20	23.53	16.82	12.07	14.27
100	27.77	18.78	23.01	16.39	11.76	13.91
150	27.27	18.33	22.53	15.90	11.50	13.54
200	26.64	17.92	22.02	15.80	11.22	13.34

Year	2023					
	Summer			Winter		
MW	Peak	Off-Peak	Season	Peak	Off-Peak	Season
0	\$ 30.04	\$ 20.79	\$ 25.09	\$ 17.87	\$ 12.84	\$ 15.17
10	29.92	20.73	25.00	17.75	12.73	15.06
20	29.80	20.67	24.91	17.63	12.62	14.95
30	29.69	20.61	24.83	17.52	12.52	14.83
40	29.57	20.55	24.74	17.40	12.41	14.72
50	29.45	20.49	24.65	17.28	12.30	14.61
100	29.02	20.03	24.20	16.66	12.02	14.17
150	28.29	19.61	23.64	16.31	11.78	13.88
200	27.41	19.30	23.07	15.91	11.50	13.55