

May 19, 2016

Mr. Will Rosquist
Administrator, Regulatory Division
Montana Public Service Commission
1701 Prospect Avenue
P.O. Box 202601
Helena, MT 59620-2601

RE: Docket No. D2016.5.39
QF-1 Avoided Cost Rate Filing – Errata Filing

Dear Mr. Rosquist:

This filing explains and corrects several small errors in NorthWestern's original filing in this docket. These errors had no impact on the calculation of avoided cost and avoided cost rates; the rates remain the same. They affected only the annual capacity factor and capacity contribution percentages assigned to Hydroelectric and Other QF resources. These figures are used only to calculate the effective annual average rates using proposed avoided cost rates. With the correction, the Default Capacity contribution for Hydroelectric and Other QF resources will increase to 36%.

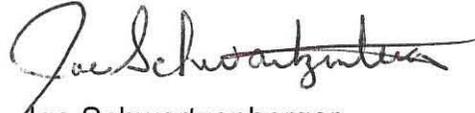
The attached Prefiled Supplemental Direct Testimony of John B. Bushnell provides further details, and his Exhibit__(JBB-3) shows the minor corrections that were made on several pages of his initial direct testimony and Exhibit__(JBB-2). These errors also appeared in several other filing documents – namely in the Definitions section of Appendix 1 and Appendix 2 to the Application (the clean and redlined versions, respectively, of NorthWestern's proposed QF-1 Tariff) and in a chart from Mr. Bushnell's testimony and exhibit that was duplicated in the Notice of Application for Interim Rate Adjustment. These three pages showing the minor corrections are provided directly behind this letter.

In addition, enclosed for convenience are copies of clean replacement pages in their original two-sided format. These pages may simply be swapped into the original filing to produce fully correct versions. The two-page notice of application has also been renamed the "Revised" Notice of Application for Interim Rate Adjustment.

As with the original, 11 copies of this filing are being provided to the Commission with three to the Montana Consumer Counsel. Copies have also been sent to the remainder of the service list.

Please call me at (406) 497-3362 if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Joe Schwarzenberger". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Joe Schwarzenberger
Director
Regulatory Affairs



	<u>3rd</u>	Revised	Sheet No.	<u>74.6</u>
Canceling	<u>2nd</u>	Revised	Sheet No.	<u>74.6</u>

Schedule No. QF-1

QUALIFYING FACILITY POWER PURCHASE

Option 2: Agreement length of up to 25 years.

Rate: This rate is equal to the published Intercontinental Exchange (ICE) Mid-C index price for Heavy Load Hours and Light Load Hours, less \$.001/kWh market price differential between Mid-C and Montana, and applied to the Heavy Load and Light Load metered production of Seller. Another Mid-C price index may be substituted if necessary, if ICE is no longer available.

Payments: Daily Heavy Load Hour and Light Load Hour Rate x Heavy Load and Light Load kWh
kWh = Metered kilowatt hours supplied to the Utility in each daily Heavy Load and Light Load period.

SPECIAL TERMS AND CONDITIONS:

1) Definitions:

- A. "Agreement" means the Power Purchase Agreement between Seller and the Utility for a term of not less than one month.
- B. "Capacity Contribution" means the average of Default Capacity and/or Measured Capacity as defined in Method 1 or Method 2 in Rate Options above.
- C. "Commission" means the Montana Public Service Commission.
- D. "Contingency Reserves" are an amount of spinning and nonspinning reserves (at least half must be spinning reserve) sufficient to meet the North American Electric Reliability Council (NERC) Disturbance Control Standard BAL-002 consistent with Western Electric Coordinating Council and Northwest Power Pool requirements.
- E. "Contract Length" means the length of a Seller's contract with NorthWestern measured in whole years. For contract terms not in whole years, the length of a Seller's contract will be rounded up to the next whole year for purposes of determining applicable rates.
- F. "Default Capacity" means ~~11.136~~ percent of Nameplate Capacity for Hydroelectric QFs, 5 percent of Nameplate Capacity for Wind QFs and 7.8 percent of Nameplate Capacity for Solar QFs.
- G. "Heavy Load Hours" means the weekday and Saturday hours ending 7 and through hour ending 22 inclusive, Pacific Prevailing Time, except NERC defined holidays. For purposes of this Tariff, Heavy Load Hours correspond to Peak hours as used on the ICE web site.

(continued)



	<u>3rd</u>	Revised	Sheet No.	<u>74.10</u>
Canceling	<u>2nd</u>	Revised	Sheet No.	<u>74.10</u>

Schedule No. QF-1

QUALIFYING FACILITY POWER PURCHASE

SPECIAL TERMS AND CONDITIONS:

1) Definitions:

- A. -“Agreement” means the Power Purchase Agreement between Seller and the Utility for a term of not less than one month.
- ~~B. -“Agreement Year” means a twelve-month period beginning on July 1 of any year.~~
- ~~B. "Capacity Contribution" means the Default Capacity and/or Measured Capacity as defined in Method 1 or Method 2 in Rate Options above.~~
- C. “Commission” means the Montana Public Service Commission.
- D. “Contingency Reserves” are an amount of spinning and nonspinning reserves (at least half must be spinning reserve) sufficient to meet the North American Electric Reliability Council (NERC) Disturbance Control Standard BAL-002 consistent with Western Electric Coordinating Council and Northwest Power Pool requirements.
- ~~E. “Contract Length” means the length of a Seller’s contract with NorthWestern measured in whole years. For contract terms not in whole years, the length of a Seller’s contract will be rounded up to the next whole year for purposes of determining applicable rates.~~
- F. "Default Capacity" means ~~4.136~~ 3.6 percent of Nameplate Capacity for Hydroelectric QFs, 5 percent of Nameplate Capacity for Wind QFs and 7.8 percent of Nameplate Capacity for Solar QFs.
- ~~E.G.~~ “Heavy Load Hours” means the weekday and Saturday hours ending 7 and through hour ending 22 inclusive, Pacific Prevailing Time, except NERC defined holidays. For purposes of this Tariff, Heavy Load Hours correspond to Peak hours as used on the ICE web site.

(continued)

Current Average Annual Rates for 25-Year Contracts at Current Rates		
Resource Type	Without Carbon	With Carbon
	(\$/kWh)	(\$/kWh)
Non-Wind ¹	\$0.06235	NA
Wind ¹	\$0.05439	NA
Non-Wind (Solar) ²	\$0.06609	NA

Proposed Effective Average Annual Rates for 25-Year Contracts at Proposed Rates		
Resource Type	Without Carbon	With Carbon
	(\$/kWh)	(\$/kWh)
Hydroelectric and Other QF ³	\$ 0.03580	\$ 0.04570
Wind ⁴	\$0.03002	\$0.04116
Solar ⁵	\$0.03405	\$0.04366

¹ Annual average rate

² Option 1(a) Rate - modeled production,
page 9, Exhibit__(JBB-2)

³ ~~62%~~ annual capacity factor, ~~11.1%~~ capacity contribution

⁴ 38% annual capacity factor, 5% capacity contribution

⁵ Modeled solar PV production, pages 9-10, Exhibit__(JBB-2)

NorthWestern's Application asks the Commission to approve the new avoided cost rates on an interim basis, pending its issuance of a final order establishing new avoided cost rates for the QF-1 Tariff. NorthWestern submits that the interests of potential QFs would be fully protected during the period the interim rates are in effect, as the rates would be subject to adjustment back to the rate effective date, with interest, and that interim rates are necessary to protect the interests of NorthWestern's retail customers during the pendency of this docket. If NorthWestern enters into new contracts with QFs at the current higher QF-1 rates, then NorthWestern's retail customers will be paying more than the avoided cost for QF power for the term of those new contracts.

The interim request and supporting documents can be examined at NorthWestern's General Office, 11 East Park Street, Butte, Montana; at the office of the Montana Consumer Counsel ("MCC"), 111 North Last Chance Gulch, Suite 1B, Helena, Montana; or at the office of the Commission, 1701 Prospect Avenue, Helena, Montana. The MCC is available to assist in the representation of consumer interests in this matter, and its phone number is 406-444-2771. Any response which any person wishes to make on this interim request should be delivered to the Commission at the above address as soon as possible or mailed to the Commission at P.O. Box 202601, Helena, MT 59620-2601.

DATED MAY 3, 2016

9 **PREFILED SUPPLEMENTAL DIRECT TESTIMONY**

10 **OF JOHN B. BUSHNELL**

11 **ON BEHALF OF NORTHWESTERN ENERGY**

12
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Witness Information

Q. Are you the same John Bushnell who submitted prefiled direct testimony in this docket?

A. Yes.

Purpose of Testimony

Q. What is the purpose of your prefiled supplemental direct testimony?

A. The purpose of my testimony is to correct several small errors in my prefiled direct testimony and exhibits.

Corrections to Testimony and Exhibits

Q. Please explain the errors and the impact of those errors on your direct testimony and exhibits.

A. The proposed QF-1 Tariff Option 1 rates contain payments for energy, based on kilowatt-hour (“kWh”) production, and payments for capacity based upon capacity contribution. In order to compare proposed QF-1 rates with current QF-1 rates, it was necessary to determine the capacity contribution for each resource type. To do this, I used historical production data and exceedance analysis. However, when I transferred the hydroelectric numbers into the Excel workbook used to prepare Exhibit__(JBB-2), I inadvertently entered the wrong values and did not catch the error until after the filing was submitted.

1 **Q. What impact does the correction of these values have on the avoided**
2 **costs rates for Hydroelectric and Other QF resources?**

3 **A.** Using the incorrect values had no impact on the calculation of avoided
4 cost and avoided cost rates; the rates remain the same. The annual
5 capacity factor and capacity contribution are used only to calculate the
6 effective annual average rates using proposed avoided cost rates.
7 However, the Method Two option proposed for determining Capacity
8 Contribution is based in part on the Default Capacity assigned to the
9 resource. With the correction, the Default Capacity value for Hydroelectric
10 and Other QF resources will increase to 36%.

11
12 **Q. What are the correct average annual rates for Hydroelectric and**
13 **Other QF resources?**

14 **A.** The correct average annual rates for Hydroelectric and Other QF
15 resources are shown in the corrected table below, which was originally
16 presented on page JBB-4 in prefiled testimony. Additionally, both
17 headings on the table have been changed to better describe the
18 calculations, and the corrected percentages for annual capacity factor and
19 capacity contribution are included in footnote three. The rates shown for
20 other resources in this table have not changed from my prefiled direct
21 testimony.

Current Average Annual Rates for 25-Year Contracts at Current Rates		
Resource Type	Without Carbon	With Carbon
	(\$/kWh)	(\$/kWh)
Non-Wind ¹	\$0.06235	NA
Wind ¹	\$0.05439	NA
Non-Wind (Solar) ²	\$0.06609	NA

Proposed Effective Average Annual Rates for 25-Year Contracts at Proposed Rates		
Resource Type	Without Carbon	With Carbon
	(\$/kWh)	(\$/kWh)
	\$ 0.03580	\$ 0.04570
Hydroelectric and Other QF ³	\$0.02984	\$0.03974
Wind ⁴	\$0.03002	\$0.04116
Solar ⁵	\$0.03405	\$0.04366

¹ Annual average rate

² Option 1(a) Rate - modeled production,
page 9, Exhibit__(JBB-2)

³ ~~62%~~ annual capacity factor, ~~11.1%~~ capacity contribution

⁴ 38% annual capacity factor, 5% capacity contribution

⁵ Modeled solar PV production, pages 9-10, Exhibit__(JBB-2)

57%

36%

1 **Q. Do you have any other proposed changes?**

2 **A.** Yes. On pages 2 and 3 of Exhibit__(JBB-2), the second column on both
3 pages is mislabeled “(\$/MWh)” and should be labeled “(\$/kWh).”

5 **Q. Have you prepared an exhibit with the corrected pages?**

6 **A.** Yes. Pages 1 through 5 of the attached Exhibit__(JBB-3) are the
7 following corrected pages for my prefiled direct testimony and
8 Exhibit__(JBB-2):

- 9 • Pages JBB-4 and JBB-5 of my prefiled direct testimony, and
- 10 • Pages 2, 3 and 8 of Exhibit__(JBB-2).

12 **Q. Does this conclude your prefiled supplemental direct testimony?**

13 **A.** Yes, it does.

1 NorthWestern proposes to withdraw QF-1 Tariff options 1(a), 1(b) and 1(c)
 2 and replace them with an avoided cost energy rate and an avoided cost
 3 capacity rate. Energy rates are differentiated into two rate options – one
 4 for QFs that elect to include the transfer of all the environmental attributes
 5 associated with the QF facility for the life of the contract, and a second
 6 rate option for those QFs that elect to retain their environmental attributes.
 7 Each of these two energy rate options are further differentiated by length
 8 of contract and resource type:

- 9 • Hydroelectric and Other QF resources;
- 10 • Intermittent QF wind resources; and
- 11 • Intermittent QF solar resources.

12
 13 The avoided cost of capacity is calculated similar to previous QF-1 rate
 14 filings, but the proposed rate is based upon measured capacity
 15 contribution during peak load hours. The table below compares average
 16 calculated rates by resource type under current and proposed QF-1 rates
 17 (also page 8 of Exhibit__(JBB-2)).

Current Average Annual Rates for 25-Year Contracts at Current Rates		
Resource Type	Without Carbon	With Carbon
	(\$/kWh)	(\$/kWh)
Non-Wind ¹	\$0.06235	NA
Wind ¹	\$0.05439	NA
Non-Wind (Solar) ²	\$0.06609	NA

Proposed Effective Average Annual Rates for 25-Year Contracts at Proposed Rates		
Resource Type	Without Carbon	With Carbon
	(\$/kWh)	(\$/kWh)
Hydroelectric and Other QF ³	\$ 0.03580	\$ 0.04570
Wind ⁴	\$0.03002	\$0.04116
Solar ⁵	\$0.03405	\$0.04366

57%

36%

¹ Annual average rate

² Option 1(a) Rate - modeled production,
page 9, Exhibit__(JBB-2)

³ 62% annual capacity factor, 11.1% capacity contribution

⁴ 38% annual capacity factor, 5% capacity contribution

⁵ Modeled solar PV production, pages 9-10, Exhibit__(JBB-2)

1 **Q. Please explain your calculation of the current and proposed rates.**

2 **A.** The average annual rates for the current Option 1(a) “Non-Wind” and
3 Option 1 (c) “Wind” rates are calculated as an annual average rate. Solar
4 photovoltaic (“PV”) QF generation currently receives Option 1(a) rates, but
5 solar PV production is heavily weighted to heavy load hours, so modeled
6 solar production was used to calculate the average annual rate a solar PV
7 QF would receive under the current Option 1(a) rates.

8
9 The average annual rate for proposed “Hydroelectric and Other QF” is
10 calculated using a 6257% annual capacity factor with an 11.136%
11 capacity contribution; these values were derived by examining historical
12 small hydroelectric production. The average annual rate for proposed
13 “Wind” is calculated using a 38% annual capacity factor with a 5%
14 capacity contribution. The average annual rate for proposed “Solar” was
15 calculated using modeled solar PV production.

16
17 **Q. Please explain how solar PV production was modeled for the average**
18 **annual rate calculations.**

19 **A.** Solar PV production was estimated using the indicative design for a 3-
20 megawatt (“MW”) solar PV project supplied by DNV-GL, and the National
21 Renewable Energy Laboratory’s (“NREL”) System Advisor Model (“SAM”).
22 Solar PV production was modeled for six separate sites in Montana. The

Avoided Cost of Energy - Without Transfer of Environmental Benefits

Hydroelectric and Other QF Resources				Intermittent Wind				Intermittent Solar			
Avoided Cost		Contract	Levelized	Avoided Cost		Contract	Levelized	Avoided Cost		Contract	Levelized
Year	of Energy	Length	Energy Rate	Year	of Energy	Length	Energy Rate	Year	of Energy	Length	Energy Rate
	(\$/kWh)	(years)	By Contract (\$/kWh)		(\$/kWh)	(years)	By Contract (\$/kWh)		(\$/kWh)	(years)	By Contract (\$/kWh)
2018	\$0.01672	1	\$0.01672	2018	\$0.01694	1	\$0.01694	2018	\$0.01854	1	\$0.01854
2019	\$0.01793	2	\$0.01731	2019	\$0.01798	2	\$0.01744	2019	\$0.01985	2	\$0.01917
2020	\$0.01898	3	\$0.01782	2020	\$0.01880	3	\$0.01786	2020	\$0.02118	3	\$0.01980
2021	\$0.01972	4	\$0.01825	2021	\$0.01991	4	\$0.01832	2021	\$0.02207	4	\$0.02031
2022	\$0.02229	5	\$0.01895	2022	\$0.02211	5	\$0.01898	2022	\$0.02508	5	\$0.02114
2023	\$0.02334	6	\$0.01957	2023	\$0.02321	6	\$0.01957	2023	\$0.02627	6	\$0.02185
2024	\$0.02453	7	\$0.02014	2024	\$0.02434	7	\$0.02012	2024	\$0.02729	7	\$0.02248
2025	\$0.02232	8	\$0.02035	2025	\$0.02240	8	\$0.02035	2025	\$0.02496	8	\$0.02272
2026	\$0.02381	9	\$0.02064	2026	\$0.02439	9	\$0.02068	2026	\$0.02612	9	\$0.02301
2027	\$0.02650	10	\$0.02106	2027	\$0.02799	10	\$0.02121	2027	\$0.02851	10	\$0.02340
2028	\$0.02758	11	\$0.02148	2028	\$0.02845	11	\$0.02167	2028	\$0.02970	11	\$0.02380
2029	\$0.02890	12	\$0.02189	2029	\$0.02917	12	\$0.02209	2029	\$0.03202	12	\$0.02426
2030	\$0.03067	13	\$0.02232	2030	\$0.03157	13	\$0.02256	2030	\$0.03317	13	\$0.02470
2031	\$0.03191	14	\$0.02275	2031	\$0.03295	14	\$0.02302	2031	\$0.03474	14	\$0.02515
2032	\$0.03341	15	\$0.02317	2032	\$0.03430	15	\$0.02346	2032	\$0.03630	15	\$0.02559
2033	\$0.03459	16	\$0.02358	2033	\$0.03548	16	\$0.02389	2033	\$0.03743	16	\$0.02601
2034	\$0.03628	17	\$0.02399	2034	\$0.03704	17	\$0.02432	2034	\$0.03931	17	\$0.02644
2035	\$0.03844	18	\$0.02442	2035	\$0.03964	18	\$0.02477	2035	\$0.04179	18	\$0.02689
2036	\$0.04002	19	\$0.02483	2036	\$0.04126	19	\$0.02521	2036	\$0.04363	19	\$0.02734
2037	\$0.04258	20	\$0.02526	2037	\$0.04406	20	\$0.02567	2037	\$0.04573	20	\$0.02779
2038	\$0.04448	21	\$0.02569	2038	\$0.04586	21	\$0.02612	2038	\$0.04767	21	\$0.02823
2039	\$0.04807	22	\$0.02614	2039	\$0.05059	22	\$0.02661	2039	\$0.05052	22	\$0.02868
2040	\$0.05004	23	\$0.02659	2040	\$0.05249	23	\$0.02710	2040	\$0.05272	23	\$0.02913
2041	\$0.05231	24	\$0.02703	2041	\$0.06249	24	\$0.02770	2041	\$0.06297	24	\$0.02971
2042	\$0.05422	25	\$0.02746	2042	\$0.06500	25	\$0.02829	2042	\$0.06544	25	\$0.03027

Comparison of Average Annual Rates

Current Average Annual Rates for 25-Year Contracts at Current Rates		
Resource Type	Without Carbon	With Carbon
	(\$/kWh)	(\$/kWh)
Non-Wind ¹	\$0.06235	NA
Wind ¹	\$0.05439	NA
Non-Wind (Solar) ²	\$0.06609	NA

¹ Annual average rate

² Option 1(a) Rate - modeled production,
page 9, Exhibit__(JBB-2)

Proposed Effective Average Annual Rates for 25-Year Contracts at Proposed Rates		
Resource Type	Without Carbon	With Carbon
	(\$/kWh)	(\$/kWh)
	\$ 0.03580	\$ 0.04570
Hydroelectric and Other QF ³	\$0.02984	\$0.03974
Wind ⁴	\$0.03002	\$0.04116
Solar ⁵	\$0.03405	\$0.04366

~~57%~~

~~36%~~

³ ~~62%~~ annual capacity factor, ~~11.1%~~ capacity contribution

⁴ 38% annual capacity factor, 5% capacity contribution

⁵ Modeled solar PV production, pages 9-10, Exhibit__(JBB-2)

CERTIFICATE OF SERVICE

I hereby certify that the original and 10 copies of NorthWestern Energy's Errata Filing in Docket No. D2016.5.39, the QF-1 Avoided Cost Rate Filing, have been hand-delivered to the Montana Public Service Commission and three copies have been hand-delivered to the Montana Consumer Counsel this date. It has also been e-filed on the Commission website and sent via First Class Mail to the remainder of the attached service list which includes solar QF developers seeking interconnection for 3-megawatt facilities and QF developers on the service list in NorthWestern's last QF-1 filing in Docket No. D2014.1.5.

Date: May 19, 2016


Tracy Lowney Killoy
Administrative Assistant
Regulatory Affairs

**Docket Service List
Docket No. D2016.5.39**

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