NorthWestern Energy
Delivering a Bright Future

January 11, 2017

Mr. Will Rosquist
Administrator, Regulatory Division
Montana Public Service Commission
1701 Prospect Avenue
PO Box 2022601
Helena, Montana 59620-2601

Re: Docket No. D2016.5.39
QF-1 Avoided Cost Rate Filing
PSC Set 9 Data Requests (051-058)

Dear Mr. Rosquist:

Enclosed for filing is a copy of NorthWestern Energy's responses to the PSC Set 9 Data Request in Docket No. D2016.5.39. It has been hand delivered to the Montana Public Service Commission and the Montana Consumer Counsel this date. It has also been e-filed on the PSC website, emailed to counsel of record, and sent via UPS overnight delivery to the remainder of the service list.

Should you have questions please contact Joe Schwartzenberger at (406) 497-3362.

Sincerely,

Tracy Lowney Killoy

Tracy Lowney Killoy
Administrative Assistant

CERTIFICATE OF SERVICE

I hereby certify that a copy of NorthWestern Energy's responses to the PSC Set 9 Data Requests (051-058) in Docket No. D2016.5.39, the QF-1 Avoided Cost Rate Filing, has been hand-delivered to the Montana Public Service Commission and the Montana Consumer Counsel this date. It has also been e-filed on the Commission website, emailed to counsel of record, and sent via UPS overnight delivery to the attached service list.

Date: January 11, 2017

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NorthWestern Energy
Docket No. D2016.5.39
Application for Approval of Avoided Cost Tariff Schedule QF-1

Montana Public Service Commission
Set 9 (051-058)

Data Requests received December 21, 2016

PSC-051 Regarding: Electronic Files
Witnesses: All

Please provide Excel-readable files of all Figures, Tables, avoided cost calculations, and ancillary information included in rebuttal testimony, with all calculations traceable.

RESPONSE:

See the "PSC-051" folder on the attached CD.

PSC-052 Regarding: Transmission Interconnection Procedures
Witness: NorthWestern Legal Department, parts a-d / Mueller, part e

a. Please describe NorthWestern's current position regarding interconnection procedures for the QF counterparties in this proceeding, given NorthWestern's testimony in this proceeding and its pleading filed in FERC Docket No. EL17-5-000, and the FERC Declaratory Order in that proceeding.

b. Please describe NorthWestern's understanding of counterparty positions regarding interconnection procedures for the QF counterparties in this proceeding, given counterparties' testimony in this proceeding and pleadings filed in FERC Docket No. EL17-5-000, and the FERC Declaratory Order in that proceeding.

c. Please describe the salient issues the Commission must consider in order to resolve this matter in this proceeding.

d. Please describe NorthWestern's position regarding the Commission's current requirement for a bilaterally signed interconnection agreement in order to establish a Legally Enforceable Obligation (LEO).

e. Please identify all QF resources that were denied contracts as a result of Order 7500 on June 16, 2016, because they failed to meet the Commission's LEO requirement by virtue of failure to establish a signed interconnection agreement; but which would have qualified for an LEO at that time absent this requirement.

RESPONSE:

a. The issue in this proceeding is the re-determination of NorthWestern's avoided cost for Qualifying Facilities under the Commission's standard rate, not interconnection procedures. NorthWestern is not taking a position on interconnection procedures in this docket.

b. See the response to part a, above. Additionally, the positions of parties other than NorthWestern must come from those parties, not NorthWestern.

c. Interconnection is not at issue in this proceeding.

d. NorthWestern believes the Commission should adhere to its current LEO standard, notwithstanding the disagreement of FERC with the Commission's policy. The FERC does not have the power to administratively adjudicate the validity of the Commission's LEO standard, and its ruling is not a binding

PSC-052 cont'd

adjudication, but merely a statement by FERC of its litigation position should it, or another party, institute litigation. NorthWestern believes the Commission's current LEO standard recognizes that the tender of a signed PPA by a developer, in and of itself, does not represent a meaningful commitment to provide power to NorthWestern. Although PPAs have a very limited liquidated damages provision if the QF developer does not actually build its project, QF developers uniformly render them ineffectual by contracting through a project specific limited liability company without assets. In sharp contrast, an interconnection agreement requires an upfront financial commitment by the QF developer in the form of the required advance of interconnection costs. Additionally, a QF developer cannot obtain an interconnection agreement without demonstrating that it has actual control of the project site. PPAs do not require site control as a pre-condition to the agreement.

e.

Developer	Project Name
Cypress Creek Renewables	Portage Solar LLC
Cypress Creek Renewables	Chester Solar
Pacific Northwest Solar	Benton Solar
Pacific Northwest Solar	Bootlegger Solar
Pacific Northwest Solar	Manta Solar
Pacific Northwest Solar	Cottonwood Solar
Pacific Northwest Solar	Choteau Solar
Pacific Northwest Solar	Stuckey Solar
Pacific Northwest Solar	Ulm Solar
Pacific Northwest Solar	Stanford Solar
Pacific Northwest Solar	Geraldine Solar
Pacific Northwest Solar	Dutton Solar
Pacific Northwest Solar	Dry Creek Solar
Pacific Northwest Solar	Gage Solar
Pacific Northwest Solar	Boulder Solar
Pacific Northwest Solar	Laredo Solar
Pacific Northwest Solar	Chester Solar
Pacific Northwest Solar	Lavina Solar
Pacific Northwest Solar	Absarokee Solar
Pacific Northwest Solar	Goosebill Solar
Pacific Northwest Solar	Railroad Solar

Pacific Northwest Solar	Curry Solar
Pacific Northwest Solar	Mills Solar
FLS Energy	Malt Solar LLC
FLS Energy	Ulm Solar LLC
FLS Energy	Martin Solar LLC
FLS Energy	Glass Solar LLC
FLS Energy	Fox Farm LLC
FLS Energy	Valley View Solar LLC
FLS Energy	Canyon Creek Solar LLC
FLS Energy	River Solar LLC
FLS Energy	Sypes Canyon Solar LLC
FLS Energy	Sage Creek Solar LLC
FLS Energy	Couch Solar LLC
FLS Energy	Janney Solar LLC
FLS Energy	Middle Solar LLC
FLS Energy	Bear Gulch LLC

NorthWestern Energy
Docket No. D2016.5.39
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Montana Public Service Commission
Set 9 (051-058)

Data Requests received December 21, 2016

PSC-053 Regarding: NorthWestern peak load
Witness: Bushnell

a. What is your definition of a winter peaking utility which experiences bimodal seasonal peaks?

b. What was NorthWestern's peak load for 2016 and in what month did it occur?

RESPONSE:

a. As explained in my testimony, NorthWestern does experience bimodal seasonal peaks, meaning that in any given year, the annual peak load hour may occur in summer months, but its absolute peaks have occurred during winter months. Thus, the conclusion that NorthWestern is a winter peaking utility.

b. As of the date of this response, NorthWestern has developed hourly load data through October 16, 2016. The remainder of the data for 2016 will be developed and available at the end of February 2017. NorthWestern will provide an updated response to this data request when retail energy supply load information becomes available.

NorthWestern Energy
Docket No. D2016.5.39
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Montana Public Service Commission
Set 9 (051-058)

Data Requests received December 21, 2016

PSC-054 Regarding: Exceedance method
Witness: Bushnell and Mike Babineaux

a. Confirm or deny that in D2016.7.56 you indicated you looked to the Southwest Power Pool's exceedance method for guidance when you developed the 85/10 exceedance method that NorthWestern has proposed in this case. *See* D2016.7.56 Hrg. Transcr. 230:16 – 231:17 (Nov. 9, 2016).

b. If the response to part a of this question is deny, explain how you arrived at an 85% exceedance level in the top 10% of on-peak hours as the basis for your exceedance method.

c. Does the Southwest Power Pool still use an 85/10 metric for its exceedance method? If not, what metrics do they use?

d. If Southwest Power Pool no longer finds the 85/10 metrics for their exceedance method appropriate, please explain why those metrics are still appropriate for NorthWestern's exceedance method.

e. Provide a list of all utilities and/or independent system operators (ISOs) which use the 85/10 metric as the basis for an exceedance method, with references.

RESPONSE:

a. Confirmed.

b. Not applicable.

c. The Southwest Power Pool Planning Criteria, dated November 20, 2015, describes a recommended methodology for calculating the net planning capability for wind or solar facilities. This methodology uses a 60% exceedance level for the top 3% of load hours as described in Exhibit__(JBB-5) attached to the Prefiled Rebuttal Testimony of John B. Bushnell.

d. To the witness's knowledge the 85/10 metric was the SPP standard at the time Mr. Bushnell submitted his Prefiled Direct Testimony. Mr. Bushnell's Prefiled Direct Testimony is not a literal interpretation of the SPP 85/10 method. Either method would be reasonable in this proceeding.

PSC-054 cont'd

e. Given that the SPP method has changed, Mr. Bushnell is not aware of any other utilities and/or independent system operators (ISOs) which use the 85/10 metric as the basis for an exceedance method.

NorthWestern Energy
Docket No. D2016.5.39
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Montana Public Service Commission
Set 9 (051-058)

Data Requests received December 21, 2016

PSC-055 Regarding: Exceedance method
Witness: Bushnell

a. Would you agree that for any utility which is part of an ISO, it would be appropriate for that utility to calculate the capacity contribution of its own resources using the same method that is used by the ISO? If not, please explain under what circumstances it would not be appropriate for the utility to use the same method to calculate capacity contribution as does the ISO it is a member of.

b. Would you agree that the California ISO (CAISO) third revised straw proposal for establishing regional resource adequacy guidelines calls for an exceedance methodology to be used to determine the capacity contribution of an intermittent resource when it is not able to utilize the effective load carrying capability methodology (ELCC) to determine capacity value? See page 21 of the following link:

https://www.caiso.com/Documents/ThirdRevisedStrawProposal-RegionalResourceAdequacy.pdf

c. Do you believe it would be reasonable for NorthWestern to utilize the same metrics in the exceedance methodology that CAISO proposes to utilize, as referenced in part b to this question, for the purpose of establishing capacity value of intermittent resources in this docket? If not, please explain.

d. Please provide an electronic copy of the SPP's Net Planning Capability calculation tool Excel workbook as referenced in your rebuttal testimony on page JBB-11.

e. Is it NorthWestern's position that using the SPP's Net Planning Capability calculation tool and the 60/3 metrics utilized by SPP, is a superior method for estimating intermittent resources than the 85/10 exceedance method NorthWestern has proposed in this case? If not, please explain.

PSC-055 cont'd

RESPONSE:

a. Agree.

b. Agree.

c. Do not agree. The CAISO method, referenced in this data request, is not applicable to NorthWestern's circumstances for two reasons. First, the CAISO method appears to be constructed as a "planning tool" for the ISO as a whole, and not applicable to any one utility. NorthWestern agrees that if it were to join an ISO then the capacity credit given to intermittent resources (actually, to all utility resources) should be reflected in the capacity credit and rates for those resources. However, there are differences between planning for the ISO and setting avoided cost rates for individual QF resources. For example, SPP requires a 12-month (monthly) analysis of capacity contribution to analyze available capacity at time of SPP System peak, but bases a utility's contribution on that utility's peak load month.

   Secondly, the CAISO method uses a 70 percent exceedance. This is a very low exceedance level when considering that the payment for capacity is tied to a resource that has a 90 percent availability rate on an annual basis and 95 percent availability during peak periods.

d. See the "PSC-055d" folder on the CD attached to Data Request PSC-051.

e. NorthWestern does not claim that either method is superior for use in its Montana service territory – either method would be reasonable if applied using the measure-and-pay proposal proposed by Mr. Bushnell.

NorthWestern Energy
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Montana Public Service Commission
Set 9 (051-058)

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PSC-056 Regarding: Regional peak capacity contribution of Montana wind resources
Witness: Bushnell

a. Please explain what the aggregate system capacity contribution (ASCC) metric represents in the Northwest Power and Conservation Council's (NWPCC) 7th plan.

b. On August 2, 2016 John Fazio of the NWPCC provided a memorandum to council members on the system capacity contribution of Montana wind resources. A link to the presentation can be found here:
https://www.nwcouncil.org/media/7150484/3.pdf
The presentation seems to indicate Montana wind may have an ASCC that is significantly higher compared to other wind resources in the Pacific Northwest. Please comment on the findings contained the August 2, 2016 NWPCC memorandum found at the above link.

c. How, if at all, should the Commission take into account Mr. Fazio's findings that Montana wind correlates well with the timing of the regional winter peak, in this docket?

d. When using an exceedance method, do you think it would be reasonable to examine the capacity an intermittent resource provides at times of regional peak loads instead of peak loads on NorthWestern's system considering NorthWestern is still dependent on the Mid-C market? If not, please explain.

RESPONSE:

a. The ASCC method is a method for determining the capacity contribution(s) of intermittent resources. The primary assumption is that production from intermittent resources can be used to offset hydro production on the Columbia River systems. The stored water can then be used to increase the system capacity during periods of peak load.

b. The presentation does seem to indicate that staff's analysis shows that Montana wind may have an ASCC that is significantly higher compared to other wind resources in the Pacific Northwest.

PSC-056 cont'd

c. Mr. Fazio's findings, while interesting, have no application to the peak load contributions of intermittent resources on NorthWestern's system. To the extent that this ASCC condition exists, it is already reflected in the Mid-C market prices used to develop avoided energy costs in PowerSimm. For example, wind generation is purchased in light load hours ("LLH") and used to offset hydro generation. The hydro generation is then stored for use during heavy load (and peak load) hours ("HLH"), creating the ASCC. This activity helps support LLH prices and reduces LLH price volatility. Similarly, the release of the stored hydro during HLH reduces HLH prices and reduces price volatility. To the extent that additional peaking capacity is created using ASCC, it belongs to the owners of the hydro resources, not the owners of the intermittent resources.

d. It would not be reasonable to examine the capacity contribution that intermittent resources provide at times of regional peak load instead of at times of peak loads on NorthWestern's system. First, NorthWestern's concern is not regional peak load, it is the peak loads of its energy supply customers. Second, as explained above, QFs are already compensated for their contribution to ASCC in PowerSimm by using Mid-C price forecasts.

PSC-057 Regarding: Flexible capacity
Witness: Hansen, parts a & b / Bushnell, part c

a. Please describe in detail the functional attributes of a flexible resource such as a RICE unit compared to the attributes of a least cost capacity resource such as an Aero.

b. To what extent are the capital and fixed O&M costs of a flexible unit such as a RICE unit related to the energy or other services it provides?

c. Is it possible to allocate the capital and fixed O&M costs of a RICE unit to energy and capacity, in order to find the avoided cost of a "pure" capacity resource? If so, please describe an appropriate method to accomplish this task.

RESPONSE:

a. A RICE unit can reach full load in less than five minutes from a cold start, whereas an Aero unit has a ten-minute cold start to full load. The heat rate curve is more efficient for the RICE than for an Aero. For example, the heat rate at minimum load is 9.6 and 8.3 at full output for the RICE, and for the Aero the heat rate is 15.3 at minimum load and 10.5 at full output.

b. The capital and O&M costs for the RICE unit are directly attributable to the flexibility and efficiency that is provided by the reciprocating engine.

c. No. RICE units were not selected in NorthWestern's 2015 Electricity Supply Resource Procurement Plan for the capacity and energy that they provide, but for the capacity and ancillary services that they provide.

NorthWestern Energy
Docket No. D2016.5.39
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Montana Public Service Commission
Set 9 (051-058)

Data Requests received December 21, 2016

PSC-058 Regarding: Table 2 updated proposed energy rates
Witness: Hansen

a. If not already provided, please provide the input and output PowerSimm files that were used to create Table 2 on page LPH-2.

b. For each of the three resources in table 2, indicate on an annual basis how many hours each resource fell into the short, long-1, and long-2 conditions.

RESPONSE:

a. See the "PSC-051" folder on the CD attached to Data Request PSC-051.

b.

	Wind			Solar			Hydro		
	Purchases	Long - 1	Long - 2	Purchases	Long - 1	Long - 2	Purchases	Long - 1	Long - 2
2018	5,027	2,935	798	5,075	2,895	790	4,991	2,957	812
2019	5,086	2,937	737	5,132	2,899	729	5,050	2,959	751
2020	4,901	3,351	532	4,947	3,310	527	4,864	3,377	543
2021	4,784	3,267	709	4,831	3,226	703	4,746	3,292	722
2022	5,407	1,717	1,636	5,458	1,687	1,615	5,375	1,726	1,659
2023	5,202	2,082	1,476	5,251	2,050	1,459	5,167	2,096	1,497
2024	5,331	2,110	1,343	5,380	2,075	1,329	5,296	2,124	1,364
2025	2,772	4,339	1,649	2,803	4,320	1,637	2,746	4,348	1,666
2026	2,913	4,189	1,658	2,943	4,171	1,646	2,886	4,199	1,675
2027	3,596	3,762	1,402	3,634	3,738	1,388	3,569	3,772	1,419
2028	3,622	3,904	1,258	3,657	3,883	1,244	3,597	3,914	1,273
2029	4,213	3,586	961	4,249	3,563	948	4,194	3,593	973
2030	4,270	3,486	1,004	4,308	3,463	989	4,249	3,495	1,016
2031	4,461	3,395	904	4,499	3,370	891	4,442	3,402	916
2032	4,531	3,322	931	4,569	3,298	917	4,512	3,330	942
2033	4,732	3,121	907	4,773	3,095	892	4,713	3,129	918
2034	5,058	2,823	879	5,102	2,795	863	5,042	2,828	890
2035	5,148	2,837	775	5,192	2,809	759	5,131	2,844	785
2036	5,385	2,646	753	5,428	2,618	738	5,367	2,654	763
2037	5,648	2,366	746	5,693	2,338	729	5,634	2,372	754
2038	5,816	2,217	727	5,862	2,189	709	5,799	2,224	737
2039	5,833	2,213	714	5,877	2,186	697	5,817	2,220	723
2040	5,929	2,200	655	5,976	2,169	639	5,915	2,206	663
2041	6,150	1,967	643	6,194	1,940	626	6,135	1,975	650
2042	6,251	1,856	653	6,298	1,826	636	6,236	1,863	661