NorthWestern Energy
Delivering a Bright Future

September 20, 2016

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
Vote Solar Set 2 Data Requests (013-023)

Dear Mr. Rosquist:

Enclosed for filing is a copy of NorthWestern Energy's responses to the Vote Solar Set 2 Data Requests 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 First Class Mail 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 Vote Solar Set 2 Data Requests (VS-013-VS-023) 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 First Class Mail to the attached service list.

Date: September 20, 2016

Tracy Lowney Killoy
Administrative Assistant
Regulatory Affairs

Docket Service List
Docket No. D2016.5.39

Will Rosquist
Public Service Commission
1701 Prospect Ave
Helena MT 59620-2601

Jason Brown
Montana Consumer Counsel
PO Box 201703
Helena MT 59620-1703

John Alke
NorthWestern Energy
208 N Montana Ave Suite 205
Helena MT 59601

Tracy Lowney Killoy
NorthWestern Energy
11 E Park Street
Butte MT 59701

Joe Schwartzenberger
NorthWestern Energy
11 E Park Street
Butte MT 59701

Jenny K Harbine
Earthjustice
313 East Main St.
Bozeman MT 59715

DarAnne Dunning
Luxan & Murfitt, PLLP
P O Box 1144
Helena MT 59624

Al Brogan
NorthWestern Energy
208 N Montana Ave Suite 205
Helena MT 59601

Eric Christensen
Cairncross Hempelmann
524 Second Ave, Suite 500
Seattle WA 98104

Mike J Uda
Uda Law Firm, P.C.
7 West Sixth Avenue
Power Block West, Suite 4H
Helena MT 59601

Ryan N. Meyer
General Counsel
Pacific Northwest Solar
PO Box 4120, #33304
Portland, OR 97208

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

Vote Solar/Montana Environmental Information Center
Set 2 (013-023)

Data Requests received September 6, 2016

VS-013 Subject: Interconnection (Hines Testimony)

Mr. Hines' testimony, at page JDH-7, states that "In the decade between the establishment of the interconnection queue and November 30, 2014, NorthWestern received a total of 144 requests for proposed interconnection of generation facilities." Please answer the following:

a. Please update the number of interconnection requests received through August 1, 2016.

b. Of these interconnection requests received from 2004 through August 1, 2016, how many have resulted in signed interconnection agreements?

c. Of these interconnection requests received from 2004 through August 1, 2016, how many have resulted in signed power purchase agreements?

d. Of these interconnection requests received from 2004 through August 1, 2016, how many have resulted in on-line generation projects providing power on the NWE system? Please list each of these successful QF projects and the date they came on-line.

e. Please provide the most up-to-date version of Exhibit AMM-1 (the NWE interconnection queue). Please provide this document in its native Excel format.

RESPONSE:

a. 270

b. 74

c. 23

d. 27 projects total, including non-QF projects. A list of each of these successful QF projects and the date they came online has been provided below.

VS-013 cont'd

Project Name	Commercial Operation Date
Sheep Valley Ranch	3/1/2004
Martinsdale 2	2/1/2007
Gordon Butte	1/4/2012
Flint Creek Hydro	3/14/2013
Oak Tree Energy (South Dakota)	12/31/2014
Musselshell Wind	1/5/2013
Lower South Fork Hydro	8/14/2012
Fairfield Wind	5/16/2014
Musselshell Wind II	1/5/2013
Two Dot Wind Farm	6/19/2014
LSI (South Dakota)	1/1/2015

e. Please see the "VS-013" folder on the attached CD. This is an Excel file of the queue as of September 16, 2016.

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VS-014 Subject: Natural Gas Transportation Cost Assumptions

In the workpapers for Mr. Hansen's testimony, there are files with the outputs of his runs – Hydro Worksheet.xls, Solar spreadsheet.xls, and Wind Worksheet.xls. Each of these spreadsheets have a tab with "Iteration Prices." Row 38 of this tab appears to show that NWE has added just a flat $0.15 per Dth to the AECO gas price as the "transport" cost in all years from 2018 through 2042.

a. Is this the assumed gas transportation cost from AECO to NWE's gas-fired power plants in all years in NWE's PowerSimm modeling in this case?

b. Please justify the reasonableness of this cost, and show how it was derived from current tariffed rates on the NWE gas system and the TransCanada system in Canada.

c. If this $0.15 per Dth transport cost is just the variable cost of transportation, please explain why new renewable generation resources on NWE's system that displace long-term gas-fired resources do not also avoid firm transportation reservation costs on the NWE and TransCanada gas pipeline systems.

d. Why does this rate not escalate over time as natural gas prices escalate?

RESPONSE:

a. No. NorthWestern has determined that the rate needs to be updated and will provide an updated avoided cost calculation when it submits its rebuttal testimony.

b. The transportation rate of $0.15 is the cost that it would require to transport natural gas from AECO to NorthWestern's natural gas system. The rate of $0.15 was taken from the TransCanada tariff, converted into United States dollars, and escalated to 2018. The rate calculation (performed for the 2015 Electricity Supply Resource Procurement Plan) is shown below:

VS-014 cont'd

FT-D Demand Rate	$ 5.08	$/GJ/month
5+ year term discount	10%	
FT-D Demand Rate after discount	$ 4.57	$/GJ/month
Abandonment Surcharge	$ 0.32	$/GJ/month
total transportation	$ 4.89	$/GJ/month
daily rate per GJ	$ 0.163	$/GJ/day
GJ to MMBtu conversion	0.9478	
daily rate per MMBtu (Cdn)	$ 0.155	Cdn/MMBtu
Canadian exchange rate	0.89	
Transportation per MMBtu in USD (2015 $)	$ 0.137	U.S.$/MMBtu
Transportation per MMBtu in USD (2016 $)	$ 0.140	U.S.$/MMBtu
Transportation per MMBtu in USD (2017 $)	$ 0.142	U.S.$/MMBtu
Transportation per MMBtu in USD (2018 $)	$ 0.145	U.S.$/MMBtu

c. The $0.15 charge includes the TransCanada NGTL demand and abandonment charges. An updated avoided cost will include the demand rate and abandonment charges on the TransCanada NGTL pipeline and the interruptible commodity tariff rate on NorthWestern's pipeline.

d. The rate should escalate over time. See also the response to part a, above.

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VS-015 Subject: Natural Gas Transportation Cost Assumptions

In the workpapers for Mr. Hansen's testimony, there is an input file "Prices.xls" which lists "PRB" as an input price to the PowerSimm modeling (see lines 6 and 15). Please explain what this price is, how it was derived, and what the units are. Is it the Powder River Basin coal price, or the coal transport price?

RESPONSE:

The PRB price (in $/MMBtu) is the price of coal used for Colstrip Units 3 and 4 generation that was developed for the 2015 Electricity Supply Resource Procurement Plan. The coal price forecast used estimated prices for 2016 through 2021. After 2021, the coal price is escalated throughout the remainder of the planning horizon using the 20-year average inflation escalation for Gross Domestic Product ("GDP") as provided by the U.S. Bureau of Economic Analysis ("BEA").

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VS-016 Subject: Natural Gas Transportation Cost Assumptions

In the workpapers for the exhibits for Mr. Bushnell's testimony (Exhibit JBB-1), there is a tab labeled "D2012.1.3 Compliance Forecast" that shows the calculation of the burner-tip cost of natural gas used in the calculation of the current QF-1 rates. This forecast shows a transportation cost of $0.605 per Dth in 2013, escalating at 2.101% per year.

a. Please provide the derivation of this transportation cost, with reference to the tariffed rates on the NWE gas system and the TransCanada system in Canada that were used to compute this cost.

b. Please provide a comparable calculation to the one in the tab labeled "D2012.1.3 Compliance Forecast" that uses today's rates and tariffs on the NWE gas system and the TransCanada system in Canada.

RESPONSE:

The data request refers to a natural gas price forecast that was used in the compliance filing required by ¶ 86, Order No. 7199. The referenced forecast is included in this docket only to re-create the rates computed in that compliance filing, and is not used to calculate NorthWestern's proposed rates.

a. The source of the original calculation was not retained and cannot be provided. However, NorthWestern's response to Data Request UMX-049 in Docket No. D2012.1.3 shows that transportation for deliveries to Montana was $0.17 and the remainder is transportation through Montana.

b. See the "VS-016" folder on the CD attached to Data Request VS-013.

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Vote Solar/Montana Environmental Information Center
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VS-017 Subject: Option 1(a) Price (Bushnell Testimony)

In the workpapers for the exhibits for Mr. Bushnell's testimony (Exhibit JBB-1), the tab labeled "CCCT AC Calc" shows the final calculation of the QF-1 rates in the D2012.1.3 Compliance Filing.

a. Please explain why the Option 1(a) price for a 25-year contract is based on a 24-year levelized price (see cell J35) for 2013-2036.

b. Does the calculation for the Option 1(a) price incorrectly drop one year from the calculation?

c. Please provide any Commission authority for the use of the 24-year levelized cost for a 25-year contract.

RESPONSE:

a. Please refer to ¶ 45, Order No. 7199d.

b. Refer to part a, above.

c. Refer to part a, above.

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VS-018 Subject: NWE Response to VS-008b

In response to Data Request VS-008b, NWE states that "For every hour NorthWestern's portfolio is long, the marginal cost/incremental cost would be the highest dispatchable resource used to serve load. Long-2 condition occurs during times that the market price is below the variable cost of any dispatchable generation resource. The avoided cost would be zero as there is no avoidable resource." Please answer these questions:

a. If the market price is "below the variable cost of any dispatchable generation resource" in Long-2 hours, then admit or deny that NWE could save money for ratepayers by backing off its own dispatchable generation to buy market power to serve its ratepayers. Why wouldn't NWE do so?

b. In this Long-2 condition, please describe any and all transmission or operating constraints that would prevent NWE from buying lower-cost market power for the benefit of its ratepayers. Are such constraints present in every Long-2 hour?

c. During Long-2 hours, please explain why the avoided cost is zero instead of "the variable cost of any dispatchable generation resource" on NWE's system. If NWE purchased an incremental MWh of QF power in a Long-2 hour but did not have access to the market, wouldn't NWE avoid "the variable cost of any dispatchable generation resource" on NWE's system?

RESPONSE:

a. Deny. When in a long position, NorthWestern does not buy power from the market as its generation exceeds load. In a Long-2 position when the market price is "below the variable cost of any dispatchable generation resource" the dispatchable resources would not be dispatched.

b. NorthWestern does not purchase power from the market when in a long position.

c. During Long-2 hours, there are no avoidable resources generating to serve load as the market price is below the variable cost of the lowest generation resource and there is nothing to avoid in order to serve load.

NorthWestern would not purchase any MWh when in a Long-2 position as it has more energy than required to serve load.

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VS-019 Subject: Revised Avoided Costs Calculations

In NWE response to Data Request PSC-013, NWE calculates its avoided costs "using market sale price as the value of production under all long conditions, and market purchase price when short." Please re-calculate your avoided costs, both with and without carbon, under these conditions:

a. Using market prices when short;

b. Using market prices under Long-1 conditions; and

c. Using the variable cost of the avoidable resource under Long-2 conditions.

d. Please use natural gas burnertip costs which add to the AECO price the full cost of transportation to Montana (not just $0.015 per Dth), as calculated in your response to VS-016(b) above.

RESPONSE:

NorthWestern is providing this data response in accordance with the conditions above, but disagrees with the assumptions in b and c. If the assumption in b is used, NorthWestern customers would be paying the market price when they are already paying for a portfolio of resources that insulate them from market purchases. When the assumption in c is used, the customers would pay a higher price than the market for energy.

RESOURCE	ENERGY RATE WITHOUT CARBON ($/MWh)	ENERGY RATE WITH CARBON ($/MWh)
HYDRO	$ 33.94	$ 44.51
SOLAR	$ 35.16	$ 45.46
WIND	$ 35.76	$ 46.17

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VS-020

Please provide NWE's current forward price curve for the Mid-C market (HLH and LLH) in 2017-2018.

RESPONSE:

See Attachment, which is NorthWestern's current price forecast for Mid-C as of the close of business September 7, 2016. NorthWestern is relying on the "fair use" exemption of federal copyright law to provide it for purposes of this docket only. No copies should be made, nor should the parties receiving this information use the copyrighted material for any purposes other than for use in this docket. This document has not been e-filed on the Commission website.

Because it is copyright-protected, the VS-020 Attachment has not been efiled. A paper copy has been provided under the Fair Use Doctrine for purposes of this docket only.

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VS-021 Subject: NWE's Response to PSC-011c

Please provide NWE's response to PSC-011c.

RESPONSE:

Please see the response to Data Request PSC-011c.

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VS-022 Subject: Loss of Load Analysis

Please provide the LOLR/LOLH analysis that Ascend performed for NWE for the 2015 Electric Supply Resource Procurement Plan (RPP), as discussed on pages 11-15 to 11-19 of that RPP. In particular, please provide for each hour in 2016 the LOLH/LOLP metric that Ascend calculated for NWE's current system, as referenced on pages 11-16 to 11-18 and Table 11-3.

RESPONSE:

See the "VS-022" folder on the CD attached to Data Request VS-013.

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VS-023 Subject: NWE Transmission System

NWE's 2015 RRP does not include detailed information on NWE's current transmission system, or its constraints.

a. Please provide NWE's most recent transmission plan.

b. Please explain generally where and when NWE's transmission system is constrained, in terms of providing NWE with access to the regional market to make sales or purchases.

c. Would additional generation capacity internal to NWE's system reduce any of the constraints identified in response to Part (b) of this question?

d. What is the current rate, in $ per MW-month, for firm network and firm point-to-point transmission over NWE's transmission system?

RESPONSE:

a. See the "VS-023" folder on the CD attached to Data Request VS-013.

b. Given our current generation profile, there are no constraints on NorthWestern's ability to access the regional market for either sales or purchases.

c. Not applicable.

d. Firm network and firm point to point transmission service are $3,160.00 / MW-month. Additional ancillary services charge will apply per the NorthWestern Federal Energy Regulatory Commission (FERC) Open Access Transmission Tariff (OATT).