



**DOCKET NO. D2015.8.64**

QF Petition from Greycliff Wind Prime, LLC  
to Set Terms and Conditions

Before the Public Service Commission  
of the State of Montana

**NORTHWESTERN ENERGY'S  
SUPPLEMENTAL RESPONSE  
TESTIMONY AND EXHIBITS**

January 2016

7  
8  
9 **PREFILED SUPPLEMENTAL RESPONSE TESTIMONY**  
10 **OF BLEAU J. LAFAVE**  
11 **ON BEHALF OF NORTHWESTERN ENERGY**  
12

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1 **Witness Information**

2 **Q. Please state your name and business address.**

3 **A.** My name is Bleau J. LaFave. My business address is 3010 West 69<sup>th</sup>  
4 Street, Sioux Falls, South Dakota 57108.

5  
6 **Q. Are you the same Bleau J. LaFave who filed response testimony in**  
7 **this docket?**

8 **A.** Yes, I am.  
9

10 **Purpose of Testimony**

11 **Q. What is the purpose of your supplemental response testimony?**

12 **A.** The purpose of this testimony is to update the avoided cost calculation for  
13 the Greycliff Wind Prime, LLC (“Greycliff”) project to reflect the  
14 interconnection network upgrade costs that were identified by  
15 NorthWestern Energy (“NorthWestern”) Transmission related to the  
16 interconnection agreement between Greycliff and NorthWestern  
17 Transmission.  
18

19 **Greycliff’s Avoided Cost Rate**

20 **Q. In your prefiled response testimony, when asked “Are there any**  
21 **additional transmission upgrade costs that need to be discounted**  
22 **from the QF rate[,]” you testified that “At that time, there were not**  
23 **any issues identified with the project that would require transmission**

1 **upgrades. Until a contract is executed, the project cannot be**  
2 **submitted into the Transmission Study Queue.” Has this testimony**  
3 **changed?**

4 **A.** Yes. NorthWestern still believes that under the Transmission Study for  
5 Network Service, the Greycliff project will not result in additional upgrades  
6 to the existing transmission system and so there is currently no effect due  
7 to that on the proposed Greycliff avoided cost rate. NorthWestern Supply  
8 cannot confirm this point until it files a Network Resource Designation and  
9 Transmission Service Request with NorthWestern Transmission after a  
10 contract has been executed with Greycliff.

11  
12 However, while there are no known additional upgrades needed for  
13 transmission service at this time, NorthWestern Transmission will incur  
14 interconnection network upgrade costs, which are identified in the  
15 interconnection study for Greycliff. NorthWestern Supply has recently  
16 learned that if Greycliff achieves commercial operation, NorthWestern  
17 Transmission will reimburse Greycliff for certain of these interconnection  
18 costs. These are costs that NorthWestern Transmission classifies as  
19 interconnection network upgrade costs, but they are necessary to permit  
20 interconnected operations. A large portion of these costs will go toward  
21 the upgrade of the substation to which Greycliff will interconnect.

22

1 **Q. Why should these reimbursable interconnection network upgrade**  
2 **costs affect the avoided costs for Greycliff?**

3 **A.** In this case, Greycliff will provide the funds for these costs initially, and  
4 later NorthWestern Transmission will reimburse these funds with interest  
5 to Greycliff. For resources subject to the Federal Energy Regulatory  
6 Commission's ("FERC") interconnection rules, NorthWestern  
7 Transmission's Open Access Transmission Tariff requires the  
8 reimbursement. In Docket No. D2010.10.77, Order No. 7108e, the  
9 Commission authorized NorthWestern to use the FERC interconnection  
10 process and rules for QFs. After NorthWestern Transmission reimburses  
11 the costs, Greycliff is made whole and will have incurred no costs.  
12 However, NorthWestern's customers will fund the reimbursement to  
13 Greycliff.

14  
15 FERC has stated that transmission and distribution costs directly related  
16 to the installation and maintenance of physical facilities necessary to  
17 permit interconnected operations may be accounted for in the  
18 determination of avoided costs if they are not paid by the Qualifying  
19 Facility. These reimbursable interconnection network upgrade costs are  
20 the type of costs described by FERC that the Montana Public Service  
21 Commission ("Commission") may account for in determining avoided  
22 costs. These costs must be included in the avoided cost determination in

1 order to protect NorthWestern's customers and ensure customer  
2 indifference.

3

4 But for purchasing Greycliff's output, NorthWestern would not incur these  
5 costs. Purchasing Greycliff's output allows NorthWestern to avoid some  
6 market purchases and to avoid some variable costs by backing down its  
7 own generation; these costs are the basis of the avoided cost  
8 computation. NorthWestern would not incur similar interconnection  
9 network upgrade costs to acquire the energy that Greycliff's output  
10 displaces. NorthWestern would not incur similar interconnection network  
11 upgrade costs to continue to make market purchases or to deliver energy  
12 from existing resources. If the Commission does not account for these  
13 costs in determining the rates paid to Greycliff, NorthWestern's customers  
14 will pay more for Greycliff's output than they would have paid for the  
15 displaced energy. After NorthWestern files a general rate case, the  
16 approved cost of the facilities will be included in transmission rates that  
17 NorthWestern's customers will pay. Greycliff will not pay any of these  
18 costs because it is not a transmission customer.

19

20 **Q. What are the estimated interconnection network upgrade costs that**  
21 **are reimbursable to Greycliff under the application of NorthWestern's**  
22 **FERC tariff?**

1 **A.** The estimated interconnection network upgrade investment reimbursable  
2 to Greycliff is \$3,565,955. Details regarding this estimate are in the Large  
3 Generator Interconnection Agreement signed by Greycliff, which Greycliff  
4 attached to its Petition in this matter as Exhibit 4.

5  
6 **Q. What are the annual estimated costs to transmission customers of  
7 this reimbursement?**

8 **A.** I have revised Exhibit\_\_(BJL-1) to reflect these costs. The Prefiled  
9 Supplemental Response Testimony of Patrick J. DiFronzo explains the  
10 Revenue Requirement computation for the interconnection network  
11 upgrade costs shown on Exhibit\_\_(BJL-1)\_rev, pages 5 through 12. I  
12 sponsor lines 49 through 51 of this model, in which the annual revenue  
13 requirement amount is divided by the project output on line 49 to derive  
14 the cost per MWh on line 50. These costs are computed over 45 years to  
15 reflect the entire depreciable life of the transmission assets and to capture  
16 all costs related to the interconnection network upgrades required for  
17 Greycliff. The costs are then levelized over the 25-year Greycliff contract  
18 term to derive a \$4.54 cost per MWh as shown on line 51.

19

20 **Q. What effect does this \$4.54 cost per MWh have on the proposed  
21 avoided cost for Greycliff?**

22 **A.** The estimated 25-year levelized cost of \$4.54 per MWh reduces the  
23 avoided cost price paid to Greycliff. This ensures that NorthWestern's

1 customers are not responsible for the interconnection network upgrade  
2 costs incurred because of the Greycliff project.

3

4 **Q. Does Exhibit\_\_(BJL-1)\_rev contain any other changes?**

5 **A.** Yes. On page 1, I have corrected the spinning and supplemental reserves  
6 depiction. The labels for these reserves were transposed in my original  
7 exhibit.

8

9 **Q. Does this conclude your supplemental response testimony?**

10 **A.** Yes, it does.

Avoided Cost  
 Without Carbon Forecast

Firm Energy & Capacity Value	\$	33.66
DA Firm vs. RT price	\$	(2.23)
Interconnection Network Upgrades	\$	(4.54)
Transmission Network Upgrades	\$	-
Wind Generation Integration		
Regulation - 25 Year Levelized	\$	(0.49)
Spinning Reserve Service (BA Tariff)	\$	(0.53)
Supplemental Reserves Service (non-spin; BA Tariff)	\$	(0.97)
<b>Avoided Cost</b>	<b>\$</b>	<b>24.89</b>

Avoided Cost  
 With Carbon Forecast

Firm Energy & Capacity Value	\$	42.82
DA Firm vs. RT price	\$	(2.23)
Interconnection Network Upgrades	\$	(4.54)
Transmission Network Upgrades	\$	-
Wind Generation Integration		
Regulation - 25 Year Levelized	\$	(0.49)
Spinning Reserve Service (BA Tariff)	\$	(0.53)
Supplemental Reserves Service (non-spin; BA Tariff)	\$	(0.97)
<b>Avoided Cost with Carbon Forecast</b>	<b>\$</b>	<b>34.04</b>

Discount Rate 6.91%  
 Assumes Regulation, Spinning and Supplemental Reserves are available.

REGULATION		
Name Plate Capacity		25.0 MW
Regulation Percentage		18%
Regulation Capacity (MW)		4.5 MW
Regulation Cost 25 Year Levelized	\$	0.88 \$/KW-Mon
Monthly Rate	\$	3,961.85
Annual Rate	\$	47,542.17
Forecasted Capacity Factor		44.1%
Forecasted Output (MWh)		96,660
Forecasted Reg Cost (\$/MWh)	\$	0.49

Mid-C ICE Day Ahead vs. Powerdex Hourly

Greycliff Generation  
 PowerSimm Projections

Discount Rate 7.03%

	Annual			DA vs. RT		Firm vs. Spot			Offset Purchases
	ATC	Heavy Load	Light Load	Heavy Load	Light Load	Heavy Load	Light Load	Total	
2016	96,647	55,849	40,798	\$ (3.92)	\$ (1.35)	\$ (218,691.97)	\$ (55,273.09)	\$ (273,965.06)	\$ (183,811.74)
2017	96,660	56,014	40,646			\$ (219,338.44)	\$ (55,066.57)	\$ (274,405.00)	\$ (190,111.98)
2018	96,657	56,150	40,507			\$ (219,871.30)	\$ (54,878.14)	\$ (274,749.44)	\$ (192,008.85)
2019	96,660	55,840	40,820			\$ (218,655.48)	\$ (55,302.74)	\$ (273,958.22)	\$ (194,452.49)
2020	96,661	56,008	40,653			\$ (219,315.68)	\$ (55,075.68)	\$ (274,391.36)	\$ (188,603.24)
2021	96,661	55,808	40,852			\$ (218,533.43)	\$ (55,345.82)	\$ (273,879.25)	\$ (186,326.11)
2022	96,661	56,317	40,343			\$ (220,525.70)	\$ (54,656.66)	\$ (275,182.36)	\$ (220,649.22)
2023	96,662	55,546	41,116			\$ (217,507.20)	\$ (55,702.99)	\$ (273,210.18)	\$ (215,258.16)
2024	96,661	56,029	40,632			\$ (219,396.20)	\$ (55,047.31)	\$ (274,443.51)	\$ (220,249.40)
2025	96,663	56,125	40,537			\$ (219,774.68)	\$ (54,919.11)	\$ (274,693.79)	\$ (231,032.14)
2026	96,660	56,436	40,224			\$ (220,989.86)	\$ (54,495.50)	\$ (275,485.36)	\$ (235,186.12)
2027	96,663	56,312	40,351			\$ (220,504.95)	\$ (54,667.38)	\$ (275,172.34)	\$ (231,582.48)
2028	96,658	55,869	40,788			\$ (218,772.36)	\$ (55,259.27)	\$ (274,031.63)	\$ (231,239.39)
2029	96,663	55,979	40,683			\$ (219,201.94)	\$ (55,117.16)	\$ (274,319.10)	\$ (250,474.63)
2030	96,661	56,015	40,646			\$ (219,341.97)	\$ (55,066.44)	\$ (274,408.41)	\$ (249,084.25)
2031	96,662	55,803	40,859			\$ (218,513.56)	\$ (55,355.23)	\$ (273,868.79)	\$ (250,899.85)
2032	96,659	56,111	40,548			\$ (219,720.01)	\$ (54,933.50)	\$ (274,653.50)	\$ (251,622.61)
2033	96,662	56,104	40,558			\$ (219,691.36)	\$ (54,946.91)	\$ (274,638.27)	\$ (252,300.91)
2034	96,661	55,860	40,801			\$ (218,734.66)	\$ (55,276.89)	\$ (274,011.55)	\$ (254,838.23)
2035	96,662	56,061	40,601			\$ (219,523.55)	\$ (55,005.62)	\$ (274,529.17)	\$ (256,654.96)
2036	96,665	55,980	40,685			\$ (219,204.98)	\$ (55,119.96)	\$ (274,324.95)	\$ (225,858.61)
2037	96,657	55,979	40,678			\$ (219,202.26)	\$ (55,110.11)	\$ (274,312.37)	\$ (224,675.22)
2038	96,661	56,149	40,512			\$ (219,866.12)	\$ (54,885.45)	\$ (274,751.57)	\$ (223,745.65)
2039	96,660	55,845	40,815			\$ (218,676.21)	\$ (55,295.71)	\$ (273,971.92)	\$ (221,197.13)
2040	96,660	56,113	40,547			\$ (219,727.52)	\$ (54,932.60)	\$ (274,660.12)	\$ (225,068.96)

**(\$215,607.77)**

	Day Ahead			Real-time			Basis		
	Peak	Off Peak	All	Peak	Off Peak	All	Peak	Off Peak	All
2010	\$ 35.98	\$ 28.80	\$ 32.84	\$ 33.93	\$ 27.67	\$ 31.19	\$ (2.05)	\$ (1.14)	\$ (1.66)
2011	\$ 29.12	\$ 16.99	\$ 23.80	\$ 25.46	\$ 16.98	\$ 21.74	\$ (3.66)	\$ (0.02)	\$ (2.07)
2012	\$ 22.54	\$ 15.13	\$ 19.28	\$ 18.62	\$ 14.15	\$ 16.65	\$ (3.92)	\$ (0.98)	\$ (2.62)
2013	\$ 36.82	\$ 26.85	\$ 32.43	\$ 31.63	\$ 25.05	\$ 28.74	\$ (5.18)	\$ (1.80)	\$ (3.69)
2014	\$ 38.67	\$ 27.63	\$ 33.82	\$ 32.39	\$ 24.63	\$ 28.98	\$ (6.28)	\$ (3.00)	\$ (4.84)
YTD	\$ 26.63	\$ 20.66	\$ 24.03	\$ 24.54	\$ 19.50	\$ 22.34	\$ (2.09)	\$ (1.16)	\$ (1.69)
	\$ 31.77	\$ 22.73	\$ 27.81	\$ 27.86	\$ 21.38	\$ 25.02	\$ (3.92)	\$ (1.35)	\$ (2.79)

NorthWestern Energy  
 D2014.1.5 Avoided Cost Filing  
 25-Year Levelized Rate for New Wind

1  
2  
3  
4  
5  
6  
7  
8

	105 MW Regulation for Load and Wind				60 MW Regulation for Load			Change for 45 MW Additional Regulation
	Updated current pricing from planning model				Updated current pricing from planning model			
<b>Fuel Expenses</b>								
	Units	Price	Total		Units	Ave. Price	Total	Total
Natural Gas Fuel Costs (Dekatherms) /1	3,296,876	\$3.79	\$ 12,507,068		2,675,524	\$3.79	\$ 10,149,900	\$ 2,357,168
Diesel Fuel Costs (Gallons) /2	1,293,569	\$3.53	\$ 4,562,394		1,049,774	\$3.53	\$ 3,702,532	\$ 859,861
Compressor Electricity Bill /3			\$ 559,177				\$ 559,177	\$ -
<b>Total Fuel Expense</b>			<b>\$ 17,628,639</b>				<b>\$ 14,411,609</b>	<b>\$ 3,217,029</b>
<b>Revenue Credits</b>								
	Per NWE	Supply	Total		Per NWE	Supply	Total	Total
Mid-C Forward Market Price (\$/MWh) /4	\$41.77	\$ 41.77	\$ 41.77		\$ 41.77	\$ 41.77	\$ 41.77	
Discount to Mid-C (\$/MWh)	(\$7.00)	(\$7.00)	(\$7.00)		(\$7.00)	(\$7.00)	(\$7.00)	
Project Energy (aMW)	27	7	34		18	7	25	
Hours/Year	8,760	8,760	8,760		8,760	8,760	8,760	
<b>Total Revenue Credits</b>	<b>\$ 8,224,771</b>	<b>\$ 2,132,348</b>	<b>\$ 10,357,119</b>		<b>\$ 5,483,181</b>	<b>\$ 2,132,348</b>	<b>\$ 7,615,529</b>	<b>\$ 2,741,590</b>
<b>Cost of Regulation</b>			<b>\$ 7,271,520</b>				<b>\$ 6,796,081</b>	<b>\$ 475,439</b>
<b>Annual Cost per MW of Regulation</b>								

**Wind Integration Rate Applicable to All Wind Facilities**

Annual Rate per MW of Nameplate Wind (\$/MW-Year)	\$ 10,565
Monthly Rate per MW of Nameplate Wind (\$/MW-month)	\$ 880
<b>Monthly Rate per kW of Nameplate Wind (\$/kW-month)</b>	<b>\$ 0.88</b>

Operating Reserve Service

OATT Schedule 5 & Schedule 6

For a Transmission Customer's load and/or generation located in the Transmission Provider's Control Area, The Transmission Customer's Operating Reserve Requirement shall be determined in accordance with applicable WECC and Northwest Power Pool (NWPP) guidelines.

Operating Reserve Minimum Requirement 3% of hourly integrated generation  
 Spinning Reserve Minimum Requirement 50% of minimum Operating Reserve Requirement

	Integrated Generation (MW)	Requirement (MW)	Current Rates (kw/month)	Greycliff Annual Cost	Cost per MW	Year																									
						2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Operating Reserve Minimum Requirement	25.00	0.75	\$ 8.40	\$ 75,597.28	\$ 0.78	\$ 0.80	\$ 0.81	\$ 0.83	\$ 0.85	\$ 0.86	\$ 0.88	\$ 0.90	\$ 0.92	\$ 0.93	\$ 0.95	\$ 0.97	\$ 0.99	\$ 1.01	\$ 1.03	\$ 1.05	\$ 1.07	\$ 1.10	\$ 1.12	\$ 1.14	\$ 1.16	\$ 1.19	\$ 1.21	\$ 1.23	\$ 1.26	\$ 1.28	\$ 1.31
Spinning Reserve Minimum Requirement		0.37	\$ 7.25	\$ 32,623.83	\$ 0.34	\$ 0.34	\$ 0.35	\$ 0.37	\$ 0.38	\$ 0.40	\$ 0.42	\$ 0.44	\$ 0.45	\$ 0.47	\$ 0.50	\$ 0.52	\$ 0.54	\$ 0.56	\$ 0.59	\$ 0.62	\$ 0.64	\$ 0.67	\$ 0.70	\$ 0.73	\$ 0.76	\$ 0.80	\$ 0.83	\$ 0.87	\$ 0.91	\$ 0.95	\$ 0.99

25 year levelized

	Greycliff
Operating Reserve Minimum Requirement	\$0.97 \$/MWh
Spinning Reserve Minimum Requirement	\$0.53 \$/MWh

Escalation Rate	2%
Discount Rate	7.03%

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	<b>NorthWestern Energy</b>													
2	<b>Revenue Requirement - Regulated</b>													
3	<b>Greycliff Wind Prime (Projects 172 &amp; 202)</b>													
4	<b>Network Upgrades</b>		1	2	3	4	5	6	7	8	9	10	11	12
5			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
6	<b>Rate Base:</b>													
7														
8	Plant - Network Upgrades	yes	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955
9														
10	Less:													
11	Accumulated Depreciation (Book Life)		94,157	188,315	282,472	376,630	470,787	564,945	659,102	753,259	847,417	941,574	1,035,732	1,129,889
12	Deferred Income Taxes		39,875	142,079	225,259	292,948	347,776	394,816	438,203	476,181	508,873	541,455	574,147	606,728
13														
14	Total Year End Rate Base		\$ 3,431,922	\$ 3,235,562	\$ 3,058,224	\$ 2,896,378	\$ 2,747,392	\$ 2,606,194	\$ 2,468,650	\$ 2,336,515	\$ 2,209,665	\$ 2,082,926	\$ 1,956,076	\$ 1,829,337
15														
16	Average Annual Rate Base		\$ 3,498,939	\$ 3,333,742	\$ 3,146,893	\$ 2,977,301	\$ 2,821,885	\$ 2,676,793	\$ 2,537,422	\$ 2,402,582	\$ 2,273,090	\$ 2,146,295	\$ 2,019,501	\$ 1,892,707
17														
18	Return (Avg. Rate Base*Cost of Capital)	6.91%	\$ 241,777	\$ 230,362	\$ 217,450	\$ 205,731	\$ 194,992	\$ 184,966	\$ 175,336	\$ 166,018	\$ 157,071	\$ 148,309	\$ 139,548	\$ 130,786
19	Property Taxes	3.25%	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894
20	MCC/MPSC Taxes	0.29%	1,601	1,516	1,473	1,433	1,396	1,358	1,320	1,284	1,250	1,213	1,177	1,140
21	Depreciation		94,157	94,157	94,157	94,157	94,157	94,157	94,157	94,157	94,157	94,157	94,157	94,157
22	Deferred Income Taxes @ 35%		39,875	102,203	83,180	67,689	54,828	47,040	43,387	37,978	32,692	32,581	32,692	32,581
23	Income Taxes		58,741	(21,522)	(4,272)	9,244	20,018	24,985	25,137	27,547	29,970	26,232	22,225	18,487
24														
25	<b>Total Revenue Requirement</b>		\$ 552,045	\$ 522,609	\$ 507,883	\$ 494,148	\$ 481,285	\$ 468,401	\$ 455,231	\$ 442,878	\$ 431,034	\$ 418,387	\$ 405,693	\$ 393,045

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
2	<b>Revenue Requirement - Regulated</b>													
3	<b>Greycliff Wind Prime (Projects 172 &amp; 202)</b>													
4	<b>Network Upgrades</b>													
5			1	2	3	4	5	6	7	8	9	10	11	12
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
26														
27	<b>Income Taxes:</b>													
28	Revenues		\$ 552,045	\$ 522,609	\$ 507,883	\$ 494,148	\$ 481,285	\$ 468,401	\$ 455,231	\$ 442,878	\$ 431,034	\$ 418,387	\$ 405,693	\$ 393,045
29	Property Taxes		115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894
30	MCC/MPSC Taxes		1,601	1,516	1,473	1,433	1,396	1,358	1,320	1,284	1,250	1,213	1,177	1,140
31		<b>MACRS</b>												
32		<b>yes</b>												
33	Tax Depreciation	15	158,684	301,499	271,349	244,373	219,936	197,720	187,247	187,247	187,564	187,247	187,564	187,247
34	Tax Depreciation	7	49,403	84,667	60,466	43,180	30,873	30,838	30,873	15,419	-	-	-	-
35	Montana Corporate Income Tax		10,067	(3,688)	(732)	1,584	3,431	4,282	4,308	4,721	5,136	4,495	3,809	3,168
36	Interest Expense (Based on Avg. Rate Base)	2.21%	77,327	73,676	69,546	65,798	62,364	59,157	56,077	53,097	50,235	47,433	44,631	41,829
37	Federal Taxable Income		\$ 139,070	\$ (50,954)	\$ (10,114)	\$ 21,886	\$ 47,393	\$ 59,152	\$ 59,513	\$ 65,217	\$ 70,955	\$ 62,104	\$ 52,619	\$ 43,768
38														
39	Federal Income Tax @ 35%	35.00%	\$ 48,675	\$ (17,834)	\$ (3,540)	\$ 7,660	\$ 16,587	\$ 20,703	\$ 20,829	\$ 22,826	\$ 24,834	\$ 21,736	\$ 18,416	\$ 15,319
40														
41	Federal Taxable Income		\$ 139,070	\$ (50,954)	\$ (10,114)	\$ 21,886	\$ 47,393	\$ 59,152	\$ 59,513	\$ 65,217	\$ 70,955	\$ 62,104	\$ 52,619	\$ 43,768
42	Montana Corporate Income Tax		10,067	(3,688)	(732)	1,584	3,431	4,282	4,308	4,721	5,136	4,495	3,809	3,168
43	Montana Corporate Taxable		\$ 149,137	\$ (54,642)	\$ (10,846)	\$ 23,470	\$ 50,823	\$ 63,434	\$ 63,821	\$ 69,937	\$ 76,091	\$ 66,600	\$ 56,427	\$ 46,936
44														
45	Montana Corporate Income Tax @ 6.75%	6.75%	\$ 10,067	\$ (3,688)	\$ (732)	\$ 1,584	\$ 3,431	\$ 4,282	\$ 4,308	\$ 4,721	\$ 5,136	\$ 4,495	\$ 3,809	\$ 3,168
46														
47	Greycliff LGIA													
48														
49	Project Output		96,647	96,660	96,657	96,660	96,661	96,661	96,661	96,662	96,661	96,663	96,660	96,663
50	Cost per MWh		\$ 5.71	\$ 5.41	\$ 5.25	\$ 5.11	\$ 4.98	\$ 4.85	\$ 4.71	\$ 4.58	\$ 4.46	\$ 4.33	\$ 4.20	\$ 4.07
51	Levelized Cost per MWh	25	\$4.54											
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<b>Network Upgrades</b>	
Substation	\$2,560,382
Real Estate	\$46,557
Metering	\$0
Relaying	\$403,324
Transmission Line	\$209,972
EMS	\$8,995
Communications <sup>1</sup>	\$336,725
<b>SUBTOTAL</b>	<b>\$3,565,955</b>

1. The Customer will be responsible for providing the following communications:  
 a. Telephone circuit to meter  
 b. Data channel to NWE SOCC center  
 c. Ring down circuit to the generation control center

	A	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	<b>NorthWestern Energy</b>													
2	<b>Revenue Requirement - Regulated</b>													
3	<b>Greycliff Wind Prime (Projects 172 &amp; 202)</b>													
4	<b>Network Upgrades</b>	13	14	15	16	17	18	19	20	21	22	23	24	25
5		2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
6	<b>Rate Base:</b>													
7														
8	Plant - Network Upgrades	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955
9														
10	Less:													
11	Accumulated Depreciation (Book Life)	1,224,047	1,318,204	1,412,362	1,483,471	1,554,580	1,625,690	1,696,799	1,767,909	1,839,018	1,910,128	1,981,237	2,052,346	2,123,456
12	Deferred Income Taxes	639,421	672,002	704,695	712,574	687,686	662,798	637,910	613,021	588,133	563,245	538,356	513,468	488,580
13														
14	Total Year End Rate Base	\$ 1,702,488	\$ 1,575,749	\$ 1,448,899	\$ 1,369,910	\$ 1,323,688	\$ 1,277,467	\$ 1,231,246	\$ 1,185,025	\$ 1,138,804	\$ 1,092,583	\$ 1,046,362	\$ 1,000,141	\$ 953,919
15														
16	Average Annual Rate Base	\$ 1,765,913	\$ 1,639,118	\$ 1,512,324	\$ 1,409,404	\$ 1,346,799	\$ 1,300,578	\$ 1,254,357	\$ 1,208,136	\$ 1,161,914	\$ 1,115,693	\$ 1,069,472	\$ 1,023,251	\$ 977,030
17														
18	Return (Avg. Rate Base*Cost of Capital)	\$ 122,025	\$ 113,263	\$ 104,502	\$ 97,390	\$ 93,064	\$ 89,870	\$ 86,676	\$ 83,482	\$ 80,288	\$ 77,094	\$ 73,901	\$ 70,707	\$ 67,513
19	Property Taxes	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894
20	MCC/MPSC Taxes	1,103	1,066	1,030	948	949	936	922	909	896				
21	Depreciation	94,157	94,157	94,157	71,109	71,109	71,109	71,109	71,109	71,109	71,109	71,109	71,109	71,109
22	Deferred Income Taxes @ 35%	32,692	32,581	32,692	7,880	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)
23	Income Taxes	14,480	10,742	6,735	33,536	71,169	69,758	68,346	66,934	65,523				
24														
25	<b>Total Revenue Requirement</b>	\$ 380,351	\$ 367,704	\$ 355,010	\$ 326,756	\$ 327,297	\$ 322,678	\$ 318,059	\$ 313,440	\$ 308,821	\$ 299,209	\$ 293,615	\$ 288,021	\$ 282,427

	A	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
2	<b>Revenue Requirement - Regulated</b>													
3	<b>Greycliff Wind Prime (Projects 172 &amp; 202)</b>													
4	<b>Network Upgrades</b>													
5	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
26														
27	<b>Income Taxes:</b>													
28	Revenues	\$ 380,351	\$ 367,704	\$ 355,010	\$ 326,756	\$ 327,297	\$ 322,678	\$ 318,059	\$ 313,440	\$ 308,821	\$ 239,209	\$ 236,015	\$ 232,821	\$ 229,627
29	Property Taxes	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894	115,894
30	MCC/MPSC Taxes	1,103	1,066	1,030	948	949	936	922	909	896				
31														
32														
33	Tax Depreciation	187,564	187,247	187,564	93,624	-	-	-	-	-	-	-	-	-
34	Tax Depreciation	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Montana Corporate Income Tax	2,482	1,841	1,154	5,747	12,197	11,955	11,713	11,471	11,229	6,659	6,513	6,366	6,220
36	Interest Expense (Based on Avg. Rate Base)	39,027	36,225	33,422	31,148	29,764	28,743	27,721	26,700	25,678	24,657	23,635	22,614	21,592
37	Federal Taxable Income	\$ 34,282	\$ 25,431	\$ 15,946	\$ 79,397	\$ 168,493	\$ 165,151	\$ 161,809	\$ 158,467	\$ 155,125	\$ 91,999	\$ 89,973	\$ 87,948	\$ 85,922
38														
39	Federal Income Tax @ 35%	\$ 11,999	\$ 8,901	\$ 5,581	\$ 27,789	\$ 58,973	\$ 57,803	\$ 56,633	\$ 55,463	\$ 54,294	\$ 32,200	\$ 31,491	\$ 30,782	\$ 30,073
40														
41	Federal Taxable Income	\$ 34,282	\$ 25,431	\$ 15,946	\$ 79,397	\$ 168,493	\$ 165,151	\$ 161,809	\$ 158,467	\$ 155,125	\$ 91,999	\$ 89,973	\$ 87,948	\$ 85,922
42	Montana Corporate Income Tax	2,482	1,841	1,154	5,747	12,197	11,955	11,713	11,471	11,229	6,659	6,513	6,366	6,220
43	Montana Corporate Taxable	\$ 36,764	\$ 27,272	\$ 17,100	\$ 85,144	\$ 180,690	\$ 177,106	\$ 173,522	\$ 169,938	\$ 166,354	\$ 98,659	\$ 96,486	\$ 94,314	\$ 92,142
44														
45	Montana Corporate Income Tax @ 6.75%	\$ 2,482	\$ 1,841	\$ 1,154	\$ 5,747	\$ 12,197	\$ 11,955	\$ 11,713	\$ 11,471	\$ 11,229	\$ 6,659	\$ 6,513	\$ 6,366	\$ 6,220
46														
47	Greycliff LGIA													
48														
49	Project Output	96,658	96,663	96,661	96,662	96,659	96,662	96,661	96,662	96,665	96,657	96,661	96,660	96,660
50	Cost per MWh	\$ 3.94	\$ 3.80	\$ 3.67	\$ 3.38	\$ 3.39	\$ 3.34	\$ 3.29	\$ 3.24	\$ 3.19	\$ 2.47	\$ 2.44	\$ 2.41	\$ 2.38
51	Levelized Cost per MWh													
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	A	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
1	<b>NorthWestern Energy</b>													
2	<b>Revenue Requirement - Regulated</b>													
3	<b>Greycliff Wind Prime (Projects 172 &amp; 202)</b>													
4	<b>Network Upgrades</b>	26	27	28	29	30	31	32	33	34	35	36	37	38
5		2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
6	<b>Rate Base:</b>													
7														
8	Plant - Network Upgrades	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955
9														
10	Less:													
11	Accumulated Depreciation (Book Life)	2,194,565	2,265,675	2,336,784	2,407,894	2,479,003	2,550,112	2,621,222	2,692,331	2,763,441	2,834,550	2,905,660	2,976,769	3,047,878
12	Deferred Income Taxes	463,691	438,803	413,915	389,027	364,138	339,250	314,362	289,473	264,585	239,697	214,808	189,920	165,032
13														
14	<b>Total Year End Rate Base</b>	<b>\$ 907,698</b>	<b>\$ 861,477</b>	<b>\$ 815,256</b>	<b>\$ 769,035</b>	<b>\$ 722,814</b>	<b>\$ 676,593</b>	<b>\$ 630,371</b>	<b>\$ 584,150</b>	<b>\$ 537,929</b>	<b>\$ 491,708</b>	<b>\$ 445,487</b>	<b>\$ 399,266</b>	<b>\$ 353,045</b>
15														
16	<b>Average Annual Rate Base</b>	<b>\$ 930,809</b>	<b>\$ 884,588</b>	<b>\$ 838,367</b>	<b>\$ 792,145</b>	<b>\$ 745,924</b>	<b>\$ 699,703</b>	<b>\$ 653,482</b>	<b>\$ 607,261</b>	<b>\$ 561,040</b>	<b>\$ 514,819</b>	<b>\$ 468,597</b>	<b>\$ 422,376</b>	<b>\$ 376,155</b>
17														
18	Return (Avg. Rate Base*Cost of Capital)	\$ 64,319	\$ 61,125	\$ 57,931	\$ 54,737	\$ 51,543	\$ 48,349	\$ 45,156	\$ 41,962	\$ 38,768	\$ 35,574	\$ 32,380	\$ 29,186	\$ 25,992
19	Property Taxes	-	-	-	-	-	-	-	-	-	-	-	-	-
20	MCC/MPSC Taxes													
21	Depreciation	71,109	71,109	71,109	71,109	71,109	71,109	71,109	71,109	71,109	71,109	71,109	71,109	71,109
22	Deferred Income Taxes @ 35%	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)	(24,888)
23	Income Taxes													
24														
25	<b>Total Revenue Requirement</b>	<b>\$ 110,540</b>	<b>\$ 107,346</b>	<b>\$ 104,152</b>	<b>\$ 100,958</b>	<b>\$ 97,765</b>	<b>\$ 94,571</b>	<b>\$ 91,377</b>	<b>\$ 88,183</b>	<b>\$ 84,989</b>	<b>\$ 81,795</b>	<b>\$ 78,601</b>	<b>\$ 75,407</b>	<b>\$ 72,213</b>

	A	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
2	<b>Revenue Requirement - Regulated</b>													
3	<b>Greycliff Wind Prime (Projects 172 &amp; 202)</b>													
4	<b>Network Upgrades</b>	26	27	28	29	30	31	32	33	34	35	36	37	38
5		2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
26														
27	<b>Income Taxes:</b>													
28	Revenues	\$ 110,540	\$ 107,346	\$ 104,152	\$ 100,958	\$ 97,765	\$ 94,571	\$ 91,377	\$ 88,183	\$ 84,989	\$ 81,795	\$ 78,601	\$ 75,407	\$ 72,213
29	Property Taxes	-	-	-	-	-	-	-	-	-	-	-	-	-
30	MCC/MPSC Taxes													
31														
32														
33	Tax Depreciation	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Tax Depreciation	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Montana Corporate Income Tax	6,073	5,926	5,780	5,633	5,486	5,340	5,193	5,046	4,900	4,753	4,607	4,460	4,313
36	Interest Expense (Based on Avg. Rate Base)	20,571	19,549	18,528	17,506	16,485	15,463	14,442	13,420	12,399	11,377	10,356	9,335	8,313
37	Federal Taxable Income	\$ 83,896	\$ 81,870	\$ 79,845	\$ 77,819	\$ 75,793	\$ 73,767	\$ 71,742	\$ 69,716	\$ 67,690	\$ 65,664	\$ 63,639	\$ 61,613	\$ 59,587
38														
39	Federal Income Tax @ 35%	\$ 29,364	\$ 28,655	\$ 27,946	\$ 27,237	\$ 26,528	\$ 25,819	\$ 25,110	\$ 24,401	\$ 23,692	\$ 22,983	\$ 22,274	\$ 21,565	\$ 20,856
40														
41	Federal Taxable Income	\$ 83,896	\$ 81,870	\$ 79,845	\$ 77,819	\$ 75,793	\$ 73,767	\$ 71,742	\$ 69,716	\$ 67,690	\$ 65,664	\$ 63,639	\$ 61,613	\$ 59,587
42	Montana Corporate Income Tax	6,073	5,926	5,780	5,633	5,486	5,340	5,193	5,046	4,900	4,753	4,607	4,460	4,313
43	Montana Corporate Taxable	\$ 89,969	\$ 87,797	\$ 85,624	\$ 83,452	\$ 81,280	\$ 79,107	\$ 76,935	\$ 74,762	\$ 72,590	\$ 70,418	\$ 68,245	\$ 66,073	\$ 63,900
44														
45	Montana Corporate Income Tax @ 6.75%	\$ 6,073	\$ 5,926	\$ 5,780	\$ 5,633	\$ 5,486	\$ 5,340	\$ 5,193	\$ 5,046	\$ 4,900	\$ 4,753	\$ 4,607	\$ 4,460	\$ 4,313
46														
47	Greycliff LGIA													
48														
49	Project Output	96,660	96,660	96,660	96,660	96,660	96,660	96,660	96,660	96,660	96,660	96,660	96,660	96,660
50	Cost per MWh	\$ 1.14	\$ 1.11	\$ 1.08	\$ 1.04	\$ 1.01	\$ 0.98	\$ 0.95	\$ 0.91	\$ 0.88	\$ 0.85	\$ 0.81	\$ 0.78	\$ 0.75
51	Levelized Cost per MWh													
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	A	AO	AP	AQ	AR	AS	AT	AU
1	<b>NorthWestern Energy</b>							
2	<b>Revenue Requirement - Regulated</b>							
3	<b>Greycliff Wind Prime (Projects 172 &amp; 202)</b>							
4	<b>Network Upgrades</b>	<b>39</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>
5		2054	2055	2056	2057	2058	2059	2060
6	<b>Rate Base:</b>							
7								
8	Plant - Network Upgrades	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955	\$ 3,565,955
9								
10	Less:							
11	Accumulated Depreciation (Book Life)	3,118,988	3,190,097	3,255,957	3,321,818	3,387,678	3,453,538	3,519,398
12	Deferred Income Taxes	140,144	115,255	92,204	69,153	46,102	23,051	0
13								
14	<b>Total Year End Rate Base</b>	<b>\$ 306,824</b>	<b>\$ 260,602</b>	<b>\$ 217,793</b>	<b>\$ 174,984</b>	<b>\$ 132,175</b>	<b>\$ 89,366</b>	<b>\$ 46,557</b>
15								
16	<b>Average Annual Rate Base</b>	<b>\$ 329,934</b>	<b>\$ 283,713</b>	<b>\$ 239,198</b>	<b>\$ 196,389</b>	<b>\$ 153,580</b>	<b>\$ 110,771</b>	<b>\$ 67,962</b>
17								
18	Return (Avg. Rate Base*Cost of Capital)	\$ 22,798	\$ 19,605	\$ 16,529	\$ 13,570	\$ 10,612	\$ 7,654	\$ 4,696
19	Property Taxes	-	-	-	-	-	-	-
20	MCC/MPSC Taxes							
21	Depreciation	71,109	71,109	65,860	65,860	65,860	65,860	65,860
22	Deferred Income Taxes @ 35%	(24,888)	(24,888)	(23,051)	(23,051)	(23,051)	(23,051)	(23,051)
23	Income Taxes							
24								
25	<b>Total Revenue Requirement</b>	<b>\$ 69,020</b>	<b>\$ 65,826</b>	<b>\$ 59,338</b>	<b>\$ 56,380</b>	<b>\$ 53,421</b>	<b>\$ 50,463</b>	<b>\$ 47,505</b>

	A	AO	AP	AQ	AR	AS	AT	AU
2	<b>Revenue Requirement - Regulated</b>							
3	<b>Greycliff Wind Prime (Projects 172 &amp; 202)</b>							
4	<b>Network Upgrades</b>	<b>39</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>
5		2054	2055	2056	2057	2058	2059	2060
26								
27	<b>Income Taxes:</b>							
28	Revenues	\$ 69,020	\$ 65,826	\$ 59,338	\$ 56,380	\$ 53,421	\$ 50,463	\$ 47,505
29	Property Taxes	-	-	-	-	-	-	-
30	MCC/MPSC Taxes							
31								
32								
33	Tax Depreciation	-	-	-	-	-	-	-
34	Tax Depreciation	-	-	-	-	-	-	-
35	Montana Corporate Income Tax	4,167	4,020	3,648	3,513	3,377	3,241	3,105
36	Interest Expense (Based on Avg. Rate Base)	7,292	6,270	5,286	4,340	3,394	2,448	1,502
37	Federal Taxable Income	\$ 57,561	\$ 55,536	\$ 50,403	\$ 48,527	\$ 46,650	\$ 44,774	\$ 42,898
38								
39	Federal Income Tax @ 35%	\$ 20,146	\$ 19,437	\$ 17,641	\$ 16,984	\$ 16,328	\$ 15,671	\$ 15,014
40								
41	Federal Taxable Income	\$ 57,561	\$ 55,536	\$ 50,403	\$ 48,527	\$ 46,650	\$ 44,774	\$ 42,898
42	Montana Corporate Income Tax	4,167	4,020	3,648	3,513	3,377	3,241	3,105
43	Montana Corporate Taxable	\$ 61,728	\$ 59,556	\$ 54,051	\$ 52,039	\$ 50,027	\$ 48,015	\$ 46,003
44								
45	Montana Corporate Income Tax @ 6.75%	\$ 4,167	\$ 4,020	\$ 3,648	\$ 3,513	\$ 3,377	\$ 3,241	\$ 3,105
46								
47	Greycliff LGIA							
48								
49	Project Output	96,660	96,660	96,660	96,660	96,660	96,660	96,660
50	Cost per MWh	\$ 0.71	\$ 0.68	\$ 0.61	\$ 0.58	\$ 0.55	\$ 0.52	\$ 0.49
51	Levelized Cost per MWh							
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9 **PREFILED SUPPLEMENTAL RESPONSE TESTIMONY**

10 **OF PATRICK J. DIFRONZO**

11 **ON BEHALF OF NORTHWESTERN ENERGY**

12  
13 **TABLE OF CONTENTS**

14	<b><u>Description</u></b>	<b><u>Starting Page No.</u></b>
15	Witness Information	2
16	Purpose of Testimony	3
17	Revenue Requirement Model	4

1 **Witness Information**

2 **Q. Please state your name and business address.**

3 **A.** I am Patrick J. DiFronzo and my business address is 11 East Park St.,  
4 Butte, MT 59701.

5  
6 **Q. By whom are you employed and in what capacity?**

7 **A.** I am employed by NorthWestern Energy (“NorthWestern”) as Manager of  
8 Regulatory Affairs.

9  
10 **Q. Please summarize your education and employment experience.**

11 **A.** I graduated from Montana State University with a Bachelor of Science  
12 degree in Accounting in 1981. In August 1983, I completed the  
13 requirements to become a Certified Public Accountant. I have also attended  
14 several rate-related courses since beginning my employment at  
15 NorthWestern in July 1984. The first position I held was Accountant in the  
16 Income Tax Department, from 1984 through 1989. During this time frame I  
17 worked on several Montana Public Service Commission (“MPSC” or  
18 “Commission”) and Federal Energy Regulatory Commission (“FERC”) rate  
19 filings preparing tax statements and exhibits. I then spent a year in the  
20 Regulatory Affairs Department as part of a cross-training program learning  
21 more about cost of service and other regulatory matters. After this, I  
22 transferred into Internal Auditing where I spent the next six years working  
23 on various financial and information system control audits. In 1996, I

1 transferred into the Financial Resources Department as a Senior Analyst.  
2 In the Financial Resources Department I prepared annual and forecasted  
3 business plans for NorthWestern and performed various financial analyses.  
4 In May of 1999, I was promoted to Manager of Treasury Services. In the  
5 Treasury Department, I worked on several MPSC and FERC rate filings  
6 preparing cost of capital statements and exhibits. In October of 2000, I  
7 accepted a position in the Regulatory Affairs Department as a Senior  
8 Analyst. In December of 2003, I was promoted to Manager of Regulatory  
9 Affairs.

10

11

### **Purpose of Testimony**

12 **Q. Have you previously filed testimony in this docket?**

13 **A.** No. It was not necessary before today for me to participate in this docket.

14

15 **Q. What is the purpose of your supplemental response testimony?**

16 **A.** The purpose of this testimony is to explain the Revenue Requirement  
17 Model necessary to account for the effect that the interconnection network  
18 upgrade costs identified by NorthWestern Transmission have on the  
19 avoided cost calculation for the Greycliff Wind Prime, LLC ("Greycliff")  
20 project.

21

22

23

1 **Revenue Requirement Model**

2 **Q. Have you prepared a long-term Revenue Requirement for the**  
3 **Greycliff project interconnection network upgrade costs?**

4 **A.** Yes, the Revenue Requirement Model for the interconnection network  
5 upgrade costs is shown on Exhibit\_\_(BJL-1)\_rev, pages 5 through 12.  
6 The annual revenue requirement amount for each year is shown on line  
7 25. The annual revenue requirement amount is then divided by the  
8 project output on line 49 to derive the cost per MWh on line 50. The  
9 levelized cost per MWh over a 25-year period is \$4.54 as shown on line  
10 51. The Prefiled Supplemental Response Testimony of Bleau J. LaFave  
11 “LaFave Supplemental Response Testimony” explains how this cost per  
12 MWh is computed and how it affects Greycliff’s avoided costs.

13  
14 **Q. What are the primary inputs used to estimate the annual revenue**  
15 **requirements in the Revenue Requirement Model?**

16 **A.** The Revenue Requirement Model is based on several primary inputs,  
17 listed and explained below, that were used to estimate the annual revenue  
18 requirement:

- 19 • The interconnection network upgrade costs of \$3,565,955 are included  
20 in the rate base as plant additions in 2016. The LaFave Supplemental  
21 Response Testimony supports and describes the interconnection  
22 network upgrade costs.

- 1           • Rate of Return (“ROR”) is comprised of the cost of debt, cost of equity,  
2           and capital structure based on Order No. 7323k entered in Docket No.  
3           D2013.12.85 (the Hydros docket). Consistent with that order, a 6.91%  
4           ROR based on a capital structure of 52% debt at a cost of 4.25% and  
5           48% equity at a cost of 9.80% was used. This ROR was held constant  
6           throughout the 45-year period in the Revenue Requirement Model.
- 7           • Average rate base was calculated using a simple average of the  
8           beginning and ending rate base estimates for each year of the  
9           calculation. The same methodology was used annually throughout the  
10          45-year period.
- 11          • Property tax expense amount is based on applying 3.25% to the  
12          interconnection network upgrade cost amount. This percentage is  
13          based on the original cost of transmission plant compared to the actual  
14          2015 tax expense amount.
- 15          • Depreciable life of assets for book purposes was based on  
16          NorthWestern’s most recent depreciation study. The transmission  
17          plant depreciation is based on 40-year book life, substation and  
18          relaying equipment on 45 years, and communication equipment on 15  
19          years. For tax purposes the transmission, substation and relaying  
20          equipment are depreciated using the 15-Year Modified Accelerated  
21          Cost Recovery System (“MACRS”) and the communication equipment  
22          using a 7-Year MACRS. The accumulated difference between book

1 depreciation expense and tax depreciation expense, multiplied by the  
2 federal statutory rate of 35%, creates the deferred income tax liability.

3 • The MCC and MPSC taxes are levied by the Montana Department of  
4 Revenue and fund the operation of these agencies. These taxes were  
5 computed based on the latest tax rates from October 1, 2015. These  
6 tax rates are applied to the Total Revenue Requirement which is  
7 shown on page 1, line 25 to derive the amount of taxes. These taxes  
8 are included in the Total Revenue Requirement amount on line 25.

9

10 **Q. Why does the Revenue Requirement Model cover 45 years?**

11 **A.** Because 45 years is the book life of the longest-lived depreciable asset  
12 class included in the network transmission upgrade. As explained in the  
13 LaFave Supplemental Response Testimony, it is necessary to consider all  
14 costs associated with the upgrade to maintain customer indifference.

15

16 **Q. Does this conclude your supplemental response testimony?**

17 **A.** Yes, it does.

**CERTIFICATE OF SERVICE**

I hereby certify that an original and ten copies of NorthWestern Energy's Supplemental Response Testimony and Exhibits in Docket No. D2015.8.64 have been hand delivered to the Montana Public Service Commission with three copies to the Montana Consumer Counsel this date. It has also been e-filed on the PSC website, emailed to counsel of record, and mailed to the remainder of the service list as follows:

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