



2302 Great Northern Drive
P O Box 2747
Fargo, ND 58108-2747
(701) 241-8632
dave.sederquist@xcelenergy.com

January 6, 2017

---- Via Electronic Filing ----

Darrell Nitschke,
Executive Secretary
North Dakota Public Service Commission
State Capitol
600 East Boulevard
Bismarck, ND 58505-0480

**RE: Filing Pursuant to NDPSC Cogeneration and Small Power Production
Rules (Chapter 69-09-07)**

Dear Mr. Nitschke:

Enclosed is your copy of the Company's Cogeneration and Small Power Production compliance filing. A copy of the annual report of total energy produced by customers, as well as non-proprietary work papers, are attached for your information.

If you have any questions, please call me at 701-241-8632.

Sincerely,

/ s/

DAVE SEDERQUIST
SENIOR REGULATORY AND FINANCE CONSULTANT

cc: Amy S. Fredregill, Xcel Energy
John Chow, Xcel Energy

Enclosure



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P O Box 2747
Fargo, ND 58108-2747
(701) 241-8632
dave.sederquist@xcelenergy.com

January 3, 2017

----- Via Electronic Filing -----

Darrell Nitschke
Executive Secretary
North Dakota Public Service Commission
State Capitol
600 East Boulevard
Bismarck, ND 58505-0480

RE: Filing Pursuant to NDPSC Small Power Production and Cogeneration Rules (Chapter 69-09-07)

Dear Mr. Nitschke:

Pursuant to the above referenced Rules, NDPSC Order Case No. 9999, and NDCC section 49.05.06, Northern States Power Company, doing business as Xcel Energy and operating in North Dakota, submits for filing the original and seven copies of the rate sheets and avoided costs for the Standard Contract Offer and Guidelines proposed for 2017.

The Net Energy Billing Service is revised to reflect the 2017 avoided energy cost level and meter charges. This service is available to qualifying facilities with a capacity of 100 kW or less who can use the output from the qualifying facility to offset energy delivered by the Company.

The Purchase and Sales Billing Service and Time of Day Purchase Service are revised to reflect the 2016 avoided cost level and metering charges. The Purchase and Sales Billing Service is also available to qualifying facilities with capacity up to 100 kW.

The Company also submits the avoided costs for the Standard Contract Offer and Guidelines for filing. The provisions of the Standard Contract Offer and Guidelines have not changed from last year's filing.

Under separate cover, we are forwarding to the PSC Staff the work papers which support this filing. The updated tariffs were developed in accordance with NDPSC Small Power Production and Cogeneration Rules (Chapter 69-09-07).

These updates do not reflect any significant changes. In general, the rates decreased slightly. Currently, there is one customer on the Net Energy Billing Service. Pursuant to North Dakota PSC Small Power Production and Cogeneration Rules (Chapter 69-09-07-09, part 3, subpart 2) the Company will provide an annual report of total monthly energy produced by the customer. As was the case with last year's filing, Xcel Energy respectfully requests that the Commission forego an informal hearing on this filing in the interests of time and resources unless the PSC staff has any concerns with the filed revisions.

The revised rate sheets and avoided cost level for Standard Contract Offer and Guidelines are filed to become effective February 3, 2017.

Xcel Energy notes that the statutory changes to the Public Utility Regulatory Policy Act of 1978 (PURPA) contained in the Energy Policy Act of 2005 (EPAct 2005¹), the Federal Energy Regulatory Commission adoption of a Small Generation Interconnection Procedure and standard form Small Generation Interconnection Agreement in FERC Order No. 2006;² and FERC Order No. 688 and 688-A governing the mandatory purchase obligation under EPAct 2005, may affect future development of QF's in North Dakota by either encouraging or discouraging cogeneration and small power production³. Since the latter Orders were issued within the last couple of years, their ultimate impact is not known at this time.

If you have any questions concerning this filing, feel free to contact me at 701-241-8632.

Sincerely,

/s/

DAVE SEDERQUIST
SENIOR REGULATORY AND FINANCE CONSULTANT

cc John Chow, Xcel Energy
Amy S. Fredregill, Xcel Energy

Enclosures

¹ Pub. L. No. 109-58, Sec. 1253, 119 Stat. 594 (2005).

² *Standardization of Small Generation Interconnection Agreements and Procedures*, Order No. 2006, 70 Fed. Reg. 34,189 (June 13, 2005); 111 FERC ¶ 61,220 (2005); *order on reh.*, Order No. 2006-A, 116 FERC ¶ 61, 046 (2006).

³ New PURPA Section 210(m) Regulations Applicable to Small Power Production and Cogeneration Facilities, Order No. 688, 71 FR 64342 (Nov. 1, 2006), FERC Stats. & Regs. ¶ 31,233 (2006)

Legislative

NORTH DAKOTA ELECTRIC RATE BOOK - NDPSO NO. 2

NET ENERGY BILLING SERVICE
RATE CODE D50

Section No. 9
~~8th~~9th Revised Sheet No. 2

AVAILABILITY

Available to any Small Qualifying Facility (SQF) with a capacity of 100 kW or less who receives non-time of day retail electric service from Company and offsets energy delivered by Company.

RATE

Metering Charge per Month

Single Phase	\$3.25
Three Phase	\$5.50

Payment Schedule for Energy Delivered to Company

Energy Payment per kWh	2.574¢ <u>2.369¢</u>
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TERMS AND CONDITIONS OF SERVICE

1. Energy used by customer in excess of energy delivered by the small qualifying facility at the same site during the same billing period shall be billed in accordance with the appropriate non-time of day retail electric rate.

For demand metered General Service customers, the entire kW demand supplied by the Company at the same site during the same billing period shall be billed to the customer according to the appropriate General Service demand charge rate.
2. Interconnection charges will be assessed by the Company on an individual basis for all costs associated with addition to or modification of Company facilities to accommodate the small qualifying facility (SQF). The net interconnection charge is the responsibility of the SQF.
3. The voltage and phase of customer's generator must be consistent with existing service and approved by the Company.
4. The customer must maintain a power factor of the generator as close to unity as is consistent with NSP operating standards.

Date Filed: ~~01-04-16~~01-03-17

By: Christopher B. Clark

Effective Date: ~~02-03-16~~

President, Northern States Power Company, a Minnesota corporation

Case No. PU-~~16-02417-~~

Order Date: ~~01-20-16~~

NORTH DAKOTA ELECTRIC RATE BOOK - NDPSC NO. 2

**PURCHASE AND SALE BILLING SERVICE
RATE CODE D51**

Section No. 9
~~10th~~11th Revised Sheet No. 3

AVAILABILITY

Available to any Small Qualifying Facility of less than 100 kW who receives non-time of day retail electric service.

RATE

Metering Charge per Month

Single Phase	\$5.25
Three Phase	\$7.60

Payment Schedule for Energy Delivered to Company

	Oct-May	Jun-Sep
Energy Payment per kWh	2.547¢ <u>2.375¢</u>	2.628¢ <u>2.357¢</u>
Capacity Payment per kWh for Firm Power	0.220¢ <u>0.184¢</u>	1.418¢ <u>1.184¢</u>

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DETERMINATION OF FIRM POWER

The small qualifying facility will have supplied firm power if during the billing period an on peak capacity factor of at least 65 percent was achieved. The calculation of the on peak capacity factor will be as follows:

The average on peak period metered capacity delivered to the Company for the on peak period of the billing period divided by the greatest 15 minute metered capacity delivered for the on peak period of the same billing period expressed in percent and rounded to the nearest whole percent. If the percent calculated is 65 or greater, capacity payment will be made. If the percent calculated is less than 65, capacity payment will not be made.

TERMS AND CONDITIONS OF SERVICE

1. Electric service provided by Company to customer at the same site shall be billed in accordance with the appropriate non-time of day retail electric tariff.
2. Interconnection charges will be assessed by the Company on an individual basis for all costs associated with addition to or modification of Company facilities to accommodate the small qualifying facility (SQF). The net interconnection charge is the responsibility of the SQF.
3. The minimum contracted term of service is 12 months.

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NORTH DAKOTA ELECTRIC RATE BOOK - NDPSC NO. 2

TIME OF DAY PURCHASE SERVICE
RATE CODE D52

Section No. 9
~~10th~~11th Revised Sheet No. 4

AVAILABILITY

Available to any Small Qualifying Facility (SQF).

RATE

Metering Charge per Month

Single Phase	\$5.25
Three Phase	\$7.60

Payment Schedule for Energy Delivered to Company

	<u>Oct-May</u>	<u>Jun-Sep</u>
Energy Payment per On-Peak kWh	3.086¢ <u>3.001¢</u>	3.841¢ <u>3.261¢</u>
Energy Payment per Off-Peak kWh	2.253¢ <u>2.034¢</u>	1.967¢ <u>1.872¢</u>
Capacity Payment per On-Peak kWh for Firm Power	0.635¢ <u>0.530¢</u>	4.064¢ <u>3.394¢</u>

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Non-Legislative

NORTH DAKOTA ELECTRIC RATE BOOK - NDPSC NO. 2

**NET ENERGY BILLING SERVICE
RATE CODE D50**

Section No. 9
9th Revised Sheet No. 2

AVAILABILITY

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Date Filed: 01-03-17

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Effective Date:

President, Northern States Power Company, a Minnesota corporation

Case No. PU-17-

Order Date:

NORTH DAKOTA ELECTRIC RATE BOOK - NDPSC NO. 2

**PURCHASE AND SALE BILLING SERVICE
RATE CODE D51**

Section No. 9
11th Revised Sheet No. 3

AVAILABILITY

Available to any Small Qualifying Facility of less than 100 kW who receives non-time of day retail electric service.

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Metering Charge per Month

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Three Phase	\$7.60

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	<u>Oct-May</u>	<u>Jun-Sep</u>	
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3. The minimum contracted term of service is 12 months.

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By: Christopher B. Clark

Effective Date:

President, Northern States Power Company, a Minnesota corporation

Case No. PU-17-

Order Date:

NORTH DAKOTA ELECTRIC RATE BOOK - NDPSO NO. 2

**TIME OF DAY PURCHASE SERVICE
RATE CODE D52**

Section No. 9
11th Revised Sheet No. 4

AVAILABILITY

Available to any Small Qualifying Facility (SQF).

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Metering Charge per Month

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Three Phase	\$7.60

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	<u>Oct-May</u>	<u>Jun-Sep</u>	
Energy Payment per On-Peak kWh	3.001¢	3.261¢	C
Energy Payment per Off-Peak kWh	2.034¢	1.872¢	C
Capacity Payment per On-Peak kWh for Firm Power	0.530¢	3.394¢	C

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3. The minimum contract term of service is 12 months.

Date Filed: 01-03-17

By: Christopher B. Clark

Effective Date:

President, Northern States Power Company, a Minnesota corporation

Case No. PU-17-

Order Date:

Standard Contract Offer
by
Northern States Power Company

2017 Rate Sheet

Years	\$/kW-mth	Years	\$/MWh
<u>Contract Length</u>	<u>Levelized Capacity</u>	<u>Payment Period</u>	<u>Levelized Energy (1)</u>
1	0.00		
2	0.00		
3	0.00		
4	0.00		
5	0.72		
6	1.21	1	24.12
7	1.56	2	24.33
8	1.84	3	24.54
9	2.06	4	24.75
10	2.24	5	24.95
11	2.40	6	25.15
12	2.53	7	25.35
13	2.65	8	25.55
14	2.75	9	25.74
15	2.84	10	25.94
16	2.93	11	26.12
17	3.00	12	26.31
18	3.08	13	26.49
19	3.14	14	26.67
20	3.20	15	26.84
21	3.26	16	27.01
22	3.31	17	27.18
23	3.36	18	27.35
24	3.41	19	27.51
25	3.46	20	27.67
26	3.50		
27	3.54		
28	3.58		
29	3.62		
30	3.65		
31	3.69		
32	3.72		
33	3.75		
34	3.78		
35	3.81		

(1) Minimum contract length required for levelized energy payments is 6 years. Maximum length is 20 years. Examples: A 6 year contract could receive one year of levelized energy rates at 24.12 \$/MWh with the remaining 5 years used for payback account corrections. A 20 year contract could receive 15 years of levelized payment at 26.84 \$/MWh for each year with the remaining 5 years for payback account corrections.

Standard Contract Offer
by
Northern States Power Company

2018 Rate Sheet

Years	\$/kW-mth	Years	\$/MWh
<u>Contract Length</u>	<u>Levelized Capacity</u>	<u>Payment Period</u>	<u>Levelized Energy (1)</u>
1	0.00		
2	0.00		
3	0.00		
4	0.00		
5	0.77		
6	1.29	1	20.64
7	1.67	2	21.46
8	1.97	3	22.13
9	2.20	4	22.69
10	2.40	5	23.18
11	2.56	6	23.62
12	2.70	7	24.02
13	2.83	8	24.38
14	2.94	9	24.72
15	3.04	10	25.04
16	3.13	11	25.33
17	3.21	12	25.62
18	3.29	13	25.88
19	3.36	14	26.14
20	3.42	15	26.39
21	3.48	16	26.62
22	3.54	17	26.85
23	3.59	18	27.07
24	3.65	19	27.28
25	3.69	20	27.48
26	3.74		
27	3.78		
28	3.83		
29	3.87		
30	3.90		
31	3.94		
32	3.97		
33	4.01		
34	4.04		
35	4.07		

(1) Minimum contract length required for levelized energy payments is 6 years. Maximum length is 20 years. Examples: A 6 year contract could receive one year of levelized energy rates at 20.64 \$/MWh with the remaining 5 years used for payback account corrections. A 20 year contract could receive 15 years of levelized payment at 26.39 \$/MWh for each year with the remaining 5 years for payback account corrections.

Standard Contract Offer
by
Northern States Power Company

2019 Rate Sheet

Years	\$/kW-mth	Years	\$/MWh
<u>Contract Length</u>	<u>Levelized Capacity</u>	<u>Payment Period</u>	<u>Levelized Energy (1)</u>
1	0.00		
2	0.00		
3	0.00		
4	0.00		
5	0.82		
6	1.38	1	17.12
7	1.79	2	18.56
8	2.10	3	19.71
9	2.35	4	20.64
10	2.56	5	21.43
11	2.74	6	22.11
12	2.89	7	22.71
13	3.02	8	23.25
14	3.14	9	23.73
15	3.25	10	24.18
16	3.34	11	24.59
17	3.43	12	24.97
18	3.51	13	25.33
19	3.59	14	25.67
20	3.66	15	25.99
21	3.72	16	26.29
22	3.78	17	26.58
23	3.84	18	26.85
24	3.89	19	27.11
25	3.95	20	27.36
26	4.00		
27	4.04		
28	4.09		
29	4.13		
30	4.17		
31	4.21		
32	4.25		
33	4.28		
34	4.32		
35	4.35		

(1) Minimum contract length required for levelized energy payments is 6 years. Maximum length is 20 years. Examples: A 6 year contract could receive one year of levelized energy rates at 17.12 \$/MWh with the remaining 5 years used for payback account corrections. A 20 year contract could receive 15 years of levelized payment at 25.99 \$/MWh for each year with the remaining 5 years for payback account corrections.

Northern States Power Company
 Electric Operations - State of North Dakota
Annual Report of Total Energy Produced By Customers

Bill	Days Bill Period Covered		Total Customer KWh Use	KWh Delivered By Company	KWh Generated By Customer	Excess KWh Sold To Company
	From	To				
2017 January	11/20/2016	12/21/2016	6,120	6,120	-	-
2016 December	10/20/2016	11/20/2016	3,440	3,440	-	-
November	9/21/2016	10/20/2016	2,520	2,520	-	-
October	8/22/2016	9/21/2016	1,960	1,960	-	-
September	7/24/2016	8/22/2016	2,080	2,080	-	-
August	6/22/2016	7/24/2016	2,000	2,000	-	-
July	5/23/2016	6/22/2016	1,960	1,960	-	-
June	4/24/2016	5/23/2016	2,400	2,400	-	-
May	3/24/2016	4/24/2016	3,160	2,880	280	-
April	2/24/2016	3/24/2016	3,480	3,320	160	-
March	1/25/2016	2/24/2016	4,800	4,520	280	-
February	12/22/2015	1/25/2016	6,320	6,160	160	-
Total			40,240	39,360	880	-

STANDARD KWH METER	Single Phase	Three Phase
(1) Installed Cost	\$115.50	\$376.58
(2) L.A.R.R.	10.80%	10.80%
(3) Levelized Cost (1)*(2)	\$12.47	\$40.67
(4) Accounting Expenses \$/Cust/Yr	\$25.50	\$25.50
(5) Total Annual (3)+(4)	\$37.97	\$66.17
(6) Total Monthly (5)/12	\$3.16	\$5.51
	\$3.25 Proposed	\$5.50 Proposed
	\$3.25 Last Year	\$5.50 Last Year

TOD KW/KWH METER	Single Phase	Three Phase
(7) Installed Cost	\$376.58	\$579.30
(8) Levelized Cost (7)*(2)	\$40.67	\$62.56
(9) Total Annual (8)+(4)	\$66.17	\$88.07
(10) Total Monthly	\$5.51	\$7.34
	\$5.25 Proposed	\$7.60 Proposed
	\$5.25 Last Year	\$7.60 Last Year

Source:

(1)(7) Data provided by Xcel Energy Metering Dept.

(2) See pages 4-7.

(4) See pages 2 & 3.

Assumed accounting expenses for the second meter is 50%

$(3406000+863000)/(77450+12459)*0.5$

Test year ending December 31, 2013 Class Cost of Service Study

Escalation rate = 1.98% (2015), 2.81% (2016) and 2.44% (2017)

REVENUE REQUIREMENTS

Meter Equipment	37.80%	0.00%	2017	10.00%	2.04%	20 years
North Dakota						30.0 years
Income Tax Rate	0.00%	0.00%	2017	5.14%	2.48%	0.79%
AFUDC Rate	10.25%	52.56%	2017	44.96%	2.31%	
Beginning Year	0.00%	0.00%		1.44%	0.01%	
Year in Service	0.75%	2.48%		100.00%	7.72%	6.84%
Salvage/(Removal)%						
Escalation Factor						

Carrying Charge Rate	4.86%
Return Requirement	3.09%
Depreciation Requirement	2.06%
Income Tax Requirement	10.01%
Total Capital Requirement	0.00%
O&M Requirement	0.79%
Property Tax	10.80%
Total LARR =	
(LARR) Levelized Annual Revenue Requirement	

Time Period	Year	Capital Expend.	Total CWIP	Plant in Service BOY	Plant in Service EOY	Average Plant in Service	Average Accum. Deprac.	Average Net Plant in Service	Average Acc. Def. Income Taxes	Average Rate Base	Rate of Return (Equity)	Rate of Return (Debt)	AFUDC	Operating Expenses	Book Deprec. Expense	Deferred Income Taxes	Salvage
0	2017	1,000	0	0	1,000	500	8	493	4	488	26	11	0	0.00	15	9	0
1	2018	0	0	1,000	1,000	1,000	30	970	16	854	51	22	0	0.00	30	16	0
2	2019	0	0	1,000	1,000	1,000	60	940	31	909	49	21	0	0.00	30	14	0
3	2020	0	0	1,000	1,000	1,000	90	910	44	866	47	20	0	0.00	30	12	0
4	2021	0	0	1,000	1,000	1,000	120	860	55	825	44	19	0	0.00	30	10	0
5	2022	0	0	1,000	1,000	1,000	150	850	65	785	42	18	0	0.00	30	9	0
6	2023	0	0	1,000	1,000	1,000	180	820	73	747	40	17	0	0.00	30	7	0
7	2024	0	0	1,000	1,000	1,000	210	790	79	711	38	17	0	0.00	30	6	0
8	2025	0	0	1,000	1,000	1,000	240	760	85	675	36	16	0	0.00	30	6	0
9	2026	0	0	1,000	1,000	1,000	270	730	90	640	34	15	0	0.00	30	6	0
10	2027	0	0	1,000	1,000	1,000	300	700	96	604	33	14	0	0.00	30	6	0
11	2028	0	0	1,000	1,000	1,000	330	670	101	569	31	13	0	0.00	30	6	0
12	2029	0	0	1,000	1,000	1,000	360	640	107	533	29	12	0	0.00	30	6	0
13	2030	0	0	1,000	1,000	1,000	390	610	113	497	27	12	0	0.00	30	6	0
14	2031	0	0	1,000	1,000	1,000	420	580	118	462	25	11	0	0.00	30	6	0
15	2032	0	0	1,000	1,000	1,000	450	550	124	426	23	10	0	0.00	30	6	0
16	2033	0	0	1,000	1,000	1,000	480	520	129	391	21	9	0	0.00	30	6	0
17	2034	0	0	1,000	1,000	1,000	510	490	135	355	19	8	0	0.00	30	6	0
18	2035	0	0	1,000	1,000	1,000	540	460	140	320	17	7	0	0.00	30	6	0
19	2036	0	0	1,000	1,000	1,000	570	430	146	284	15	7	0	0.00	30	6	0
20	2037	0	0	1,000	1,000	1,000	600	400	147	253	14	6	0	0.00	30	(3)	0
21	2038	0	0	1,000	1,000	1,000	630	370	140	230	12	5	0	0.00	30	(11)	0
22	2039	0	0	1,000	1,000	1,000	660	340	129	211	11	5	0	0.00	30	(11)	0
23	2040	0	0	1,000	1,000	1,000	690	310	117	193	10	4	0	0.00	30	(11)	0
24	2041	0	0	1,000	1,000	1,000	720	280	106	174	9	4	0	0.00	30	(11)	0
25	2042	0	0	1,000	1,000	1,000	750	250	95	156	8	4	0	0.00	30	(11)	0
26	2043	0	0	1,000	1,000	1,000	780	220	83	137	7	3	0	0.00	30	(11)	0
27	2044	0	0	1,000	1,000	1,000	810	190	72	118	6	3	0	0.00	30	(11)	0
28	2045	0	0	1,000	1,000	1,000	840	160	60	100	5	2	0	0.00	30	(11)	0
29	2046	1,000	0	1,000	1,000	1,000	870	130	49	81	4	2	0	0.00	885	(11)	0

Salvage	BOY Accum. Deferred Taxes	EOY Accum. Deferred Taxes	Avg. Acc. Deferred Taxes	Book Depreciation	Tax Depreciation Rates										
					3-year	5-year	7-year	10-year	15-year	20-year					
0	9	9	4	1.67%	33.33%	20.00%	14.29%	10.00%	10.00%	5.00%	3.75%				
0	16	24	16	3.33%	44.45%	32.00%	24.49%	18.00%	18.00%	9.50%	7.22%				
0	14	31	31	3.33%	14.81%	19.20%	17.49%	14.40%	14.40%	8.55%	6.68%				
0	12	38	44	3.33%	7.41%	11.52%	12.49%	11.52%	11.52%	7.70%	6.18%				
0	10	50	55	3.33%		5.76%	8.93%	9.22%	9.22%	6.93%	5.71%				
0	9	61	65	3.33%			8.92%	7.37%	7.37%	6.23%	5.29%				
0	7	69	73	3.33%			8.93%	6.55%	6.55%	5.90%	4.89%				
0	6	76	79	3.33%			4.46%	4.46%	4.46%	5.91%	4.52%				
0	6	82	85	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	88	88	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	93	90	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	99	96	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	99	104	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	104	107	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	110	113	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	115	118	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	121	121	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	126	124	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	126	129	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	132	132	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	137	135	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	143	140	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	6	148	146	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	(3)	148	147	3.33%			4.46%	4.46%	4.46%	5.91%	4.46%				
0	(11)	146	140	3.33%			100.00%	100.00%	100.00%	100.00%	100.00%				
0	(11)	134	129	3.33%			100.00%	100.00%	100.00%	100.00%	100.00%				
0	(11)	123	117	3.33%			100.00%	100.00%	100.00%	100.00%	100.00%				
0	(11)	112	106	3.33%			100.00%	100.00%	100.00%	100.00%	100.00%				
0	(11)	100	95	3.33%			100.00%	100.00%	100.00%	100.00%	100.00%				
0	(11)	89	83	3.33%			100.00%	100.00%	100.00%	100.00%	100.00%				
0	(11)	77	72	3.33%			100.00%	100.00%	100.00%	100.00%	100.00%				
0	(11)	66	66	3.33%			100.00%	100.00%	100.00%	100.00%	100.00%				
0	(11)	55	55	3.33%			100.00%	100.00%	100.00%	100.00%	100.00%				
0	(11)	43	43	98.33%			100.00%	100.00%	100.00%	100.00%	100.00%				2.23%

Northern States Power Company
Electric Utility - State of North Dakota
Derivation of Energy Payments

NET ENERGY BILLING SERVICE	Average Summer	Average Winter	Wtd Avg Annual
(1) Estimated System Average Incremental Energy Costs for 2017 (¢/kWh)	2.295	2.305	
(2) Energy Loss Factors	0.9737	0.9707	
(3) Estimated System Average Incremental Energy Costs Adjusted for Losses (1)/(2)	2.357 [1]	2.375 [2]	
(4) Average Annual (Cents/kWh) (([1]*4/12) + ([2]*8/12))			2.369

PURCHASE AND SALE BILLING SERVICE	Average Summer	Average Winter
(1) Estimated System Average Incremental Energy Costs for 2017 (¢/kWh)	2.295	2.305
(2) Energy Loss Factors	0.9737	0.9707
(3) Estimated System Average Incremental Energy Costs Adjusted for Losses (1)/(2)	2.357	2.375

TIME OF DAY PURCHASE SERVICE	Summer On Peak	Summer Off Peak	Winter On Peak	Winter Off Peak
(1) Estimated System Average Incremental Energy Costs for 2017 (¢/kWh)	3.171	1.826	2.913	1.981
(2) Energy Loss Factors	0.9723	0.9756	0.9707	0.9739
(3) Estimated System Average Incremental Energy Costs Adjusted for Losses(1)/(2)	3.261	1.872	3.001	2.034

Sources:

Incremental Energy Cost Data provided by Xcel Energy's Energy Marketing.

Northern States Power Company
Electric Utility - State of North Dakota
Calculation of Net Annual Avoided Capacity Costs

[TRADE SECRET DATA BEGINS:

(1) Completed Cost of C.T. Unit (2016 \$)	/kW
(2) Inflation Net of Technical Progress	
(3) Average Service Life	Years
(4) Discount Rate (After Tax)	
Calculation of Marginal Capital Carry Charge Rate	
(5) Present Value of Revenue Requirements	/kW
(6) Annuity Factor Adjustment for Inflation **	
(7) Present Value of Revenue Requirements Adjusted for Inflation (5)*(6)	
(8) Marginal Capital Carrying Charge Rate (7)/(1)	
(9) First Year Revenue Requirement (1)*(8)	/kW (2016 \$)
(10) Present Value at % for 0 years	/kW
(11) Present Value of Average Annual Fuel Savings	/kW
(12) Annual Avoided Capacity Cost (10)-(11)	/kW
(13) Adjusted for 15% Reserve Margin (12)*1.15	/kW
(14) Plus \$2.81/kW Fixed O & M (2016 \$) (13)+2.81	/kW
(15) Adjusted for losses (14)/0.9674	/kW
(16) NET ANNUAL AVOIDED CAPACITY COST	/kW

TRADE SECRET DATA ENDS]

(17) Net Winter On-Peak Avoided Capacity Cost (TOD PURCHASE) (16)*0.2363*100/2023	0.00530 \$/kWh
(18) Net Summer On-Peak Avoided Capacity Cost (TOD PURCHASE) (16)*0.7637*100/1022	0.03394 \$/kWh
(19) Net Annual On-Peak Avoided Capacity Cost (16)*100/3045	0.01491 \$/kWh
(20) Net Winter Avoided Capacity Cost Averaged Over All Winter Hours (PURCHASE & SALE BILLING) (16)*0.2363*100/5832	0.00184 \$/kWh
(21) Net Summer Avoided Capacity Cost Averaged Over All Summer Hours (PURCHASE & SALE BILLING) (16)*0.7637*100/2928	0.01184 \$/kWh
(22) Net Annual Avoided Capacity Cost Average Over All Hours (16)*100/8760	0.00518 \$/kWh

Note: The weighting factors 0.7637 and 0.2363 are obtained from NSP's most recent Cost of Service Study. These ratios represent relative summer and winter season capacity costs on NSP's System.

<p>** $AC = k*(r-j)*(1+j)^{(t-1)}*[1/(1-(1+j)^n/(1+r)^n)]$</p> <p>Where AC = Annual Charge in year t</p> <p>t = Year (=1)</p> <p>K = Total Present Value Cost of Original Investment</p> <p>r = Discount Rate (Overall Marginal Cost of Capital)</p> <p>j = Inflation Rate Net of Technology Progress</p> <p>n = Expected Service Life of Investment (35 Years)</p>

Northern States Power Company, a Minnesota corporation
 System Peak Demands
 Summer/Winter Factors

Month	System MW	
	Full	Net
1	6,455	1,280
2	6,308	1,133
3	6,118	943
4	5,570	395
5	7,240	2,065
6	8,630	3,455
7	9,346	4,171
8	8,844	3,669
9	7,923	2,748
10	5,865	690
11	5,970	795
12	6,562	1,387
Annual Average Hourly Load	5,175	
Average of Monthly Peaks		
Year	7,069	1,894
Summer	8,686	3,511
Winter	<u>6,261</u>	<u>1,086</u>
Total	14,947	4,597
Summer:Winter Ratio	1.3873	3.2326
Summer Percent	58.11%	76.3741%
Winter Percent	<u>41.89%</u>	<u>23.6259%</u>
	100.00%	100.00%

Notes:

Full system ratio used to weight actual summer class peaks

Net system ratio used to split total peaking plant into summer and winter

Northern States Power Company, a Minnesota corporation
 Electric Utility - State of North Dakota
 Marginal Cost of Capital

<i>(Before Tax)</i>	Capitalization Ratio (%)	Cost (%)	Weighted (%)
LT- Debt	44.96%	5.14%	2.31%
ST- Debt	2.48%	0.75%	0.02%
Preferred Equity	0.00%	0.00%	0.00%
Common Equity	52.56%	10.25% *	5.39%
Weighted Average	100.00%		7.72%

<i>(After Tax)</i>	Capitalization Ratio (%)	Cost (%)	Weighted (%)
LT-Debt	44.96%	5.14%	1.43%
ST-Debt	2.48%	0.75%	0.01%
Preferred Equity	0.00%	0.00%	0.00%
Common Equity	52.56%	10.25% *	5.39%
Weighted Average	100.00%		6.83%

* Common Equity is Commission approved return in case no. PU-12-813

Source:
 Information provided by Xcel Energy Revenue Analysis

Carrying Charge Rate	
Return Requirement	4.52%
Depreciation Requirement	3.76%
Income Tax Requirement	2.19%
Total Capital Requirement	10.47%
O&M Requirement	0.00%
Property Tax	0.80%
Total LARR =	11.27%

Cost of Capital		Before-Tax		After-Tax	
	Cost	Ratio	Weighted Cost	Weighted Cost	Weighted Cost
Equity	10.25%	52.56%	5.39%	5.39%	5.39%
Preferred	0.00%	0.00%	0.00%	0.00%	0.00%
L-T Debt	5.14%	44.96%	2.31%	1.44%	1.44%
S-T Debt	0.75%	2.48%	0.02%	0.01%	0.01%
		100.00%	7.72%	6.84%	6.84%

REVENUE REQUIREMENTS	37.80%
Combustion Turbine Plant	8.02%
North Dakota	2016
Income Tax Rate	2017
AFUDC Rate	2017
Beginning Year	2017
Year in Service	2017
Salvage/(Removal)%	0.00%
Escalation Factor	2.04%
Tax Life	20 years
Book Life	27.5 years
Property Tax Rate	0.79%

Time Period	Year	Capital Expend.	Total C/WIP	Plant in Service BOY	Plant in Service EOY	Average Plant in Service	Average Accum. Deprac.	Average Net Plant in Service	Average Acc. Def. Income Taxes	Average Rate Base	Rate of Return (Equity)	Rate of Return (Debt)	AFUDC	Operating Expenses	Book Deprec. Expense	Deferred Income Taxes	Salvage
0	2015	1,000	1,040	0	0	0	0	0	0	520	28	12	(40)	0.00	0	0	0
1	2016	1,000	1,082	0	1,082	541	0	531	4	527	28	12	(42)	0.00	20	8	0
2	2017	1,000	1,082	1,082	1,082	1,082	39	1,043	15	1,027	55	24	0	0.00	39	15	0
3	2018	1,000	1,082	1,082	1,082	1,082	79	1,003	29	974	53	23	0	0.00	39	12	0
4	2019	1,000	1,082	1,082	1,082	1,082	118	964	40	924	50	22	0	0.00	39	10	0
5	2020	1,000	1,082	1,082	1,082	1,082	157	924	50	875	47	20	0	0.00	39	8	0
6	2021	1,000	1,082	1,082	1,082	1,082	197	885	57	828	45	19	0	0.00	39	7	0
7	2022	1,000	1,082	1,082	1,082	1,082	236	846	63	783	42	18	0	0.00	39	5	0
8	2023	1,000	1,082	1,082	1,082	1,082	275	806	68	739	40	17	0	0.00	39	4	0
9	2024	1,000	1,082	1,082	1,082	1,082	315	767	71	686	38	16	0	0.00	39	3	0
10	2025	1,000	1,082	1,082	1,082	1,082	354	728	74	633	35	15	0	0.00	39	3	0
11	2026	1,000	1,082	1,082	1,082	1,082	393	688	78	611	33	14	0	0.00	39	3	0
12	2027	1,000	1,082	1,082	1,082	1,082	433	649	81	568	31	13	0	0.00	39	3	0
13	2028	1,000	1,082	1,082	1,082	1,082	472	610	85	525	28	12	0	0.00	39	3	0
14	2029	1,000	1,082	1,082	1,082	1,082	511	570	88	483	26	11	0	0.00	39	3	0
15	2030	1,000	1,082	1,082	1,082	1,082	551	531	91	440	24	10	0	0.00	39	3	0
16	2031	1,000	1,082	1,082	1,082	1,082	590	492	95	397	21	9	0	0.00	39	3	0
17	2032	1,000	1,082	1,082	1,082	1,082	629	452	98	354	19	8	0	0.00	39	3	0
18	2033	1,000	1,082	1,082	1,082	1,082	669	413	101	312	17	7	0	0.00	39	3	0
19	2034	1,000	1,082	1,082	1,082	1,082	708	374	105	269	14	6	0	0.00	39	3	0
20	2035	1,000	1,082	1,082	1,082	1,082	747	334	108	226	12	5	0	0.00	39	3	0
21	2036	1,000	1,082	1,082	1,082	1,082	787	295	107	188	10	4	0	0.00	39	(6)	0
22	2037	1,000	1,082	1,082	1,082	1,082	826	256	97	159	9	4	0	0.00	39	(15)	0
23	2038	1,000	1,082	1,082	1,082	1,082	865	216	82	135	7	3	0	0.00	39	(15)	0
24	2039	1,000	1,082	1,082	1,082	1,082	905	177	67	110	6	3	0	0.00	39	(15)	0
25	2040	1,000	1,082	1,082	1,082	1,082	944	138	52	86	5	2	0	0.00	39	(15)	0
26	2041	1,000	1,082	1,082	1,082	1,082	983	98	37	61	3	1	0	0.00	39	(15)	0
27	2042	1,000	1,082	1,082	1,082	1,082	1,023	59	22	37	2	1	0	0.00	39	(15)	0
28	2043	1,000	1,082	1,082	1,082	1,082	1,042	39	15	24	1	1	0	0.00	0	0	0
29	2044	1,000	1,082	1,082	1,082	1,082	1,062	15	15	1,067	58	25	0	0.00	0	0	0
	2045	1,000	1,082	1,082	1,082	1,082	0	1,082	15	1,067	58	25	0	0.00	1,042	15	0

Income Taxes	Property Taxes	Revenue Req.	PV Revenue Req.	PV of Book Deprec.	PV of Equity Return	PV of Debt Return	PV of AFUDC	PV of Operating Expenses	PV of Property Taxes	PV of Def. Taxes	PV of Income Taxes
17	0	17	17	0	28	12	(40)	0	0	0	17
9	8	44	41	18	27	11	(39)	0	7	7	9
19	8	160	140	34	49	21	0	0	7	13	17
19	8	154	127	32	43	19	0	0	6	10	16
20	8	149	114	30	38	17	0	0	6	8	15
20	8	143	103	28	34	15	0	0	6	6	14
20	8	138	93	26	30	13	0	0	5	5	14
21	8	133	84	25	27	11	0	0	5	3	13
21	8	128	76	23	23	10	0	0	5	2	12
19	8	124	68	22	21	9	0	0	4	2	11
18	8	119	61	20	18	8	0	0	4	2	9
17	8	114	55	19	16	7	0	0	4	2	8
15	8	110	50	18	14	6	0	0	4	2	7
14	8	105	44	17	12	5	0	0	3	1	6
12	8	100	40	16	10	4	0	0	3	1	5
11	8	96	35	15	9	4	0	0	3	1	4
10	8	91	32	14	7	3	0	0	3	1	3
8	8	86	28	13	6	3	0	0	3	1	3
7	8	82	25	12	5	2	0	0	2	1	2
5	8	77	22	11	4	2	0	0	2	1	2
4	8	72	19	10	3	1	0	0	2	1	1
12	8	68	17	10	3	1	0	0	2	(1)	3
20	8	65	15	9	2	1	0	0	2	(3)	5
19	8	62	14	9	2	1	0	0	2	(3)	4
18	8	59	12	8	1	1	0	0	2	(3)	4
18	8	57	11	8	1	0	0	0	2	(3)	3
17	8	54	10	7	1	0	0	0	1	(2)	3
16	8	51	9	7	0	0	0	0	1	(2)	3
1	8	11	2	0	0	0	0	0	1	0	0
35	8	125	18	0	8	4	0	0	1	0	5
463	229	2,795	1,381	460	442	191	(79)	0	99	51	217
Levelized Annual Revenue Requirement:											
As % of Original Cost											
11.27%											
3.76%											
3.61%											
1.56%											
-0.65%											
0.00%											
0.80%											
0.42%											
11.27%											

Salvage	BOY		EOY		Avg. Acc. Deferred Taxes	Tax Depreciation Rates	MACRS Half Year					
	Accum. Deferred Taxes	Accum. Deferred Taxes	Accum. Deferred Taxes	Accum. Deferred Taxes			3-year	5-year	7-year	10-year	15-year	20-year
0	0	0	0	0	0	1.82%	33.33%	20.00%	14.29%	10.00%	5.00%	3.75%
0	8	0	8	8	4	3.64%	44.45%	32.00%	24.49%	18.00%	9.50%	7.22%
0	15	8	23	23	15	3.64%	14.81%	19.20%	17.49%	14.40%	8.55%	6.68%
0	12	23	35	29	29	3.64%	7.41%	11.52%	12.49%	11.52%	7.70%	6.18%
0	10	35	45	45	40	3.64%	5.71%	5.76%	8.92%	7.37%	6.23%	5.29%
0	8	45	54	54	50	3.64%	5.29%		8.92%	6.55%	5.90%	4.89%
0	0	54	61	61	57	3.64%	4.89%		4.46%	6.55%	5.90%	4.89%
0	0	61	66	66	63	3.64%	4.52%		4.46%	6.55%	5.90%	4.52%
0	4	66	69	69	68	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	69	73	73	71	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	0	73	76	76	74	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	76	79	79	78	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	79	83	83	81	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	83	86	86	85	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	86	90	90	88	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	90	93	93	91	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	93	96	96	95	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	96	100	100	98	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	100	103	103	101	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	103	106	106	105	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	3	106	110	110	108	3.64%	4.46%		4.46%	6.55%	5.90%	4.46%
0	(6)	110	104	104	107	3.64%	2.23%		4.46%	6.55%	5.90%	4.46%
0	(15)	104	89	89	97	3.64%			4.46%	6.55%	5.90%	4.46%
0	(15)	89	74	74	82	3.64%			4.46%	6.55%	5.90%	4.46%
0	(15)	74	59	59	67	3.64%			4.46%	6.55%	5.90%	4.46%
0	(15)	59	45	45	52	3.64%			4.46%	6.55%	5.90%	4.46%
0	(15)	45	30	30	37	3.64%			4.46%	6.55%	5.90%	4.46%
0	(15)	30	15	15	22	0.00%			4.46%	6.55%	5.90%	4.46%
0	0	15	15	15	15	0.00%			4.46%	6.55%	5.90%	4.46%
0	0	15	15	15	15	96.36%			4.46%	6.55%	5.90%	4.46%
0	15	15	15	15	15				4.46%	6.55%	5.90%	4.46%

Northern States Power Company, a Minnesota corporation
Electric Utility - State of North Dakota
Derivation of Seasonal Loss Factors

50%

ENERGY LOSS FACTORS

(1) Summer On Peak	0.9446	0.9723
(2) Summer Off Peak	0.9511	0.9756
(3) Summer Average	0.9473	0.9737
(4) Winter On Peak	0.9414	0.9707
(5) Winter Off Peak	0.9477	0.9739
(6) Winter Average	0.9470	0.9735

DEMAND LOSS FACTOR

(7) Annual Average	0.9348	0.9674
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Source:
Information provided by Xcel Energy Load Research Dept.