



2302 Great Northern Drive  
Fargo, ND 58102

March 27, 2024

—Via Electronic Mail and U.S. Mail—

Steven M. Kahl, Executive Director  
North Dakota Public Service Commission  
State Capitol Building, Dept. 408  
600 East Boulevard  
Bismarck, ND 58505-0480

RE: 2023 METER TESTING RESULTS  
CASE NO. PU-24-\_\_\_\_ & PU-24-\_\_\_\_

Dear Mr. Kahl:

Northern States Power Company, doing business as Xcel Energy (Company), submits the enclosed original and seven copies of the summary results of the 2023 testing of the Company's North Dakota electric and natural gas meters, in compliance with sections 69.09.01.16 and 69.09.02.28 of the North Dakota Administrative Code.

A summary of the Company's 2023 electric meter testing results is provided as Attachment A. As a result of a 2015 Commission Staff review of our meter testing tariff, it was recommended the Company also include a more detailed report of our electric meter random test results for meters within the NSP-Minnesota operating company (serving the states of Minnesota, North Dakota, and South Dakota). That information is included as Attachment B.

Attachment C provides a summary of our 2023 natural gas meter testing results.

An electronic copy of this filing is also being sent to you for your convenience. Please contact me at [alex.j.nisbet@xcelenergy.com](mailto:alex.j.nisbet@xcelenergy.com) if you have any questions regarding this filing.

Sincerely,

/s/

ALEX NISBET  
REGULATORY POLICY SPECIALIST

Enclosures

**Xcel Energy - State of North Dakota  
Electric Meter Testing  
Summary of 2023 Results**

Meters	Acceptable <sup>1</sup>		Slow		Fast		No Register	
	#	%	#	%	#	%	#	%
<b>Random Sample Tests</b>								
Self-contained Single & Polyphase	141	100.0%	0	0.0%	0	0.0%	0	0.0%
Transformer-rated Single & Polyphase	40	100.0%	0	0.0%	0	0.0%	0	0.0%
Total Random Tests	181	100.0%	0	0.0%	0	0.0%	0	0.0%
<b>Periodic Tests</b>								
Transformer-rated Polyphase (>600V) <sup>2</sup>	37	100.0%	0	0.0%	0	0.0%	0	0.0%
Transformer-rated Polyphase (>1 MW) <sup>3</sup>	43	100.0%	0	0.0%	0	0.0%	0	0.0%
Total Periodic Tests	80	100.0%	0	0.0%	0	0.0%	0	0.0%
<b>2023 Electric Meter Tests:</b>	261	100.0%	0	0.0%	0	0.0%	0	0.0%

<sup>1</sup> Meters that test within acceptable tolerance have an average error within plus or minus 2% of accurate

<sup>2</sup> Meters in substations on primary services above 600 volts

<sup>3</sup> Meters with demands greater than 1 MW during the previous calendar year

See Section 3.1 *Metering and Testing* in Xcel Energy's North Dakota Electric Rate Book (NDPSC No. 2) for meter testing criterium and process.

Lots	Description (OPCO, Random Test, Manuf, Model, Test Code)	Manufacturer	Model	Form	Lot Size	Sample size ANSI_ASQ_Z1_9 (Inspection Level II)	New Buffer Sample Size Values Showing Requested Meters	Meters Requested	# of Meters Tested	Full Load Sigma	Bar-X	Full Load Bar-x	Full Load Estimated Percent Defect	Maximum Allowable Percent Defect	Full Load Pass/Fail
573	MN,RT,ABB,D5S,AC,SN	ABB Power	D5S	2S	1158	35	40	40	37	0.260	-0.249	99.751	0.000	5.580	Pass
882	MN,RT,SCHLUM,J5S,IF	Schlumberger	J5S	2S	57223	150	156	156	150	0.239	-0.046	99.954	0.000	4.420	Pass
1079	MN,RT,ABB,AB1,AI	ABB Power	AB1	1S	945	35	40	40	35	0.164	0.131	100.131	0.000	5.580	Pass
8001	MN,RT,SCHLUM,J4ES,AF	Schlumberger	J4ES	2S	765	35	40	40	40	0.434	0.289	100.289	0.000	5.580	Pass
8004	MN,RT,ABB,ABS-5U,MP	ABB Power	ABS-5U	12S	33237	100	105	105	101	0.299	0.139	100.139	0.000	4.670	Pass
8006	MN,RT,ABB,AB1,AG	ABB Power	AB1	4S	59	7	9	9	7	0.387	-0.196	99.804	0.000	8.400	Pass
8015	MN,RT,L&G,MTN12S,MP	Landys & Gyr	VMW65E	12S	3264	75	80	80	75	0.241	-0.147	99.853	0.000	4.830	Pass
8018	MN,RT,ABB,D45SU,MP	ABB Power	D45SU	12S	2844	50	54	54	51	0.315	0.130	100.130	0.000	5.210	Pass
8561	MN,RT,LANDIS&GYR,MQS	Landys & Gyr	VMW65E	3S	147	10	12	12	12	0.194	-0.030	99.970	0.000	7.260	Pass
8743	MN,RT,S,J5ES,AF,FM2S	Schlumberger	J5ES	2S	29	5	7	7	6	0.226	0.072	100.072	0.000	9.800	Pass
8745	MN,RT,W,A1D,TR,FM3S	ABB Power	A1D	3S	75	7	9	9	7	0.050	0.036	100.036	0.000	8.400	Pass
8747	MN,RT,W,A1D,TE,FM16S	ABB Power	A1D	16S	10182	100	105	105	100	0.053	-0.018	99.982	0.000	4.670	Pass
8748	MN,RT,W,A1D,TX,FM12S	ABB Power	A1D	12S	645	35	40	40	35	0.039	-0.017	99.983	0.000	5.580	Pass
8756	MN,RT,W,A1D,RJ,FM4S	ABB Power	A1D	4S	492	25	29	29	27	0.071	0.007	100.007	0.000	5.980	Pass
8773	MN,RT,W,A1R+,Y8,FM35S	ABB Power	A1R+	35S	32	5	7	7	6	0.028	-0.002	99.998	0.000	9.800	Pass
8779	MN,RT,G,V65S,BW,FM14S	General Electric	V65S	14S	9	3	5	5	5	0.293	-0.182	99.818	0.000	7.590	Pass
8837	MN,RT,W,A1R+,BA,FM6S	ABB Power	A1R+	6S	125	10	12	12	10	0.096	0.003	100.003	0.000	7.260	Pass
8849	MN,RT,D,AL,NX,FM2S	Landys & Gyr	AL	2S	180114	200	209	209	200	0.098	0.032	100.032	0.000	4.390	Pass
8850	MN,RT,D,AL,TX,FM12S	Landys & Gyr	AL	12S	71139	150	156	156	150	0.087	0.070	100.070	0.000	4.420	Pass
8857	MN,RT,D,AL,ALF,NY,FM2S	Landys & Gyr	AL (F)	2S	3923	75	80	80	78	0.095	0.005	100.005	0.000	4.830	Pass
8868	MN,RT,D,AL,ALF,TR,FM3S	Landys & Gyr	AL (F)	3S	56	7	9	9	9	0.047	0.019	100.019	0.000	8.400	Pass
8871	MN,RT,D,AL,ZS,FM1S	Landys & Gyr	AL	1S	745	35	40	40	36	0.071	0.017	100.017	0.000	5.580	Pass
8899	MN,RT,I,S,C1S,C1SC,C1SRC,2B,FM1S	Itron	C1S (C, RC)	1S	1651	50	54	54	51	0.208	-0.019	99.981	0.000	5.210	Pass
8901	MN,RT,E,W,A1T+,A1TL+,NX,FM2S	Elster	A1T+, A1TL+	2S	8722	75	80	80	75	0.451	-0.093	99.907	0.000	4.830	Pass
8902	MN,RT,E,A3R,A3RL,A3T,A3TL,NX,FM2S	Elster	A3R (L), A3T (L)	2S	8715	75	80	80	75	0.038	-0.028	99.972	0.000	4.830	Pass
8903	MN,RT,E,W,AB1,AC,FM2	Elster	AB1	2S	213883	200	209	209	200	0.385	-0.091	99.909	0.000	4.390	Pass
8904	MN,RT,I,S,C1S,C1SC,C1SRC,1N,FM2S	Itron	C1S (C, RC)	2S	456568	200	209	209	200	0.120	0.032	100.032	0.000	4.390	Pass
8905	MN,RT,S,J4S,AC,IF,FM2S	Schlumberger	J4S	2S	15243	100	105	105	100	0.387	-0.122	99.878	0.000	4.670	Pass
8906	MN,RT,E,W,A1T+,NY,TU,FM2S	Elster	A1T+	2S	2066	50	54	54	50	0.137	0.006	100.006	0.000	5.210	Pass
8907	MN,RT,E,A3R,A3RL,A3T,A3TL,NY,FM2S	Elster	A3R (L), A3T (L)	2S	809	35	40	40	39	0.047	-0.027	99.973	0.000	5.580	Pass
8908	MN,RT,I,C1S,C1SC,2J,FM2S	Itron	C1SC	2S	4255	75	80	80	78	0.163	0.076	100.076	0.000	4.830	Pass
8909	MN,RT,W,A1T+,A1TL+,TR,FM3S	ABB Power	A1T+, A1TL+	3S	117	10	12	12	11	0.134	0.025	100.025	0.000	7.260	Pass
8910	MN,RT,E,A3R,A3RL,A3T,A3TL,TR,FM3S	Elster	A3R (L), A3T (L)	3S	57	7	9	9	9	0.039	-0.012	99.988	0.000	8.400	Pass
8911	MN,RT,I,C1S,C1SC,2F,FM3S	Itron	C1SC	3S	1216	50	54	54	51	0.153	0.056	100.056	0.000	5.210	Pass
8912	MN,RT,E,W,A1T+,A1TL+,RJ,FM4S	Elster	A1T+, A1TL+	4S	2770	50	54	54	50	0.086	-0.008	99.992	0.000	5.210	Pass
8914	MN,RT,I,C1SRC,C1SC,2G,FM4S	Itron	C1SC, C1SRC	4S	1819	50	54	54	50	0.126	0.065	100.065	0.000	5.210	Pass
8918	MN,RT,I,S,CN1S,CN1SC,CN1SRC,2H,FM12S	Itron	CN1S, CN1SRC	12S	50771	150	156	156	150	0.132	-0.062	99.938	0.000	4.420	Pass
8920	MN,RT,D,MT14S,BW,CL,FM14S	Landys & Gyr	VMW65E	14S	327	20	23	23	20	0.275	0.140	100.140	0.000	6.180	Pass
8923	MN,RT,E,A3R,A3RL,A3T,A3TL,TE,FM16S	Elster	A3R (L), A3T (L)	16S	12445	100	105	105	100	0.033	-0.025	99.975	0.000	4.670	Pass
8926	MN,RT,W,A1R,A1R-AL,X8,FM36S	ABB Power	A1R, A1R-AL	36S	10	3	5	5	3	0.041	0.023	100.023	0.000	7.590	Pass
8927	MN,RT,E,W,A1R+,A1RL+,X8,FM36S	Elster	A1R+, A1RL+	36S	4045	75	80	80	75	0.067	-0.045	99.955	0.000	4.830	Pass
8936	MN,RT,E,A3R,A3RL,A3T,V0,FM12S	Elster	A3R (L), A3T	12S	56	7	9	9	9	0.042	-0.033	99.967	0.000	8.400	Pass
8937	MN,RT,E,A3R,A3T,A3TL,A3RL,A3R-AL,A3R-A,RJ,FM4S	Elster	A3R (AL), A3T (L)	4S	1306	50	54	54	50	0.046	-0.001	99.999	0.000	5.210	Pass
8938	MN,RT,E,A3R-AL,A3R,A3R-A,ON,Y8,FM5/35S	Elster	A3R (AL)	5S	84	7	9	9	7	0.028	-0.051	99.949	0.000	8.400	Pass
8939	MN,RT,E,A3T,A3TL,A3RL,N5,FM1S	Elster	A3T (L), A3RL	1S	123	10	12	12	12	0.032	-0.038	99.962	0.000	7.260	Pass
8940	MN,RT,W,A1T+,A1R-A,V0,FM12S	ABB Power	A1T+, A1R-A	12S	19	4	6	6	5	0.066	0.016	100.016	0.000	10.880	Pass
8942	MN,RT,E,W,A1T+,N5,FM1S	Elster	A1T+,A1R-A	1S	7	3	5	5	5	0.121	-0.042	99.958	0.000	7.590	Pass
8943	MN,RT,E,W,A1R-A,NY,FM2S	Elster	A1R-A	2S	4	3	4	4	4	0.059	-0.163	99.837	0.000	7.590	Pass
8945	MN,RT,E,W,A1R+,KZ,FM9S	Elster	A1R+	9S	17235	100	105	105	100	0.202	-0.046	99.954	0.000	4.670	Pass
8950	MN,RT,W,A1R,A1R-A,A1R-AL,BA,FM6S	ABB Power	A1R,A1R-A,A1R-AL	6S	6	3	5	5	3	0.030	-0.010	99.990	0.000	7.590	Pass
8951	MN,RT,L&G,MS,AC	Landys & Gyr	MS	2S	74649	150	156	156	150	0.226	-0.043	99.957	0.000	4.420	Pass
8952	MN,RT,GE,I70S,AC	General Electric	I70S	2S	104154	150	156	156	150	0.185	-0.069	99.931	0.000	4.420	Pass
8959	MN,RT,D,AL,ALF,RJ,FM4S	Landys & Gyr	AL (F)	4S	487	25	29	29	26	0.071	0.031	100.031	0.000	5.980	Pass
8960	MN,RT,E,A3R,A3R-A,A3R-AL,A3RL,A3T,A3TL,Y1,FM16S	Elster	A3R (AL), A3T (L)	16S	2105	50	54	54	50	0.032	-0.036	99.964	0.000	5.210	Pass
8961	MN,RT,E,A3T,A3TL,A3R,TX,FM12S	Elster	A3T (L), A3R	12S	1813	50	54	54	50	0.101	-0.009	99.991	0.000	5.210	Pass
8965	MN,RT,D,RXRE-SD,NX,FM2S	Landys & Gyr	RXRE-SD	2S	15499	100	105	105	100	0.059	0.057	100.057	0.000	4.670	Pass
8966	MN,RT,D,RXRE-SD,TX,FM12S	Landys & Gyr	RXRE-SD	12S	927	35	40	40	38	0.040	0.021	100.021	0.000	5.580	Pass
8967	MN,RT,S,S5S,S15S,QM,CL,BW,FM14S	Schlumberger	S5S, S15S	14S	38	5	7	7	5	0.414	0.556	100.556	0.000	9.800	Pass
8968	MN,RT,E,W,A3R,A3R-A,A3R-AL,A3R-ALNCQ,A3R-ALNCQ,A3R-AL, KZ, FM9S	Elster	A3R (ALNCQ), A3R-ALNCQ	9S	12908	100	105	105	100	0.070	0.000	100.000	0.000	4.670	Pass
8969	MN,RT,SCHLUMBERGER,SL12S,S12S,S2S,FM12S	Schlumberger	SL12S, S12S, S2S	12S	6634	75	80	80	76	0.259	0.276	100.276	0.000	4.830	Pass
8970	MN,RT,E,W,A1T+,A1D+,TX,FM12S	Elster	A1D+, A1T+	12S	14006	100	105	105	101	0.092	-0.065	99.935	0.000	4.670	Pass
8971	MN,RT,D,MSE,MS2SE,AF,FM2S	Landys & Gyr	MSE, MS2SE	2S	57	7	9	9	9	0.218	-0.092	99.908	0.000	8.400	Pass
8972	MN,RT,E,W,A1T+,A1D+,TE,FM16S	Elster	A1D+, A1T+	16S	18919	100	105	105	100	0.117	-0.039	99.961	0.000	4.670	Pass
8973	MN,RT,W,A1R,A1R-A,A1R-AL,KZ,FM9S	Elster	A1R (AL)	9S	43	5	7	7	5	0.091	-0.014	99.986	0.000	9.800	Pass
8974	MN,RT,E,W,A1T+,A1R-A,Y1,FM16S	Elster	A1T+, A1R-A	16S	250	15	18	18	15	0.098	-0.075	99.925	0.000	6.550	Pass
8975	MN,RT,E,A3R-AL,A3R,A3R-A,A3R-ALNCQ,BA,X8,FM6/36S	Elster	A3R (ALNCQ)	6S, 36	2022	50	54	54	50	0.050	-0.026	99.974	0.000	5.210	Pass
9003	MN,RT,I,RN2SID,RN2SID-NL,2H,FM12S	Itron	RN2SID,RN2SID-NL	12S	14597	100	105	105	101	0.049	0.049	100.049	0.000	4.670	Pass
9004	MN,RT,I,RN2SID,RN2SID-NL,1N,FM2S	Itron	RN2SID,RN2SID-NL	2S	130232	150	156	156	150	0.052	0.084	100.084	0.000	4.420	Pass
9005	MN,RT,I,R2SID,6J,FM1S	Itron	R2SID	1S	269	15	18	18	16	0.040	0.129	100.129	0.000	6.550	Pass

**Xcel Energy - North Dakota  
Gas Meter Testing  
Summary of 2023 Results**

**Meters with a capacity less than 400 Cubic feet per hour (CFH)  
(Residential size meters)**

	<u>#</u>	<u>%</u>
Total Number of Meters Tested.....	431	
Meters Tested Within Tolerance <sup>1</sup> .....	396	91.9%
Meters Tested Slow <sup>2</sup> .....	9	2.1%
Meters Tested Fast <sup>3</sup> .....	26	6.0%

**Meters with a capacity of 400 CFH through 999 CFH  
(Small commercial size meters)**

	<u>#</u>	<u>%</u>
Total Number of Meters Tested.....	22	
Meters Tested Within Tolerance <sup>1</sup> .....	20	90.9%
Meters Tested Slow <sup>2</sup> .....	1	4.5%
Meters Tested Fast <sup>3</sup> .....	1	4.5%

**Meters with a capacity greater than 999 CFH  
(Large commercial/industrial size meters)**

	<u>#</u>	<u>%</u>
Total Number of Meters Tested.....	122	
Meters Tested Within Tolerance <sup>1</sup> .....	120	98.4%
Meters Tested Slow <sup>2</sup> .....	1	0.8%
Meters Tested Fast <sup>3</sup> .....	1	0.8%

Meters are tested at two flow rates. The accuracy is the average of the two tests.

<sup>1</sup> Meters that test within tolerance have an average error within plus or minus 2% of accurate

<sup>2</sup> Meters that test slow (undermeasuring), have an average error greater than minus 2% of accurate

<sup>3</sup> Meters that test fast (overmeasuring), have an average error greater than plus 2% of accurate