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

December 1, 2015

--Via U.S. Mail and Electronic Filing--

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

RE: UPDATE - ELECTRIC METERING AND TESTING TARIFF MODIFICATION
CASE NO. PU-15-633

Dear Mr. Nitschke:

Northern States Power Company, doing business as Xcel Energy, submits the attached revisions to the miscellaneous meter testing tariff filing made August 10, 2015. These revisions reflect Commission staff's input after their review and inquiry regarding the proposed meter testing process changes.

As we indicated in our original application, the purpose of the revised tariff is to align the language more closely with changes we are making in our meter testing practices to improve efficiency and effectiveness. The further revisions being submitted with this letter will supplant the original proposed tariff sheets.

We thank the Staff for their helpful insights, and we are hopefull that the Commission will approve the tariffs as soon as is practical. If you have any questions concerning this update, feel free to contact me at 701-241-8632.

Sincerely,

David H Sederquist

DAVID H. SEDERQUIST
SENIOR REGULATORY AND FINANCIAL CONSULTANT

cc: Sara Cardwell

Legislative

SECTION 3 METERING AND BILLING

3.1 METERING AND TESTING

Metering
The Company will furnish, install, and maintain one set of metering equipment for each ~~account~~ service location and rate schedule under which service is supplied. The location, number of meters and appurtenances, and specifics of installation will depend on the service arrangements and requirements of the rate schedules.

Customer Request for Meter Testing
The customer may request ~~the Company to test its~~a meter test. If the request to test a meter is made within one year of a previous meter test, a charge will be added to customer's bill if the metering equipment tests accurate in accordance with ~~the Public Service~~ Commission standards. The charge ~~must~~will be waived if the meter error is more than plus or minus two percent.

The Company will test an electric meter within ten calendar days of receiving a customer request to test a meter. In the event that the Company fails to investigate a potentially malfunctioning meter within this timeframe and the meter is later determined to be malfunctioning, the customer will not be rebilled for any discrepancy in the amount owed for service provided from the date the customer contacted the Company about their meter to the date the meter was investigated.

Meter Error
In the event the Company's test shows meter error in excess of accepted or prescribed tolerance, the Company will adjust the bills for service during the period of registration error ~~equal to~~ defined as one-half the time elapsed since the ~~most recent~~last previous meter test, ~~but not to This period shall not~~ exceed six months. Adjustments shall be based on actual monthly consumptions.

If the average meter error cannot be determined because of failure of part or all of the metering equipment, the customer shall pay an amount based upon registration of check metering equipment or an estimated amount based upon the customer's consumption for comparable operations over a similar period. Any adjustment because of metering equipment failure shall be from the date of the metering equipment failure, if known, or if not known, for a period equal to one-half the time elapsed since the last previous meter test, but not to exceed six months.

~~**Testing Process for New Electric Meters (Single Phase and Polyphase)**~~
~~New meters, whether single phase or polyphase, self-contained or transformer rated, are normally sample-tested (where a random selection of meters from a lot is tested every year and the condition of the sample is used to determine the performance of the group and whether or not it remains in service) for accuracy when they are received from the supplier. The Company requires the meter supplier to provide certified test data for all new meters demonstrating the "as-left" calibration for each meter is within the Company's accuracy requirements.~~

(Continued on Sheet No. ~~6-14~~6-13.1)

~~New transformer rated meter installations are also checked within sixty days of being energized and having customer load connected to ensure proper installation. This procedure is normally repeated if the current transformers and/or voltage transformers are replaced.~~ M M M

(Continued on Sheet No. ~~6-14~~6-13.1)

3.1 METERING AND TESTING (Continued)

Testing Process for New Electric Meters (Single Phase and Polyphase) M

New meters, whether single phase or polyphase, self-contained or transformer rated, are normally sample tested ~~(where a random selection of meters from a lot is tested every year and the condition of the sample is used to determine the performance of the group and whether or not it remains in service)~~ D for accuracy when D they are received from the supplier. The Company requires the meter supplier to provide certified test data for all new meters demonstrating the "as left" calibration for each meter is within the Company's accuracy requirements.

New transformer rated meter installations are also checked within sixty days of being energized and having customer load connected to ensure proper installation. This procedure is normally repeated if the current transformers and/or voltage transformers are replaced. M

(Continued on Sheet No. 6-14)

3.1 METERING AND TESTING (Continued)

Testing Process for In-Service Meters

In-service meters are either sample tested or ~~periodically~~ tested annually~~(where all the meters in a defined grouping are tested within a certain period)~~ depending on meter type as indicated in the following table:

Type of Meter	Type of Testing
Self-contained single and polyphase	Sample – yearly
Transformer-rated single and polyphase	Sample – yearly
Transformer-rated polyphase meters in substations on primary services (services above 600V)	Periodic – yearly
Transformer-rated polyphase meters with demands greater than 1MW (during previous calendar year)	Periodic – yearly
~~Self-contained single-phase, non-demand~~	~~Sample – yearly~~
~~Self-contained single-phase, demand~~	~~Periodic – 16 years~~
~~Transformer-rated single-phase, non-demand~~	~~Sample – yearly~~
~~Transformer-rated single-phase, demand~~	~~Periodic – 16 years~~
~~Self-contained polyphase, non-demand~~	~~Sample – yearly~~
~~Self-contained polyphase, demand~~	~~Periodic – 16 years~~
~~Transformer-rated polyphase, non-demand~~	~~Periodic – 16 years~~
~~Transformer-rated polyphase, demand~~	~~Periodic – 16 years~~
~~Self-contained and transformer-rated time-of-use (TOU) and/or recording meters and battery-equipped devices~~	~~Periodic – 8 years~~

1. Sample Testing Program

Meters to be sample tested on a yearly basis are placed in groups, or "lots." These lots are defined ~~by~~ based on the manufacturer, model type, and the industry standard test code. Each lot may be further separated into additional lots by individual or combinations of parameters such as serial number~~s~~, purchase date, firmware revision, etc.

ANSI/ASQC Z1.9 Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming is a sampling plan that specifies procedures by which an analysis of failures in a limited sample can determine the expected failure rate of an entire population. The Company uses tables from the ANSI/ASQC plan to evaluate the performance of in-service meters that have been grouped into lots for random sample testing. Testing is performed in accordance with ANSI/ASQC Z1.9, Inspection Level II with an acceptable quality level of 2.5 or better and specification limits of +/- 2%.

If a sample ~~unexpectedly fails~~does not meet acceptance criteria, ~~for the first time, the Company will observe the test results for unusual test data or individual test results that are several standard~~

(Continued on Sheet No. 6-15)

~~deviations from the mean. If anomalies have occurred, and are the reason for the lot to fail, the Company will monitor the lot more closely in subsequent years. O~~one of the~~ree~~ options below will~~may~~ be employed:

1) ~~a second sample may be taken and tested,~~If in the following year the lot sample does not meet acceptance criteria, the lot will be replaced over the next four years. Sample testing will continue during this removal period. If any subsequent sample tests meet acceptance criteria, the meter removal will be discontinued.

2) ~~t~~The lot ~~may~~ will be separated by an additional parameter ~~such as~~(e.g. serial number) and retested as multiple lots in the following year~~subsequent years, or~~. If any subdivided lot does not meet acceptance criteria, it will be replaced over the next four years. Sample testing will be continued during this removal period. If any subsequent sample tests meet acceptance criteria, the meter removal will be discontinued.

3) ~~the lot may be left as is. If the lot fails again, analysis of the cause of failure is made to determine appropriate remedial action. If necessary, removal of a failed lot is accomplished as soon as practicable by the Company's normal operating personnel.~~

C

C

(Continued on Sheet No. 6-15)

3.1 METERING AND TESTING (Continued)

Testing Process for In-Service Meters (Continued)

As meters are tested in the sample testing plan, individual meters are calibrated – if their design permits – ~~if~~when the "as found" test results show an error greater than +/- 0.5% during either the full load or light load test. If the meter design does not accommodate calibration, the meters are removed and retired. Meters that require electronic reconfiguration due to their installation application will be individually re-programmed~~:~~, calibration tested, and demand checked~~/tested~~ as appropriate. T T N T

2. Periodic (Annual) Testing Program C
Meters that are on a periodic (annual) schedule may be tested and re-installed, tested and retired, or placed on a retirement list prior to their required test date based on the lot's performance or other factors impacting the Company's meter management decisions. As meters are tested in the periodic testing plan, individual meters are calibrated – if design permits – if the "as found" test results show an error greater than +/- 0.5% during either the full load or light load test. Otherwise, they are removed and retired. Meters that require electronic reconfiguration due to their installation application will be individually re-programmed; calibration tested, and demand checked/tested as appropriate. C N

Testing Process for Reconditioned Meters

~~1. Mechanical Meters~~ D

Meters are retired if the "as found" test results show an error greater than +/- 0.5% during either the full load or light load test. Re-serviceable meters removed from a customer premise are reconditioned by cleaning, testing, and calibration prior to re-installation. ~~Meters are calibrated if the "as found" test results show an error greater than +/- 0.5% during either the full load or light load test.~~ C C C

~~2. Electronic Meters~~ D

~~Re-serviceable meters removed from a customer premise are reconditioned by cleaning, re-programming, and testing prior to re-installation. Many electronic meters have no calibration adjustment, but if possible they are calibrated if the "as found" test results show an error greater than +/- 0.5% during either the full load or light load test. If the meter has no calibration adjustment, and is found to be more than +/- 1.0% inaccurate, it is retired or repaired.~~

~~Customers may contact the Company to report a concern with the accuracy of their electric meter. The Company will investigate an electric meter within ten calendar days of receiving a report from a customer questioning its accuracy. In the event that the Company fails to investigate a potentially malfunctioning meter within ten days of the customer's contact, and the meter is later found to be malfunctioning, it will not rebill for any discrepancy in the amount owed for service occurring between when the customer contacted the Company regarding a concern with their meter and when the meter was investigated.~~ D

Non-Legislative

SECTION 3 METERING AND BILLING

3.1 METERING AND TESTING

Metering

The Company will furnish, install, and maintain one set of metering equipment for each service location and rate schedule under which service is supplied. The location, number of meters and appurtenances, and specifics of installation will depend on the service arrangements and requirements of the rate schedules. T

Customer Request for Meter Testing

The customer may request a meter test. If the request to test a meter is made within one year of a previous meter test, a charge will be added to customer's bill if the metering equipment tests accurate in accordance with Commission standards. The charge will be waived if the meter error is more than plus or minus two percent. T T T

The Company will test an electric meter within ten calendar days of receiving a customer request to test a meter. In the event that the Company fails to investigate a potentially malfunctioning meter within this timeframe and the meter is later determined to be malfunctioning, the customer will not be rebilled for any discrepancy in the amount owed for service provided from the date the customer contacted the Company about their meter to the date the meter was investigated. N N N N N

Meter Error

In the event the Company's test shows meter error in excess of accepted or prescribed tolerance, the Company will adjust the bills for service during the period of registration error defined as one-half the time elapsed since the last previous meter test, but not to exceed six months. Adjustments shall be based on actual monthly consumptions. T T

If the average meter error cannot be determined because of failure of part or all of the metering equipment, the customer shall pay an amount based upon registration of check metering equipment or an estimated amount based upon the customer's consumption for comparable operations over a similar period. Any adjustment because of metering equipment failure shall be from the date of the metering equipment failure, if known, or if not known, for a period equal to one-half the time elapsed since the last previous meter test, but not to exceed six months.

M

(Continued on Sheet No. 6-13.1)

3.1 METERING AND TESTING (Continued)

Testing Process for New Electric Meters (Single Phase and Polyphase) M

New meters, whether single phase or polyphase, self-contained or transformer rated, are normally sample tested for accuracy when they are received from the supplier. The Company requires the meter supplier to provide certified test data for all new meters demonstrating the "as left" calibration for each meter is within the Company's accuracy requirements. D

New transformer rated meter installations are also checked within sixty days of being energized and having customer load connected to ensure proper installation. This procedure is normally repeated if the current transformers and/or voltage transformers are replaced. M

(Continued on Sheet No. 6-14)

3.1 METERING AND TESTING (Continued)

Testing Process for In-Service Meters

In-service meters are either sample tested or tested annually depending on meter type as indicated in the following table:

Type of Meter	Type of Testing
Self-contained single and polyphase	Sample – yearly
Transformer-rated single and polyphase	Sample – yearly
Transformer-rated polyphase meters in substations on primary services (services above 600V)	Periodic – yearly
Transformer-rated polyphase meters with demands greater than 1MW (during previous calendar year)	Periodic – yearly

1. Sample Testing Program

Meters to be sample tested on a yearly basis are placed in groups, or "lots." These lots are defined based on the manufacturer, model type, and the industry standard test code. Each lot may be further separated into additional lots by individual or combinations of parameters such as serial number, purchase date, firmware revision, etc.

ANSI/ASQC Z1.9 Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming is a sampling plan that specifies procedures by which an analysis of failures in a limited sample can determine the expected failure rate of an entire population. The Company uses tables from the ANSI/ASQC plan to evaluate the performance of in-service meters that have been grouped into lots for random sample testing. Testing is performed in accordance with ANSI/ASQC Z1.9, Inspection Level II with an acceptable quality level of 2.5 or better and specification limits of +/- 2%.

If a sample does not meet acceptance criteria, one of the options below will be employed:

1) If in the following year the lot sample does not meet acceptance criteria, the lot will be replaced over the next four years. Sample testing will continue during this removal period. If any subsequent sample tests meet acceptance criteria, the meter removal will be discontinued.

2) The lot will be separated by an additional parameter (e.g. serial number) and retested as multiple lots in the following year. If any subdivided lot does not meet acceptance criteria, it will be replaced over the next four years. Sample testing will be continued during this removal period. If any subsequent sample tests meet acceptance criteria, the meter removal will be discontinued.

(Continued on Sheet No. 6-15)

3.1 METERING AND TESTING (Continued)

Testing Process for In-Service Meters (Continued)

As meters are tested in the sample testing plan, individual meters are calibrated – if their design permits – when the "as found" test results show an error greater than +/- 0.5% during either the full load or light load test. If the meter design does not accommodate calibration, the meters are removed and retired. Meters that require electronic reconfiguration due to their installation application will be individually re-programmed, calibration tested, and demand checked as appropriate. T T N T

2. Periodic (Annual) Testing Program C

Meters that are on a periodic (annual) schedule may be tested and re-installed, tested and retired, or placed on a retirement list prior to their required test date based on the lot's performance or other factors impacting the Company's meter management decisions. As meters are tested in the periodic testing plan, individual meters are calibrated – if design permits – if the "as found" test results show an error greater than +/- 0.5% during either the full load or light load test. Otherwise, they are removed and retired. Meters that require electronic reconfiguration due to their installation application will be individually re-programmed; calibration tested, and demand checked/tested as appropriate. C N

Testing Process for Reconditioned Meters

Meters are retired if the "as found" test results show an error greater than +/- 0.5% during either the full load or light load test. Re-serviceable meters removed from a customer premise are reconditioned by cleaning, testing, and calibration prior to re-installation. C C D