

June 7, 2019

Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 280
St. Paul, Minnesota 55101-2147

RE: **Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. E002/M-19-261

Dear Mr. Wolf:

Attached are the Comments of the Minnesota Department of Commerce, Division of Energy Resources (Department) in the following matter:

2018 Annual Electric Service Quality Report (Report) submitted by Northern States Power Company, d/b/a Xcel Energy (Xcel or the Company).

The 2018 Report was filed on April 1, 2019 by:

Gail Baranko
Manager, Regulatory Project Management
Xcel Energy
414 Nicollet Mall
Minneapolis, Minnesota 55401

At this time, the Department recommends that the Minnesota Public Utilities Commission (Commission) **accept Xcel's Report; the Department will provide a recommendation regarding the Company's proposed reliability goals for 2019 after reviewing information requested to be provided in Xcel's Reply Comments.**

The Department is available to answer any questions that the Commission may have.

Sincerely,

/s/ DANIEL BECKETT
Public Utilities Rates Analyst

DB/ja
Attachment



Before the Minnesota Public Utilities Commission

Comments of the Minnesota Department of Commerce Division of Energy Resources

Docket No. E002/M-19-261

I. BACKGROUND

Minnesota Rules, Chapter 7826 were developed as a means for the Minnesota Public Utilities Commission (Commission) to establish safety, reliability and service quality standards for utilities “engaged in the retail distribution of electric service to the public” and to monitor their performance as measured against those standards. There are three main annual reporting requirements set forth in the rule. These are:

- the annual safety report (Minnesota Rules, part 7826.0400);
- the annual reliability report (Minnesota Rules, parts 7826.0500, subp. 1 and 7826.0600, subp. 1); and
- the annual service quality report (Minnesota Rules, part 7826.1300).

In addition to the rule requirements, the Commission’s March 19, 2019 Order in Docket No. E002/M-18-239 directed Northern States Power Company, a Minnesota corporation (Xcel or the Company) to provide the following information in future annual reports:

- A. Non-normalized SAIDI [System Average Interruption Duration Index], SAIFI [System Average Interruption Frequency Index], and CAIDI [Customer Average Interruption Duration Index] values;
- B. SAIDI, SAIFI, and CAIDI values calculated using the [Institute of Electrical and Electronics Engineers] IEEE 2.5 beta method;
- C. CEMI [Customer Experiencing Multiple Interruptions] – at normalized and non-normalized outage levels of 4, 5, and 6;
- D. CELI [Customers Experiencing Lengthy Interruptions] – at intervals of greater than 6 hours, 12 hours, and 24 hours;
- E. CELI;
- F. Estimated restoration times;
- G. IEEE benchmarking;
- H. Performance by customer class; and
- I. More discussion of leading causes of outages and mitigation strategies.

Further, the Commission required Xcel to provide, in its next annual report (the 2018 Report), “a discussion of how grid modernization initiatives could impact reliability metrics and what technologies are needed to advance tracking of additional metrics.”

On May 14, 2019, the Commission issued its *Order Accepting Reports, Setting Filing Requirements, and Granting Withdrawal of Reconnect Pilot Proposal* in Docket Nos. E002/M-18-239, E017/M-18-247, and E015/M-18-250 requiring the utilities to provide additional information, but not until the 2020 report.

On April 1, 2019, Xcel filed a petition (2018 Report) to comply with Minnesota Rules Chapter 7826 and the Commission’s Orders.

II. SUMMARY OF REPORT AND DEPARTMENT ANALYSIS

The Department reviewed Xcel’s 2018 Report to assess compliance with Minnesota Rules Chapter 7826. The Department used information from past annual reports to facilitate identification of issues and trends regarding Xcel’s performance.

A. ANNUAL SAFETY REPORT

The annual safety report consists of two parts:¹

- A. a summary of all reports filed with the United States Occupational Safety and Health Administration (OSHA) and the Occupational Safety and Health Division of the Minnesota Department of Labor and Industry (OSHD) during the calendar year; and
- B. a description of all incidents during the calendar year in which an injury requiring medical attention or property damage resulting in compensation occurred as a result of downed wires or other electrical system failures and all remedial action taken as a result of any injuries or property damage described.

Xcel provided summaries of 2018 data requested by the U.S. Department of Labor. This information reflects safety information on a random selection of the Company’s plants and is therefore not necessarily comparable year to year.

Xcel reported no payments in compensation for injuries requiring medical attention resulting from downed wires or other electrical system failures in 2018.

Table 1 summarizes Xcel’s most recent and past reports regarding property damage claims.²

¹ Minnesota Rules, part 7826.0400, available at: <https://www.revisor.mn.gov/rules/?id=7826.0400>

² Department’s calculations based on data provided in Attachment B of the Report.

Table 1: Property Damage Reimbursement

Year	Claims	Total Amount Paid
2005	184	\$202,574.46
2006	122	\$111,378.90
2007	132	\$203,633.50
2008	61	\$210,770.02
2009	85	\$163,760.17
2010	107	\$147,886.24
2011	128	\$356,107.39
2012	88	\$135,836.53
2013	110	\$184,083.70
2014	92	\$137,610.16
2015	90	\$185,584.32
2016	47	\$111,289.98
2017	50	\$135,844.06
2018	79	\$147,754.08

The Department notes that property damage due to overhead conductors has been the most costly category for eight of the last 16 years. Overall, the number of claims and the amounts paid have stayed within a relatively consistent range, and do not show any indication of systematic increases.

B. ANNUAL RELIABILITY REPORT

Minnesota Rules, part 7826.0500 requires each utility to file an annual report that includes the following information:³

1. reliability performance (subpart 1.A, 1.B and 1.C),
2. storm-normalization method (subpart 1.D),
3. action plan for remedying any failure to comply with reliability goals (subpart 1.E),
4. bulk power supply interruptions (subpart 1.F),
5. major service interruptions (subpart 1.G),
6. circuit interruption data (subpart 1.H),
7. known instances in which nominal voltages did not meet American National Standards Institute standards (subpart 1.I),
8. work center staffing levels (subpart 1.J), and
9. any other relevant information (subpart 1.K).

³ Minnesota Rules, part 7826.0500, available at: <https://www.revisor.mn.gov/rules/?id=7826.0500>

1. Reliability Performance

Xcel described the method it used to calculate reliability performance and provided a table showing its 2018 reliability performance in comparison with the goals the Commission set in Docket No. E002/M-18-239.⁴ The Department notes that the numbers provided by Xcel from page 8 of its Report detailing 2018 performance were calculated using a different storm normalization method than the method used in previous reports. The Company used the 2.5 beta method outlined in IEEE 1366-2012 (IEEE 1366 method) for calculating its 2018 reliability statistics.⁵ Xcel stated:⁶

The table below presents our 2018 reliability performance results, calculated under the new method, compared to the standards approved by the Commission in its March 19, 2019 Order had the standards been calculated under the newly adopted method.

As noted above, the Department notes that the Commission's March 19, 2019 Order required Xcel to provide, among other additional information, SAIDI, SAIFI and CAIDI based on non-storm normalized data and on data normalized using the IEEE 1366 method; however the Order does not require a change in how Xcel's goals are set or require Xcel to discontinue use of its prior storm normalization method. The Department does not necessarily oppose Xcel shifting to the IEEE 1366 method, but in order to assess Xcel's compliance with the Commission-approved 2018 goals, the Department requests that Xcel provide its 2018 performance based on the storm normalization method used in setting the Commission-approved 2018 goals.

Table 2 below reflects the information provided by Xcel reflecting use of the IEEE 1366 storm normalization method.

⁴ The reliability indices (CAIDI = Customer Average Interruption Duration Index, SAIDI = System Average Interruption Duration Index, and SAIFI = System Average Interruption Frequency Index) used in this section are defined under Minnesota Rules, part 7826.0200, subparts 4, 10 and 11, available at:

<https://www.revisor.mn.gov/rules/?id=7826.0200>

⁵ Xcel uses the IEEE 1366 storm normalization method in calculations pertaining to its Service Quality tariff (see Section No. 6, Sheet Nos. 7.1-7.11 of its Minnesota Electric Rate Book).

⁶ 2018 Report, page 7.

Table 2: Xcel's 2018 Reliability Performance Compared with Goals⁷

		2018 Performance	2018 Proposed Goals
Metro East	SAIDI	103.69	86.05
	SAIFI	0.93	0.85
	CAIDI	111.74	101.31
Metro West	SAIDI	83.26	85.71
	SAIFI	0.87	0.84
	CAIDI	95.47	102.56
Northwest	SAIDI	109.34	83.48
	SAIFI	0.87	0.77
	CAIDI	126.05	107.83
Southeast	SAIDI	118.80	94.82
	SAIFI	0.92	0.76
	CAIDI	129.64	122.04

The Department notes that the differences in SAIDI, SAIFI, and CAIDI using the two different storm normalization methods do not appear to be significant, based on the limited information provided by Xcel.⁸ Therefore, the performance results shown in Table 2 above may be similar to the results under the former normalization method. Table 3 below shows Xcel's performance over the four year period of 2014 to 2017 under both methods of storm normalization.

Table 3: IEEE 1366 and Previous Storm Normal Performance

		2014		2015		2016		2017	
		IEEE	Previous	IEEE	Previous	IEEE	Previous	IEEE	Previous
Metro East	SAIDI	79.73	79.73	93.73	101.38	95.52	84.89	76.22	66.17
	SAIFI	0.86	0.86	0.90	0.92	0.87	0.82	0.76	0.69
	CAIDI	92.46	92.46	104.25	109.67	109.70	102.91	100.48	95.33
Metro West	SAIDI	83.02	83.02	90.95	90.95	83.64	83.64	69.51	69.51
	SAIFI	0.84	0.84	0.84	0.84	0.82	0.82	0.71	0.71
	CAIDI	98.50	98.50	108.44	108.44	101.43	101.43	97.84	97.84
Northwest	SAIDI	82.80	82.80	75.58	75.27	85.81	119.36	75.77	75.77
	SAIFI	0.82	0.82	0.66	0.65	0.70	0.80	0.76	0.76
	CAIDI	101.02	101.02	115.39	115.32	122.38	149.53	100.28	100.28
Southeast	SAIDI	103.45	129.20	86.51	82.96	110.23	103.28	96.33	87.67
	SAIFI	0.80	0.81	0.75	0.72	0.85	0.81	0.84	0.80
	CAIDI	129.20	158.78	115.16	115.64	130.02	126.85	114.73	109.73

The Department addresses the data comparability issue further below.

⁷ Table at page 8 of the 2018 Report.

⁸ See Report's Attachment L for 2014 – 2018 SAIDI, SAIFI, and CAIDI using IEEE 1366 method, and Attachment L in Xcel's 2017 Report in Docket No. E002/M-18-239 for SAIDI, SAIFI, and CAIDI for 2013 – 2017 using the previous storm normal method.

The numbers in bold in Table 2 indicate performance that did not meet its respective goal. Xcel missed all but two of its goals in 2018. Xcel indicated that adverse weather was the most significant contributing factor to the 2018 reliability results. The Department addresses Xcel's proposed action plan to improve reliability below.

The Department acknowledges Xcel's fulfillment of the requirements of Minnesota Rules, part 7826.0500, subparts 1.A, 1.B, and 1.C.

2. Storm-Normalization Method

As noted above, the Company stated that it used the IEEE 1366 storm day threshold calculation procedures for its 2018 data. Using the previous five years of outage history for each region, Xcel identified the storm day threshold by:

- calculating the daily SAIDI;
- calculating the natural log of each daily SAIDI; and
- calculating the average and standard deviation of the natural logs.

A Major Event Day (MED) is one in which the outages met or exceeded the storm-day threshold. Xcel reported that its reliability data is normalized to account for major storms by removing outages that start on an MED.

The Company noted that, in 2018, most regions experienced significant storm-related impacts that had negative effects on its reliability statistics. The Company also noted that it expects to achieve its goals half of the time, while missing its goals the other half. While 2018 was a year in which the Company achieved well below 50 percent of its goals across all of its regions, over the last 14 years, the Company has seen a 60 percent success rate in achieving its goals.

The Department acknowledges Xcel's fulfillment of the requirements of Minnesota Rules, part 7826.0500, subp. 1.D.

3. Action Plan to Improve Reliability

As shown in Table 2 above, Xcel met two of its twelve goals in its work centers in 2018.

Xcel stated that its Reliability Management Program (RMP), and the investments made as a result of it, are maintain appropriate levels of overhead and underground system performance. The Company stated that its Feeder Performance Improvement Plan and Outage Exception

Reporting Tool have contributed to performance improvements and aided in the mitigating of potential failures from aging equipment.

The Company stated that SAIFI, CAIDI, CEMI, CELI, and customer complaints are potentially metrics that could see improvement based on an assessment of most common failures and their causes through the Company's RMPs. The Company stated that it believes proactive investments into its transmission and distribution systems are a result of the RMPs and are most likely to improve overall reliability. Additionally, the Company stated the following regarding the potential for improvement of its CEMI as a result of programs focused on reliability in its RMPs:⁹

Xcel energy developed tools that allow us to better track the causes of our CEMI. In conjunction with a mapping tool we can look at our customers' experience as it identifies customers with multiple outages over a revolving 12 months and then provide a visual representation of those outages in our service territory. Although, the metric measures customers who have experienced at least six sustained outages during non-storm days, we can study customers' experience earlier. This customer centric tool helps highlight customers that have had outages from different causes rather than a single root cause. In other words, this tool does not look at the device that caused the outage, it examines how many times a customer was out of service regardless of the reason.

These tools compliment other programs, such as the Reliability Management System (REMs) that help us identify specific equipment issues (for instance, the same device tripping multiple times). The CEMI tools provide the link from the outage information to the specific customer information on a holistic basis. Since much of our analysis has focused on a system perspective, this new tool really rounds out our reliability planning by helping focus on the customers' experience.

Further, Xcel continues to appear to be focused on reliability improvements (see Attachment M of the 2018 Report). For example, Xcel noted that it will initiate a pilot program in the Southeast Region replacing porcelain fused cutouts with polymer cutouts. If successful in reducing equipment failure rates, the pilot may be expanded. Therefore, the Department concludes that Xcel's action plan is sufficient.

⁹ 2018 Report, Attachment M, p. 18.

The Department acknowledges Xcel’s fulfillment of the requirements of Minnesota Rules, part 7826.0500, subp. 1.E.

4. Bulk Power Supply Interruptions

Xcel reported that there were no generation outages on the Company’s system that caused an interruption of service to firm electric customers in 2018. Xcel provided a table listing interruptions caused by transmission outages.¹⁰ The table identifies the transmission line, date, time, duration, reasons for the interruption, comments, and remedial steps taken or planned.

The Department acknowledges Xcel’s fulfillment of the requirements of Minnesota Rules, part 7826.0500, subp. 1.F.

5. Major Service Interruptions

Xcel reported that, in 2018, there were 243 outages on its system that met the definition of “major service interruption.” As required, the Company provided copies of the notifications sent to the Commission’s Consumer Affairs Office (CAO) for these outages.¹¹ Xcel stated that it continues to monitor and improve its internal processes regarding outage notification to the CAO. The following table compiles the number of outages not reported to the CAO and the total number of major service interruptions reported by Xcel.

Table 4: Unreported Major Service Interruptions

Year	Unreported Major Service Interruptions	Number of Major Service Interruptions	Percent Unreported
2006	51	196	26%
2007	23	373	6%
2008	41	288	14%
2009	6	164	4%
2010	15	351	4%
2011	4	214	2%
2012	5	252	2%
2013	2	605	<1%
2014	11	233	5%
2015	27	259	10%
2016	12	310	4%
2017	6	154	4%
2018	6	243	2%

The Company noted that each of the six unreported major service interruptions were due to human error.

¹⁰ Attachment C of the Report.

¹¹ Attachment D of the Report.

Xcel reported that there were no major service interruptions in which ten percent or more of its Minnesota customers were without service for 24 hours or more in 2018.

The Department acknowledges Xcel's fulfillment of the requirements of Minnesota Rules, part 7826.0500, subp. 1.G.

6. Worst Performing Circuit

Xcel defines poor performing feeders as those with a System Average Interruption Frequency Index (SAIFI) exceeding three times the average feeder SAIFI value for the Company's Minnesota system or a SAIDI exceeding four times the average feeder SAIDI value. For this purpose, SAIDI and SAIFI are based on non-storm-normalized data and do not include planned outages or outages caused by public damage. Poor performing circuits are identified in September (based on data from the previous September through August time period) so that Xcel can complete construction projects before the spring storm season.

Using this method, Xcel identified four to five poor performing feeders in each work center. Xcel also identified 25 feeders with the highest SAIDI (based on calendar year data, and including bulk power supply and planned outages) in each of its four work centers in compliance with the Commission's April 7, 2006 Order in Docket No. E002/M-05-551.

The Department used historical data to identify potential areas of concerns regarding any 2018 feeders that are identified multiple times for similar reasons as a worst performing feeder. The Department identified four different feeders through its historical tracking, each of which has been listed in the past as a poorly performing feeder. Of the four feeders Xcel mentioned from the four work centers, Feeder A from the Metro East work center has been identified as a poor performer each year since 2014. Xcel stated the following regarding the feeder:¹²

This is a long feeder that is located on a hilltop in a rural and rustic area surrounded by rough terrain and trees. The area is sparsely populated without a tie to another source available. In 2018, a section of the mainline that had many splices was replaced with a new conductor. Also, a portion of the feeder was transferred onto a new feeder out of a different substation. This will reduce exposure and customer count affected by outages. Compared to 2017, the total customer minutes out (CMO) came down greatly from 1,930,902 to 500,459, almost a 75 percent reduction. Most of the CMOs in 2018 were due to vegetation. The five-year tree trimming cycles was completed on December 18, 2018, which should result in improvements for 2019. In addition, a project is planned for this feeder in 2019 to replace five bad crossarms and

¹² 2018 Report, p. 15.

install 10 clampstars to reinforce auto splices, scheduled to be completed in June 2019. The location of this feeder creates challenges to improvement; however, we will continue to monitor it and determine if other actions can improve its reliability.

For the remaining feeders on the worst performing list, Xcel's 2018 Report indicated that remedial actions were taken to improve the feeders' performance.

The Department acknowledges Xcel's fulfillment of the requirements of Minnesota Rules, part 7826.0500, subp. 1.H and of the Commission's April 7, 2006 Order.

7. Compliance with ANSI Voltage Standards

Xcel reported that it conducted 300 voltage investigations in 2018.¹³ After investigation, approximately 20 percent of these instances were found to be caused by a specific voltage problem. In cases where the Company finds that the voltage is not within the acceptable range, actions are taken such as swapping transformers, upgrading transformers, or checking capacitor banks.

The Department acknowledges Xcel's fulfillment of the requirements of Minnesota Rules, part 7826.0500, subp. 1.I.

8. Work Center Staffing Levels

Xcel reported its 2018 staffing levels by work center. Table 5 contains the Company's staffing levels for the past ten years.

Table 5: Xcel's Historical Work Center Staffing Levels¹⁴

Year	Metro East	Metro West	Northwest	Southeast	Other	Total
2009	133	173	37	61	61	465
2010	139	189	32	64	46	470
2011	138	190	33	63	46	470
2012	134	190	34	58	44	460
2013	136	195	34	54	51	470
2014	129	197	25	57	56	464
2015	132	201	35	55	54	477
2016	129	202	32	50	55	468
2017	121	195	34	49	56	455
2018	125	195	34	48	55	457

¹³ 2018 Report, p. 16.

¹⁴ 2018 Report, p. 17.

The Company stated that, while it continues to deal with significant attrition, mostly through staff retirements, its current staffing numbers has not had an impact on its day-to-day operations or performance levels.

The Department acknowledges Xcel's fulfillment of the requirements of Minnesota Rules, part 7826.0500, subp. 1.J.

C. PROPOSED RELIABILITY STANDARDS FOR 2019

Xcel proposed the following reliability goals for 2019:

Table 6: Xcel's Proposed 2019 Reliability Goals

Region	Metric	Proposed 2019 Goals
Metro East	SAIDI	89.78
	SAIFI	0.86
	CAIDI	103.94
Metro West	SAIDI	82.08
	SAIFI	0.82
	CAIDI	100.37
Northwest	SAIDI	85.86
	SAIFI	0.76
	CAIDI	113.01
Southeast	SAIDI	94.82
	SAIFI	0.76
	CAIDI	122.04

Xcel's proposed goals are based on 5-year average performance data, applying the IEEE 1366 storm normalization method, with the exception of the goals for the Southeast Region, which are not based on the most recent 5-year average but instead reflect the goals approved for 2018 in Docket No. E002/M-18-239, which were "frozen" at the 2017 levels. Xcel stated that, as they used the IEEE method for normalization in this Petition, the proposed reliability goals for 2019 will not be comparable to standards set in previous Annual Reports. The SAIDI and SAIFI goals reflect the average of 5 years of actual performance, while the CAIDI goals reflect the mathematical relationship between the indices ($CAIDI = SAIDI/SAIFI$).

The Department notes that an analysis of historical data informs the Commission's decision regarding appropriate goals. Given that Xcel is proposing to base future performance and goal calculations using data normalized using the IEEE 1366 method, an analysis of the historical data, recalculated by using the IEEE 1366 method for storm normalization, is necessary in order to detect trends over time using consistent data. Therefore, the Department requests that Xcel

provide historically adjusted performance and goal data using the IEEE 1366 storm normalization method from 2001 to 2018.

D. ANNUAL SERVICE QUALITY REPORT

Minnesota Rules, part 7826.1300 requires each utility to file the following information on or before April 1 of each year:¹⁵

- Meter Reading Performance (7826.1400);
- Involuntary Disconnection (7826.1500);
- Service Extension Request Response Time (7826.1600);
- Call Center Response Time (7826.1700);
- Emergency Medical Accounts Status (7826.1800);
- Customer Deposits (7826.1900); and
- Customer Complaints (7826.2000).

1. Meter Reading Performance

The following information is required for reporting on meter reading performance by customer class:

- A. the number and percentage of customer meters read by utility personnel;
- B. the number and percentage of customer meters self-read by customer;
- C. the number and percentage of customer meters that have not been read by utility personnel for period of 6 to 12 months and for periods of longer than 12 months, and an explanation as to why they have not been read; and
- D. data on monthly meter reading staffing levels by work center or geographical area.

An annual average of 87.26 percent of customer meters were read by utility personnel and 0.0003 percent were read by the customer in 2018.¹⁶

Table 7 summarizes the number of meters not read by utility personnel for 6-12 months, according to Xcel's past annual and supplemental reports.

¹⁵ The Department notes that the Company files combined electric and gas service quality metrics when appropriate (*e.g.*, call center response time, meter reading statistics).

¹⁶ The Department's calculations are based on data provided in Tables A and B, Attachment F, pp. 1-7 of the Company's 2018 Report. On page 3 of the Department's *Comments* filed on July 27, 2012 in Docket No. G002/M-12-440, Xcel's 2012 Gas Service Quality Report, the Department requested that Xcel provide, in all future reports, the total number of meters to be read each month.

Table 7: Meters Not Read for 6-12 Months¹⁷

Year	Residential	Commercial	Industrial	Other	Total
2010	3,506	1,076	338	100	5,020
2011	2,346	967	244	183	3,740
2012	3,967	1,232	248	106	5,553
2013	2,600	822	177	79	3,678
2014	5,237	1,178	260	123	6,798
2015	2,508	942	387	113	3,950
2016	2,268	772	167	75	3,282
2017	1,938	1,118	306	50	3,412
2018	2,313	1,222	489	50	4,074

Table 8 summarizes the number of meters not read by utility personnel for longer than 12 months, according to Xcel’s past annual and supplemental reports.

Table 8: Meters Not Read for Longer than 12 Months¹⁸

Year	Residential	Commercial	Industrial	Other	Total
2010	1,149	366	263	71	1,849
2011	637	403	181	94	1,315
2012	661	450	112	89	1,312
2013	602	335	131	64	1,132
2014	620	304	92	68	1,084
2015	764	310	134	90	1,298
2016	551	240	109	63	963
2017	531	260	135	48	974
2018	580	481	283	44	1,388

Minnesota Rules, part 7826.0900, subp. 1 requires that at least 90 percent of all meters be read during the months of April through November and at least 80 percent be read during the months of December through March. Xcel attained those requirements in all months of 2018.

The Department acknowledges Xcel’s fulfillment of the requirements of Minnesota Rules, part 7826.1400 and 7826.0900.

2. *Involuntary Disconnections*

The following information is required for reporting on involuntary disconnection of service by customer class and calendar month:

¹⁷ Table C-1, Attachment F, pp. 2-4 of 7 of the 2018 Report.

¹⁸ Table C-2, Attachment F, pp. 5-7 of 7 of the 2018 Report.

- A. the number of customers who received disconnection notices;
- B. the number of customers who sought cold weather rule (CWR) protection under Minnesota Statutes, sections 216B.096 and 216B.097, and the number who were granted cold weather rule protection;
- C. the total number of customers whose service was disconnected involuntarily and the number of these customers restored to service within 24 hours; and
- D. the number of disconnected customers restored to service by entering into a payment plan.

Table 9 summarizes residential customer disconnection statistics reported by Xcel in its annual Report.

Table 9: Residential Customer Involuntary Disconnection Information¹⁹

Year	Customers Receiving Disconnect Notice	Customers Seeking CWR Protection	Customers Granted CWR Protection	% Granted	Customers Disconnected Involuntarily	Customers Restored within 24 Hours	Customers Restored by Entering Payment Plan
2008	1,175,953	86,092	86,092	100%	28,863	11,449	727
2009	1,186,057	140,862	140,862	100%	29,612	11,214	1,253
2010	1,218,073	173,440	173,440	100%	29,592	12,121	1,265
2011	1,282,576	188,091	188,271	100%	27,120	11,273	1,446
2012	1,207,842	279,713	279,713	100%	27,132	11,010	1,047
2013	1,217,049	126,477	126,477	100%	23,493	9,221	882
2014	1,166,978	105,561	105,561	100%	25,532	10,283	1,250
2015	1,042,775	151,956	151,956	100%	26,756	11,556	1,201
2016	870,665	130,052	130,052	100%	20,574	7,698	1,512
2017	747,409	140,943	140,943	100%	19,212	6,564	1,251
2018	559,011	115,472	115,472	100%	17,337	6,586	1,506

Xcel also reported information on commercial involuntary disconnections. The Department acknowledges Xcel’s fulfillment of the requirements of Minnesota Rules, part 7826.1500.

3. Service Extension Requests

The following information is required for reporting on service extension request response times by customer class and calendar month:

- A. the number of customers requesting service to a location not previously served by the utility and the intervals between the date service was installed and the later of the in-service date requested by the customer or the date the premises were ready for service; and
- B. the number of customers requesting service to a location previously served by the utility, but not served at the time of the request, and the intervals between the

¹⁹ Attachment G of the Report.

date service was installed and the later of the in-service date requested by the customer or the date the premises were ready for service.

Xcel stated that 306,559 customers requested service to a location previously served in 2018 and that such requests were responded to the next business day.²⁰ Xcel reported that 3,007 residential and 623 commercial customers requested service to a location not previously served by the Company in 2018.²¹ The average interval between request/readiness date and installation date was 7.3 days for residential and 4.6 days for commercial customers.

The Department looks for any trends in overall response times and inquires as needed. At this time, response times for residential and commercial customers in 2018 were relatively consistent with data from 2009 - 2017. However, Xcel indicated that the 2018 Report is the first reflecting service extension request times as tracked by its new SAP work management system and, as such, the data obtained are not necessarily comparable to past numbers. The Company stated that it believes the new system and its information better reflects the customer perspective.

The Department acknowledges Xcel's fulfillment of the requirements of Minnesota Rules, part 7826.1600.

4. Call Center Response Time

The annual service quality report must include a detailed report on monthly call center response times, including calls to the business office and calls regarding service interruptions. Minnesota Rules, part 7826.1200 requires utilities to answer 80 percent of calls made to the business office during regular business hours and 80 percent of all outage calls within 20 seconds.

In its November 2, 2017 *Order Approving Tariff Modifications and Granting Variance* in Docket No. E002/M-17-553, the Commission approved tariff modifications to enable Xcel to implement changes to its non-emergency call center hours of operation, among other requests. The Commission required Xcel to submit two years of annual compliance review in its 2019 and 2020 annual service quality reports covering 2018 and 2019.

Xcel provided monthly call volume and response time information. In 2018, an average of 90.16 percent of calls to the Company were answered within 20 seconds.²²

²⁰ 2018 Report, p. 20.

²¹ Attachment H of the 2018 Report.

²² Department's calculations are based on data provided in Attachment I, pp. 1-2 of the Report.

The Company assumes that all calls handled by its Interactive Voice Response (IVR) system are answered within 20 seconds. For calls handled by Xcel’s Agents, an average of 77.17 percent were answered within 20 seconds in 2018.

The Department notes that the change to the call center hours of operation does not appear to have had a negative effect on customer service. Compared to 2017, there were fewer total calls in 2019 (3,042,040 vs. 3,222,187), and only slightly more billing calls handled by the IVR system (1,466,668 vs. 1,458,519).

The Department acknowledges that Xcel has fulfilled the requirements of Minnesota Rules, part 7826.1700 and, in 2017, complied with the standard set in Minnesota Rules, part 7826.1200, as well as ordering paragraph 1 in the Commission’s November 2, 2017 Order in Docket No. E002/M-17-553.

5. Emergency Medical Accounts

Reporting on emergency medical accounts must include the number of customers who requested medical account status under Minnesota Statutes, section 216B.098, subd. 5, the number of applications granted, the number of applications denied, and the reasons for each denial.

Xcel reported that 2,818 Minnesota customers requested Emergency Medical Account Status in 2018.²³ Approximately 80.4 percent of these customers were granted this status.

Table 10 below shows the historical numbers regarding Medical Accounts.

Table 10: Residential Customers Requesting Emergency Medical Account Status

Year	Requested Medical Acct. Status	Granted Medical Acct. Status	Percent Granted
2008	1,847	1,460	79.0%
2009	1,783	1,292	72.5%
2010	1,762	1,162	65.9%
2011	1,572	716	45.5%
2012	1,508	679	45.0%
2013	1,562	832	53.3%
2014	1,780	1,012	56.9%
2015	3,333	2,557	76.7%
2016	3,427	2,713	79.2%
2017	3,150	2,388	75.8%
2018	2,818	2,267	80.4%

²³ Attachment G of the Report.

The Department acknowledges that Xcel has fulfilled the requirements of Minnesota Rules, part 7826.1800.

6. *Customer Deposits*

Reporting on customer deposits must include the number of customers who were required to make a deposit as a condition of receiving service.

Table 11 summarizes the number of accounts that Xcel has reported required deposits. The Department notes that the Company requests these deposits from residential customers that have filed for bankruptcy.

Table 11: Customer Deposits Required

Year	Number of Deposits
2008	805
2009	798
2010	657
2011	655
2012	622
2013	652
2014	606
2015	561
2016	362
2017	314
2018	394

The Department fulfills the requirements of Minnesota Rules, part 7826.1900.

acknowledges Xcel's

7. *Customer Complaints*

Reporting on customer complaints must include the following information by customer class and calendar month:

- A. the number of complaints received;
- B. the number and percentage of complaints alleging billing errors, inaccurate metering, wrongful disconnection, high bills, inadequate service, and the number involving service extension intervals, service restoration intervals, and any other identifiable subject matter involved in five percent or more of customer complaints;
- C. the number and percentage of complaints resolved upon initial inquiry, within ten days, and longer than ten days;
- D. the number and percentage of all complaints resolved by taking any of the following actions: (1) taking the action the customer requested; (2) taking an action the customer and the utility agree is an acceptable compromise; (3) providing the

customer with information that demonstrates that the situation complained of is not reasonably within the control of the utility; or (4) refusing to take the action the customer requested; and

- E. the number of complaints forwarded to the utility by the Commission’s Consumer Affairs Office (CAO) for further investigation and action.

Xcel reported that 664 complaints were handled by the Company’s Customer Advocate Group in 2018, 248 of which were forwarded by the CAO.²⁴ Data provided by the Company showed that 20.60 percent of complaints in 2018 handled by Xcel’s Customer Advocate Group were resolved upon inquiry.²⁵ The most frequent complaint category was “inadequate service.” Xcel reported that 26.70 percent of these complaints in 2018 were resolved by taking the action the customer requested.²⁶

Xcel also received 624,399 complaints in 2018 that were handled upon initial inquiry in the Company’s Call Centers. Xcel reported that approximately 98 percent of these complaints were resolved by taking the action the customer requested. The complaint category with the largest volume for all customers was “billing errors.” These figures are similar to those provided in past years’ reports.

Xcel’s report on customer complaints includes the required information. Table 12 contains a limited summary of Xcel’s customer complaint history as received through the Company’s Customer Advocate Group.

Table 12: Selected Summary of Customer Complaints²⁷

Year	Number of Complaints	Inadequate Service	Wrongful Disconnect	Billing Error	Resolved Upon Initial Inquiry	Took Action Customer Requested
2010	693	44.90%	21.90%	18.20%	17.00%	29.10%
2011	627	49.10%	17.20%	16.70%	13.20%	28.20%
2012	613	53.50%	19.70%	17.30%	18.60%	27.41%
2013	745	55.80%	15.60%	13.80%	18.90%	38.26%
2014	770	53.20%	19.70%	14.80%	16.80%	51.30%
2015	789	52.50%	23.40%	13.30%	14.30%	29.50%
2016	547	52.10%	19.00%	14.60%	16.30%	32.70%
2017	572	53.50%	24.50%	10.50%	18.00%	27.10%
2018	664	58.10%	18.80%	11.60%	20.60%	26.70%

²⁴ Attachment J of the Report, pp. 1-4.

²⁵ *Id.*

²⁶ *Id.*

²⁷ Attachment J of the Report, p. 2.

The Department acknowledges Xcel's fulfillment of the requirements of Minnesota Rules, part 7826.2000.

E. COMPLIANCE WITH MARCH 19, 2019 ORDER

In its March 19, , 2019 Order addressing the reliability components of Xcel's 2018 filing, the Commission required Xcel to provide the following in its next annual service quality filing:²⁸

- A. Non-normalized SAIDI, SAIFI, and CAIDI values;
- B. SAIDI, SAIFI, and CAIDI values calculated using the IEEE 2.5 beta method;
- C. CEMI – at normalized and non-normalized outage levels of 4, 5, and 6;
- D. CELI – at intervals of greater than 6 hours, 12 hours, and 24 hours;
- E. CELI;
- F. Estimated restoration times;
- G. IEEE benchmarking;
- H. Performance by customer class; and
- I. More discussion of leading causes of outages and mitigation strategies.

Additionally, the Commission required the Company to provide a discussion of how grid modernization initiatives could impact reliability metrics and what technologies are required for advanced tracking of various metrics.

The Department summarizes Xcel's compliance with each reporting requirement in turn.

- A. Non-normalized SAIDI, SAIFI, and CAIDI values

Xcel provided this information in its Attachment M, page 3. Table 13 below shows these data for the previous five years.

²⁸ Commission's March 19, 2019 Order in Docket No E002/M-18-239.

Table 13: Non-normalized SAIDI, SAIFI, and CAIDI

		2014	2015	2016	2017	2018
Metro East	SAIDI	123.54	177.19	223.67	136.51	112.11
	SAIFI	0.98	1.04	1.08	0.95	0.96
	CAIDI	125.93	169.86	206.85	144.37	116.71
Metro West	SAIDI	105.98	229.78	198.25	148.58	88.23
	SAIFI	0.89	1.00	1.00	0.86	0.92
	CAIDI	118.70	229.92	198.86	173.27	95.70
Northwest	SAIDI	82.82	75.61	225.74	173.71	109.50
	SAIFI	0.82	0.66	1.07	0.98	0.87
	CAIDI	101.00	115.40	211.50	177.46	126.02
Southeast	SAIDI	173.45	98.23	249.05	96.37	353.32
	SAIFI	0.98	0.79	1.15	0.84	1.15
	CAIDI	176.51	125.07	217.15	114.75	307.95

B. SAIDI, SAIFI, and CAIDI values calculated using the IEEE 2.5 beta method

Xcel provided this information in its Attachment N1. Table 14 below shows these data for the previous five years.

Table 14: IEEE 1366 Normalized SAIDI, SAIFI, and CAIDI

		2014	2015	2016	2017	2018
Metro East	SAIDI	79.73	93.73	95.52	76.22	86.05
	SAIFI	0.86	0.90	0.87	0.76	0.85
	CAIDI	92.46	104.25	109.70	100.48	101.31
Metro West	SAIDI	83.02	90.95	83.64	69.51	85.71
	SAIFI	0.84	0.84	0.82	0.71	0.84
	CAIDI	98.50	108.44	101.43	97.84	102.56
Northwest	SAIDI	82.80	75.58	85.81	75.77	83.48
	SAIFI	0.82	0.66	0.70	0.76	0.77
	CAIDI	101.02	115.39	122.38	100.28	107.83
Southeast	SAIDI	103.45	86.51	110.23	96.33	96.90
	SAIFI	0.80	0.75	0.85	0.84	0.79
	CAIDI	129.20	115.16	130.02	114.73	122.04

C. CEMI – at normalized and non-normalized outage levels of 4, 5, and 6

Regarding CEMI, both normalized and non-normalized at outage levels of 4, 5, and 6, the Department notes that these data were provided by the Company in Attachment P to its Report. Both non-normalized and IEEE normalized CEMI at each of the different outage levels were larger than the figures from 2017.

D. CELI – at intervals of greater than 6 hours, 12 hours, and 24 hours

Xcel provided this information in its Attachment P. Somewhat similarly to the CEMI data, the normalized CELI data reported by the Company show that in 2018, customers had a greater chance of experiencing outages between 6 and 12 hours long and between 12 and 24 hours long when compared with 2017. However, when looking at the Company's non-normalized CELI data, they show a decreasing trend over the previous three years

E. CELI

Xcel did not propose to report any different CELI duration intervals.

F. Estimated restoration times

In accordance with the Commission's Order, the Company provided a discussion of estimated restoration times (ERTs) and the Company's efforts in measuring these, along with communication it has provided to its customers. In terms of measuring ERTs, the Company provided the following:²⁹

The current draft metric measures actual restoration times which occurred within 90 minutes prior to the published ERT up to 0 minutes after the published ERT. On a monthly basis, the Company pulls year-to-date data from its Network Management System (NMS) that itemizes each outage along with associated outage data such as: (i) time of outage; (ii) number of customers impacted, interrupting device; (iii) level of outage; (iv) estimated restoration time (ERT) pre-determined by the Company; and (v) actual restoration time. The information is used to analyze the accuracy of our estimated restoration times when compared to the actual restoration time.

As the Company has noted in past annual reports, the ERT accuracy measurement is a work in progress and refinements were made for 2018. The original 2014 to 2017 performance communicated last year included the "initial" ERTs (Code I), which is the standard three-hour estimate used when an outage is reported until we have additional information. Starting in 2018, we removed the initial ERTs from the calculation (and also stopped communicating the initial ERT to our customers). The 2018 metric included ERTs generated by our model (which is based on the impacted device (s) and algorithms) and ERTs entered by field and control center personnel. The model usually provides an estimate within 15

²⁹ 2018 Report, p. 25.

minutes after notification of an outage. The 0 to 90 minute window of accuracy is still used.

Table 15 below shows the Company’s performance related to its ERTs over the past four years.

Table 15: ERT Accuracy

Entity	Accuracy Criteria	2015	2016	2017	2018
NSPM	Within -90 to +0	44.3%	45.9%	43.5%	43.6%
MN Only	Within -90 to +0	43.3%	45.7%	43.1%	43.5%

G. IEEE benchmarking

This information was provided in Xcel’s Attachment Q. The Company reported that, from 2013 – 2017, NSPM’s SAIDI and SAIFI performance has consistently been in the first quartile based on IEEE benchmarking. The Company noted that the IEEE Distribution Reliability Working Group does not benchmark CEMI or CELI; Edison Electric Institute (EEI) does benchmark CEMI, but these data are proprietary, however.

H. Performance by customer class

Xcel stated the following regarding its attempt to provide a view of reliability by customer class:³⁰

Regarding reliability information by customer class, presently we do not track customer class data by feeder. We did attempt to segregate feeders that were predominantly residential compared to feeders that were predominantly commercial. In 2017, we found that feeders primarily serving commercial customers in general had a SAIDI value that was significantly better than the feeders serving primarily residential customers. The 2018 data showed a similar result. Although not studied, this is likely due to several items including: less vegetation in industrial and commercial areas, shorter feeders due to higher load density resulting in less exposure to the environment, and higher percentage of customers with underground service. We do not expect this general performance to vary much from year to year, and therefore the Company respectfully requests that it not be required to perform this analysis in future annually [sic] filings.

³⁰ 2018 Report, p. 30.

Beyond this general view we don't believe providing detailed data is appropriate since it was based on assumptions and judgement.

The Department agrees with the Company and recommends that the Commission discontinue this reporting requirement until such point that Xcel is able to provide reliability by customer class in its future service quality filings.

- I. More discussion of leading causes of outages and mitigation strategies

Xcel provided this discussion in its Attachment M.

- J. How grid modernization initiatives could impact reliability metrics and what technologies are required for advanced tracking of various metrics

The Company stated the following regarding grid modernization and its impact on service quality:³¹

As we have noted, some of the initial impacts we expect will be in the area of reliability due to our near-term grid modernization investment plans that include Advanced Metering Infrastructure (AMI), a Field Area Network (FAN), and Fault Location Isolation and Service Restoration (FLISR). In terms of specific metric impacts, we believe that new technologies, including AMI, will allow for more precise tracking and reporting of existing reliability metrics; will have the capability to provide additional information for operational response purposes; and, may alter the perceived reliability performance....

Another area where technology will improve accuracy will be in reporting MAIFI. With AMI and the underlying FAN, the Company will have improved ability to know when and where momentary outages occur. With improved tracking and reporting capabilities, our knowledge of momentary outages will increase – and this will allow for investigation and response to the events. We would expect that at least initially, MAIFI will appear to increase from our current-state, where we have limited MAIFI reporting and capabilities.

In summary the Department appreciates the additional data provided by Xcel pursuant to the March 19, 2019 Order. When taken with the information already contained in the Company's Report, the additional data help to paint a more descriptive picture of the Company's service quality performance. The Department concludes that the CEMI and CELI metrics are useful for

³¹ 2018 Report, pp. 31-32.

helping to interpret overall performance related to outages as they provide additional context to SAIDI, SAIFI, and particularly to CAIDI. The Estimated Restoration Time data provided by Xcel were also useful in understanding what steps the Company takes when an outage occurs and how the Company is working to improve their estimated restoration times that are communicated to customers. Finally, the Department notes that, Xcel indicated that the Company is only able to provide a limited comparison of feeder performance for predominately residential customers compared with predominately commercial customers. Given the limited descriptive value of this comparison from year to year, the Department suggests that this reporting requirement be suspended until such time that Xcel is able to provide reliability by customer class.

III. CONCLUSIONS AND RECOMMENDATIONS

The Department recommends that the Commission accept Xcel's filing in fulfillment of the requirements of Minnesota Rules, Chapter 7826, and the Commission's March 19, 2019 Order in Docket No. E002/M-19-261.

The Department will provide a recommendation regarding Xcel's proposed reliability goals for 2019 after reviewing the data requested to be provided in Reply Comments.

The Department requests that Xcel provide the following in Reply Comments:

- Historically adjusted performance and goal data using the IEEE 1366 storm normalization method from 2001 to 2018; and
- 2018 performance data using the storm-normalization method the Company has used in previous filings.

/ja

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

**Minnesota Department of Commerce
Comments**

Docket No. E002/M-19-261

Dated this 7th day of June 2019

/s/Sharon Ferguson

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