

Staff Briefing Papers: Volume 1 of 3

Meeting Date	November 7, 2024	Agenda Item **1	
Company	Northern States Power Co. d/b/a Xcel Energy; Minnesota Power; Otter Tail Power Co.		
Docket No.	E-002/M-24-27 In the Matter of Xcel Energy’s 2023 Annual Safety, Reliability and Service Quality Report E-015/M-24-29 In the Matter of Minnesota Power’s 2023 Annual Safety, Reliability, and Service Quality Report E-017/M-24-30 In the Matter of Otter Tail Power’s 2023 Annual Safety, Reliability, and Service Quality Report		
Issues	Should the Commission accept Minnesota Power, Otter Tail Power and Xcel Energy’s 2023 Annual Safety, Reliability and Service Quality Reports?		
Staff	Christian Noyce	Christian.noyce@state.mn.us	651-201-2215

✓ Relevant Documents	Date
24-27 Xcel Energy	
Xcel Energy Annual Report & Petition and Attachments G-2, K, & L	April 1, 2024
Department of Commerce Comments re: Xcel	June 14, 2024
Xcel Energy Reply Comment	June 24, 2024
Xcel Energy Supplemental Filing	September 26, 2024
Department of Commerce Supplemental Reply Comment	October 14, 2024

To request this document in another format such as large print or audio, call 651.296.0406 (voice). Persons with a hearing or speech impairment may call using their preferred Telecommunications Relay Service or email consumer.puc@state.mn.us for assistance.

The attached materials are work papers of the Commission Staff. They are intended for use by the Public Utilities Commission and are based upon information already in the record unless noted otherwise.

✓ **Relevant Documents**

Date

24-29 Minnesota Power

Minnesota Power Annual Report and Appendices A, B (part 1 & 2), and C	April 1, 2024
Department of Commerce Comments re: Minnesota Power	June 28, 2024
Minnesota Power Reply Comments	July 22, 2024
Department of Commerce Response to Reply Comment	August 6, 2024
Minnesota Power Supplemental Filing	October 7, 2024
Department of Commerce Supplemental Comment	October 14, 2024

24-30 Otter Tail Power

Otter Tail Power Annual Report	April 1, 2024
Department of Commerce Comment	June 14, 2024
Otter Tail Power IEEE Supplemental Filing	August 15, 2024
PUC Permissible Ex Parte	August 26, 2024
Otter Tail Power Supplemental Amendment	September 26, 2024
Department of Commerce Supplemental Comment	October 15, 2024

Contents

I.	Introduction	1
II.	Acronyms of Interest.....	2
III.	Compliance.....	2
IV.	SAIDI, SAIFI, and CAIDI.....	3
V.	Power Outage Origins	12
VI.	Work Center Staffing Levels	15
VII.	Reliability by Class	18
VIII.	MAIFI Reporting	20
IX.	CEMI and CELI	22
X.	Estimated Restoration Times	25
XI.	Worst Performing Feeder.....	26
XII.	Major Service Interruptions	27
XIII.	Bulk Power Interruptions	28
XIV.	Voltage Violations	29
XV.	Grid Modernization Impacts on Reliability Metrics	29
XVI.	Safety	31
XVII.	Xcel Energy’s Incremental Costs Associated with Achieving First Quartile Performance	32
XVIII.	Staff Recommendations Discussion	34
XIX.	Decision Options	35
XX.	Attachment A -Xcel Reporting Matrix	43
XXI.	Attachment B – MP Reporting Matrix	52

I. Introduction

Each year Minnesota’s Investor-Owned Utilities (IOUs) submit Safety, Reliability, and Service Quality (SRSQ) Reports. For the past several years, Commission Staff split the reports into two sections. The Service Quality portion will be summarized in the separate Volume 2 of the briefing papers. Volume 1 includes the Safety and Reliability metrics as laid out in [Minnesota Rules, Chapter 7826, Electric Utility Standards](#), with specific attention to the reporting requirements outlined by Minn. Rules 7826.0400 to 7826.0600 and order points from the Commission’s March 19, 2019 Order.¹ This year, Volume 3 will cover Xcel’s disparities in shutoffs and reliability. All three volumes will end with an identical set of decision options.

In its December 5, 2023, order accepting the electric utilities’ 2022 SRSQ reports, the Commission set utility reliability standards for 2023 that benchmark to the Institute of Electrical and Electronics Engineers (IEEE) working group results.² The Commission required utilities to

¹ Commission Order dated March 19, 2019, in Docket E-015/M-18-250

² Commission Order dated December 5, 2023, in Dockets E-002/M-23-73, E-015/M-23-75, E-017/M-23-76

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel)**; **E-015/M-24-29 (MP)**; and **E-017/M-24-30 (OTP)**

file a supplement to their 2023 SRSQ reports within 30 days of publication of the IEEE results, with an explanation addressing any standards the utility did not meet.

All three investor-owned electric utilities filed 2023 SRSQ reports on or before the deadline of April 1st, 2024, and filed their IEEE results within 30 days of publication. The Minnesota Department of Commerce, Division of Energy Resources (Department) commented on the filings. After review, the Department recommended acceptance of the 2023 SRSQ reports for all three utilities contingent upon the IEEE results and acknowledged utility compliance with the Commission's rules. Below, Staff summarizes the utility reports and Department comments.

II. Acronyms of Interest

AMI	Advanced Metering Infrastructure
ASAI	Average Service Availability Index
CAIDI	Customer Average Interruption Duration Index
CELI	Customers Experiencing Lengthy Interruptions
CEMI	Customer Experiencing Multiple Interruptions
ERT	Estimated Restoration Time
FLISR	Fault Location, Isolation, and Service Restoration
IEEE	Institute of Electrical and Electronics Engineers
IMS	Interruption Monitoring System
MAIFI	Momentary Average Interruption Frequency Index
MED	Major Event Day
OMS	Outage Management System
QSP	Quality of Service Plan
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SCADA	Supervisory Control and Data Acquisition
SRSQ	Service Reliability, Safety, and Quality

III. Compliance

A. Compliance with Minn. R. 7826.0400 (Safety)

Each utility must include in its April 1st filing a summary of all reports filed with the United States Occupational Safety and Health Administration and the Occupational Safety and Health Division of the Minnesota Department of Labor and Industry during the calendar year. The utilities must include 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. Utilities are also required to report all remedial action taken as a result of any injuries or property damaged described.

Department and Commission Staff reviewed these filings and found compliance with Minn. R.

7826.0400.^{3,4,5}

B. Compliance with Minn. R. 7826.0500 and 7826.0600, subp. 1 (Reliability)

With the annual report, each utility includes SAIDI, SAIFI, and CAIDI by calendar year, by work center, and for its whole assigned service area. Each utility is also expected to provide (1) an explanation of how it normalizes its reliability data to account for major storms; (2) an action plan for remedying any failures to comply with Commission reliability standards or an explanation of why noncompliance was unavoidable; and (3) a report on each interruption of a bulk power supply facility, including reasons for the interruption, duration of the interruption, and remedial steps taken or that will be taken to prevent future interruption.

The utility must also provide, to the extent feasible, circuit interruption data such as the worst performing circuit, reasons for the poor performance, and operational changes made to improve performance. The utility must provide data on all known instances in which nominal electric service voltage on the utility side of the meter did not meet ANSI standards for nominal system voltages greater or less than voltage range B.

The utility must also provide data on staffing levels at each work center, including full-time equivalent positions responding to trouble and for operation and maintenance of distribution lines and any other information the utility deems relevant to its reliability performance over the calendar year.

The Department and Commission Staff reviewed these filings and found compliance with MN Rules 7826.0500 and 7826.0600 as well as Commission Orders.^{6,7,8}

A reporting matrix compiled by Xcel Energy of the Company's requirements can be found at the end of Volume 1 in attachment A. A reporting matrix compiled by Minnesota Power of the company's requirements can be found at the end of Volume 1 in attachment B.

IV. SAIDI, SAIFI, and CAIDI

SAIDI stands for System Average Interruption Duration Index, which measures the annual average outage duration for each customer served in hours. SAIFI stands for System Average Interruption Frequency Index, which measures the average number of disruptions for a customer in a year. CAIDI stands for Customer Average Interruption Duration Index, which measures the average outage duration (or conversely, restoration time) for a given customer.

³ Docket 24-27, Department Comment, p. 7

⁴ Docket 24-29, Department Comment, p. 6

⁵ Docket 24-30, Department Comment, p. 5

⁶ Docket 24-27, Department Comment, p. 33

⁷ Docket 24-29, Department Comment, p. 9

⁸ Docket 24-30, Department Comment, p. 9

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel)**; **E-015/M-24-29 (MP)**; and **E-017/M-24-30 (OTP)**

SAIDI, SAIFI, and CAIDI results fluctuate from year to year due to a number of external factors impacting reliability of the utility grid. Due to this, utilities normalize these indices to remove or control for outlier data points, usually caused by storms and other weather-related events. Both normalized⁹ and non-normalized results provide important information about how ratepayers have been impacted by reliability issues within one year and from year to year, as well as how each utility meets its IEEE 1366 standards.

In its March 19, 2019 Order the Commission required all utilities to use the IEEE 1366 standard (also known as the 2.5 Beta method) for normalizing Major Event Days. The utilities also propose numerical, individual reliability standards¹⁰ for each work center. The Commission then sets reliability performance standards annually for the utilities, which “remain in effect until final action is taken on a filing proposing new standards or changes them in another proceeding.”¹¹

Historically, the Commission had directed utilities to use a rolling five-year average of SAIDI, SAIFI, and CAIDI metrics for each work center in a utility’s service territory. However, utilities have now transitioned to the IEEE benchmarking standard that expects each utility and their regions to be at or above the second quartile in SAIDI, SAIFI, and CAIDI when compared to their peers in IEEE. Utilities are also required to provide “an action plan for remedying any failure to comply with the standard” or explain “why non-compliance was unavoidable under the circumstances.”¹²

All utility standards are currently set at the second quartile. Last year, in Docket No. 23-73, the City of Minneapolis recommended Xcel Energy’s IEEE benchmarking standard be increased to the first quartile. From that request, the Commission requested Xcel examine what it would take to complete that task. A summary of their examination can be found in Section XVII.

The following sections summarize individual utility reliability performance for 2023. Instances where normalized performance did not meet the standard are bolded. Each utility’s performance in its normalized SAIDI, SAIFI, and CAIDI results is compared to its IEEE standard. This is to help compare service reliability across years, controlling for abnormal storm systems that roll through from year to year. Abnormal storm systems create abnormal spikes, making comparisons from year to year challenging with just non-normalized results. Staff will explain the challenges and improvements utilities continue to make to achieve their unmet goals.

A. Minnesota Power

Minnesota Power’s (MP) service territory is divided into three work centers. The numbers in

⁹ Per Minn. R. 7826.0200, Subp. 9. "Storm-normalized data" means data that have been adjusted to neutralize the effects of outages due to major storms. Minn. R. 7826.0500, Subp. D, requires “an explanation of how the utility normalizes its reliability data to account for major storms.”

¹⁰ Minn. R. 7826.0600, Subp. 1

¹¹ Minn. R. 7826.0600, Subp. 2

¹² Minn. R. 7826.0500, Subp. 1(E)

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel)**; **E-015/M-24-29 (MP)**; and **E-017/M-24-30 (OTP)**

Table 1 below show MP's SAIDI, SAIFI, and CAIDI standards which were expected to be at or below the numbers in the first row. Rows two and three show MP's 2023 normalized and non-normalized results. Bolded is the utility's SAIFI result which did not meet the 2023 IEEE second quartile standard.

Table 1: Minnesota Power 2023 Results and 2023 Standards

Metric	SAIDI	SAIFI	CAIDI
2023 Standard (IEEE second quartile) ¹³	121.00	1	139
2023 Performance Results (<i>Normalized</i>) ¹⁴	103.6	1.16	89.33
2023 Performance Results (<i>Non-Normalized</i>) ¹⁵	120.54	1.24	97.60

Minnesota Power met its SAIDI and CAIDI standards but did not meet its SAIFI standard under normalized results for 2023. Having normalized results below each of the three (SAIDI, SAIFI, and CAIDI) standards set by the Commission is considered successful as it indicates the utility experienced fewer interruptions (when controlling for major events) than a majority of utilities across the United States. MP not meeting its SAIFI goal indicates that MP experienced more SAIFI interruptions than the national average for utilities of a similar size.

Minnesota Power did not meet its CAIDI goal for the Northern Work Center, nor did it meet its SAIFI goal for the Western Work Center.¹⁶ Minnesota Power gave weather, vegetation, and equipment failure as the primary reasons for not meeting its Northern Work Center CAIDI or its Western Work Center SAIFI. Leading causes of outages were similar to the previous four years. To counteract this challenge, the Company continues to install TripSavers to clear temporary faults along with strategic undergrounding efforts for the Company's worst performing overhead lines.¹⁷ In 2023, MP installed over 33 miles of underground wire, including the conversion of overhead facilities to underground. MP also continued its asset renewal program for switch and cutout replacements to replace porcelain cutouts, which is expected to aid reliability improvements.¹⁸

Figure 1 and Figure 2 below were created by Commission Staff using utility filing data and compare the contributing factors to MP's SAIDI and SAIFI values for 2021-2023. Both figures include all outages (non-normalized). This information helps determine factors that are causing reliability issues with regards to data that is removed when SAIDI and SAIFI are normalized to control for major events. When normalizing, utilities employ the aforementioned IEEE 2.5 Beta method which is designed to remove all outage records attributed to a specific, major event.

¹³ Docket 24-29, IEEE supplemental filing, p. 2

¹⁴ Docket 24-29, Initial Filing, Table 9, p. 46

¹⁵ Docket 24-29, Initial Filing, Table 9, p. 46

¹⁶ Docket 24-29, IEEE supplemental filing, p. 2

¹⁷ Docket 24-29, IEEE supplemental filing, p. 2

¹⁸ Docket 24-29, Initial Filing, p. 18

Figure 1: Comparison of removed SAIDI causes, 2021 to 2023¹⁹

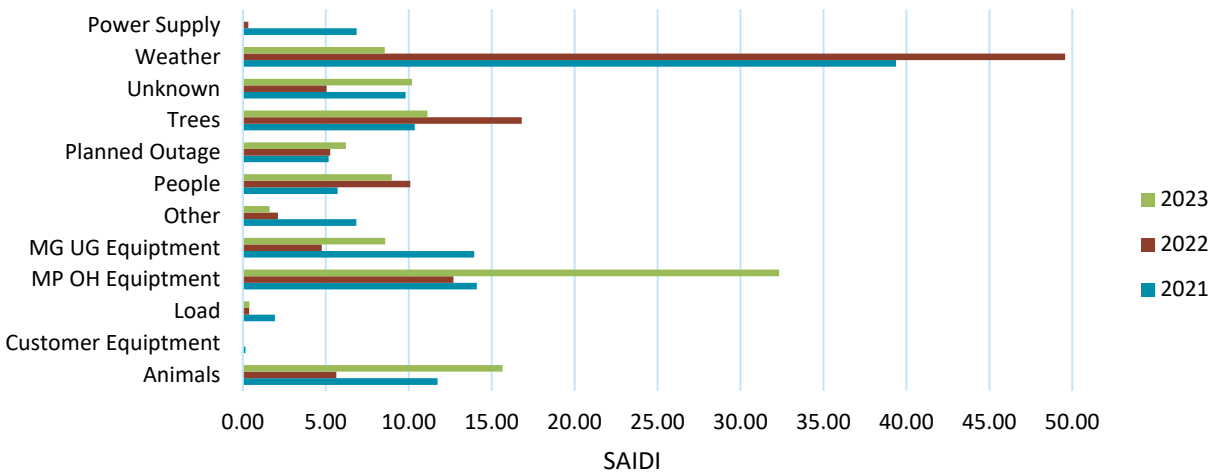
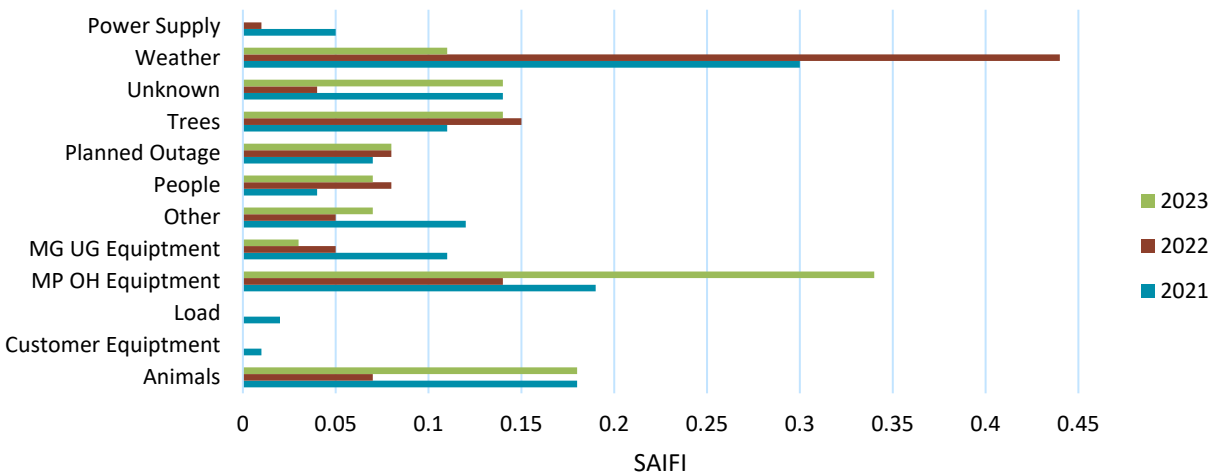


Figure 2: Comparison of SAIFI causes, 2021-2023²⁰



Figures 3-5 below show MP’s reliability results and trend lines compared to goals for the SAIDI, SAIFI, and CAIDI metrics over the past 10 years. A utility’s goal is to reduce its SAIDI, SAIFI, or CAIDI metrics as this indicates less frequency and length of interruptions to the ratepayer. Ideally, the goal line would be above the performance line, meaning the utility is meeting its performance objectives. Minnesota Power continues to perform below its peers on its SAIFI metric as has occurred since the transition to the IEEE performance standards.

¹⁹ Docket 24-29, Initial Filing, p. 19

²⁰ *Ibid.*, p. 20

Figure 3: Minnesota Power SAIDI 2014-2023

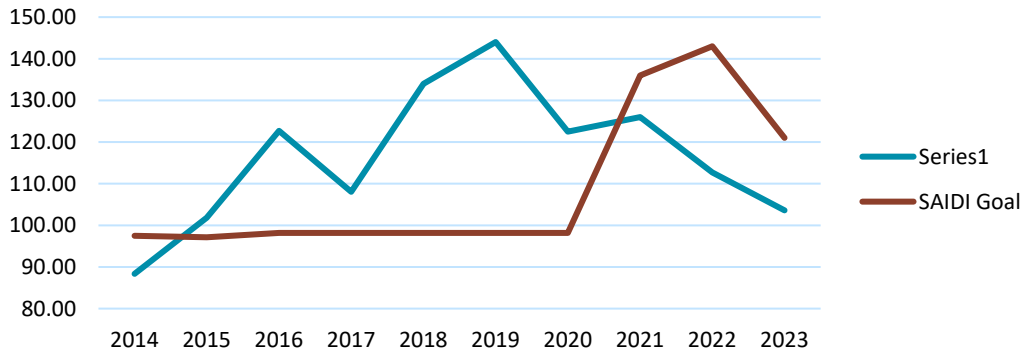


Figure 4: Minnesota Power SAIFI 2014-2023

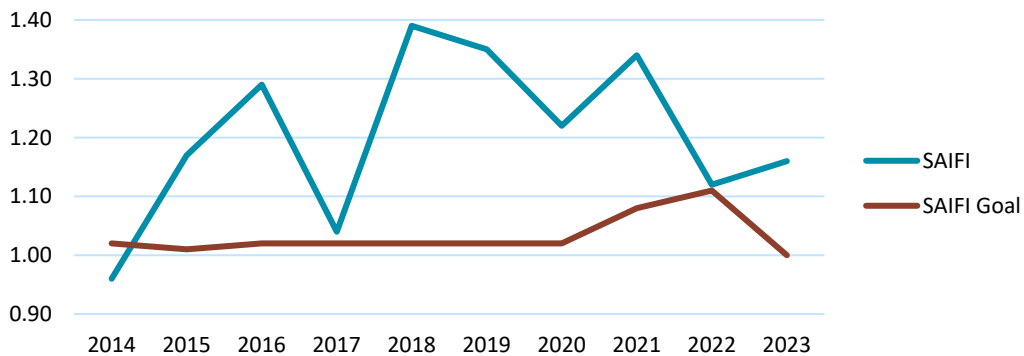
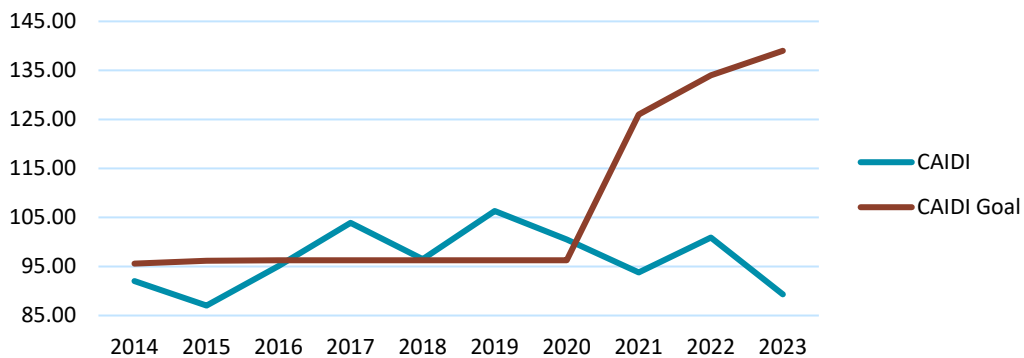


Figure 5: Minnesota Power CAIDI 2014-2023



Staff Analysis

The Department of Commerce noted that MP’s performance in 2023 was generally better than the Company’s 5 year average except for the Northern work center’s CAIDI and the Western work center’s SAIFI.²¹

Staff continue to express concern regarding Minnesota Power’s higher-than-expected SAIFI;

²¹ Docket 24-29, Department Supplemental Comment, p. 4

however, the Company has implemented programming to rectify not meeting SAIFI goals. From grid modernization to strategic undergrounding, Staff are hopeful MP will see continued downward pressure on SAIFI and a long-term meeting of the second quartile. Staff look forward to these projects and initiatives continuing to make an impact.

B. Otter Tail Power

Table 2 below shows Otter Tail Power's (OTP) normalized SAIDI, SAIFI, and CAIDI performance results for its overall service territory along with its individual regions. The performance results highlighted indicate an index higher than OTP's standard for the year. Ideally, OTP's performance would have been lower than the standards listed below.

Table 2: Otter Tail Power 2023 Reliability Results

Region	Metric	Standard	Performance Results
Overall Service Territory	SAIDI	121	96.28
	SAIFI	1	<u>1.38</u>
	CAIDI	139	69.89
Bemidji	SAIDI	121	106.29
	SAIFI	1	<u>1.94</u>
	CAIDI	139	54.73
Crookston	SAIDI	121	<u>128.63</u>
	SAIFI	1	<u>1.7</u>
	CAIDI	139	75.57
Fergus Falls	SAIDI	121	70.96
	SAIFI	1	<u>1.04</u>
	CAIDI	139	68.24
Morris	SAIDI	121	<u>135.71</u>
	SAIFI	1	<u>1.61</u>
	CAIDI	139	84.15

Beginning in the 2022 SRSQ report, OTP reduced its reporting from six regions down to four. The Millbank Service Center has been moved into the Morris Service Center and the Wahpeton Service Center customers have been moved into the Fergus Falls Service Center.²² This was due to the Millbank and Wahpeton Service Centers being so small that they would see extreme fluctuations from year to year in their metrics with only two feeders, making it difficult to examine their longitudinal data. Similar to MP, OTP struggled to meet its SAIFI goals across its regions, giving the rural nature of its service territory as the reason behind the outage frequency.

Figures 6-8 depict OTP's SAIDI, SAIFI, and CAIDI trends over the past decade. As a whole, Otter Tail has seen increasing SAIDI and SAIFI and relatively flat CAIDI over the past 10 years.

²² Docket 22-159, Initial Filing, p. 26

Figure 6: Otter Tail Power SAIDI Trends, 2014-2023

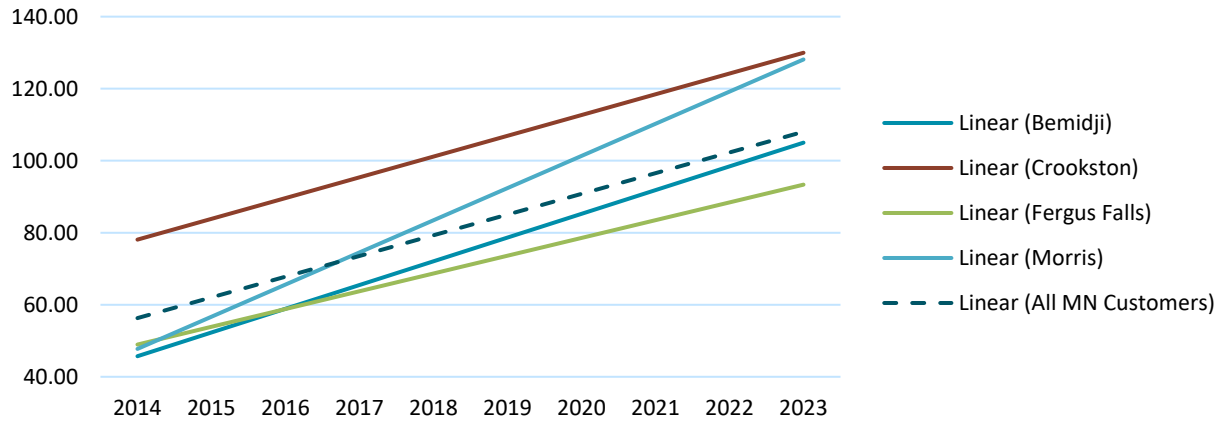


Figure 7: Otter Tail Power, SAIFI Trends, 2014-2023

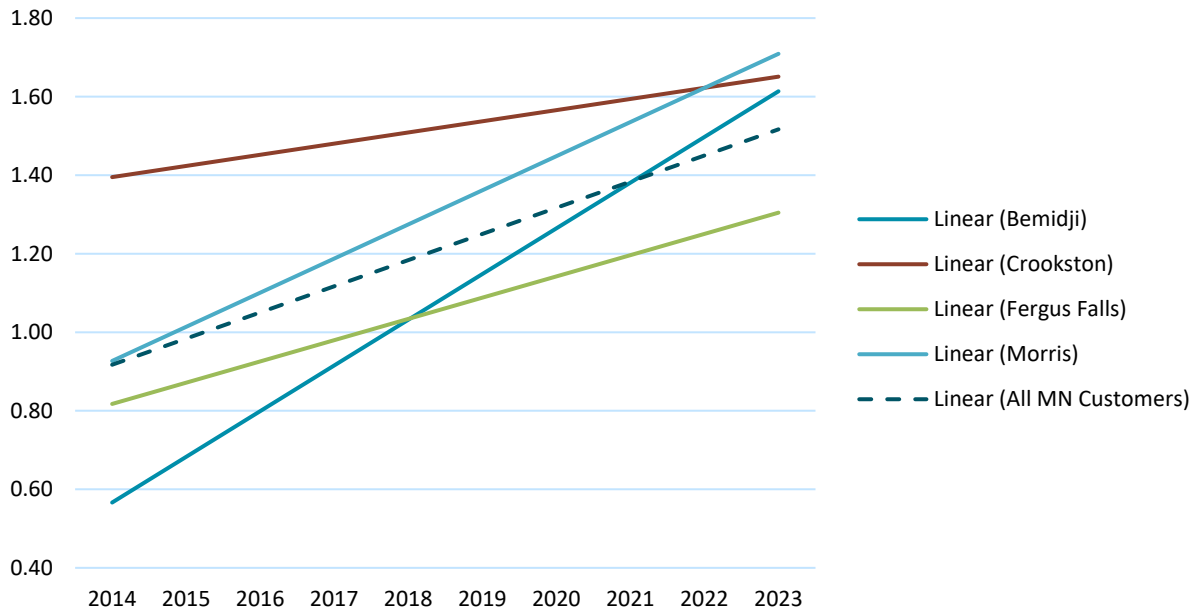
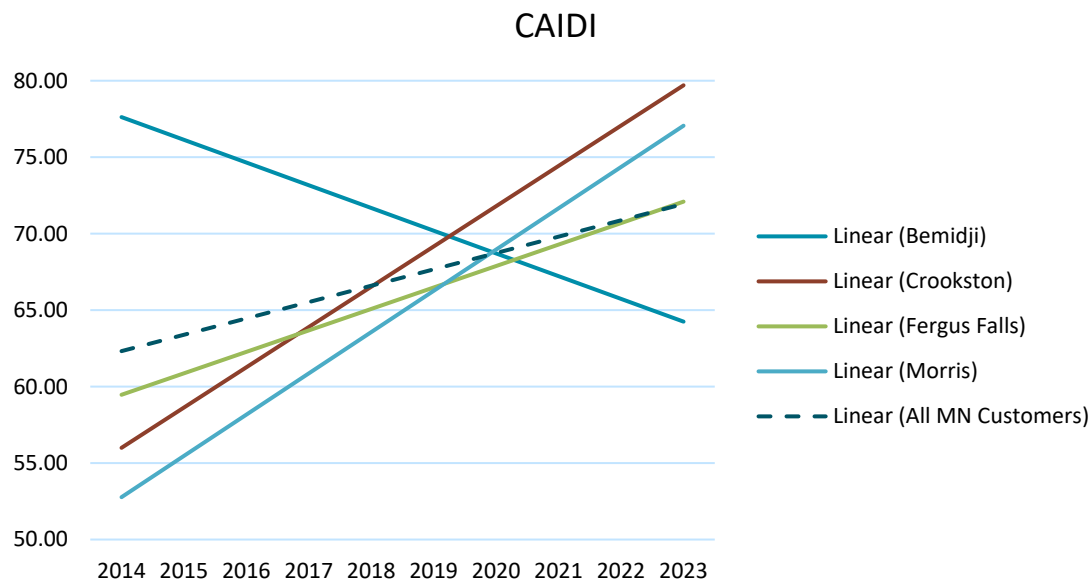


Figure 8: Otter Tail Power, CAIDI Trends, 2014-2023

1. Department Comments

The Department noted OTP did not meet the SAIFI benchmark for its regions or utility as a whole in 2023, similar to recent years. The Department also noted that OTP did not meet its SAIDI benchmark for Crookston and Morris work centers and that the Company is evaluating interruption by cause and locations for these areas to address common causes.²³

With OTP's transition from its Interruption Monitoring System (IMS) to Outage Management System (OMS), this was the last year OTP would be providing metrics with IMS data. Due to that change, the Department highlighted the difference in the goals met by each data collection system. OTP's new OMS system is more sensitive and therefore in the Department's comparison, the Department found OTP met only 33% of its benchmarks this year on a work center and state wide basis. With the current IMS system, OTP met 50% of its goals on a work center basis and 66% of their goals on a system wide level.²⁴ The Department requested that OTP provide IMS performance data for 2024 if available in addition to OMS data in next year's report to allow for better analysis.

Due to challenges outside OTP's and the Department's control in receiving OTP's IEEE utility-size results in a timely manner, the Department recommended the Commission require OTP to include a discussion on alternative approaches to reliability standard setting in its 2024 SRSQ Report (**Decision Option 5**).

²³ Docket 24-30, Department Supplemental, pp. 2-3

²⁴ Docket 24-30, Department Supplemental, p. 3

C. Xcel

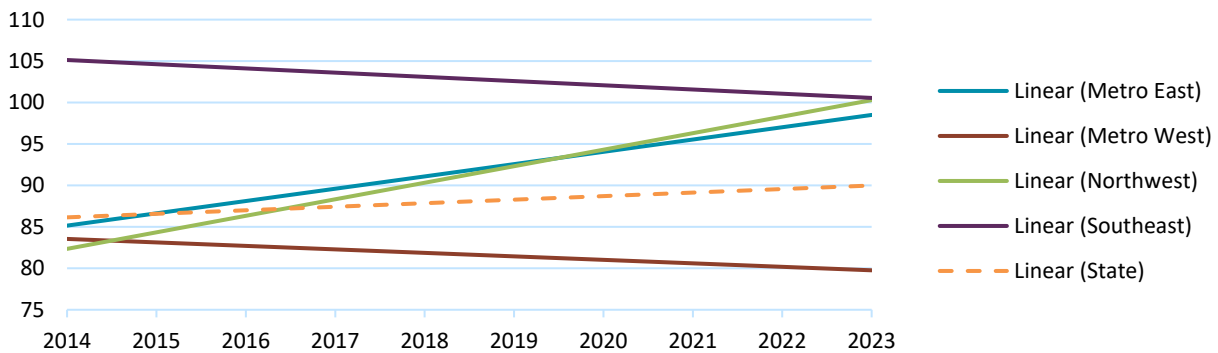
Xcel met 11 of its 12 reliability goals for 2023, mostly maintaining its success from 2022. Table 3 below demonstrates these results.

Table 3: Xcel Energy 2023 Results²⁵

Region	Metric	2023 Standard	2023 Performance Results (normalized)	2023 Performance Results (non-normalized)
Minnesota	SAIDI	114	86.4	168.41
	SAIFI	.96	0.85	1.06
	CAIDI	126	101.56	158.81
Metro East	SAIDI	114	105.04	250.29
	SAIFI	.96	0.99	1.32
	CAIDI	126	105.66	189.48
Metro West	SAIDI	114	71.41	132.33
	SAIFI	.96	.77	.96
	CAIDI	126	92.79	138.3
Northwest	SAIDI	121	95.39	134.22
	SAIFI	1	0.9	.97
	CAIDI	139	105.85	138.48
Southeast	SAIDI	121	87.28	100.94
	SAIFI	1	.71	0.78
	CAIDI	139	122.43	130.04

Utility goals may rise or fall slightly from year to year due to external factors such as performance of peer institutions and weather. This makes it important to look at the overall trend lines of goals and actual performance. Figures 11-13 show Xcel’s SAIDI, SAIFI, and CAIDI trend lines over time for Xcel’s various service areas.

Figure 11: SAIDI Trends, 2014-2023



²⁵ Docket 24-27, Initial Filing, p. 37

Figure 12: SAIFI Trends, 2014-2023

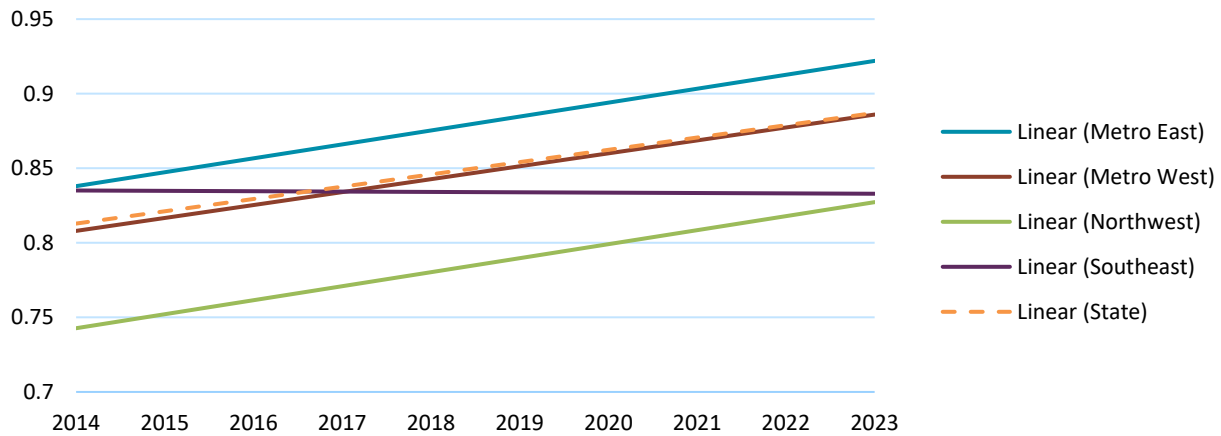
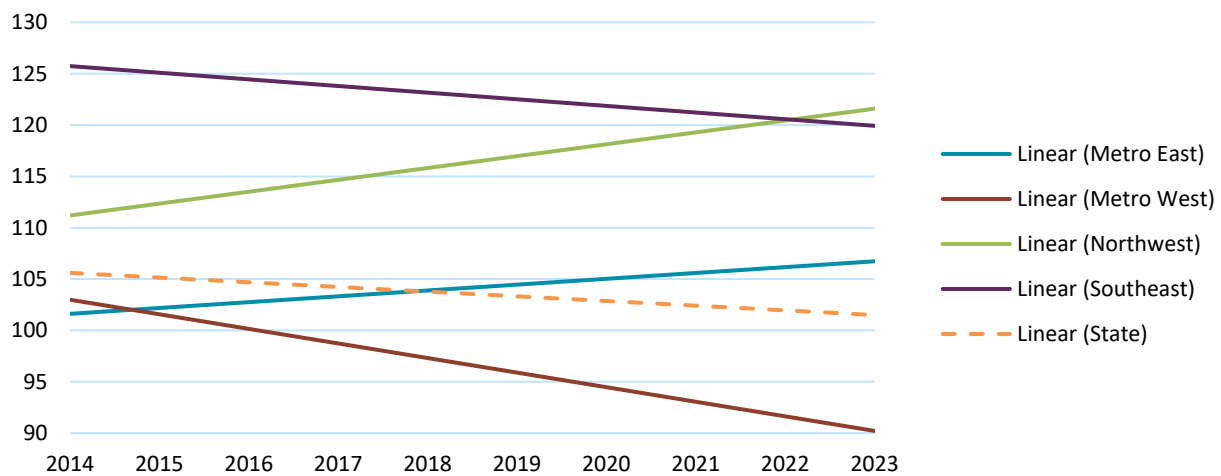


Figure 13: CAIDI Trends, 2014-2023



1. Department Comment

The Department noted that Xcel met almost all of its goals in 2023 except SAIFI for its Metro East work center. The Department noted it would continue to monitor this metric but had no further recommendations.

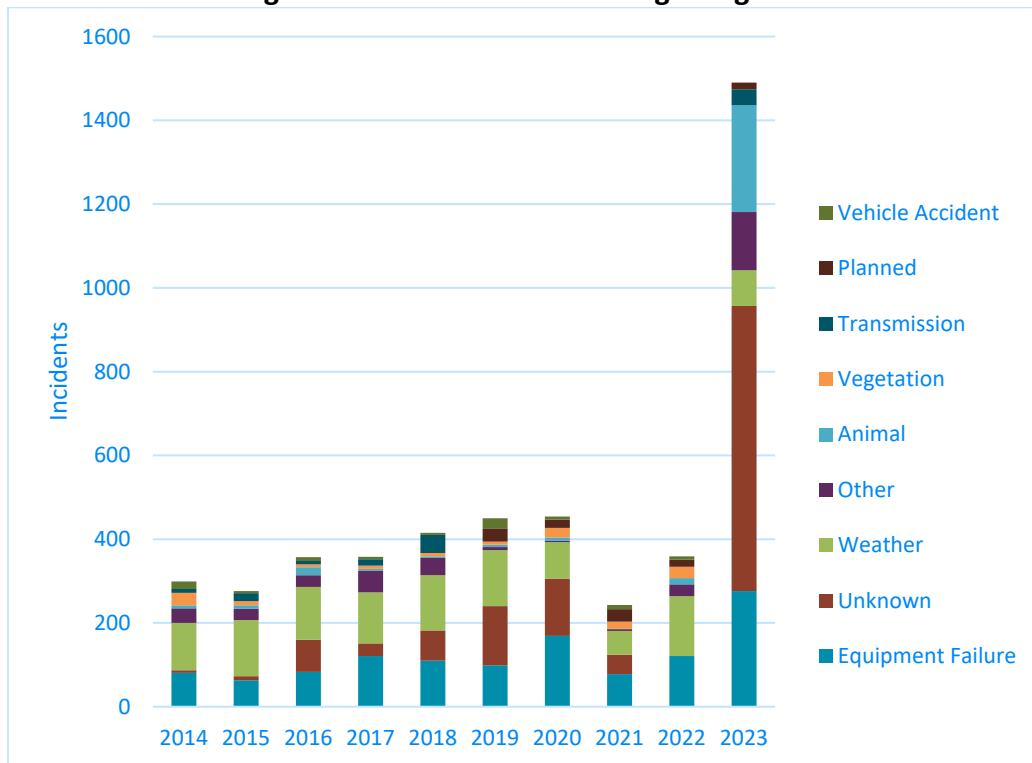
V. Power Outage Origins

A. Otter Tail Power

As in previous years, Otter Tail provided a table of outage causes by work center for its service

area. Staff has compiled Figure 9 showing causes over the past decade.²⁶ Weather and equipment failure are the most common causes of outages for OTP. In 2023 OTP saw a significant increase in outage origins, specifically in the unknown category, with comparatively slight increases in equipment failure and animal contacts. OTP indicated that this spike was caused by the implementation of its new Outage Management System, implemented on December 20, 2022.²⁷

Figure 9: Otter Tail Power Outage Origins²⁸



*Other includes: Bird, Bulk Power Loss, Flood, Fuse, Human error, Investigated and Unknown, Other, Overload, Underground, Vandalism

B. Xcel Energy

Below, Commission Staff provides Figure 10 showing Xcel’s sustained outage trends for 2014-2023 for all outages. This information is compiled due to Commission’s Order²⁹ collecting data on sustained outage causes by work center.

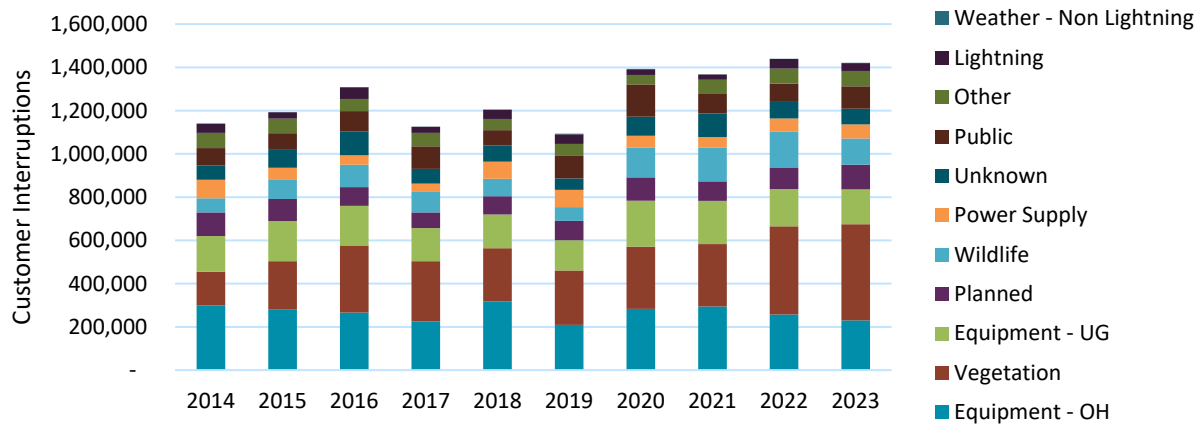
²⁶ Docket 24-30, Initial Filing, p. 13. In 2019 Otter Tail began reporting sources of outages with new categorizations in line with its new IMS. Staff has aligned new and old categories for comparison purposes.

²⁷ Docket 24-30, Initial Comment, p. 12

²⁸ Docket 24-30, Initial Comment, p. 13

²⁹ Docket 19-261, January 28, 2020 Order

Figure 10: Causes of Xcel Sustained Outages³⁰



The number of outages remained relatively steady in 2023 compared to recent years. Most outages are due to vegetation and equipment failure, which can be managed with tree trimming or equipment maintenance and equipment end-of-life retirements.

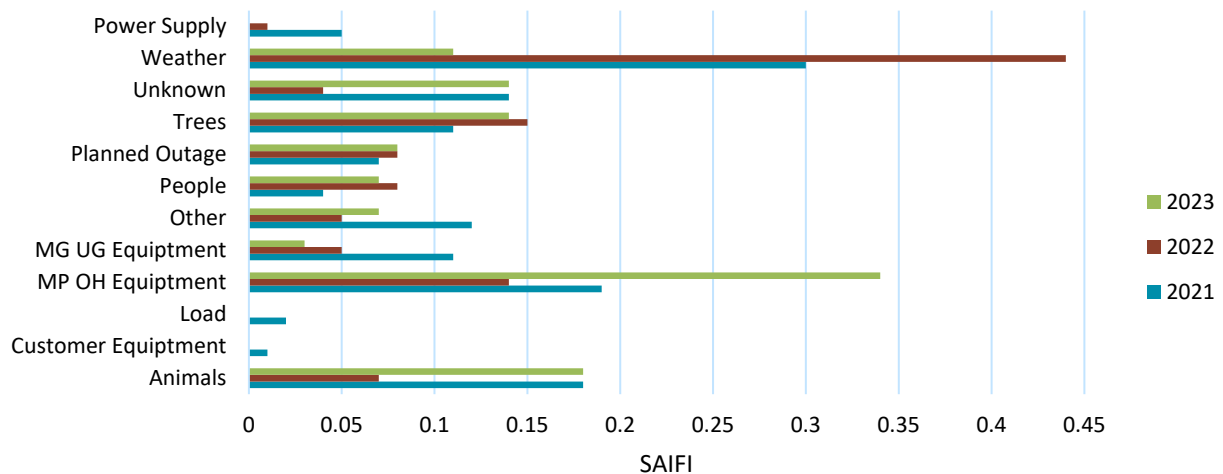
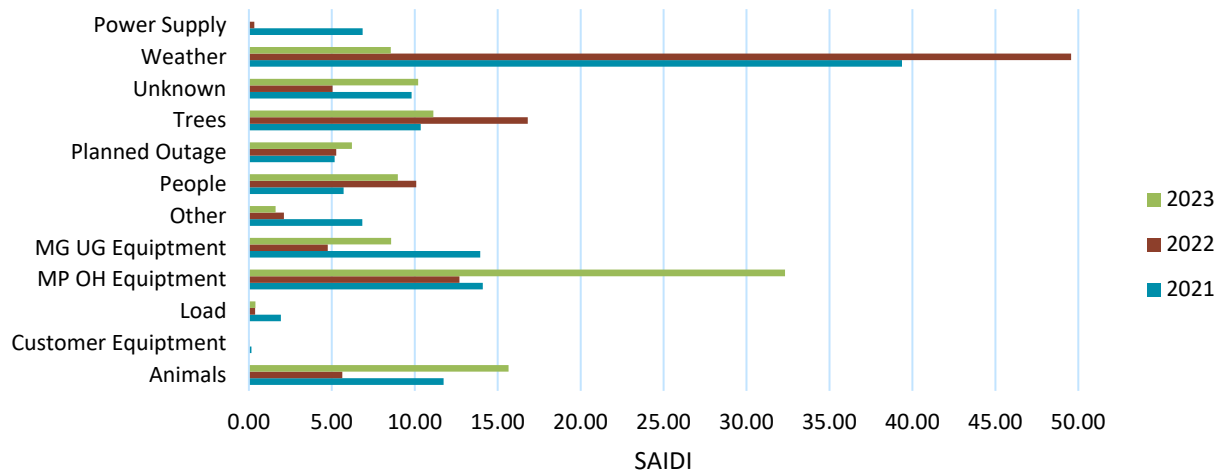
C. Minnesota Power

Minnesota Power depicted Major Event Day (MED)-excluded SAIDI and SAIFI values by cause, which highlights the causes of outages on major event days that are excluded when normalizing SAIDI or SAIFI. MP attributed 32% of these MED exclusions to equipment failure, 16% to wildlife interactions, 11% to vegetation, 10% to unknown causes, 9% to public events such as vehicular crashes, and 9% to weather events. To minimize these causes, MP discussed its TripSaver installations to clear temporary faults as well as its preventative maintenance program on substation and distribution equipment that will include replacement or refurbishment of switches, capacitor banks, reclosers, and new in 2024, voltage regulators.³¹

³⁰ Docket 24-27, Initial Filing Attachment K, Sheet “Minnesota SCI Cause Sum,” p. 1

³¹ Docket 24-29, Initial Filing, p. 18

Figure 11: Causes of MP Sustained Outages³²



VI. Work Center Staffing Levels

Minn. R. 7826.0500, Subp. 1(J), requires utilities to report “data on staffing levels at each work center, including the number of full-time equivalent positions held by field employees responsible for responding to trouble and for the operation and maintenance of distribution lines.” The Department stated that all three utilities complied with this rule.^{33,34,35}

A. Minnesota Power

Minnesota Power reported 104 line worker positions, along with 52 full time equivalent (FTE)

³² Docket 24-29, Initial Filing, pp. 19-20

³³ Docket 24-27, Department Comment, p. 43

³⁴ Docket 24-29, Department Comment, p. 17

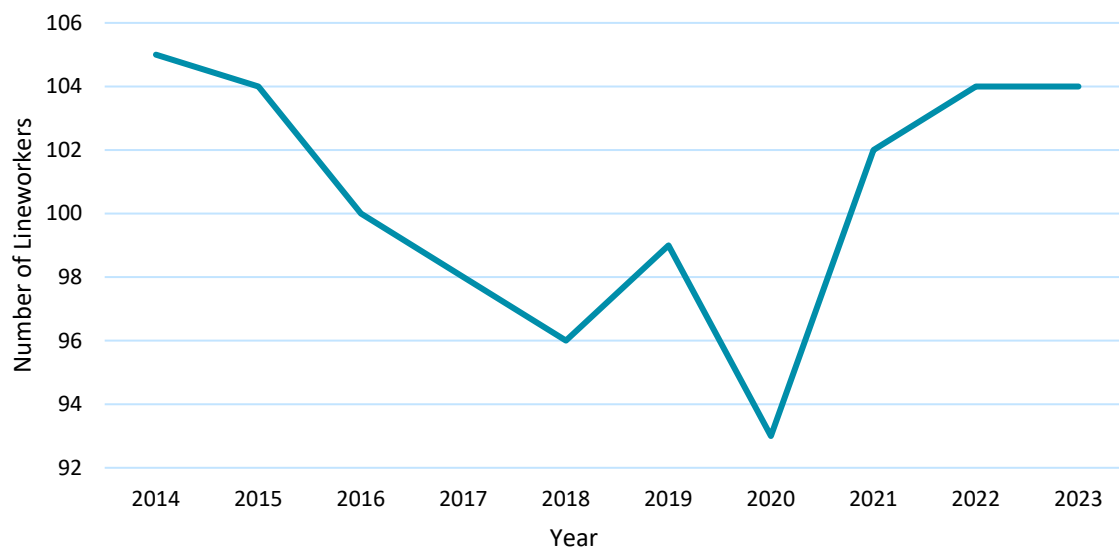
³⁵ Docket 24-30, Department Comment, p. 15

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel)**; **E-015/M-24-29 (MP)**; and **E-017/M-24-30 (OTP)**

contractor positions.³⁶ Historically, MP had been seeing a decline in line worker positions that was exacerbated by the COVID-19 pandemic emergency response. However, MP has worked to reverse that historical trend. Figure 107 depicts the overall level of line worker positions.

The Department raised a concern about MP's ratio of line worker contractors to employees. There was a significant increase in line contractors from 22 in 2021 and 25 in 2022, to 52 in 2023. The number of contractors serving the Company increased by 38% overall. MP explained that these contractors work on both the transmission and distribution systems and that the use of contractors helps to mitigate staffing challenges for certain roles.³⁷

Figure 107: MP Line Workers (FTE), 2014-2023



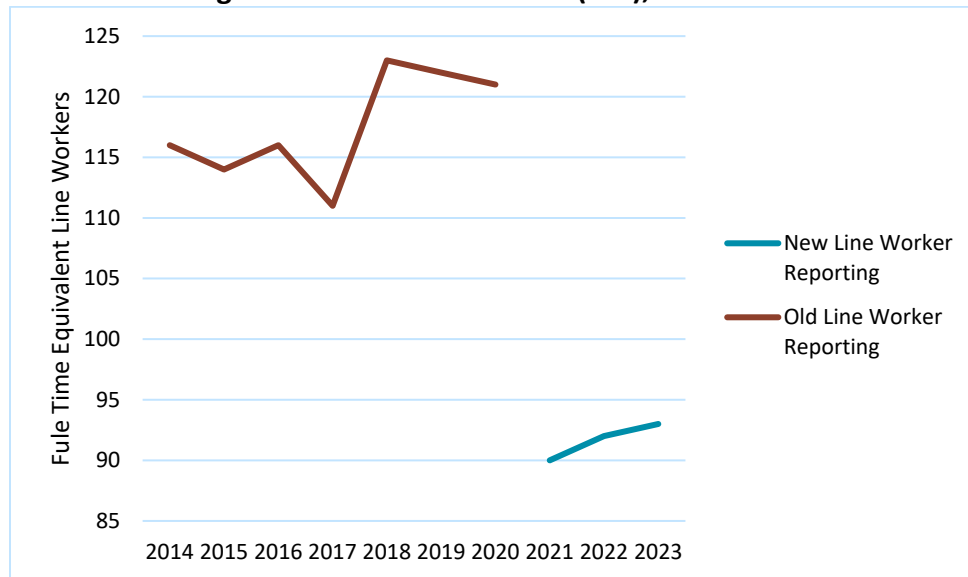
B. Otter Tail Power

OTP provided the number of line workers, depicted in Figure 18. OTP stated that the decrease in work center staffing between 2020 and 2021 is the result of an accounting change, and that operationally, the number of staff available did not change.³⁸ OTP asserted that it made this accounting change to provide more accurate accounting of FTE line workers specifically in Minnesota, removing workers in its service territory that bordered Minnesota from the count.

³⁶ Docket 24-29, Initial Filing, p. 55

³⁷ Docket 24-29, Department Comments, pp. 16-17

³⁸ OTP, Initial Filing, Docket 22-159, pdf p. 12

Figure 18: OTP Line Workers (FTE), 2014-2023**C. Xcel Energy**

In its compliance filing, Xcel provided updated staffing levels at its work centers broken down by linemen and support staff. Based on the updated information, Xcel's staffing levels are currently above the historical average in most work centers and in total. The Southeast Work Center has hired a number of staff since a low in 2017.

Table 7: Xcel Energy Line Worker Staffing Levels, 2014-2023³⁹

	Metro East	Metro West	Northwest	Southeast	Other*	Total
2014	126	176	33	53	46	434
2015	128	176	33	53	46	436
2016	124	184	30	47	46	431
2017	119	176	31	46	46	418
2018	124	180	32	49	47	432
2019	123	177	30	49	45	424
2020	125	181	31	49	49	435
2021	132	171	33	51	52	439
2022	135	188	32	58	50	463
2023	135	193	29	50	56	463
Historical Average	127	180	31	51	48	438

³⁹ Docket 24-27, Initial Filing, p. 79

Table 8: Xcel Energy Work Center Support (with Contractors) Staffing Levels, 2014-2023⁴⁰

	Metro East	Metro West	Northwest	Southeast	Other*	Total
2014	61	65	21	31	36	214
2015	60	63	22	34	35	214
2016	60	64	25	33	35	217
2017	64	75	21	34	35	229
2018	62	74	22	32	35	225
2019	59	79	22	31	35	226
2020	54	71	21	28	35	209
2021	55	83	22	32	36	228
2022	60	81	17	33	41	232
2023	53	76	16	40	25	210
Historical Average	59	73	21	33	35	220

* Xcel Energy employees associated with the Fargo and Sioux Falls Service Centers respond to trouble in western Minnesota and the Dakotas.

As shown in Table 7, Xcel has seen steady line worker employment since 2014. As shown in Table 8, Xcel has also seen steady employment for their Work Center Support.

D. Staff Analysis

After a challenging few years due to the COVID-19 pandemic impacting the employment market, all three utilities seem to have recovered to a reasonable staffing level when compared to their historical staffing levels. While Commission staff were previously concerned with the utilities' staffing losses, utilities have improved their staffing levels. Commission Staff will continue to monitor staffing levels for safety and quality of service, including the concern raised by the Department regarding Minnesota Power's contractor to FTE line worker ratio.

VII. Reliability by Class

In its March 19, 2019 Order, the Commission required the utilities to provide information on how different customer classes are impacted by outages.⁴¹

A. Minnesota Power

Average Service Availability Index (ASAI) represents the percentage of time that power was available.⁴² Minnesota Power reported the ASAI for each class. Minnesota Power's 2023 ASAI was similar to values in previous years.

⁴⁰ Docket 24-27, Initial Filing, p. 79

⁴¹ Docket E015/M-18-239, Order Point 3 and clarified in Docket E015/M-19-261, Order Point 2

⁴² Docket 24-29, Initial Filing, p. 6

Table 9: Minnesota Power Reliability by Customer Class (SAI)⁴³

Customer Class	Residential	Commercial	Industrial
2018	99.97500%	99.99558%	99.99992%
2019	99.97387%	99.99527%	99.99987%
2020	99.97115%	99.99480%	99.99991%
2021	99.98%	99.99%	99.99%
2022	99.98%	99.99%	99.99%
2023	99.98%	99.99%	99.99%

B. Otter Tail Power

This was the first year OTP was able to provide reliability by class information due to the implementation of its OMS. The Department noted generally that the performance by customer class shows reduced performance for residential customers when compared to commercial and industrial.⁴⁴

Table 10: Otter Tail Power Reliability by Customer Class

	SAIDI	SAIFI	CAIDI
Commercial	157.85	1.51	104.54
Industrial	124.64	1.31	95.15
Residential	180.78	1.46	123.82

C. Xcel Energy

The 2023 reporting year is the second year Xcel Energy was able to provide reliability data by customer class in accordance with Commission Order. Xcel Energy provided SAIDI, SAIFI, and CAIDI metrics for residential, commercial, and industrial customers. Xcel Energy theorized that the differences between customer classes are likely due to less vegetation in industrial and commercial areas along with shorter feeders due to higher load density and a higher percentage of customers with underground service.⁴⁵

Table 11: Xcel Energy Reliability by Customer Class⁴⁶

	Residential	Commercial	Industrial	All
SAIDI	89.1	75.4	68.3	86.4
SAIFI	0.88	0.75	0.69	0.85

⁴³ Docket 24-29, Initial Filing, p. 57

⁴⁴ Docket 24-30, Department Supplemental, p. 5

⁴⁵ Docket 24-27, Initial Filing, p. 46

⁴⁶ Docket 24-27, Initial Filing, p. 46

CAIDI	101	100	100	102
-------	-----	-----	-----	-----

As part of the introduction of reliability metrics by customer class, Order Point 6 of last year's SRSQ order in Docket 23-73 required the Company to discuss how to lower the difference in SAIDI, SAIFI, and CAIDI between feeders associated with different customer classes, including costs and benefits of implementation. Xcel Energy noted that higher load density of commercial and industrial customers necessitates shorter feeder lengths, which reduces exposure to outage risks. Xcel Energy stated the investments and improvements to meet first quartile reliability targets (discussed in Section XVII toward the end of the Briefing Paper) would serve to narrow the gap in customer class performance but noted that longer distances involved with residential and rural feeders would limit the opportunity to fully match the reliability performance of commercial and industrial areas.

The Department reviewed the Company's response and concluded the Company complied with this reporting requirement.⁴⁷

1. Staff Analysis

Vegetation management, shorter feeders, and undergrounding are solutions that are not class dependent. Xcel Energy noted that investments and improvements to meet first quartile reliability targets would narrow the gap in customer class performance.

VIII. MAIFI Reporting

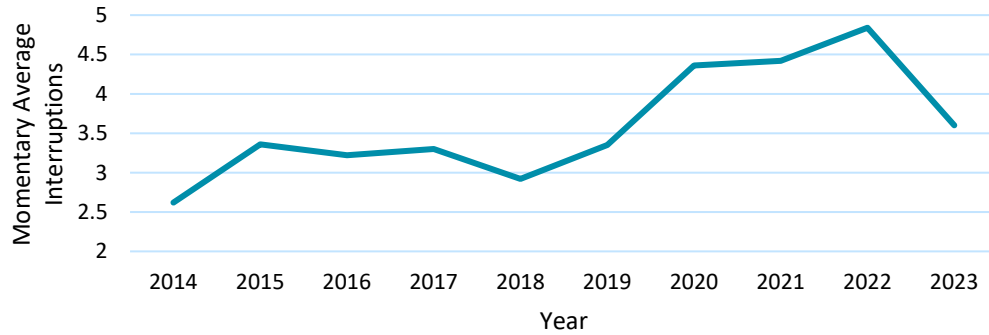
Momentary Average Interruption Frequency Index (MAIFI) consists of interruptions lasting less than five minutes, which are excluded from SAIDI, SAIFI, and CAIDI calculations. These types of interruptions tend to have a disproportionate impact on commercial and industrial customers for whom even a 30-second lapse in power can cause hours of lost productivity.

A. Minnesota Power

Below, Figure 11, is the most up to date storm excluded MAIFI data collected by MP.

⁴⁷ Docket 24-27, Department Comment, p. 48

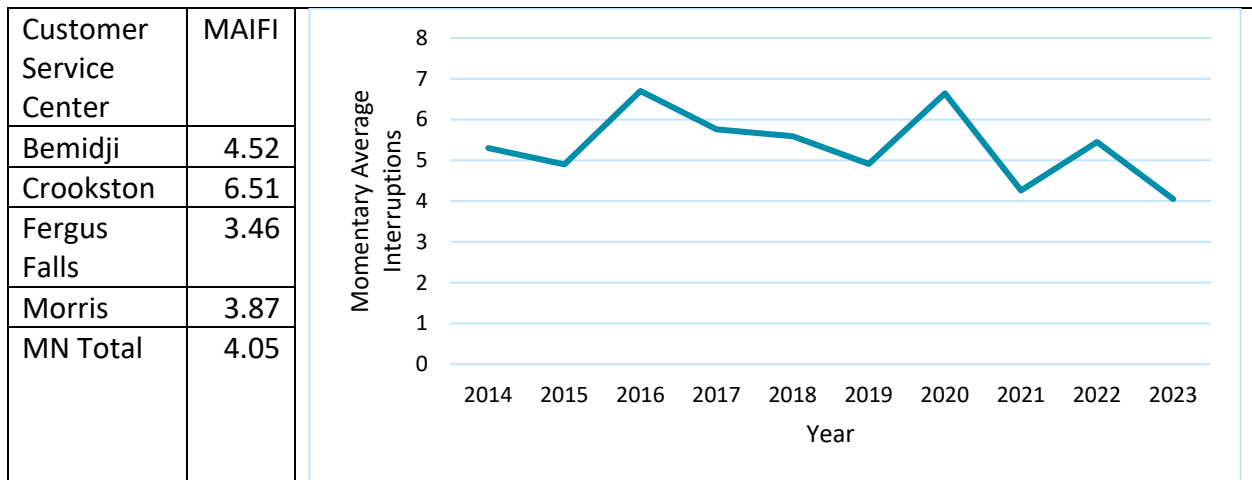
Figure 11: Minnesota Power MAIFI 2014-2023



B. Otter Tail Power

OTP indicated that it uses MAIFI as a predictor of future SAIDI values. This means OTP can utilize MAIFI values to seek out line sections with high MAIFI for additional vegetation management or infrastructure investments to reduce the risk of outages in the future.⁴⁸ Figure 13 depicts OTP’s 2023 and historic MAIFI values.

Figure 13: Otter Tail Power MAIFI (non-normalized)⁴⁹



C. Xcel Energy

Xcel provided MAIFI calculations for its feeders that are SCADA-enabled using the IEEE Momentary Interruption Event Definition, which is the aggregation of all momentary interruptions of one or more reclosing types of interrupting devices, completed in five minutes or less, that do not result in a sustained loss of power delivery to one or more customer.⁵⁰ Xcel noted that “momentary outage information is available at the Feeder-level and above, by

⁴⁸ Docket 24-30, Initial Filing, p. 6

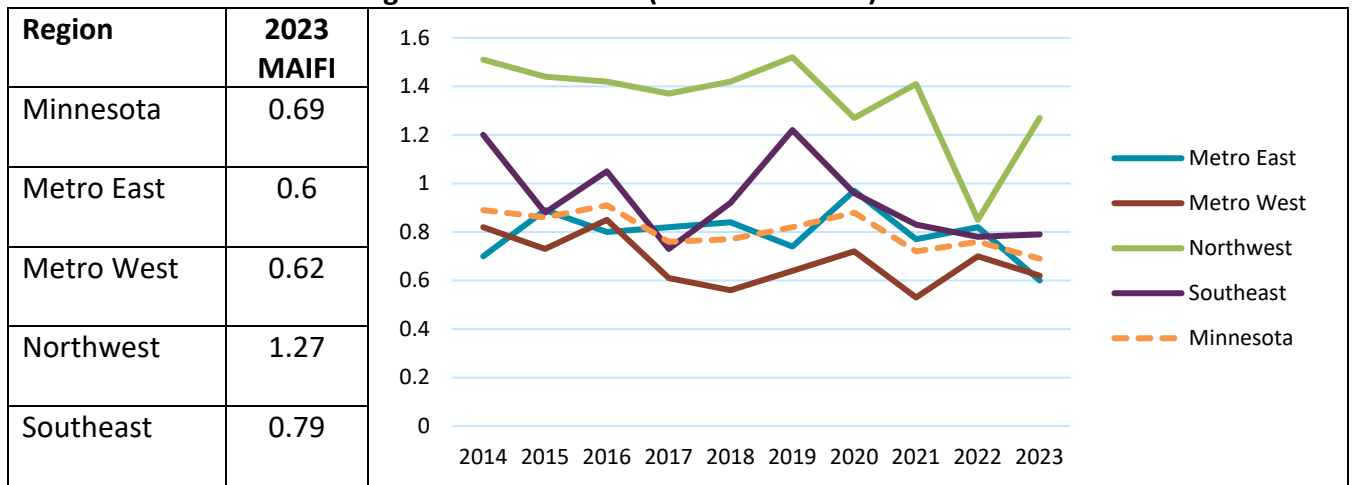
⁴⁹ OTP, Initial Filing, Docket 22-159, pdf p. 12

⁵⁰ IEEE Guide for Electric Power Distribution Reliability Indices, definition 3.14

Feeder circuit, and only on Feeders that are located in substations with Supervisory Control and Data Acquisition (SCADA) capability. With current distribution infrastructure, there is SCADA capacity at 68 percent of our substations and approximately 90 percent of our customers are served from these substations.”⁵¹

These calculations depended on which method the Company used: non-normalized, IEEE, or QSP method. Figure 14 depicts Xcel’s non-normalized 2023 results.

Figure 14: Xcel MAIFI (non-normalized)⁵²



IX. CEMI and CELI

Customers Experiencing Multiple Interruptions (CEMI) and Customers Experiencing Lengthy Interruptions (CELI) focus on customers who deal with repeated or longer-than-average outages.⁵³ The Commission required reporting at the following intervals:

CEMI – normalized and non-normalized, percent of customers experiencing more than 4, 5, or 6 outages in a year.

CELI –percent of customers experiencing outages lasting longer than 6 hours, 12 hours, and 24 hours.

The Commission also required utilities to report the longest interruption and the most interruptions experienced by any one customer (or feeder, if customer level data is not available).⁵⁴

⁵¹ Docket 24-27, Initial Filing, p. 80

⁵² Docket 24-27, Initial Filing, p. 80

⁵³ The Commission required utilities to report on CEMI and CELI in its March 19, 2019 Order accepting the 2017 reports. Order Accepting Reports, Setting 2018 Reliability Standards, and Setting Future Reporting Requirements, Docket 18-250.

⁵⁴ Order Accepting Reports, Setting Reliability Standards, and Requiring Additional Filings, Docket Nos. 19-261, 19-260, 19-254

A. Minnesota Power

Figure 20 shows Minnesota Power’s non-normalized CEMI performance over the past 10 years while figure 21 depicts CELI over the same time period. The longest experienced interruption was by one customer in the Northern Work Center, with an outage lasting 6,360 minutes (106 hours) due to a structure fire burning down secondary wires and damaging the service point adjacent to the customer’s property. The Western Work Center had the highest CEMI feeder with 7.83 outages.⁵⁵

Figure 20: Minnesota Power Non-Normalized CEMI

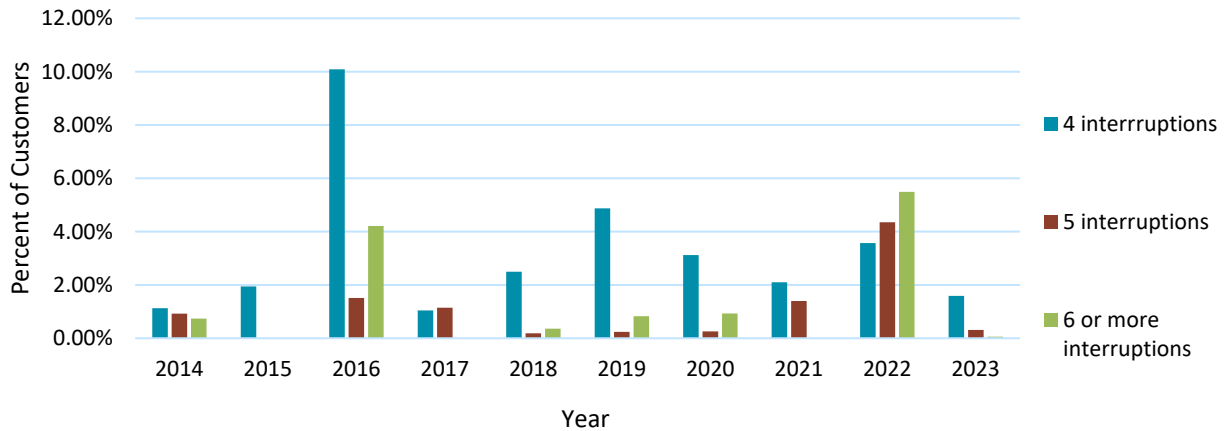
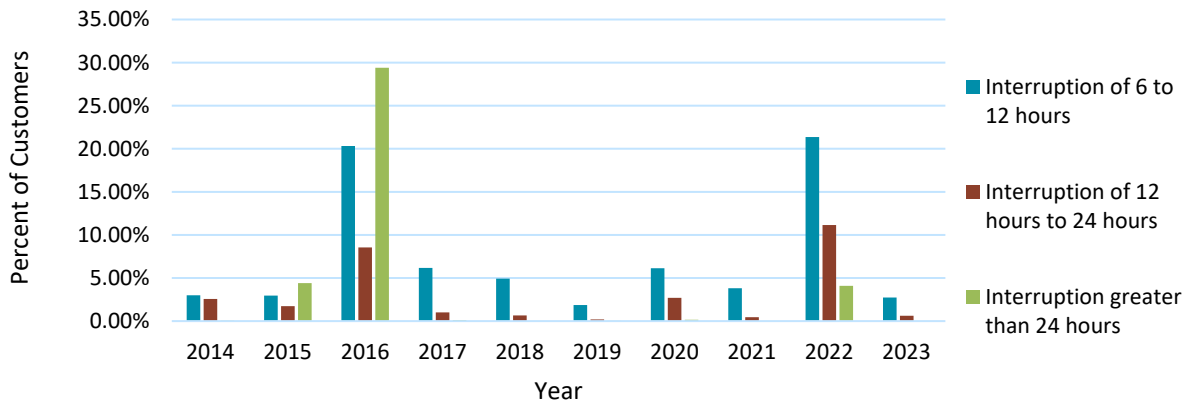


Figure 21: Minnesota Power Non-Normalized CELI



B. Otter Tail Power

Figure 22 shows Otter Tail’s non-normalized CEMI performance over the past 10 years for customers experiencing 4, 5, or 6+ outages in a year.

The longest experienced interruption lasted over 10 hours and 11 minutes. The North Feeder from Wheaton Substation experienced the most interruptions with 5 sustained interruptions

⁵⁵ Docket 24-29, Initial Filing, p. 56

and 12 momentary interruptions.⁵⁶ This substation is scheduled for vegetation management and upgrades in 2024.⁵⁷

Figure 22: Otter Tail Non-Normalized CEMI

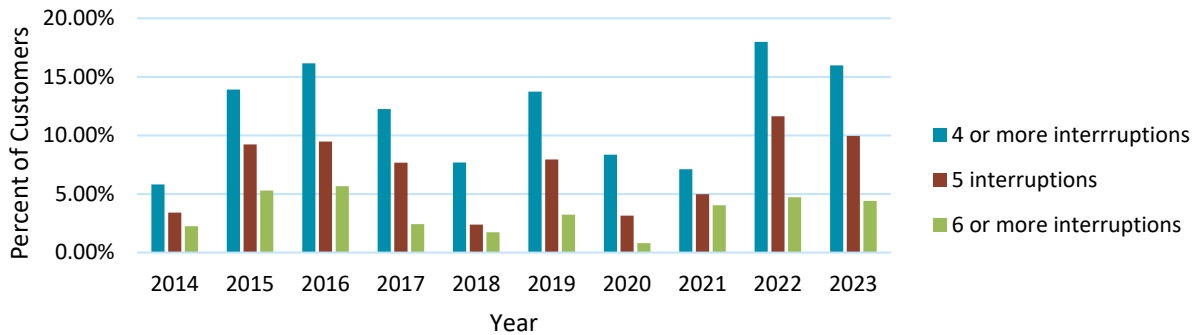
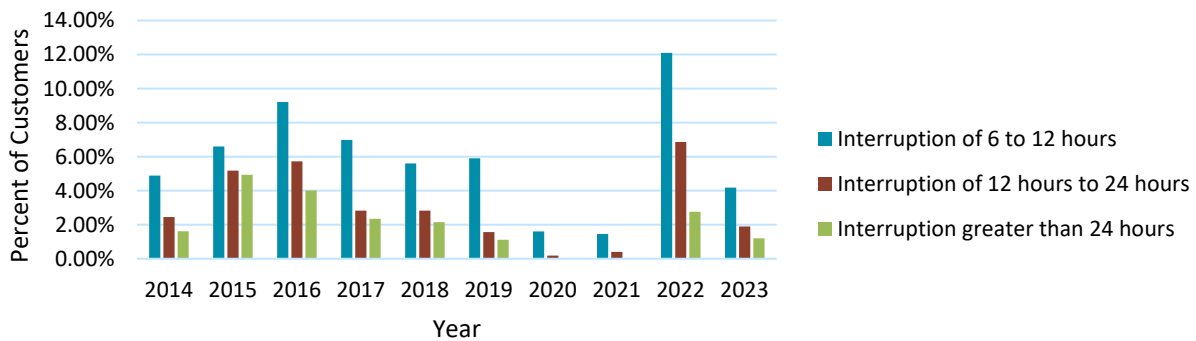


Figure 23 indicates the percentage of customers experiencing outages of 6, 12, or 24 hours or longer for 2014-2023.

Figure 23: Otter Tail Non-Normalized CELI



C. Xcel Energy

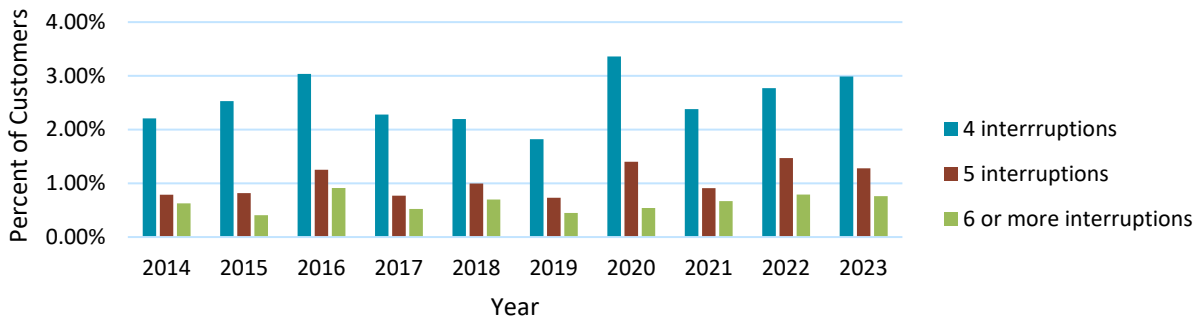
Figure 24 shows Xcel Energy’s non-normalized CEMI performance over the past 10 years for customers. The most outages experienced was 14 (experienced by 5 customers in the Metro East region). A majority of these outages were weather related due to major storms or tree limb contact.⁵⁸

⁵⁶ Docket 24-30, Initial Filing, p.34

⁵⁷ Docket 24-30, Department Comment, p. 24

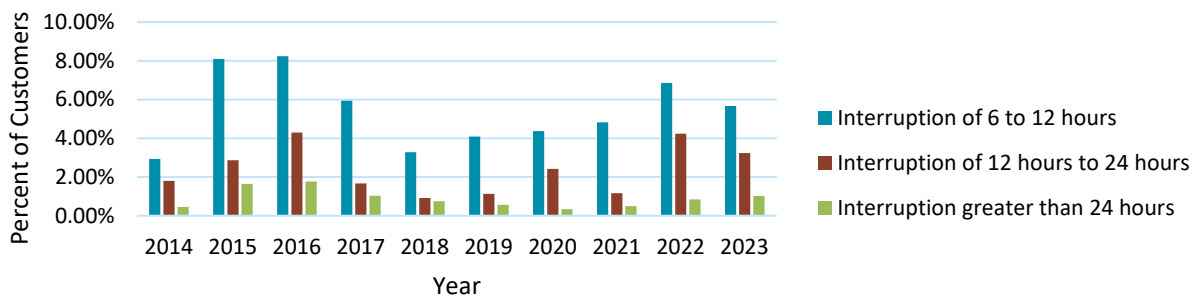
⁵⁸ Docket 24-27, Initial Filing, p. 89

Figure 24: Xcel Non-Normalized CEMI⁵⁹



In 2023 the longest normalized outage lasted over 120 hours during a planned outage due to tree cutting, impacting two customers in the Metro West Region.⁶⁰

Figure 25: Xcel Non-Normalized CELI⁶¹



X. Estimated Restoration Times

In its March 2019 Order, the Commission required utilities to report on the accuracy of their estimates for when power will be restored to customers who have lost service.

A. Minnesota Power

Minnesota Power provided data indicating over 81.7% of estimated restoration times were met or exceeded, with 18.3% underestimating the amount of time to restore power by over 30 minutes. This is the second year Minnesota Power has tracked the information.⁶²

⁵⁹ Docket 24-27, Initial Filing, p. 89

⁶⁰ Docket 24-27, Initial Filing, p. 92

⁶¹ Docket 24-27, Initial Filing, p. 91

⁶² Docket 24-29, Initial Filing, p. 57

B. Otter Tail Power

With the implementation of Otter Tail's OMS system at the end of 2022, this year is the first submitting this data. 86.45% of estimated restoration times were met or exceeded while 13.54% underestimated the amount of time to restore power by over 30 minutes.⁶³

C. Xcel Energy

To measure estimated restoration time, Xcel uses a window beginning 90 minutes before the estimated restoration time and lasting up until the actual time (reported as -90 to 0). Xcel's restoration accuracy estimates for Minnesota increased slightly in 2023, from 51.6% of customers having their power restored either before or up to the stated restoration event time in 2022 to 57.7% in 2023. In its 2019 Order, the Commission requested Xcel provide the percent of outages restored 0 to 30 minutes after the estimated time, which was 8.2% in 2023, slightly lower compared to 2022.⁶⁴

XI. Worst Performing Feeder

Minn. R. 7826.0500, Subp. 1(H), requires utilities to file, "to the extent technically feasible, circuit interruption data, including identifying the worst performing circuit in each work center, stating the criteria the utility used to identify the worst performing circuit, stating the circuit's SAIDI, SAIFI, and CAIDI, explaining the reasons that the circuit's performance is in last place, and describing any operational changes the utility has made, is considering, or intends to make to improve its performance."

A. Minnesota Power

Minnesota Power identified its four worst performing feeders, two urban and two rural for each of its three work centers (12 total).⁶⁵ The highest CAIDI was Hoyt Lakes 2 which had outages impacting 836 customers in the Northern Work Center. The highest SAIDI was in the Central Work Center at Big Rock 272, impacting 9 customers. Weather, equipment failures, vehicle accidents, and planned outages were the leading causes of poor performance.⁶⁶

B. Otter Tail Power

OTP explained it changed its internal methods for determining its worst performing feeders in 2019, shifting to include MAIFI in its calculations, instead of just sustained outage metrics. It identified its worst performing feeders in each work center.⁶⁷ OTP's worst performing feeders included the South Feeder from the Crookston Barrette Street Substation which experienced

⁶³ Docket 24-30, Initial Filing, p. 35

⁶⁴ Docket 24-27, Initial Filing, p.76

⁶⁵ Docket 24-29, Initial Filing, p. 51

⁶⁶ Docket 24-29, Initial Filing, pp. 51-53

⁶⁷ Docket 24-30, Initial Filing, p. 17

two sustained and seven momentary interruptions impacting 834 customers. Both of the sustained interruptions were weather related. In 2023, OTP started a project to convert portions of overhead line to underground which continues into 2024. Otter Tail stated they would continue to monitor and investigate upgrades to this feeder to ensure improved results into the future.⁶⁸

C. Xcel Energy

Xcel Energy identified the five worst performing feeders for each of the four work centers, and the efforts taken to improve them, funded through its Feeder Performance Improvement Plan. The improvement efforts included scheduled tree trimming, equipment and pole structure repair or replacement if necessary, undergrounding, and installing TripSavers.⁶⁹

XII. Major Service Interruptions

Minn. R. 7826.0500, Subp. 1(G), requires utilities to file copies of reports submitted to the Commission's Consumer Affairs Office under Minn. R. 7826.0700. Utilities must provide the following information on major service interruptions:

- A. the location and cause of the interruption;
- B. the number of customers affected;
- C. the expected duration of the interruption; and
- D. the utility's best estimate of when service will be restored, by geographical area.

In its December 18, 2020 Order the Commission varied Minn. R. 7826.0500, Subp. 1(G), to reduce contemporaneous reporting of major outages to the Commission's Consumer Affairs Office as well as with their SRSQ report.⁷⁰ With this variance, the utilities were not required to provide copies of the contemporaneous reporting with their annual reports, but they did provide a summary of major outage reporting.

A. Minnesota Power

MP identified 23 major service interruptions.⁷¹ The Department noted a majority of the interruptions were caused by wildlife or weather.⁷²

B. Otter Tail Power

Otter Tail Power reported 26 major service interruptions.⁷³ The Department noted the interruption affecting the most customers and the interruption lasting the longest related to

⁶⁸ Docket 24-30, Initial Filing, p. 18

⁶⁹ Docket 24-27, Initial Filing Attachment M, pp.1-4

⁷⁰ Order Point 4, Docket Nos E002/M-20-406; E017/M-20-401; E015/M-20-404

⁷¹ Docket 24-29, Initial Filing, pp. 49-50; Docket 24-29, Initial Filing, Appendix A

⁷² Docket 24-29, Department Comment, p. 13

⁷³ Docket 24-30, Initial filing, Attachment 1

weather events and that OTP developed design improvements to mitigate future interruptions on transmission lines related to wind and ice.⁷⁴

C. Xcel Energy

Xcel Energy reported 304 major service interruptions for 2023.⁷⁵

The Department expressed concern about the increase in reported and unreported major service interruptions in 2023. Xcel Energy attributed the increase to poor weather conditions in 2022 and 2023. To improve this performance metric, the Company noted its investments in its distribution system including Fault Location, Isolation, and Service Restoration (FLISR) projects and Advanced Metering Infrastructure (AMI) which should improve the information provided to the OMS, leading to more efficient remediation efforts. The Department, in its analysis, found that while the number of major service interruptions was elevated, it was not an outlier.⁷⁶

XIII. Bulk Power Interruptions

Minn. R. 7826.0500, Subp. 1(F), requires, “to the extent feasible, a report on each interruption of a bulk power supply facility during the calendar year, including the reasons for interruption, duration of interruption, and any remedial steps that have been taken or will be taken to prevent future interruption.”

Otter Tail Power reported two bulk power supply interruptions causing outages for 84 and 67 minutes respectively.⁷⁷ The Department received an explanation from OTP highlighting OTP’s investigation into the cause (a conductor failure due to an improperly installed trunnion clamp) and its remedial steps to prevent future interruptions, which included replacement with an improved clamp that has increased vibration dampening characteristics. OTP noted it no longer uses the type of trunnion clamp that failed.⁷⁸

MP identified 23 bulk power interruptions, finding one of the interruptions occurred due to winter snow weighted branches making contact with the line and another was due to a planned outage. The third cause is unknown.⁷⁹ The Department noted a majority of the interruptions were caused by wildlife or weather.⁸⁰

Xcel Energy did not have any generation outages for 2023 but had 22 bulk power supply interruptions. Remedial steps taken included repair and replacement of poles and sires,

⁷⁴ Docket 24-30, Department Comment, p. 12

⁷⁵ Docket 24-27, Initial Filing, p. 74

⁷⁶ Docket 24-27, Department Supplemental, pp. 3-4

⁷⁷ Docket 24-30, Initial filing, p. 16

⁷⁸ Docket 24-29, Department Comment, p. 12

⁷⁹ Docket 24-29, Initial Filing, pp. 49-50; Docket 24-29, Initial Filing, Appendix A

⁸⁰ Docket 24-29, Department Comment, p. 13

vegetation management, and galloping isolation.⁸¹

XIV. Voltage Violations

Minn. R. 7826.0500, Subp. 1(l), requires utilities to submit “data on all known instances in which nominal electric service voltages on the utility’s side of the meter did not meet the standards of the American National Standards Institute for nominal system voltages greater or less than voltage range B.”

A. Minnesota Power

Minnesota Power reported 17 ANSI Voltage Range B violations in 2023 which were attributed to overhead and underground equipment malfunctions.⁸² The Department noted the 10-year average for MP is 15.6 violations with no clear trend.⁸³

B. Otter Tail Power

OTP provided a table listing the feeders and number of known occurrences where the voltage fell outside the American National Standards Institute (ANSI) voltage Range B in 2023. OTP noted that most of the feeders with numerous occurrences were feeders serving a single large customer with a very large load.⁸⁴ The Department summarized the violations, noting an increase in below threshold events since 2019. OTP explained to the Department that in 2020 the Company began reporting instantaneous intervals where previously it reported only violations lasting greater than five minutes.⁸⁵

C. Xcel Energy

Xcel Energy reported 319 investigations for voltage violations in 2023. Of these, approximately 34%, or 113, resulted in a specific voltage problem. The number of investigations and voltage problems diagnosed were respectively 8% and 29% above the 10-year average according to the Department of Commerce.⁸⁶

XV. Grid Modernization Impacts on Reliability Metrics

In its March 19, 2019 Order, the Commission requested utilities discuss the impact of grid modernization investments on measures of reliability, along with investments that could improve tracking of outages or power quality issues. After reviewing utility responses in the

⁸¹ Docket 24-27, Initial Filing, Attachment N

⁸² Docket 24-29, Initial Filing, p. 53

⁸³ Docket 24-29, Department Comment, p. 15

⁸⁴ Docket 24-30, Initial Filing, pp. 20-25

⁸⁵ Docket 24-30, Department Comment, p. 14

⁸⁶ Docket 24-27, Department Comment, p. 41

2018 reports, the Commission asked for input on a potential new comparison relating to grid modernization:

Provide a comparison of the reliability (SAIDI, SAIFI, CAIDI, MAIFI, normalized/non-normalized) of feeders with grid modernization investments such as Advanced Metering Infrastructure (AMI) or Fault Location Isolation and Service Restoration (FLISR), to the historic 5-year average reliability for the same feeders before grid modernization investments.

Xcel Energy again expressed concern that the metric as outlined above could take a long time to show results given annual variability in reliability due to severe weather. Xcel Energy explained improvements from grid modernization are expected to be gradual, not immediate. The utility is working to expand its initial test area and feeders with its Open Loop FLISR as well as develop a deployment plan to expand the FLISR footprint. That deployment plan is expected to conclude in 2027. The Company also continued integration efforts of AMI in 2022 and 2023 which will be used to enhance response to outages and improve reliability performance. Xcel noted that while performance is expected to increase, the increased granularity may reflect a decline in reported reliability metrics.⁸⁷

OTP indicated any metric would not currently be applicable as OTP does not have FLISR or AMI installed. OTP expects to complete AMI installations in 2025.⁸⁸

MP discussed continued implementation of TripSavers, use of FLISR, and strategic undergrounding as well as smart sensors and intelligent reclosers. As of 2023, MP has 292 TripSavers. Additionally, MP installed 13 IntelliRupters in 2023.⁸⁹ MP stated these improvements have already shown promise. For example, a fault was detected on a feeder and 3,034 customers were automatically restored with only a momentary outage to the upstream customers.⁹⁰

1. Staff Analysis

Commission Staff continues to recommend the comparison language above for utilities as grid modernization improvements continue to be implemented. Utilities continue to describe grid modernization improvements in detail in their Integrated Distribution Plans, but Staff wishes to see more directly how those improvements benefit the reliability metrics highlighted in these SRSQ reports. Commission Staff is aware of the potential for lengthy data reporting, and proposed for the purposes of the report that utilities provide aggregate comparisons of feeders—for example, the SAIDI of *all* feeders with grid modernization investments compared to the historic 5-year average SAIDI for the same set of feeders for the years preceding grid modernization improvements. This would also help assist in the variable nature when looking at

⁸⁷ Docket 24-27, Initial Filing, pp. 47-48

⁸⁸ Docket 24-30, Initial Filing, p. 36

⁸⁹ Docket 24-29, Initial Filing, p. 25

⁹⁰ Docket 24-29, Initial Filing, p. 27

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel)**; **E-015/M-24-29 (MP)**; and **E-017/M-24-30 (OTP)**

feeder level reliability. Commission Staff continue to recommend utilities start including feeders in the calculations only after grid modernization improvements have been implemented for one full calendar year.

As these data points begin to be submitted, Commission Staff will begin to analyze effectiveness of these investments moving forward. Preliminary discussion and data from MP look promising and staff looks forward to future years to compare to.

Staff notes that the Commission required Xcel to include feeder level reporting on its installation of Fault Location, Isolation, and Service Restoration (FLISR), a grid modernization initiative, in its 2021 Rate case. While the installation of FLISR is still ongoing, this is an example of how the Commission can track the impacts of grid modernization on reliability performance.

XVI. Safety

Utilities report two categories in their annual safety reports:

1. Occupational Illness and Injuries: summaries of all reports filed with the United States Occupational Safety and Health Administration (OSHA) and the Occupational Safety and Health Division (OSHD) of the Minnesota Department of Labor and Industry during the calendar year (Minn. R. 7826.0400, Part A)
2. Property Damage Claims: 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. (Minn. R. 7826.0400, Part B)

A. Minnesota Power

The Department noted no significant increase or decrease in OSHA and OSHD reports filed; however, it did note an increase in the number of days of job transfers or restrictions compared to MP's 10-year average. MP also reported three skin disorder injuries or illnesses in 2022 and 2023 following years without a report. MP explained these were suspected or confirmed to be caused by poison ivy. The Company has provided hazard identification and treatment training for poison ivy exposures.⁹¹ The Company paid out property damage claims were down from year to year and from the 10-year average.⁹²

B. Otter Tail Power

The Department provided tables showing OTP's historic incident rate, which indicated that 2023 saw higher than average total annual days away from work.⁹³ The Department highlighted the Company had its lowest number of injuries since 2014. OTP had no property

⁹¹ Docket 24-29, Department Comment, pp. 5-6

⁹² Docket 24-29, Department Comment, p. 6

⁹³ Docket 24-30, Department Comment, p. 4

damage claims for 2023.⁹⁴

C. Xcel Energy

The Department noted an increase in Xcel Energy employees with respiratory conditions jumping from zero, to two in 2020, 16 in 2021 and 19 in 2022. Xcel Energy stated these results were directly related to COVID-19 and OSHA-mandated recording of all cases deemed to have a work-related exposure. In 2023, there was only one reported respiratory condition.⁹⁵

Xcel saw 78 property damage claims in 2023, slightly above their 10-year average. To review the amount paid in claims compared to the 10-year average, review the Department's Trade Secret Comment.⁹⁶

XVII. Xcel Energy's Incremental Costs Associated with Achieving First Quartile Performance

Order Point 5 of the Commission's 2023 SRSQ Order in Docket 23-73 directed Xcel Energy to provide an analysis of the incremental costs associated with achieving IEEE first quartile performance that included a discussion of timeframes, costs, and benefits. This order point came about via a recommendation by the City of Minneapolis. The City was referred to the SRSQ docket after raising concerns regarding locational reliability. The City shared U.S. Energy Information Administration data that showed significant disparity in service reliability levels between Xcel Energy and neighboring utilities in the Metro Twin Cities area.⁹⁷ At the time, the City requested the Commission direct Xcel to create a plan to close the locational reliability gap. Below is a summary of Xcel Energy's analysis and the Department's comments regarding it. The City of Minneapolis did not participate in this docket this year.

A. Xcel Energy

Xcel Energy showed the average difference between its performance and the threshold of the IEEE first quartile is less than 3% for SAIDI and SAIFI while being less than 5% for CAIDI. However, the Company noted that these seemingly small percentages do not accurately reflect the significant improvement required to meet a first quartile goal.⁹⁸

Xcel Energy highlighted a number of approaches to improve system reliability such as its current FLISR deployment which improves SAIDI and SAIFI. Xcel Energy argued expanding FLISR at the scale required to target first quartile SAIDI and SAIFI would have diminishing returns due to need for additional distribution lines and system capacity to establish the required system switching ties for FLISR schemes.

⁹⁴ Docket 24-30, Department Comment, p. 5

⁹⁵ Docket 24-27, Department Comment, p. 6

⁹⁶ *Id.*

⁹⁷ EIA data can be found in Docket 23-73, Minneapolis Comments, p. 3

⁹⁸ Docket 24-27, Initial Filing, p. 96

Xcel Energy also examined targeted distribution line undergrounding which would focus on overhead lines with the largest impacts to system reliability and convert those facilities underground to reduce outage risks such as vegetation impacts and weather-related events. A review of the Company's outage data found that roughly 85% of customer minutes of service interruptions on distribution lines originate on overhead systems, despite overhead systems representing only 55% of the total line miles. According to the Company's high-level estimate, a move to first quartile performance could be achieved by targeting 171 feeders with the highest number of customer interruptions per overhead line mile. Currently these feeders have 1,157 miles of overhead distribution lines with an average of over 300,000 customer interruptions per year. These areas contained 14.5% of customers experiencing six or more outages per year and 21% of customers experiencing outages of 24 hours or more.⁹⁹

Xcel noted the costs associated with undergrounding are extremely variable based on location (urban or rural) and route. The Company estimated a program for first quartile performance could be expected to cost between \$1 billion and \$2 billion in total for the service territory but would need significant refinement before approval. On the benefits side, the Company estimated an average value to underground to be \$350 per customer interruption. Xcel Energy estimated that avoiding the 300,000 customer interruptions per year would be valued at \$105 million per year. Xcel Energy also noted that there would be operational savings due to lower operations and maintenance costs. Based on the 1,157 miles of undergrounding, the Company estimated it would reduce routine vegetation management costs by several million dollars per year. The Company also highlighted potential savings from storm damages, which it valued at \$5 million per year in savings. The Company also estimated a reduction of \$3 million per year in pole inspections and replacement costs.¹⁰⁰

With regards to timing, the Company stated it could begin pilot projects for a program in late 2025 with a ramp up over three years. Completion of the investments required to meet first quartile performance would take nearly 10 years with unknown variables over that timeframe including at-scale program costs, labor and material availability, supply chain availability, and future cost inflation rates. Xcel Energy stated it already has plans in development to pilot targeted undergrounding projects in some locations with high reliability value but lower construction and permitting complexity and will be bringing the proposal before the Commission when the plan is fully developed.¹⁰¹

B. Department

For context, the Department noted Xcel would need to produce a 10-15 minute improvement in its SAIDI levels, an 8-10 minute improvement in CAIDI levels and a SAIFI improvement of .1 to

⁹⁹ Docket 24-27, Initial Filing, p. 97

¹⁰⁰ Docket 24-27, Initial Filing, p. 98

¹⁰¹ Docket 24-27, Initial Filing, p. 99

.17 to meet first quartile goals. This would mean a 11-17% decline in SAIDI, a 8-10% decline in CAIDI, and a 12-20% decrease in SAIFI.¹⁰²

The Department expressed concerns regarding the Company's use of the Interruption Cost Estimate tool to craft the \$350 value of undergrounding to customer per interruption. The Department estimated the value of a customer interruption to be between \$7.50 and \$8.33 per interruption via Xcel Energy's Quality of Service Plan (QSP) tariff. This would come to \$2.25 million to \$2.5 million annually for the avoided average of 300,000 interruptions. The Department believed this estimate to suggest the benefits identified from improving the distribution system are negligible when compared to the costs and was uncomfortable with this inconsistency.

As a first step, the Department recommended Xcel Energy update its customer outage credits for the QSP to reflect an updated and reasonable cost per customer per interruption.

After review, the Department concluded Xcel complied with this reporting requirement.¹⁰³

C. Staff Analysis

Staff discusses this matter in Volume 3, where there are related discussions about improving reliability for the Company. As Staff noted in Volume 3, it is difficult to evaluate this type of analysis in the SRSQ docket without the context of the Company's overall distribution budget and initiatives, which are discussed in Xcel's rate cases and integrated distribution plans (IDPs). In the Company's 2023 IDP the forecasted distribution budget for reliability indicated substantial increases, however there was not a discussion of what resulting improvements in reliability may be associated with that spending. Staff notes that continued discussion about how to synchronize the discussion of reliability results in the SRSQ dockets and reliability spending in the IDP could help bridge this gap. As discussed in Volume 3, Staff believes this could occur through the Distribution Data Reporting Workgroup established as part of the Company's 2023 IDP.

XVIII. Staff Recommendations Discussion

While Staff notes there have been no recommendations by parties to move forward with a full program slate to move Xcel Energy from its IEEE second quartile goal to an IEEE first quartile goal, Staff are optimistic in the pilots Xcel discussed in the pipeline and look forward to learning more as they file them for approval. Volume 3 of the Staff Briefing Papers discusses decision options regarding these pilot and program proposals and the CELI-12 disparity the Xcel Energy territory is experiencing. If the Commission is interested in pursuing a first quartile goal, moving

¹⁰² Docket 24-27, Department Comment, p. 46

¹⁰³ Docket 24-27, Department Comment, pp. 47-48

forward with these program proposals would support that goal.

Commission Staff note the Department recommended accepting all three utilities' Safety, Reliability, and Service Quality Reports (**Decision Option 1**) but expressed concern regarding the IEEE small utilities data being too small of a sample size. With only four small utilities in the sample, IEEE noted that the sample was too small to be statistically significant.¹⁰⁴ Due to this concern, the Department recommended **decision option 5**.

Commission Staff is concerned this decision option is too broad and recommends creating more specificity for the utilities to discuss how to confront small sample sizes and IEEE data exclusion. Otherwise, Staff are concerned record development would just repeat the discussion of the transition to IEEE benchmarking discussed in dockets 20-401;20-404; and 20-406. Staff recommends parties review that record development establishing the use of the IEEE standard and the choice over EIA 861 data in order to understand the discussion on alternative approaches that already occurred.

During the initial discussion on moving to benchmarking for reliability standards Staff offered two potential benchmarking options: the IEEE Distribution Reliability Working Group or Energy Information Administration (EIA) data from the Annual Electric Power Industry report (EIA-861 Report). The Department opposed moving to benchmarking for setting reliability standards and did not weigh in on using IEEE vs EIA data. All three utilities supported using the IEEE data as the benchmark and the Commission adopted those standards. Staff believes if there is concern about the sample size of the IEEE data the EIA data provides an alternative. However, the EIA data would require some additional manipulation to subdivided into quartiles, as the data is reported in a different format from the IEEE data. While this would be a straightforward exercise, it would require either the Commission or Department to perform the annual analysis.

Based on the prior discussion, Staff recommends narrowing the Department's recommendation to a consideration of using the EIA 861 data to benchmark utility reliability performance. Staff suggest that the Commission could consult with the Department to see if they would be willing to put forward a proposal for using the EIA 861 data with the utility's SRSQ reports due April 1, 2025.

XIX. Decision Options

1. Accept Otter Tail Power's, Minnesota Power's, and Xcel Energy's 2023 Safety, Reliability, and Service Quality reports (*Xcel, MP, OTP, Department*).

¹⁰⁴ IEEE Benchmark Results, slide 7. <https://cmte.ieee.org/pes-drwg/wp-content/uploads/sites/61/2024-IEEE-Benchmarking-Survey.pdf>

Volume 1 Decision Options

Staff note: a supplemental filing is required after the IEEE benchmarking data is posted, as that does not happen until after the April 1 filing deadline. This is consistent with last year's reports and included in the decision options setting each utility's benchmarking standards for 2024. Decision Options 2-4 maintain the same IEEE benchmarking comparisons (e.g. second quartile and utility size) for the utilities' reliability standards.

2. Set Minnesota Power's 2024 statewide Reliability Standard at the IEEE benchmarking second Quartile for medium utilities. Set Minnesota Power's work center reliability standards at the IEEE benchmarking second quartile for small utilities. Require Minnesota Power to file a supplement to its 2024 SRSQ report 30 days after IEEE publishes the 2023 benchmarking results, with an explanation for any standards the utility did not meet. *(Minnesota Power, Department)*
3. Set Otter Tail Power's 2024 statewide Reliability Standard at the IEEE benchmarking second Quartile for medium utilities. Set Otter Tail's work center reliability standards at the IEEE benchmarking second quartile for medium utilities. Require Otter Tail Power to file a supplement to its 2024 SRSQ report 30 days after IEEE publishes the 2023 benchmarking results, with an explanation for any standards the utility did not meet. *(Otter Tail Power, Department)*
4. Set Xcel Energy's 2024 statewide Reliability Standard at the IEEE benchmarking second Quartile for large utilities. Set Xcel Energy's Southeast and Northwest work center reliability standards at the IEEE benchmarking second quartile for medium utilities. Set Xcel's Metro East and Metro West work center reliability center standards at the IEEE benchmarking second quartile for large utilities. Require Xcel Energy to file a supplement to its 2024 SRSQ report 30 days after IEEE publishes the 2024 benchmarking results, with an explanation for any standards the utility did not meet. *(Xcel, Department)*
5. Direct Minnesota Power and Otter Tail Power to include a discussion on alternative approaches to reliability standard setting in their 2024 SRSQ Reports. (Department)
 - a. Direct Minnesota Power and Otter Tail Power to include a discussion on the IEEE reporting sample size and data exclusion challenges from this year. (Staff)
 - b. Direct Minnesota Power and Otter Tail power to include a discussion of using the EIA 861 data to benchmark utility reliability performance. (Staff)
6. Direct Otter Tail Power to include in its 2024 SRSQ report performance data for 2024 from both its Interruption Monitoring System (IMS) and their Outage Management System (OMS), if available. (Department)
7. Direct MP to include a discussion on the impact of its new OMS on reporting metrics and a comparison of data from its existing OMS system and its new OMS data, as available, in its 2024 SRSQ Report. *(Department)*

Volume 2 Decision Options

8. Accept Xcel Energy's compliance report on metrics regarding its Emergency Medical Account as ordered in Docket No. E-002/M-22-233. (*Xcel, Department*)

Volume 3 Decision OptionsDisparities in Service Quality*Disconnection Variance*

9. Grant Xcel Energy's request for a temporary extension of the variance to Minn. Rule 7820.2500 regarding AMI disconnection as approved in the Commission's March 22, 2023 Order in Docket No. E-002/M-22-233. (*Xcel, Department, ECC/CUB*)
 - a. Extend the variance until the Commission issues a decision on the variance request as presented in the 2024 SRSQ report.
 - b. Apply the extended variance retroactively starting from the expiration of the previous variance on April 22, 2024.
10. Deny Xcel Energy's request to extend its variance and perform remote disconnections. (*GECs*)
11. As a condition of extending the remote disconnection variance, eliminate voicemail messages as a permissible form of final contact before remote disconnection for Xcel Energy. (*GECs, Fresh Energy*)
12. Increase the existing threshold of final contact for disconnection to require Xcel Energy to use two methods of electronic communication, including either text message or email in addition to voicemail. (*Xcel, Department, ECC/CUB*)

Disconnection Moratorium

13. Require Xcel Energy to halt all disconnections until Xcel has implemented a plan to address disparities and has specifically demonstrated that remote disconnection does not increase the disparities. (*GECs, Sierra Club, OAG*)
14. Require Xcel Energy to halt all disconnections for customers in very low-income census block groups with high concentrations of POC until Xcel has implemented a plan to address disparities and has specifically demonstrated that remote disconnection does not increase the disparities. (*Fresh Energy, alternative to service territory disconnection*)
15. Require Xcel Energy to work with interested stakeholders to evaluate the impact of a moratorium on the Automatic Bill Credit Pilot. (*Department*)
16. Require Xcel Energy to work with interested stakeholders to evaluate the financial effects of a moratorium on disconnections over a two-year period. (*Department*)

Outreach

17. Approve Xcel Energy's proposal to identify customers throughout its service territory that have not received LIHEAP assistance and are carrying past due balances, and approve the Company's proposal to perform targeted outreach to the identified customers. *(Xcel, Department)*
18. Require Xcel Energy to perform additional outreach throughout its service territory with the goal of increasing participation in affordability programs that reduce bad debt. *(Staff interpretation of Edina, Xcel, GECs)*

Policy Transparency

19. Require Xcel to publish its disconnection and payment agreement policies and practices on its website. Subject to technical feasibility, Xcel shall make the edits discussed in ECC/CUB's September 12, 2024 comments to its payment agreement webpage. *(Xcel, Department, ECC/CUB)*
20. Require Xcel to make a filing in the instant docket and Docket E,G-999/PR-24-02 detailing its current disconnection policies and practices, and require Xcel to submit additional filings in Docket E,G-999/PR-24-02 when there are changes to those policies and practices within 20 days of the Order. *(Xcel, Department, ECC/CUB)*

Additional Strategies

21. Approve Xcel Energy's proposal to restore power for involuntarily disconnected customers with AMI during the duration of a heat advisory or excessive heat warning issued by the National Weather Service. *(Xcel, Department, CUB/ECC, GECs)*
22. Require Xcel Energy to restore power for involuntarily disconnected customers with AMI when AQI alerts of 151 or higher have been issued. *(GECs)*
23. Require Xcel Energy to reduce its down payment requirements and modify its disconnection and payment agreement practices to include consideration of individual household financial circumstances. *(Xcel, CUB/ECC, Fresh Energy)*
24. Prohibit Xcel Energy from sending disconnection notices until a customer's balance reaches \$180 past due. *(Xcel, Department, CUB/ECC, GECs)*
25. Prohibit Xcel Energy from disconnecting customers with a past due balance below \$300. *(Xcel, Department, CUB/ECC, GECs)*
26. Require Xcel Energy to wait at least 10 days after sending a disconnection notice before disconnecting a customer. *(Xcel, Department, CUB/ECC)*

27. Require Xcel to evaluate implementing the following policies and to file the evaluation by [insert date] in [insert docket]. *(Staff interpretation of GECs, Xcel)*
- a. Restoring power to involuntarily disconnected customers with AMI when AQI alerts of 151 or high have been issued.
 - b. Setting the reconnection fee at \$0. The evaluation shall include an estimate of the costs of waiving reconnection fees and how the Company would propose to recover those costs. *(Staff interpretation of GECs and Xcel)*
 - c. Elimination of interest payments on late bill payment fees or donation of those fees to low-income customer assistance programs, similar to the approach used by Xcel in Colorado. *(GECs)*
 - d. A proposal to increase the number of customers receiving pre-weatherization, weatherization, and energy efficiency improvements, including deep retrofits to create greater energy savings, in areas within the Company's service territory with high concentrations of people of color being disconnected. The proposal should include year over year targets designed to increase the number of people receiving energy efficiency measures. *(Fresh Energy)*
 - e. A more robust hot-weather rule to prevent disconnections in months with the highest cooling energy burden. *(Staff interpretation of GECs)*
 - f. Creating an off-season LIHEAP program to help income-qualified residents clear their arrears by self-attesting to their income level. *(Xcel)*
28. Require Xcel to verify that it manages disconnections due to a landlord's failure to pay consistent with the requirements in Minn. R. 7820.1400. *(GECs)*
29. Require Xcel Energy to inform affected personnel of racial disparities in electric service. Require Xcel to file a compliance report with its annual SRSQ filing on which employees received the training and what information was provided. *(Fresh Energy)*
30. Allow Xcel to track increased bad debt from any adopted proposals and request an adjustment to its revenue requirement in its next rate case. *(Xcel, ECC/CUB)*
31. Where not otherwise noted, require Xcel to file any necessary revised tariff changes within 30 days of the Commission's Order. *(Staff)*

Reliability

32. Require Xcel Energy to file an enhanced vegetation management plan for areas disparately impacted by long duration outages. *(Xcel, City of Minneapolis)*
- a. Require Xcel to file the proposal with its IDP due November 1, 2025. *(Staff)*
33. Require Xcel to file an enhanced vegetation management plan with a cost-benefit analysis with its IDP due November 1, 2025. In its filing, Xcel shall explain its analysis of the following to determine whether insufficient vegetation management was a causal factor in the identified disparities: *(OAG)*
- a. Whether it found a correlation of CELI-12 problem areas with the location of

Staff Briefing Papers for Docket No. E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)

- infected trees using the Company's data combined with Department of Agriculture data.
 - b. Whether the areas identified CELI-12 disparities correlate to higher levels of tree canopy than other areas.
 - c. Whether vegetation outages caused the larger number of outages in the identified clusters of CELI-12 outages.
34. Require Xcel Energy to file a proposal to develop a targeted undergrounding plan for portions of North Minneapolis, South Minneapolis, and the area surrounding downtown St. Paul. (Xcel, City of Minneapolis)
- a. Require Xcel to file the proposal with its IDP due November 1, 2025. (Staff)
35. Require Xcel to file revised and specific cost estimates tailored to Xcel's service territory of the cost per mile for targeted undergrounding in areas disparately impacted by long duration outages. (OAG)
- a. Require Xcel to file the updated estimates with its IDP due November 1, 2025. (Staff)
36. Deny Xcel Energy's proposal to develop a targeted undergrounding plan for portions of North Minneapolis, South Minneapolis, and the area surrounding downtown St. Paul. (DOC)
37. Require Xcel to perform additional analysis as outlined in Decision Options XXX prior to developing a proposal for targeted undergrounding or enhanced vegetation management. (Staff interpretation of DOC)

Operational Changes

38. Require Xcel to propose potential operational changes in its outage-response efforts that would ensure more equitable distribution of repair efforts with its IDP due November 1, 2025. (OAG)
39. Require Xcel Energy to establish a rapid response team that will service outages in communities that are disparately impacted by long duration outages. (Fresh Energy)

ISQ Map

The Commission may choose DO xxx. It may also choose DO xxx; DO xxx OR xxx; DO xxx OR xxx; and some, all, or none of DO xxx and its subparts.

40. Require Xcel Energy to update its Interactive Service Quality Map to include two additional years of data. (DOC)
41. Require Xcel Energy to add the following data to its Interactive Service Quality Map by Census Block Group by April 1, 2025. (Xcel, Edina, Fresh Energy, GEC)
- a. Municipal Boundaries

Staff Briefing Papers for Docket No. E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)

- b. Premise counts by census block group
 - c. Percentage of underground electric assets.
 - d. Percent of electric premises disconnected for 24 hours or more.
 - e. Average age of arrears for disconnected premises.
 - f. Per premise energy costs.
42. Require Xcel Energy to add to its Interactive Service Quality Map the average age of homes by Census Block Group by April 1, 2025. *(Xcel)*
- OR**
43. Require Xcel Energy to add to its Interactive Service Quality Map the average age of infrastructure in years by Census Block Group by April 1, 2025. *(Fresh Energy, GEC)*
44. Require Xcel Energy to add to its Interactive Service Quality Map total dollars past due of premises and total dollars past due of disconnected premises by April 1, 2025. *(GEC)*
- OR**
45. Require Xcel Energy to add to its Interactive Service Quality Map the average amount of arrears for disconnected premises by April 1, 2025. *(Xcel)*
46. Require Xcel Energy to add the following data to its Interactive Service Quality Map by Census Block Group by April 1, 2025.
- a. Capital investment and O&M (dollars). *(Fresh Energy, GEC)*
 - b. Average outage duration (minutes). *(Fresh Energy, GEC, Edina)*
 - c. Number of premises in each census group block group served by voltage of secondary distribution circuit and whether such circuits are (1) radial or networked, and (2) overhead or underground. *(GEC)*
 - d. Extreme heat indicators such as extreme heat days, daily average temperature in summer months, or average surface temperatures. *(Fresh Energy, Edina)*
 - e. Average hosting capacity available to premises. *(GEC)*
 - f. Number of premises (1) disconnected once, twice, or three or more times and (2) reconnected once, twice, or three or more times. *(GEC)*
 - g. Percent of electric premises receiving a disconnection notice. *(GEC)*
 - h. Total dollars received from LIHEAP. *(GEC)*
 - i. Number of disconnected premises that were enrolled in Energy Assistance Programs. *(GEC)*

Future Analyses, Reporting, and Processes

47. Require Xcel Energy to monitor and report on progress toward eliminating the racial disparities among customers who are involuntarily disconnected in future SRSQ reports. *(City of Minneapolis)*
48. Require Xcel Energy to monitor and report on disparities identified between income level and participation in low-income programs in future SRSQ reports. *(City of Minneapolis)*
49. Require Xcel Energy to report on discrepancies between the number of customers that

Staff Briefing Papers for Docket No. E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)

have applied for and been enrolled in its medical protection programs in future SRSQ reports. (*CUB/ECC*)

50. Require Xcel Energy to file a cost-benefit analysis of combining the annual affordability reports and the SRSQ report in its April 1, 2025 SRSQ report in future SRSQ reports. (*DOC*)
51. Delegate authority to the Executive Secretary to work with Xcel and stakeholders to develop a proposal for what affordability and associated service quality data is reported in SRSQ report and what data continues to be reported in other dockets. The goal of the process is to develop a comprehensive list of existing affordability data reporting requirements and to identify which, if any, pieces of information are missing and should be included in future SRSQ reports. (*Staff*)

Future Analysis

52. Require Xcel Energy to conduct a study similar to the TCR Service Quality and Demographics Analysis on a three-year cycle with the next report due on April 1, 2027 with its SRSQ Report. (*Staff interpretation of Xcel, Department*)
 - a. Require Xcel to use five years of data for future analyses. (*Department*)
53. Require Xcel Energy to conduct a study similar to the TCR Service Quality and Demographics Analysis on an annual basis with the next report due on April 1, 2025 with its SRSQ Report. (*Staff interpretation of GEC*)
54. Require Xcel Energy to develop its data collected on causes of CELI-12 outages to inform which causes predominantly affect CBGs currently showing increased CELI-12. Require Xcel Energy to then analyze whether the primary causes emerging in CBGs with increased CELI-12 are caused by overhead assets. (*Xcel*)
 - a. Require Xcel to provide an analysis of distribution equipment vintages in the affected CELI-12 communities and analyze whether upgrading this equipment would be cost effective. (*OAG, Department, Xcel*)
55. Require Xcel Energy to hire an independent consultant to conduct qualitative interviews with residents in CBGs with higher disconnection rates to better understand perceived causes of disconnection, effective communications practices, and whether there are additional steps the Company could take to adjust its programs to help customers avoid disconnections. (*Xcel*)
56. Require Xcel Energy to hire an independent third-party evaluator with expertise in evaluating racial disparities to conduct a one-year study that will evaluate Xcel's practices and policies related to capital investment planning, outage restoration practices, and shutoff practices to better understand the causes of these discrepancies in shutoff rates and service reliability. Require Xcel Energy to engage interested stakeholders to participate and collaborate with the independent third-party evaluator.

Staff Briefing Papers for Docket No. E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)

(Fresh Energy)

57. Delegate authority to the Executive Secretary to open a new docket focused on disparities identified in the TRC and Pradhan/Chan studies and Xcel Energy's efforts to reduce them. *(Staff interpretation of GEC and Fresh Energy)*

XX. Attachment A – Xcel Reporting Matrix

Requirement	Item	Location
7826.0400 ANNUAL SAFETY REPORT.		
	A. summaries of all reports filed with the United States Occupational Safety and Health Administration and the Occupational Safety and Health Division of the Minnesota Department of Labor and Industry during the calendar year	Section II.A
	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.	Section II.B
7826.0500 RELIABILITY REPORTING REQUIREMENTS.		
	A. the utility's SAIDI for the calendar year, by work center and for its assigned service area as a whole; B. the utility's SAIFI for the calendar year, by work center and for its assigned service area as a whole; C. the utility's CAIDI for the calendar year, by work center and for its assigned service area as a whole; D. an explanation of how the utility normalize its reliability data to account for major storms	Section IV.B.1.a
	E. an action plan for remedying any failure to comply with the reliability standards set forth in part 7826.0600 or an explanation as to why noncompliance was unavoidable under the circumstances;	Section IV.B.2.a
	F. to the extent feasible, a report on each interruption of a bulk power supply facility during the calendar year, including the reasons for interruption, duration of interruption, and any remedial steps that have been taken or will be taken to prevent future interruption;	Section IV.B.3
	G. a copy of each report filed under part 7826.0700;	Section IV.B.4.a
	H. to the extent technically feasible, circuit interruption data, including identifying the worst performing circuit in each work center, stating the criteria the utility used to identify the worst performing circuit, stating the circuit's SAIDI, SAIFI, and CAIDI, explaining the reasons that the circuit's performance is in last place, and describing any operational changes the utility has made, is considering, or intends to make to improve its performance;	Section IV.B.2.b
	I. data on all known instances in which nominal electric service voltages on the utility's side of the meter did not meet the standards of the American National Standards Institute for nominal system voltages greater or less than voltage range B.	Section IV.B.5
	J. data on staffing levels at each work center, including the number of full-time equivalent positions held by field employees responsible for responding to trouble and for the operation and maintenance of distribution lines;	Section IV.B.6
	K. Any other information the utility considers relevant in evaluating its reliability performance	
7826.0600 RELIABILITY STANDARDS.		

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)**

	Subpart 1. Annually proposed individual reliability standards. On or before April 1 of each year, each utility shall file proposed reliability performance standards in the form of proposed numerical values for the SAIDI, SAIFI, and CAIDI for each of its work centers. These filings shall be treated as "miscellaneous tariff filings" under the commission's rules of practice and procedure, part 7829.0100, subpart 11.	Section IV
7826.0700 REPORTING MAJOR SERVICE INTERRUPTIONS.		
Requirement	Item	Location
	Subpart 1. Contemporaneous reporting. A utility shall promptly inform the commission's Consumer Affairs Office of any major service interruption. At that time, the utility shall provide the following information, to the extent known: A. the location and cause of the interruption; B. the number of customers affected; C. the expected duration of the interruption; and D. the utility's best estimate of when service will be restored, by geographical area.	Section IV.B.4.a
	Subp. 2. Written report. Within 30 days, a utility shall file a written report on any major service interruption in which ten percent or more of its Minnesota customers were out of service for 24 hours or more. This report must include at least a description of: A. the steps the utility took to restore service; and B. any operational changes the utility has made, is considering, or intends to make, to prevent similar interruptions in the future or to restore service more quickly in the future.	Section IV.B.4.a
7826.1200 CALL CENTER RESPONSE TIME.		
	Subpart 1. Calls to business office. On an annual basis, utilities shall answer 80 percent of calls made to the business office during regular business hours within 20 seconds. "Answer" means that an operator or representative is ready to render assistance or accept the information to handle the call. Acknowledging that the customer is waiting on the line and will be served in turn is not an answer. If the utility uses an automated call-processing system, the 20-second period begins when the customer has selected a menu option to speak to a live operator or representative. Utilities using automatic call-processing systems must provide that option, and they must not delay connecting the caller to a live operator or representative for purposes of playing promotional announcements.	Section III.E
	Subp. 2. Calls regarding service interruptions. On an annual basis, utilities shall answer 80 percent of calls directed to the telephone number for reporting service interruptions within 20 seconds. "Answer" may mean connecting the caller to a recording providing, to the extent practicable, at least the following information: A. the number of customers affected by the interruption; B. the cause of the interruption; C. the location of the interruption; and D. the utility's best estimate of when service will be restored, by geographical area.	Section III.E
7826.1400 REPORTING METER-READING PERFORMANCE.		
	The annual service quality report must include a detailed report on the utility's meter-reading performance, including, for each customer class and for each calendar month: A. the number and percentage of customer meters read by utility personnel; B. the number and percentage of customer meters self-read by customers; C. the number and percentage of customer meters that have not been read by utility personnel for periods of six to 12 months and for periods of longer than 12 months, and an explanation as to why they have not been read; and	Section III.A.1
	D. data on monthly meter-reading staffing levels, by work center or geographical area	Section III.A.1
7826.1500 REPORTING INVOLUNTARY DISCONNECTIONS.		

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)**

	The annual service quality report must include a detailed report on involuntary disconnections of service, including, for each customer class and each calendar month: A. the number of customers who received disconnection notices; B. the number of customers who sought cold weather rule 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	Section III.C
7826.1600 REPORTING SERVICE EXTENSION REQUEST RESPONSE TIMES.		
	The annual service quality report must include a report on service extension request response times, including, for each customer class and each 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 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.	Section III.D
7826.1700 REPORTING CALL CENTER RESPONSE TIMES.		
	The annual service quality report must include a detailed report on call center response times, including calls to the business office and calls regarding service interruptions. The report must include a month-by-month breakdown of this information.	Section III.E
Requirement	Item	Location
7826.1800 REPORTING EMERGENCY MEDICAL ACCOUNT STATUS.		
And Commission Order in Docket No. E002/M-22-162, Dated October 20, 2023.	The annual service quality report must include the number of customers who requested emergency medical account status under Minnesota Statutes, section 216B.098, subdivision 5, the number whose applications were granted, and the number whose applications were denied and the reasons for each denial.	Section III.F
7826.1900 REPORTING CUSTOMER DEPOSITS.		
	The annual service quality report must include the number of customers who were required to make a deposit as a condition of receiving service.	Section III.G
7826.2000 REPORTING CUSTOMER COMPLAINTS.		
	The annual service quality report must include a detailed report on complaints by customer class and calendar month, including at least the following information: 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 for further investigation and action.	Section III.H

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)**

COMMISSION ORDERS		
Docket E002/M-23-73 December 5, 2023	4. Set Xcel Energy's 2023 statewide Reliability Standard at the IEEE benchmarking 2nd quartile for large utilities. Set Xcel's Southeast and Northwest work center reliability standards at the IEEE benchmarking 2nd quartile for medium utilities. Set Xcel's Metro East and Metro West work center reliability center standards at the IEEE benchmarking 2nd quartile for large utilities. Required Xcel to file a supplement to its 2023 SQR report 30 days after IEEE publishes the 2023 benchmarking results, with an explanation for any standards the utility did not meet.	Section V.A
Docket E002/M-23-73 December 5, 2023	5. Direct Xcel to provide an analysis of the incremental costs associated with achieving IEEE first quartile performance that includes a discussion of timeframes, costs, and benefits in their SRSQ 2024 filing	Section V.A
Docket E002/M-23-73 December 5, 2023	6. Required Xcel to discuss how to lower the difference in SAIDI, SAIFI, and CAIDI between feeders associated with the different customer classes in their 2024 filing, including costs and benefits to implementation. This requirement ends on December 31, 2024, unless the Commission changes or extends it.	Section V.A
Docket E002/M-23-73 December 5, 2023	8. Require Xcel to provide a response to the CAO and customers contacting the Xcel Energy Advocacy Team regarding new service installations within two business days. The Xcel Advocacy Team will be trained to work with CAO on new service installation efforts and require Xcel to report information on these efforts in its 2023 service quality report.	Section III.D
Docket E002/M-23-73 December 5, 2023	9. On the AMP AMI filing by Xcel, directed the Executive Secretary to open a notice and comment on the advocacy of Xcel's efforts to address billing issues associated with AMI implementation for its AMP customers	Section III.H
Docket Nos. E002/M-20-406 and E002/CI-17-401 May 18, 2023	3. Required Xcel to conduct an analysis that examines whether there is a relationship between poor performance on the five identified metrics displayed on the interactive map and equity indicators. Required Xcel to file this analysis with its next service quality report due April 1, 2024. 4. If Xcel's analysis determines there are disparities in any of the five metrics displayed on the map, required Xcel to identify preliminary steps it could take to rectify the disparities and if Commission approval is required, where and when it would expect to file solutions. This should include an analysis of whether modifications to Xcel's Quality of Service Plan are necessary to address any identified disparities. Required Xcel to file this preliminary plan with its next service quality report due April 1, 2024	Section IV.A
Docket No. E002/M-22-233 March 22, 2023	1. The Commission grants the petition of Northern States Power Company d/b/a Xcel Energy for a temporary variance to Minn. R. 7820.2500 for customers subscribed to Residential Service, Residential Time-of-Day Service, Small General Service, or Small General Time of Day Service. The variance may commence within 30 days, and shall be reevaluated annually in the Company's service quality reporting dockets until the variance is made permanent or terminated.	Section III.J
Requirement	Item	Location

Staff Briefing Papers for Docket No. E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)

<p>Docket No. E002/M-22-233 March 22, 2023</p>	<p>5. Xcel Energy shall file a report on the following evaluation metrics in its service quality reports for 2023, 2024 and 2025:</p> <ul style="list-style-type: none"> A. Meter-related complaints for advanced metering infrastructure. B. The percentage of customers flagged for disconnection who pay their disconnection amount in full in the current process versus after the variance has been implemented. C. The number of field visits required when the Company is unable to reach the customer (speaking to the customer or leaving a voicemail). D. The length of time for reconnecting each customer, and the method for reconnecting the customer. E. Re-analysis of actual costs for disconnection/reconnection requiring in-person visits and those performed remotely. F. Detailed cost information and subsequent analysis of costs as opposed to the Company’s proposed language stating adjustments to costs can be following the first year of reporting. G. Progress exploring texting capabilities for customer contact and progress on an automated process for reconnection. H. Progress adding a direct link on its website to submit the Medically Necessary Equipment & Emergency Certification Form. I. Feedback from the Department of Commerce, Energy Assistance Unit regarding remote disconnection. J. Compliance with all consumer protection measures ordered in this proceeding. K. Detailed information on the number of customers opting out of AMI meter installation and demand-billed customers compared to customers with AMI meters installed. L. A proposal for using the capacity of its advanced metering infrastructure to restore electric service to customers during periods of extreme heat. 	<p>Section III.J</p>
<p>Docket No. E002/M-22-233 March 22, 2023</p>	<p>6. Within 30 days of filing its 2023, 2024, and 2025 service quality reports, Xcel Energy shall engage stakeholders to discuss the evaluation metrics requirements established in this docket.</p> <ul style="list-style-type: none"> •7Complaints related to AMI meters. •7The percentage of customers flagged for disconnection who pay their disconnection amount in full under the current process, and the percentage under the new process. 	<p>Section III.J</p>
<p>Docket No. E002/M-22-233 March 22, 2023</p>	<p>Additionally, the Company agreed to file a report 30 days after our first year of full deployment on the implementation of the new disconnection/reconnection policy. The report will include:</p> <ul style="list-style-type: none"> •7Complaints related to AMI meters. •7The percentage of customers flagged for disconnection who pay their disconnection amount in full under the current process, and the percentage under the new process. •7The number of field visits required when the Company is unable to reach the customer (speaking to the customer or leaving a voicemail). •7The length of time for reconnecting each customer, and the method for reconnecting the customer. •7Updated calculation of the Company’s costs to disconnect and reconnect a customer remotely, and the costs to disconnect and 	<p>Section III.J</p>

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)**

	<p>reconnect a customer in person when a site visit is required.</p> <ul style="list-style-type: none"> •7Detailed cost information and subsequent analysis of costs. •7The Company’s progress in developing the capacity to contact customers via text, and in developing an automated process for reconnection. •7The Company’s progress adding a direct link on the Company’s website to submit the Medically Necessary Equipment & Emergency Certification Form. •7Feedback from the Department’s Energy Assistance Unit regarding remote disconnection. •7Compliance with all consumer protection measures ordered in this proceeding. 	
<p>Docket E,G-999/PR-22-13</p> <p>Docket E002/M-22-162 January 18, 2023</p>	<ol style="list-style-type: none"> 1. Eliminated the standalone Annual Summary of Customer Complaints docket (YY-13). 2. Required utilities to include customer complaint data from Minn. Rules 7820.0500 in their Annual Service Quality reports with data filed as part of Minn. Rules 7826.2000. 	Section III.H
<p>Docket E002/M-22-162 November 9, 2023</p>	<ol style="list-style-type: none"> 6. Require Xcel Energy to provide, beginning with its April 1, 2023 service quality filing, an additional data set that reports discreet meters unread for 6-12 months and 12+ months, with a single meter listed in the longest appropriate category only, in Xcel Energy's reporting under MN Rules Section 7826.1400. To the extent possible, include historic data in this format as well, with the past five years being optimal. 	Section III.A.1; Attachment C
<p>Docket E002/M-22-162 November 9, 2023</p>	<ol style="list-style-type: none"> 7. Required Xcel Energy to document response duration in days, beginning from the date of initial customer contact to the date of Company reply, for inquiries, complaints, or disputes related to DERs and/or the interconnection process that are received through Xcel's call center, email, or otherwise. Information shall be shared in a .xlsx format in the Company's 2023 service quality filing and in the temporary annual report in Docket No. E-999/CI-16- 521. 	Section III.H.4
Requirement	Item	Location
<p>Docket E002/M-22-162 November 9, 2023</p>	<ol style="list-style-type: none"> 8. Required Xcel, MP, OTP to each display, either directly or via a link to a PDF file, the utility's public facing summary, as shown in Attachment A, on the utility's website placed such that the summary is available to a website user after a single click away from the home page. 	Section IV.A
<p>DOCKET E002/M-21-237 December 2, 2021</p>	<ol style="list-style-type: none"> 2. Required Xcel, MP, OTP to provide the following new information regarding electronic utility- customer interaction beginning with the reports filed in April 2023 <p>Percentage Uptime to second decimal: General Website xx.xx% Payment Services xx.xx%</p> <p>Outage map &/or Outage Info page xx.xx% Error Rate Percentage to the third decimal Payment Services* xx.xxx%</p> <p>*if more granular data is available, please break down the error rate for unexpected errors, errors outside of the customer's control (i.e. how often to</p>	Section III.I

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)**

	<p>online payments fail for reasons other than insufficient funds or expired payment methods), and/or some other meaningful categorization."</p> <p>3. XE, MP and OTP provide percentage uptime and error rate percentage information in their annual reports for the next three reporting cycles, to build baselines for web-based service metrics (for 2021, 2022, 2023 annual reports)</p>	
<p>DOCKET E002/M-21-237 December 2, 2021</p>	<p>4. XE, MP and OTP continue to provide information on electronic utility-customer interaction such that baseline data are collected:</p> <ol style="list-style-type: none"> Yearly total number of website visits Yearly total number of logins via electronic customer communication platforms; Yearly total number of emails or other customer service electronic communications received; and Categorization of email subject, and electronic customer service communications by subject, including categories for communications related to assistance programs and disconnections as part of reporting under Minn. R. 7826.1700 	Section III.I
<p>DOCKET E002/M-21-237 December 2, 2021</p>	<p>6. Xcel to add in the upcoming and subsequent reports a "DER Complaint" reporting subcategory, following discussion with an input from the Complaint working group</p>	Section III.H
<p>Docket E002/M-20-406; December 18, 2020 Order</p>	<p>4. The Commission grants a variance to Minn. R. 7826.0500, subp.1, item G, applicable to MP, OTP and Xcel. The utilities must file a summary table that includes the information contained in the reports, similar to Att G of Xcel's filing</p>	Section IV.B.4.a
<p>Docket E002/M-20-406; December 18, 2020 Order</p>	<p>5. Utilities must file the reliability (SAIDI, SAIFI, CAIDI, MAIFI, normalized/non-normalized) for feeders with grid modernization investments such as Advanced Metering Infrastructure or Fault Location Isolation and Service Restoration to the historic five-year average reliability for the same feeders before grid modernization investments.</p>	Section IV B.1.d
<p>Docket E002/M-22-162; Order Date October 20, 2023</p>	<p>2. Xcel must file the information listed below with its future SRSQ reports until such time as the Commission modifies the reporting requirem2. Xcel must file the information listed below with its future SRSQ reports until such time as the Commission modifies the reporting requirement. Xcel shall provide the following information, as a downloadable .csv or .xlsx file, by feeder, for the calendar year. Xcel may exclude feeders that meet the 15/15 aggregation standard.</p> <ol style="list-style-type: none"> Reliability reporting region where the feeder is located The substation the feeder is on, with its full name The zip code in which teh feeder is primarily located The number of customers on the feeder, including the proportion of residential to commercial and industrial Whether the feeder is overhead or underground SAIDI, SAIFI, and CAIDI, normalized (IEEE 1366 Standard) and with Major Event Days Number of outages, total customer outages, and total customer-minutes-out for the following situations: <ol style="list-style-type: none"> All levels, All Causes included Bulk Power Supply - All causes, distribution, substation, transmission substation, and transmission line levels; 	Section IV.B.1.b

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)**

	<ul style="list-style-type: none"> iii. All levels, no "planned" cause, includes bulk power supply iv. All levels, "planned" cause only, includes bulk power supplyent. Xcel shall provide the following information, as a downloadable .csv or .xlsx file, by feeder, for the calendar year. Xcel may exclude feeders that meet the 15/15 aggregation standard. <ul style="list-style-type: none"> a. Reliability reporting region where the feeder is located b. The substation the feeder is on, with its full name c. The zip code in which teh feeder is primarily located d. The number of customers on the feeder, including the proportion of residential to commercial and industrial e. Whether the feeder is overhead or underground f. SAIDI, SAIFI, and CAIDI, normalized (IEEE 1366 Standard) and with Major Event Days g. Number of outages, total customer outages, and total customer-minutes-out for the following situations: <ul style="list-style-type: none"> i. All levels, All Causes included ii. Bulk Power Supply - All causes, distribution, substation, transmission substation, and transmission line levels; iii. All levels, no "planned" cause, includes bulk power supply iv. All levels, "planned" cause only, includes bulk power supply 	
Requirement	Item	Location
Docket E002/M-22-162; Order Date: October 20, 2023	2. Cont'd <ul style="list-style-type: none"> h. Number of outages, total customer outages, and total customer-minutes-out in the following primary outage cause categories, normalized and non-normalized <ul style="list-style-type: none"> i. Equipment - OH ii. Equipment - UG III. Lightning iv. Other v. Power Supply vi. Planned vii. Public viii. Unknown ix. Vegetation x. Weather - non-lightning xi. Wildlife 	Section IV.B.1.b'
Docket E002/M-22-162 Order Date: October 20, 2023	4.(a) Non-normalized SAIDI, SAIFI and CAIDI values	Section IV.B.1.b
Docket E002/M-22-162 Order Date: October 20, 2023	4.(b) SAIDI, SAIFI, and CAIDI, MAIFI, CEMI, and CELI normalized values calculated using the 2.5 base method.	Section IV.B.1.b
Docket E002/M-22-162 Order Date: October 20, 2023	4.(c) MAIFI – normalized and non-normalized.	Section IV.C.1
Docket E002/M-22-162 Order Date: October 20, 2023	4. (e) CEMI – at normalized and non-normalized outage levels of 4, 5, and 6 interruptions.	Section IV.C.2

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel)**; **E-015/M-24-29 (MP)**; and **E-017/M-24-30 (OTP)**

Docket E002/M-22-162 Order Date: October 20, 2023	4.(f) The highest number of interruptions experienced by any one customer (or feeder, if customer level is not available).	Section IV.C.2
Docket E002/M-22-162 Order Date: October 20, 2023	4.(g) CELI – at normalized and non-normalized intervals of greater than 6 hours, 12 hours, and 24 hours.	Section IV.C.3
Docket E002/M-22-162 Order Date: October 20, 2023	4.(h) The longest experienced interruption by any one customer (or feeder, if customer level is not available).	Section IV.C.3
Docket E002/M-22-162 Order Date: October 20, 2023	4.(j) A breakdown of field versus office staff as required Minn. Rules 7826.0500 Subp. 1, J, including separate information on the number of contractors for each work center.	Section IV.B.6
Docket E002/M-22-162 Order Date: October 20, 2023	4. (d) Estimated restoration time accuracy, using the following windows: a. Within -90 minutes to 0 of estimated restoration time b. Within 0 to +30 minutes of estimated restoration time	Section IV.B.4.b
Docket E002/M-22-162 Order Date: October 20, 2023	4.(i) Performance by customer class, If reporting by class is not yet possible, an explanation of when the utility will have this capability.	Section IV.B.1.b
Docket E002/M-22-162 Order Date: October 20, 2023	4.(k) Causes of sustained customer outages, by work center.	Section IV.B.2.a
Docket E002/M-14-131 December 12, 2014	3. Required Xcel to augment its next filing to include a description of the policies, procedures and actions that it has implemented, and plans to implement, to assure reliability, including information on how it is demonstrating pro-active management of the system as a whole, increased reliability, and active contingency planning. 4. Required Xcel to incorporate into its next filing a summary table that allows the reader to more easily assess the overall reliability of the system and identify the main factors that affect reliability.	Section IV.A Section IV.B.1.b
Docket G002/CI-08-871 Docket E,G002/M-09-224 November 30, 2010	Direct Xcel to file the following information with its annual electric service quality reports filed pursuant to Minn. Rules, Part 7826.0500 and its annual gas service quality reports established in Docket No. G-999/CI-09-409 starting in 2013: <ul style="list-style-type: none"> • Volume of Investigate and Remediate Field orders; • Volume of Investigate and Refer Field orders; • Volume of Remediate Upon Referral Field orders; • Average response time for each of the above categories by month and year; • Minimum days, maximum days, and standard deviations for each category; and • Volume of excluded field orders. 	Section III.B
Docket E002/M-05-551 April 7, 2006	3. In its annual safety, reliability, and service quality report due on or before April 1, 2007, Xcel Energy shall report on the 25 worst performing circuits in each of its four work centers.	Section IV.B.2.b

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)**

Docket E002/M-04-511 November 3, 2004	6. Xcel shall include, on a going forward basis, data regarding credit calls but not calls from C&I customers in its calculation of call center response times	Section III.E
--	--	---------------

XXI. Attachment B – MP Reporting Matrix

NEW REPORTING REQUIREMENTS		
2022SRSQ Report Order Dated December 5, 2023 in Docket No. E015/M-23-75		
Order Pt 2	Set Minnesota Power’s 2023 statewide Reliability Standard at the IEEE benchmarking 2nd Quartile for medium utilities. Set Minnesota Power’s work center reliability standards at the IEEE benchmarking 2nd quartile for small utilities. Required Minnesota Power to file a supplement to its 2023 SQR report 30 days after IEEE publishes the 2023 benchmarking results, with an explanation for any standards the utility did not meet.	Anticipated to be filed August 2024
Order Pt 7	Minnesota Power is required to provide CEMI (3, 4, 5, 6) and CELI (6, 12, 24), storm included, and storm excluded, for their overall system, as well as their individual service regions, until such time the Commission changes or rescinds this requirement.	Section V Pg. 55-56
ON-GOING REPORTING REQUIREMENTS		
2021SRSQ Report Order Dated November 9, 2022 in Docket No. E015/M-22-163		
Order Pt 8	Required Xcel Energy, Minnesota Power, and Otter Tail Power to each display, either directly or via a link to a PDF file, the utility’s public facing summary, as shown in Attachment A, on the utility’s website placed such that the summary is available to a website user after a single click away from the home page.	Section I Pg. 13-14
Annual Summary of Customer Complaints Pursuant to Minn. R. 7820.0500 Order Dated January 18, 2023 in Docket No. E, G-999/PR-22-13		
Order Pt 2	Required utilities to include customer complaint data from Minnesota Rules 7820.0500 in their Annual Service Quality reports with data filed as part of Minnesota Rules 7826.2000.	Pg. 93-99
2020 SRSQ Report Orders Dated December 2, 2021 & March 2, 2022 in Docket No. E015/M-21-230		
Order Pt 4 (3/2/22)	Establish three work centers for Minnesota Power, as described on pages 25-26 of the Company’s 2020 Safety, Reliability, and Service Quality Report.	Section V, pg. 41-43

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel)**; **E-015/M-24-29 (MP)**; and **E-017/M-24-30 (OTP)**

<p>Order Pt 2 (12/2/21)</p>	<p>Provide the following new information regarding electronic utility- customer interaction beginning with the reports filed in April 2023:</p> <p>Percentage Uptime [to second decimal] General Website XX.XX%</p> <p>Payment Services XX.XX%</p> <p>Outage map &/or Outage Info page XX.XX%</p> <p>Error Rate Percentage [to third decimal] Payment Services* XX.XXX%</p> <p>*If more granular data is available, please break down the error rate for unexpected errors, errors outside of the customer’s control (i.e. how often to online payments fail for reasons other than insufficient funds or expired payment methods), and/or some other meaningful categorization.”</p>	<p>Section VII pg.67-70</p>
<p>Order Pt 3 (12/2/21)</p>	<p>Provide percentage uptime and error rate percentage information in their annual reports for the next three reporting cycles, to build baselines for web-based service metrics.</p>	<p>Section VII pg.67-70</p>
<p>Order Pt 4 (12/2/21)</p>	<p>Continue to provide information on electronic utility-customer interaction such that baseline data are collected:</p> <p>a. Yearly total number of website visits; b. Yearly total number of logins via electronic customer communication platforms; c. Yearly total number of emails or other customer service electronic communications received; and d. Categorization of email subject, and electronic customer service communications by subject, including categories for communications related to assistance programs and disconnections as part of reporting under Minn. R. 7826.1700.</p>	<p>Section VII Pgs.67-69</p>
<p>Order Pt 7 (12/2/21)</p>	<p>File public facing summaries with their annual Safety, Reliability, and Service Quality reports. Utilities shall work with the Executive Secretary to publish those summaries in locations visible to consumers.</p>	<p>Section I Pg. 13-14</p>
<p>2019 SRSQ Report Order Dated December 18, 2020 in Docket No. E015/M-20-404</p>		
<p>Order Pt. 5</p>	<p>File the reliability (SAIDI, SAIFI, CAIDI, MAIFI, normalized/non- normalized) for feeders with grid modernization investments such as Advanced Metering Infrastructure or Fault Location Isolation and Service Restoration to the historic five-year average reliability for the same feeders before grid modernization investments.</p>	<p>Section III Pg. 26</p>
<p>2018 SRSQ Report Order Dated January 28, 2020 in Docket No. E015/M-19-254</p>		

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel)**; **E-015/M-24-29 (MP)**; and **E-017/M-24-30 (OTP)**

Order Pt. 2	<p>The Commission clarifies the reporting requirements from the Commission's March 19, 2019 order, as specified in Attachment B:</p> <ol style="list-style-type: none"> 1. Non-normalized SAIDI, SAIFI, and CAIDI values. 2. SAIDI, SAIFI, and CAIDI, MAIFI, CEMI, and CELI normalized values calculated using the IEEE 1366 Standard. 3. MAIFI – normalized and non-normalized. 4. CEMI – at normalized and non-normalized outage levels of 4, 5, and 6 interruptions. 5. The highest number of interruptions experienced by any one customer (or feeder, if customer level is not available). 6. CELI – at normalized and non-normalized intervals of greater than 6 hours, 12 hours, and 24 hours. 7. The longest experienced interruption by any one customer (or feeder, if customer level is not available). 8. A breakdown of field versus office staff as required Minn. Rules 7826.0500 Subp. 1, J, including separate information on the number of contractors for each work center. 9. Estimated restoration time accuracy, using the following windows: <ol style="list-style-type: none"> a. Within -90 minutes to 0 of estimated restoration time b. Within 0 to +30 minutes of estimated restoration time 10. IEEE benchmarking results for SAIDI, SAIFI, CAIDI, and MAIFI from the IEEE benchmarking working group. 11. Performance by customer class: ASAI, SAIDI, SAIFI, CAIDI, MAIFI Residential Non-normalized & Normalized, Commercial Non-normalized & Normalized; Industrial Non-normalized & Normalized. If reporting by class is not yet possible, an explanation of when the utility will have this capability. 12. Causes of sustained customer outages, by work center. 	Section V Pg. 46
Reconnect Pilot Program Order Dated December 9, 2020 in Docket No. E015/M-19-766 (See pg. 4)		
	<p>The Company committed to providing specific data related to its remote-reconnect pilot program (Reconnect Program)</p> <ol style="list-style-type: none"> 1. Number of customers participating in the remote-reconnect program; 2. Total number of Minnesota Power customers receiving low-income home energy assistance; 3. Number of remote-reconnect participants receiving low-income assistance; 4. Number of customers who have opted out of the remote-reconnect program; 5. Estimated annual cost savings from the remote-reconnect program; 6. Average time to reconnect using the remote-reconnect program compared to the standard reconnection process; and 7. Number of reconnections restored within 24 hours of disconnection, distinguishing between standard and remote reconnections. 	Section VIII Pg. 75-79
Minnesota Rules 7826.0400 – 7826.2000		
Annual Safety Report 7826.0400		
	Summaries of all reports filed with United States Occupational Safety and Health Administration and the Occupational Safety and Health Division of the Minnesota Department of Labor and Industry during the calendar year.	Section IV Pg. 39-40
	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	Section IV Pg. 39-40

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel)**; **E-015/M-24-29 (MP)**; and **E-017/M-24-30 (OTP)**

downed wires or other electrical system failures and all remedial action taken as a result of any injuries or property damage described.	
Reliability Reporting Requirements 7826.0500	
The utility's SAIDI for the calendar year by work center and for its assigned service area as a whole.	Section V Pg. 46
The utility's SAIFI for the calendar year by work center and for its assigned service area as a whole.	Section V Pg. 46
The utility's CAIDI for the calendar year by work center and for its assigned service area as a whole.	Section V Pg. 46
An explanation of how the utility normalizes its reliability data to account for major storms.	Section V Pg. 47-48
An action plan for remedying any failure to comply with the reliability standards set forth at part 7826.0600 or an explanation as to why non-compliance was unavoidable under the circumstances.	Section V Pg. 48-49
To the extent technically and administratively feasible, a report on each interruption of a bulk power supply facility during the calendar year, including the reasons for interruption, duration of interruption, and any remedial steps that have been taken.	Section V Pg. 49
A copy of each report filed under part 7826.0700 REPORTING MAJOR SERVICE INTERRUPTIONS.	Appendix A
To the extent technically feasible, circuit interruption data, including identifying the worst performing circuit in each work center, stating the criteria the utility used to identify the worst performing circuit, stating the circuit's SAIDI, SAIFI, and CAIDI, explaining the reasons that the circuit's performance is in last place, and describing any operational changes the utility has made, is considering, or intends to make to improve its performance.	Section V Pg. 50-53
Data on all known instances in which nominal electric service voltages on the utility's side of the meter did not meet the standards of the American National Standards Institute for nominal system voltages greater or less than voltage range B.	Section V Pg. 53
Data on staffing levels at each work center, including the number of full-time equivalent positions held by field employees responsible for responding to trouble and for the operation and maintenance of distribution lines.	Section V Pg. 54-55
Any other information the utility considers relevant in evaluating its reliability performance over the calendar year.	Section V Pg. 55-57
RELIABILITY STANDARDS 7826.0600; Subpart 1	
On or before April 1 of each year, each utility shall file proposed reliability performance standards in the form of proposed numerical values for the SAIDI, SAIFI, and CAIDI for each of its work centers. These filings shall be treated as "miscellaneous tariff filings" under the Commission's rules of practice and procedure, part 7829.0100, subp. 11.	Section IX Pg. 100
REPORTING METER-READING PERFORMANCE 7826.1400	

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel)**; **E-015/M-24-29 (MP)**; and **E-017/M-24-30 (OTP)**

<p>The annual service quality report shall include a detailed report on the utility's meter reading performance, including, for each customer class and for each calendar month:</p> <ul style="list-style-type: none"> A. The numbers and percentages of customer meters read by utility personnel. B. The numbers and percentages of customer meters self-read by customers. C. The number and percentage of customer meters that have not been read by utility personnel for periods of six to twelve months and for periods of longer than twelve months, and an explanation as to why they have not been read. D. Data on monthly meter-reading staffing levels, by work center or geographical area. 	<p>Section VI Pgs. 58-64</p>
<p>REPORTING INVOLUNTARY DISCONNECTIONS 7826.1500</p>	
<p>The annual service quality report must include a detailed report on involuntary disconnections of service, including, for each customer class and each calendar month:</p> <ul style="list-style-type: none"> A. the number of customers who received disconnection notices; B. the number of customers who sought cold weather rule protection under chapter 7820 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. 	<p>Section VIII Pgs. 71-75</p>
<p>REPORTING SERVICE EXTENSION REQUEST RESPONSE TIMES 7826.1600</p>	
<p>The annual service quality report must include a detailed report on service extension request response times, including, for each customer class and each calendar month:</p> <ul style="list-style-type: none"> A. The number of customers requesting service to a location not previously served by Minnesota Power 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. B. The number of customers requesting service to a location previously served by Minnesota Power, but not served at the time of the request, 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. 	<p>Section VIII Pgs. 79-85</p>
<p>REPORTING CALL CENTER RESPONSE TIMES 7826.1700</p>	
<p>The annual service quality report must include a detailed report on call center response times, including calls to the business office and calls regarding service interruptions. The report must include a month-by-month breakdown of this information.</p>	<p>Section VIII Pgs. 86-91</p>
<p>REPORTING EMERGENCY MEDICAL ACCOUNT STATUS 7826.1800</p>	
<p>The annual service quality report must include the number of customers who requested emergency medical account status under Minn. Stat. §216B.098, subd. 5, the number whose applications were granted, and the number whose applications were denied, and the reasons for each denial.</p>	<p>Section VIII Pgs. 91-92</p>
<p>REPORTING CUSTOMER DEPOSITS 7826.1900</p>	
<p>The annual service quality report must include the number of customers who were required to make a deposit as a condition of receiving service.</p>	<p>Section VIII Pgs. 93</p>

Staff Briefing Papers for Docket No. **E-002/M-24-27 (Xcel); E-015/M-24-29 (MP); and E-017/M-24-30 (OTP)**

REPORTING CUSTOMER COMPLAINTS 7826.2000	
<p>The annual service quality report must include a detailed report on complaints by customer class and calendar month, including at least the following information:</p> <ul style="list-style-type: none"> 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. E. The number of complaints forwarded to the utility by the Commission's Consumer Affairs Office for further investigation and action. 	<p>Section VIII Pgs. 93-99</p>