



## Staff Briefing Papers: Volume 1/2

Meeting Date	November 30, 2023	Agenda Item 5*
Company	Northern States Power Company d/b/a Xcel Energy; Minnesota Power; Otter Tail Power Company	
Docket No.	<b>E-002/M-23-73</b> <b>In the Matter of Xcel Energy’s 2022 Annual Safety, Reliability and Service Quality Report</b>	
	<b>E-015/M-23-75</b> <b>In the Matter of Minnesota Power’s 2022 Annual Safety, Reliability and Service Quality Report</b>	
	<b>E-017/M-23-76</b> <b>In the Matter of Otter Tail Power Company’s 2022 Annual Safety, Reliability and Service Quality Report</b>	
Issues	<ol style="list-style-type: none"> <li>1. Should the Commission accept Minnesota Power’s, Otter Tail Power Company’s, and Xcel Energy’s 2022 Safety, Reliability, and Service Quality Metrics Reports?</li> <li>2. Are the utilities’ reports consistent with recent Orders<sup>1</sup> and Minn. Rules Ch. 7826 on Electric Utility Standards?</li> <li>3. At what level should the Commission set the utilities’ 2023 Reliability Standards?</li> <li>4. What additional solutions might utilities pursue to improve call center response time?</li> <li>5. Are there other issues or concerns related to this matter?</li> </ol>	
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<sup>1</sup> See Orders associated with the following Docket Nos.: Xcel Energy (E002/M-21-237 and E002/M-20-406); Minnesota Power (E015/M-21- 230 and E015/M-20-404); Otter Tail Power (E017/M-21-225 and E017/M-20-401).

✓ Relevant Documents	Date
<b>23-73 Xcel Energy</b>	
Xcel Energy Annual Report Parts 1 & 2 and Attachments K & L	March 31, 2023
Xcel Energy Errata re: Corrected Call Center Response Time	June 5, 2023
Department of Commerce Comments re: Xcel	June 16, 2023
City of Minneapolis Comments re: Xcel	June 16, 2023
Xcel Energy Reply Comments	June 30, 2023
Department of Commerce Reply Comments re: Xcel	June 30, 2023
Xcel Energy Supplemental Comments re: IEEE	August 16, 2023
Department of Commerce Letter	September 25, 2023
<b>23-75 Minnesota Power</b>	
Minnesota Power Annual Report and Appendices A-C	April 3, 2023
Department of Commerce Comments re: Minnesota Power	June 16, 2023
Minnesota Power Reply Comments and Attachment A	June 30, 2023
Minnesota Power Supplemental Comments and Attachment A	August 4, 2023
Minnesota Power Compliance Filing re: IEEE	August 24, 2023
Department of Commerce Letter	September 28, 2023
Ex Parte Communications	October 25, 2023
<b>23-76 Otter Tail Power</b>	
Otter Tail Power Annual Report	April 3, 2023
Department of Commerce Comments re: Otter Tail Power	June 16, 2023
Otter Tail Power Reply Comments	June 30, 2023
Otter Tail Power Supplemental Comments re: IEEE	August 16, 2022
Department of Commerce Letter	September 28, 2023

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## 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, while 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.<sup>2</sup>

In its March 2, 2022, Order Accepting Reports and Setting 2021 Reliability Standards, the Commission set utility reliability standards that benchmark to the Institute of Electrical and Electronics Engineers (IEEE) working group results. The Commission required utilities to make a supplemental filing to their April 1, 2023, reports within 30 days of the IEEE results being available, with an explanation addressing any standards the utility did not meet.

All three investor-owned electric utilities filed annual SRSQ reports on or before April 3rd, 2023, and filed their IEEE results once available. The Minnesota Department of Commerce, Division of

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<sup>2</sup> Commission Order dated March 19, 2019 in Docket 18-250

Energy Resources (Department) and the City of Minneapolis commented on the filings. After review, the Department recommended acceptance of the 2022 SRSQ reports for all three utilities and acknowledged utility compliance with the Commission's rules (**Decision Option 1**). Below, Staff summarizes the utility reports and Department Comments.

## 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
SQSR	Service Quality, Safety, and Reliability

## Compliance

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

Each utility must include in its April 1<sup>st</sup> 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, as well as 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.<sup>3,4,5</sup>

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<sup>3</sup> Docket 23-73, Department Comment, p. 3

<sup>4</sup> Docket 23-75, Department Comment, p. 1

<sup>5</sup> Docket 23-76, Department Comment, p. 1

### **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, work center, and for their whole assigned service area. Utilities are also expected to provide an explanation of how the utility normalizes its reliability data to account for major storms, an action plan for remedying any failures to comply with Commission reliability standards or why noncompliance was unavoidable, and 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.<sup>6,7,8</sup>

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.

### **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. These results fluctuate from year to year due to a number of external factors impacting reliability of the utility grid. Due to this, normalization of these indices occurs so that outlier data points, usually caused by storms and other weather-related events, are removed or controlled for. Both normalized<sup>9</sup> and non-normalized results provide important information to

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<sup>6</sup> Docket 23-73, Department Letter, p. 2

<sup>7</sup> Docket 23-75, Department Letter, p. 4

<sup>8</sup> Docket 23-76, Department Letter, p. 4

<sup>9</sup> Per Minn. R. 7826.0200, Subp. 9. "Storm-normalized data" means data that have been adjusted to neutralize the

examine when looking to see how ratepayers have been impacted by reliability issues within one year and from year to year, as well as how each utility meets their 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 standards<sup>10</sup> 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.”<sup>11</sup>

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 “why non-compliance was unavoidable under the circumstances.”<sup>12</sup>

All utility standards are currently set at the second quartile. The City of Minneapolis recommended Xcel Energy’s IEEE benchmarking standard be increased to the first quartile with the inclusion of a requirement that they always stay above the second quartile (**Decision Option 5**).<sup>13</sup>

The following sections summarize individual utility reliability performance for 2022. Instances where normalized performance did not meet the standard are indicated in red. Each utility’s performance in their normalized SAIDI, SAIFI, and CAIDI results is compared to their IEEE standard. This is to help compare service reliability across years, controlling for abnormal storm systems that roll through from year to year, creating 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.

### Minnesota Power

Minnesota Power’s (MP) service territory is divided into three work centers. The numbers in 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 2022 normalized and non-normalized results. Highlighted in red is the utility’s SAIFI result which did not meet the 2022 IEEE 2<sup>nd</sup> Quartile Standard.

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effects of outages due to major storms. Minn. Rules 7826.0500 Subd. D requires “an explanation of how the utility normalizes its reliability data to account for major storms.”

<sup>10</sup> Minn. Rules 7826.0600, Subp. 1

<sup>11</sup> Minn. Rules 7826.0600, Subp. 2

<sup>12</sup> Minn. Rules 7826.0500, Subp. 1(E)

<sup>13</sup> Docket 23-73, Minneapolis Comment, p. 4

**Table 1: Minnesota Power 2022 Results and 2023 Proposed Standards**

Metric	SAIDI	SAIFI	CAIDI
2022 Standard (IEEE 2 <sup>nd</sup> Quartile)	143.00	1.11	134.00
2022 Performance Results ( <i>Normalized</i> )	112.70	<b>1.12</b>	100.89
2022 Performance Results ( <i>Non-Normalized</i> )	496.57	2.05	242.27

Minnesota Power met their SAIDI and CAIDI standards but did not meet their SAIFI standard under normalized results for 2022. Being below each of the three (SAIDI, SAIFI, and CAIDI) standards set by the Commission is considered successful as it indicates the utility experienced less interruptions (when controlling for major events) than a majority of utilities across the United States. MP not meeting their SAIFI goal indicates that MP experienced more SAIFI interruptions than the national average for utilities of a similar size.

Minnesota Power did not meet their CAIDI goal for the Northern Work Center nor did they meet their SAIFI goal for the Western Work Center.<sup>14</sup> Minnesota Power gave weather and equipment failure as the primary reasons for not meeting their Northern Work Center CAIDI or their Western Work Center SAIFI, citing high winds during May and a heavy December snowfall. Leading causes of outages were similar to the previous four years. To counteract this challenge, the Company is installing Trip Savers to clear temporary faults along with strategic undergrounding efforts for the Company's worst performing overhead lines.<sup>15</sup> In 2022, MP installed over 37 miles of underground wire, including the conversion of overhead facilities to underground. MP also continued their asset renewal program for switch and cutout replacements to replace porcelain cutouts which is expected to aid reliability improvements.

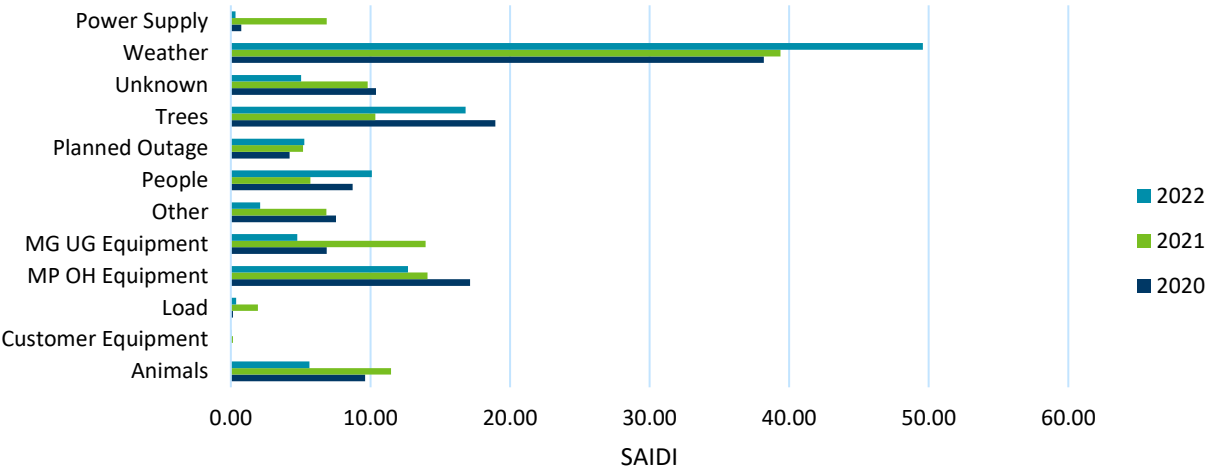
Figure 1 and Figure 2 below were created by Commission staff using utility filing data and compare the contributing factors to MP's SAIDI and SAIFI values for 2020-2022. Both figures include all outages (non-normalized). This information helps determine factors that are causing reliability issues with 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.

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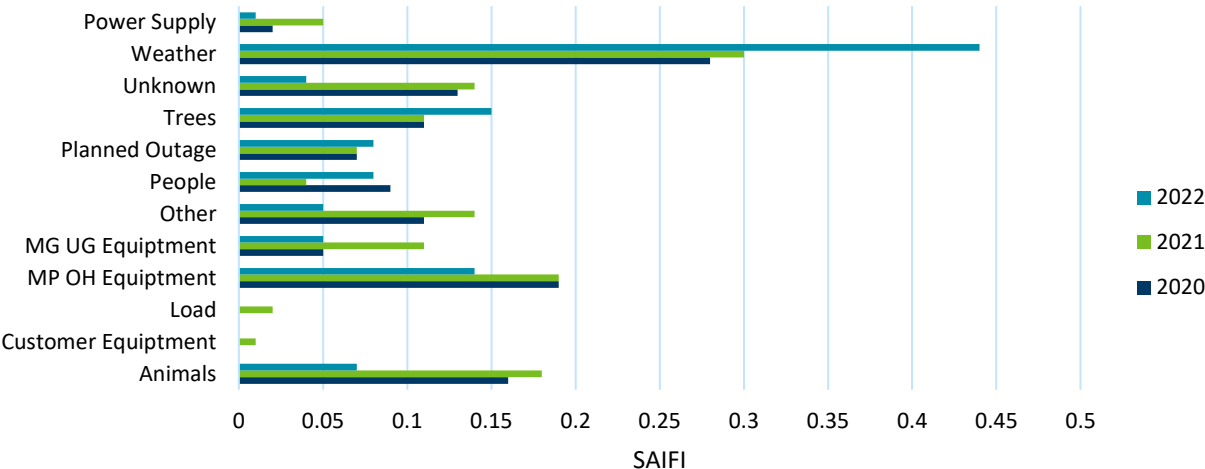
<sup>14</sup> Docket 23-75, Initial Filing p. 17

<sup>15</sup> Docket 23-75, Initial Filing, p. 19

**Figure 1: Comparison of removed SAIDI causes, 2019 to 2021<sup>16</sup>**



**Figure 2: Comparison of SAIFI causes, 2019-2021<sup>17</sup>**



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. It is important to remember a utility’s goal is to reduce their SAIDI, SAIFI, or CAIDI metrics as this indicates less frequency and length of interruptions to the ratepayer so ideally, their goal line is above their performance line, meaning they are meeting their performance objectives.

<sup>16</sup> Docket 23-75, Initial Filing, p. 21

<sup>17</sup> *Ibid.*, p. 23





Figure 3: Minnesota Power SAIDI 2013-2022

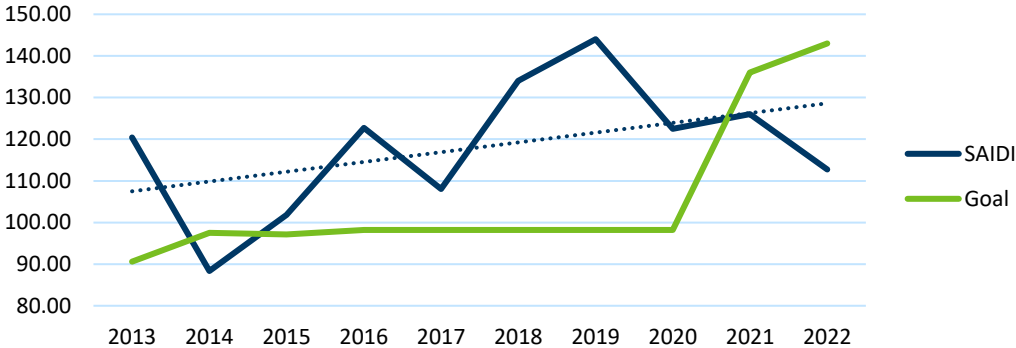


Figure 4: Minnesota Power SAIFI 2013-2022

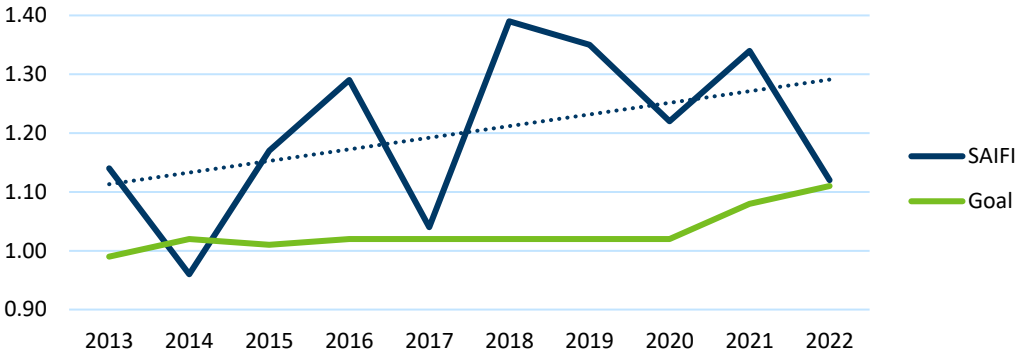
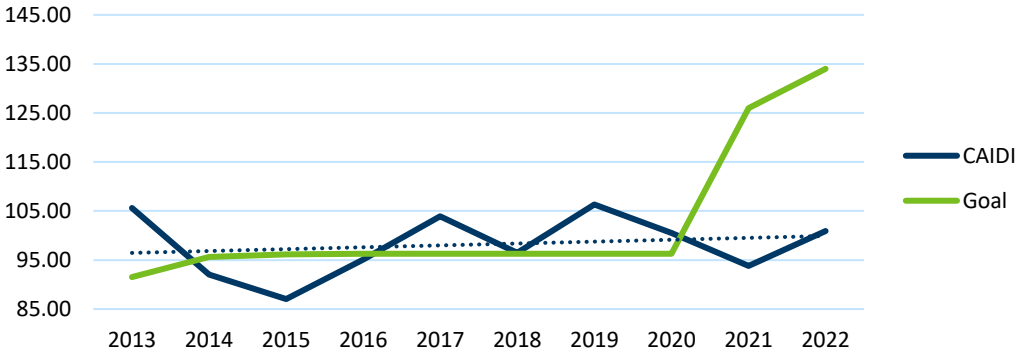


Figure 5: Minnesota Power CAIDI 2013-2022



**Staff Analysis**

Minnesota Power has consistently not been meeting their SAIFI goals and that has not changed even with the switch from the rolling average to the IEEE standard. While concerning, the Department was encouraged by the projects and initiatives implemented by MP that should have a positive impact on system-wide reliability metrics such as automated sensing and control devices, strategic undergrounding, and grid modernization programs as proposed in the

Company's Integrated Distribution Plan. Due to these projects and initiatives, the Department was not concerned by MP's reliability performance.<sup>18</sup>

Commission staff believe MP to be completing projects and initiatives that will over time improve reliability results, specifically SAIFI which the Company have not been meeting. With the shift to the IEEE standard, Commission staff will continue to monitor MP's SAIFI over time as the year-to-year goal shifts and gradual improvement is made. Commission staff anticipate MP will lower their SAIFI to below the 2<sup>nd</sup> quartile in the near future as their projects and initiatives continue to make an impact.

### Otter Tail Power

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

**Table 2: Otter Tail Power 2022 Reliability Results**

Region	Metric	Standard	Performance Results
<b>Overall Service Territory</b>	SAIDI	143	119.77
	SAIFI	1.11	<b>1.62</b>
	CAIDI	134	73.83
<b>Bemidji</b>	SAIDI	143	141.28
	SAIFI	1.11	<b>1.65</b>
	CAIDI	134	85.55
<b>Crookston</b>	SAIDI	143	<b>151.18</b>
	SAIFI	1.11	<b>1.78</b>
	CAIDI	134	84.97
<b>Fergus Falls</b>	SAIDI	143	100.44
	SAIFI	1.11	<b>1.47</b>
	CAIDI	134	68.25
<b>Morris</b>	SAIDI	143	141.09
	SAIFI	1.11	<b>2.09</b>
	CAIDI	134	67.51

Beginning in last year's report, Otter Tail Power (OTP) reduced their 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.<sup>19</sup> This was due to the Millbank and Wahpeton Service Centers being so small that they

<sup>18</sup> Docket 23-75, Department Letter, p. 4

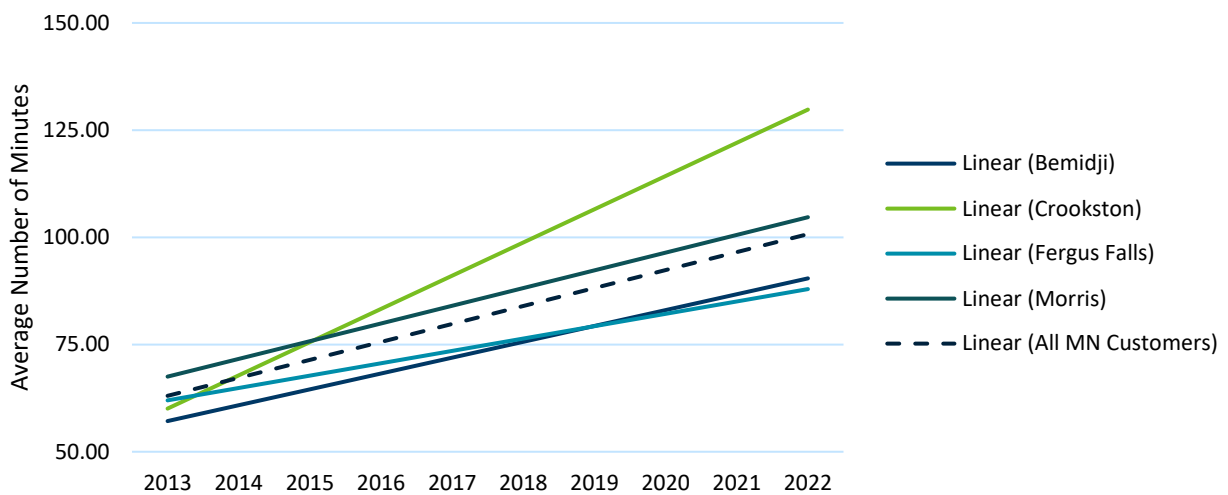
<sup>19</sup> Docket 22-159, Initial Filing, p. 26

would see extreme fluctuations from year to year in their metrics with only two feeders that made it difficult to examine their longitudinal data.

OTP noted that with the move to their new Interruption Monitoring System (IMS) in 2019, more granular information is collected and therefore comparison of pre-2019 data and post-2019 data should not be considered.<sup>20</sup> However, the IMS will impact their normalized values with the goal of improving them through increased accuracy over time.

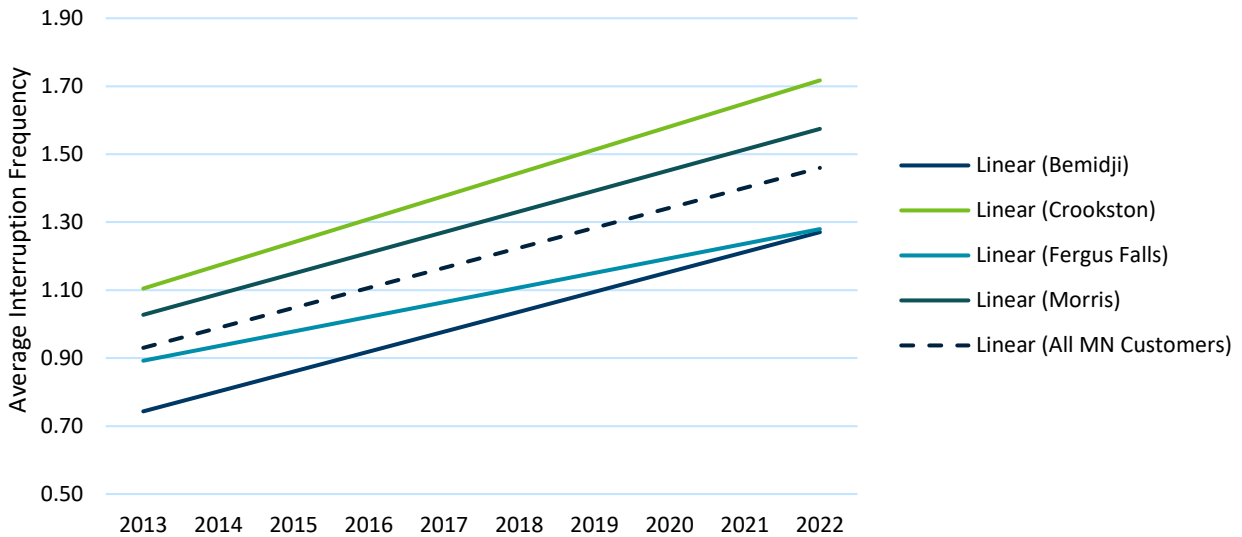
Figures 6-8 depict OTP's SAIDI, SAIFI, and CAIDI trends over the past decade. As a whole, Otter Tail has seen increasing SAIDI and SAIFI and relatively flat CAIDI over the past 10 years.

**Figure 6: Otter Tail Power SAIDI Trends, 2013-2022**

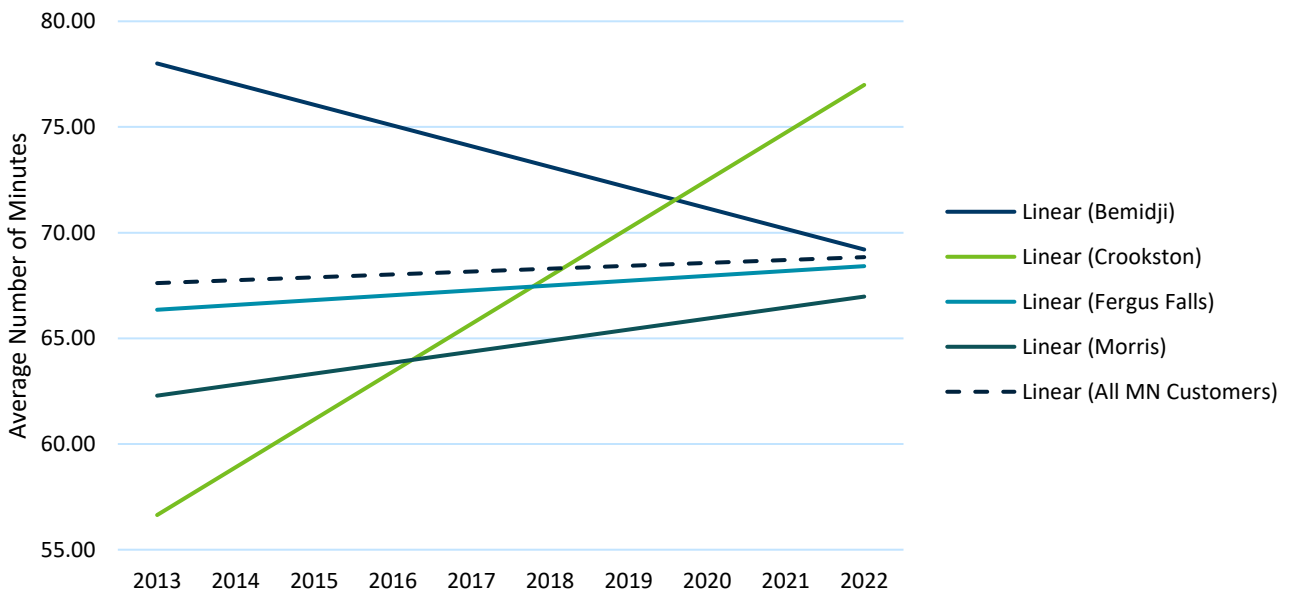


**Figure 7: Otter Tail Power, SAIFI Trends, 2013-2022**

<sup>20</sup> Docket 23-76, Initial Filing, p. 5



**Figure 8: Otter Tail Power, CAIDI Trends, 2013-2022**



**Department Comments**

The Department’s analysis of OTP’s SAIDI, SAIFI and CAIDI noted OTP missed their SAIFI goal by 0.51. OTP noted that goal can be a challenge to meet due to their geographically large service territory and dispersed customer population. However, the Department raised concern that recorded SAIFI value is the highest reported in the past decade and well above the utility’s five-year average of 1.08. Between the introduction of the IMS and high levels of severe weather

impacting operations and facilities, the Department accepted OTP's explanation as reasonable and will continue to monitor SAIFI performance in future years.<sup>21</sup>

## Xcel

Xcel met all of its 12 reliability goals for 2022, exceeding all of their national benchmarks, and improving on their successes of 2021. Table 3 below demonstrates these results.

**Table 3: Xcel Energy 2022 Results<sup>22</sup>**

Region	Metric	2022 Standard	2022 Performance Results (normalized)	2022 Performance Results (non-normalized)
Minnesota	SAIDI	115	90	184.42
	SAIFI	1.02	0.86	1.08
	CAIDI	120	104.05	170.24
Metro East	SAIDI	115	96.79	142.85
	SAIFI	1.02	0.9	1.05
	CAIDI	120	107.99	136.23
Metro West	SAIDI	115	81.85	214.14
	SAIFI	1.02	0.87	1.11
	CAIDI	120	94.19	193.13
Northwest	SAIDI	143	84.06	244.83
	SAIFI	1.11	0.69	1.19
	CAIDI	134	122.38	205.14
Southeast	SAIDI	143	111.84	123.52
	SAIFI	1.11	0.91	0.97
	CAIDI	134	122.69	126.95

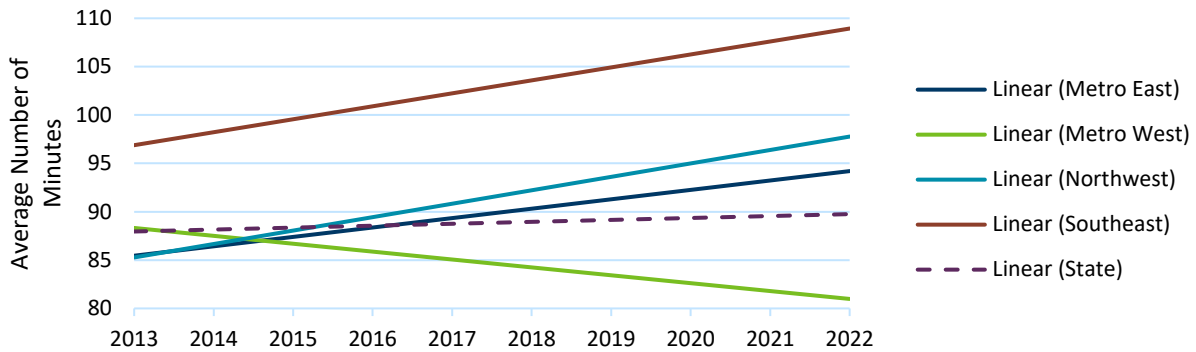
Utility goals may rise or fall slightly from year to year due to external factors such as performance of peer institutions and weather. This makes it important to look at the overall trend lines of goals and actual performance. Figures 11-13 show Xcel's SAIDI, SAIFI, and CAIDI trend lines over time for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

<sup>21</sup> Docket 23-76, Department Letter, p. 4

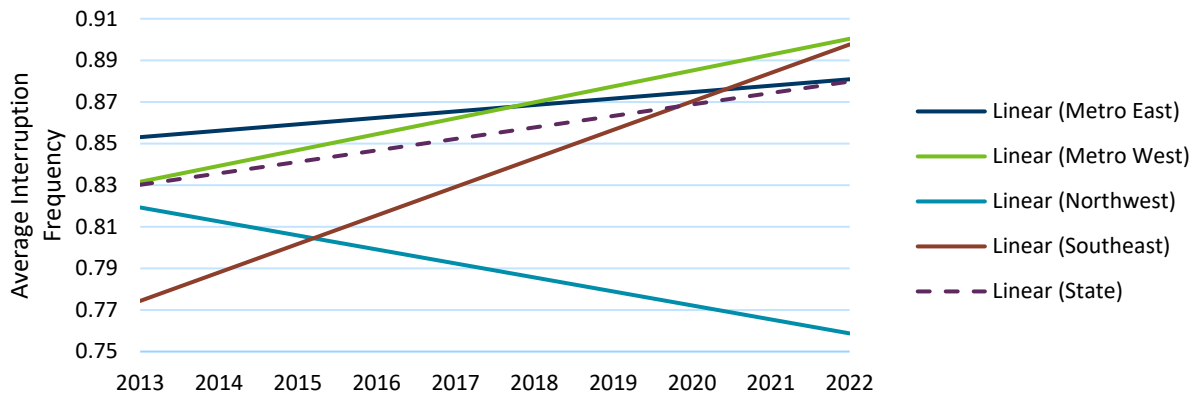
<sup>22</sup> Docket 23-73, Initial Filing, p. 27



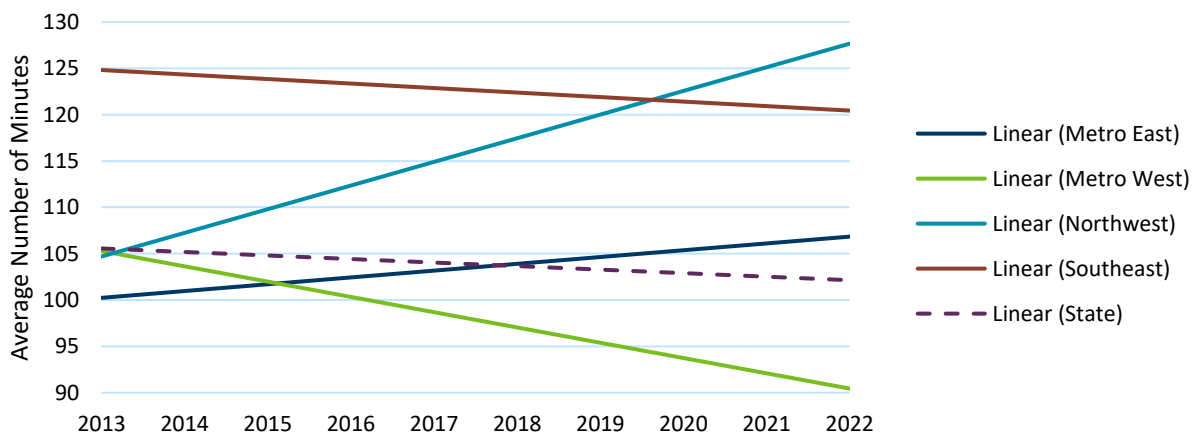
**Figure 11: SAIDI Trends, 2013-2022**



**Figure 12: SAIFI Trends, 2013-2022**



**Figure 13: CAIDI Trends, 2013-2022**



**Analysis**

While Xcel met their goals this year, the Department noted their SAIDI and SAIFI had remained relatively constant during the previous decade. Relative to their industry peers, Xcel noted

their reliability indices have remained between the first and second quartile as calculated for IEEE benchmarking.<sup>23</sup>

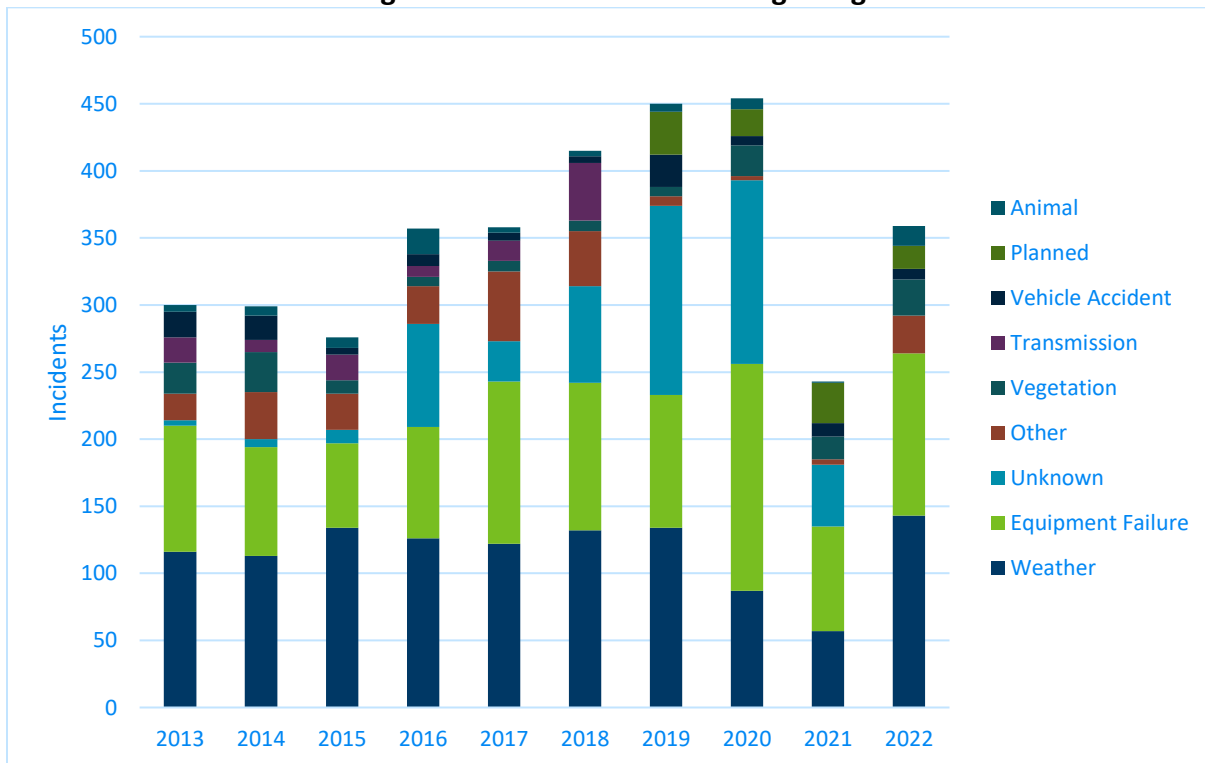
Commission staff applaud Xcel for maintaining their commitment to meeting the goals laid out in partnership with the Commission but share the Department's concern regarding improvement. Commission staff look forward to Xcel's innovative approaches to confronting the challenges brought up by the Department and the City of Minneapolis.<sup>24</sup>

## Power Outage Origins

### 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.<sup>25</sup> Weather and equipment failure are the most common causes of outages for OTP. OTP saw an increase in their weather and equipment failure outages comparable to historical averages in 2022.

**Figure 9: Otter Tail Power Outage Origins**



<sup>23</sup> Docket 23-73, Department Letter, p. 4

<sup>24</sup> See page 32 on for discussion of City of Minneapolis Comments

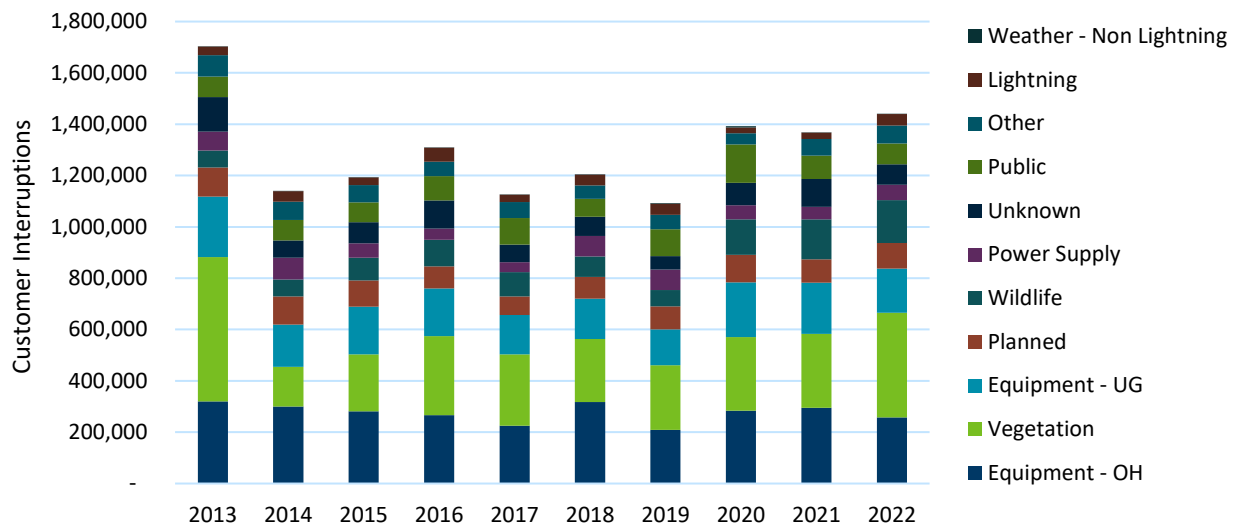
<sup>25</sup> Docket 23-76, Initial Filing, p. 13. In 2019 Otter Tail began reporting sources of outages with new categorizations in line with its new IMS. Staff has aligned new and old categories for comparison purposes.

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

## Xcel Energy

Below, Commission staff provides Figure 10 showing Xcel's sustained outage trends for 2013-2022 for all outages. This information is compiled due to Commission's Order<sup>26</sup> collecting data on sustained outage causes by work center.

**Figure 10: Causes of Xcel Sustained Outages**



The number of outages remained relatively steady in 2022 compared to recent years. This year saw an increase of vegetation-related outages. A majority of outages are related to vegetation and equipment failure, which can be managed with tree trimming or equipment maintenance and equipment end-of-life retirements.

## Minnesota Power

Minnesota Power provides their information via discussion and graphs depicting Major Event Day (MED)-excluded SAIDI and SAIFI values by cause. This information highlights the causes of outages specifically on major event days that are excluded when normalizing SAIDI or SAIFI. MP attributed 44% of these MED exclusions to weather, 15% to vegetation, 11% to equipment failure, and 9% due to public events such as vehicular crashes. To minimize these causes, MP discussed their TripSaver installations to clear temporary faults as well as strategic undergrounding efforts this year and tree trimming.<sup>27</sup>

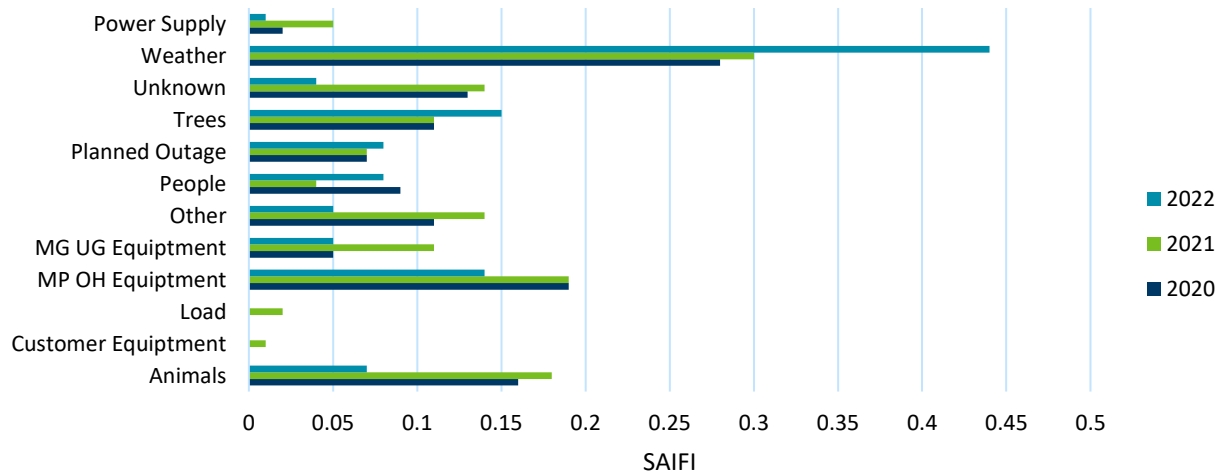
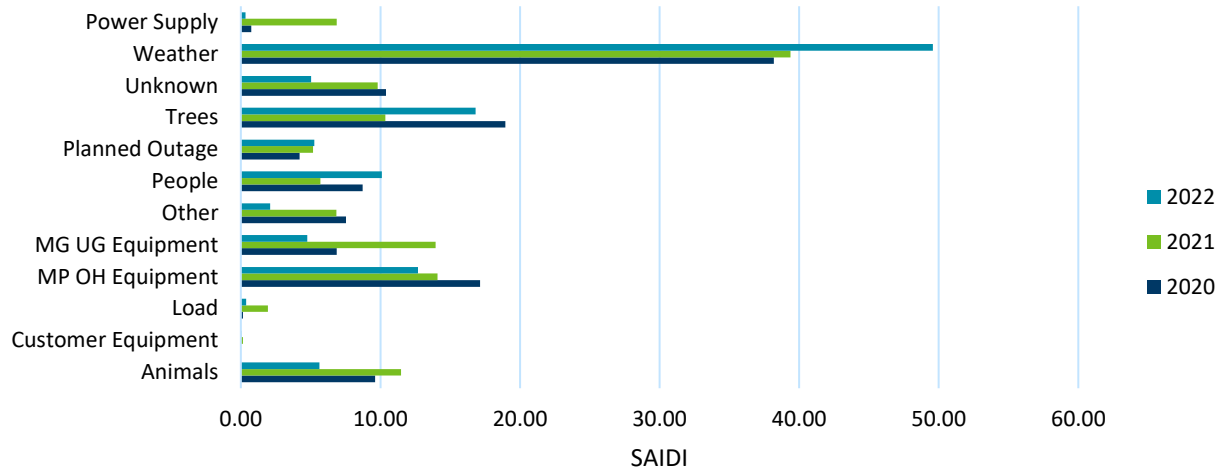
**Figure 11: Causes of MP Sustained Outages<sup>28</sup>**

<sup>26</sup> Docket 19-261, January 28, 2020 Order

<sup>27</sup> Docket 23-75, Initial Filing, p. 19

<sup>28</sup> Docket 23-75, Initial Filing, pp. 21-23





## Work Center Staffing Levels

Minn. Rules 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 acknowledged compliance with Minnesota rules by all three utilities.<sup>29,30,31</sup>

### Minnesota Power

Minnesota Power reported 104 line worker positions, along with 21 full time equivalent (FTE) contractor positions.<sup>32</sup> Historically, MP had been seeing a decline in line worker positions that

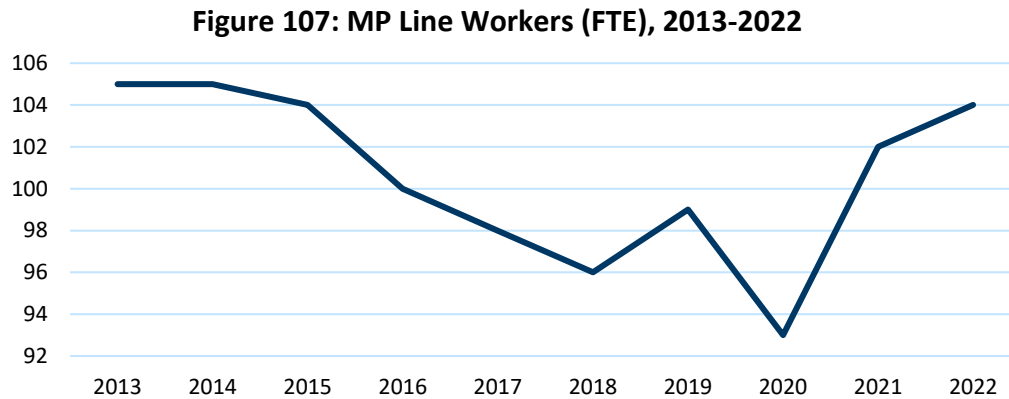
<sup>29</sup> Docket 23-73, Department Letter, p. 2

<sup>30</sup> Docket 23-75, Department Letter, p. 4

<sup>31</sup> Docket 23-76, Department Letter, p. 4

<sup>32</sup> Docket 23-75, Initial Filing, p. 58

was exacerbated by the COVID-19 pandemic emergency response. However, over the past couple of years MP has worked to reverse that historical trend. Figure 107 depicts the overall level of line worker positions.

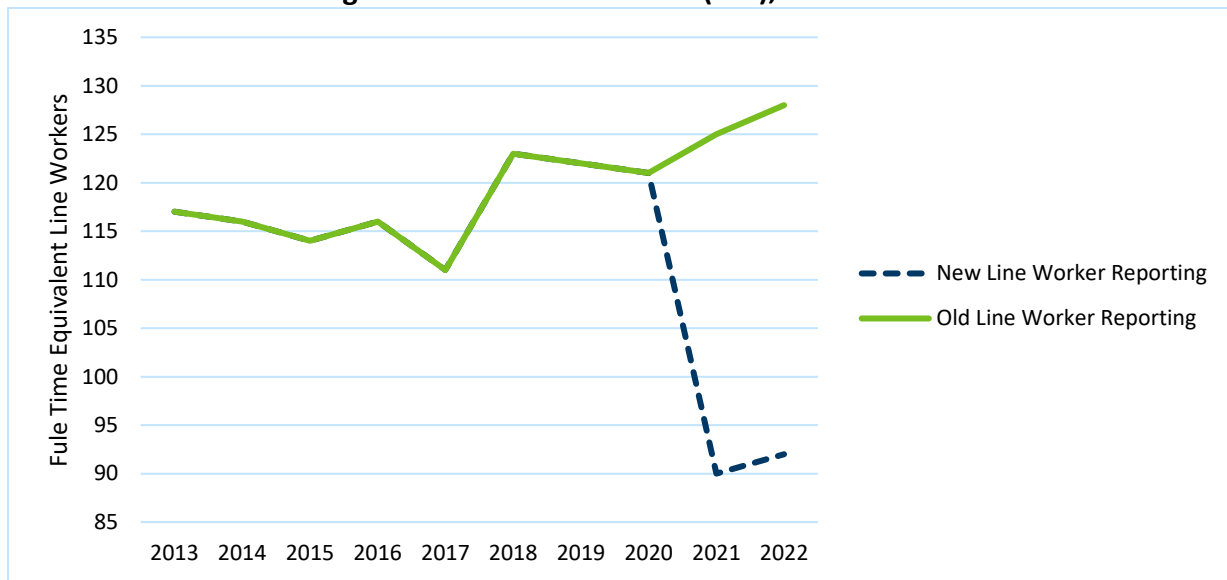


### Otter Tail Power

Otter Tail provided the number of line workers, depicted in Figure 18. The decrease in work center staffing between 2020 and 2021 is the result of an accounting change. Operationally, the number of staff available did not change.<sup>33</sup> This accounting change is to provide more accurate accounting of FTE line workers specifically in Minnesota, removing workers in territory that bordered Minnesota. The solid line indicates the old accounting system which included line workers in service territories that crossed the Minnesota border. The dotted line indicates the new accounting of line workers only working in Minnesota.

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<sup>33</sup> OTP, Initial Filing, Docket 22-159, pdf p. 12

**Figure 18: OTP Line Workers (FTE), 2013-2022**

## Xcel Energy

In its compliance filing, Xcel provided updated staffing levels at its work centers broken down by linemen and support staff. With 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, 2013-2022<sup>34</sup>**

	Metro East	Metro West	Northwest	Southeast	Other*	Total
2013	128	173	32	53	41	427
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
Historical Average	126	178	32	51	47	434

<sup>34</sup> Docket 23-73, Initial Filing, p. 67

**Table 8: Xcel Energy Work Center Support (with Contractors) Staffing Levels, 2013-2022<sup>35</sup>**

	Metro East	Metro West	Northwest	Southeast	Other*	Total
2013	62	67	21	31	37	218
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
Historical Average	60	72	21	32	36	221
% change from 2013	-3%	21%	-19%	6%	11%	6%

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

As shown in Tables 7 and 8, Xcel has seen improvements in their work center support levels except in the Northwest Work Center where their staffing levels are about 4 FTEs lower than their 10-year historical average and 19% lower than 2013.

### 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 and assuaged Commission staff's concerns. Staff will continue to monitor staffing levels for safety and quality of service.

### 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.<sup>36</sup>

<sup>35</sup> Docket 23-73, Initial Filing, p. 67

<sup>36</sup> Docket E015/M-18-239, Order Point 3 and clarified in Docket E015/M-19-261, Order Point 2

## Minnesota Power

Average Service Availability Index (ASAI) represents the percentage of time that power was available.<sup>37</sup> Minnesota Power reported the ASAI for each class. Minnesota Power's 2022 ASAI was similar to values in previous years.

**Table 9: Minnesota Power Reliability by Customer Class (ASAI)<sup>38</sup>**

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

## Otter Tail Power

In its 2018 report, OTP indicated that it does not have the ability to differentiate reliability by customer class due to the retirement of its old Interruption Monitoring System (IMS), but its new IMS system would be able to provide reliability details by customer class starting in reporting year 2019.<sup>39</sup> However, in its 2019 report, the Company indicated it did not have the ability to do so until it implements an outage management system or advanced metering infrastructure. As of their 2022 report, OTP has not implemented an outage management system or advanced metering infrastructure but expects reporting to be feasible in its 2023 report.<sup>40</sup>

## Xcel Energy

The 2022 reporting year is the first year Xcel was able to provide reliability data by customer class in accordance with Commission Order. Xcel provided SAIDI, SAIFI, and CAIDI metrics for residential, commercial, and industrial customers and, as this is their first year collecting this data, they are working to understand the causes and differences between customer classes in their reliability results. Xcel theorized that the differences 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.<sup>41</sup>

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<sup>37</sup> Docket 23-75, Initial Filing, p. 6

<sup>38</sup> Docket 23-75, Initial Filing, p. 49

<sup>39</sup> OTP, Initial Filing, Docket 19-260, p. 33

<sup>40</sup> Docket 23-76, Initial Filing, p. 37

<sup>41</sup> Docket 23-73, Initial Filing, p. 34

**Table 10: Xcel Energy Reliability by Customer Class<sup>42</sup>**

	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>All</b>
SAIDI	90.37	81.82	77.47	89.45
SAIFI	0.87	0.78	0.72	0.86
CAIDI	103.73	105.4	107.47	104

### Staff Analysis

As Commission staff have stated in previous reports, vegetation management, shorter feeders, and undergrounding are solutions that are not class dependent and the indication by Xcel that those are the reasons for the difference between feeders by class is at odds with a utility's ability to manage those items on the grid no matter who the class of customer is. To Commission staff, this suggest that Xcel may want to examine how to lower this difference between feeders associated with the different customer classes. Commission staff will recommend a discussion in next year's report by Xcel on this topic (**Decision Option 7**).

### MAIFI Reporting

MAIFI (Momentary Average Interruption Frequency Index) 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.

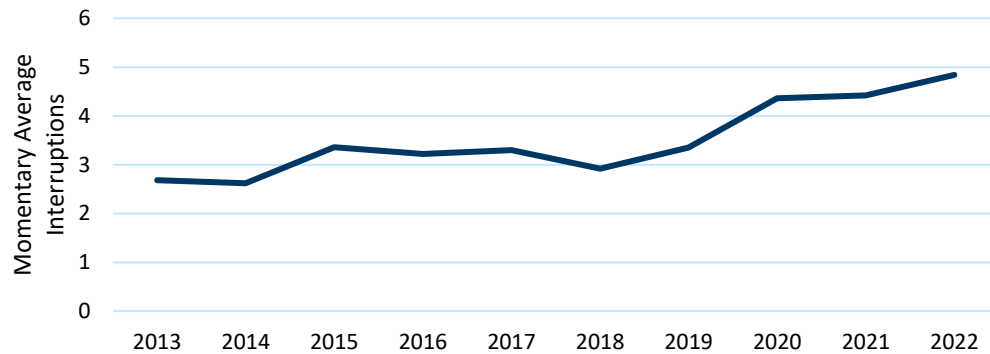
### Minnesota Power

MP indicated that while it has tracked MAIFI for the past decade, its data collection will be incomplete without a significant investment in further sensing technology. MP stated 30 percent of the utility's data is collected by its Supervisory Control and Data Acquisition (SCADA) system with the rest collected manually, either via customer calls or when device maintenance is done.<sup>43</sup> A SCADA system entails software applications and field equipment that uses data in order to maintain control or awareness of remote equipment and conditions. Without these systems in place, manual data must be collected, causing potential delays and expense. Below, Figure 11, is the most up to date storm excluded MAIFI data collected by MP.

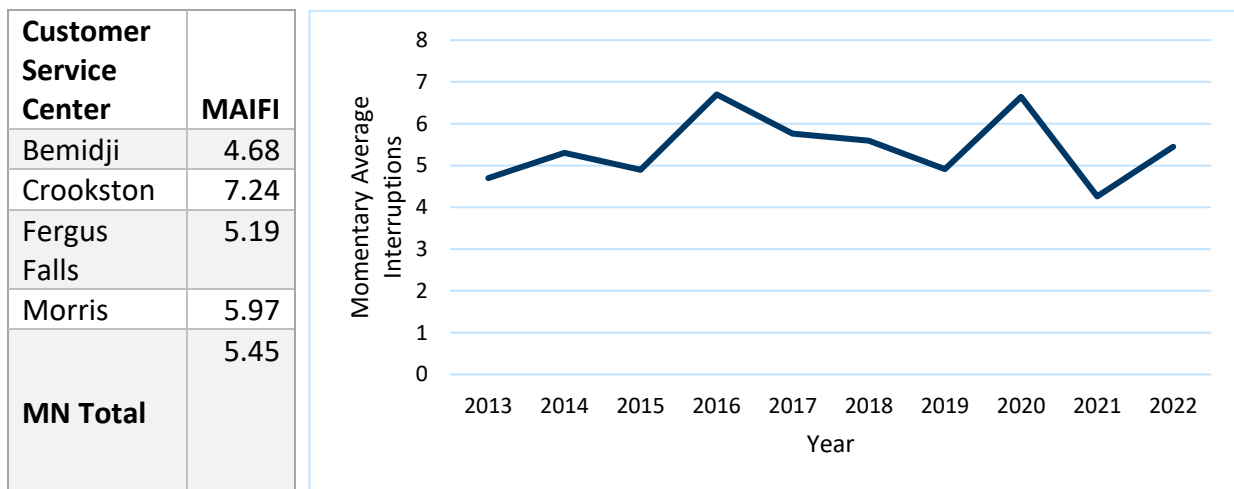
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<sup>42</sup> Docket 23-73, Initial Filing, p. 34

<sup>43</sup> MP, Initial Filing, Docket 20-404, p. 16-17

**Figure 11: Minnesota Power MAIFI 2013-2022****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.<sup>44</sup> Figure 13 depicts OTP's 2022 and historic MAIFI values.

**Figure 13: Otter Tail Power MAIFI (non-normalized)<sup>45</sup>****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

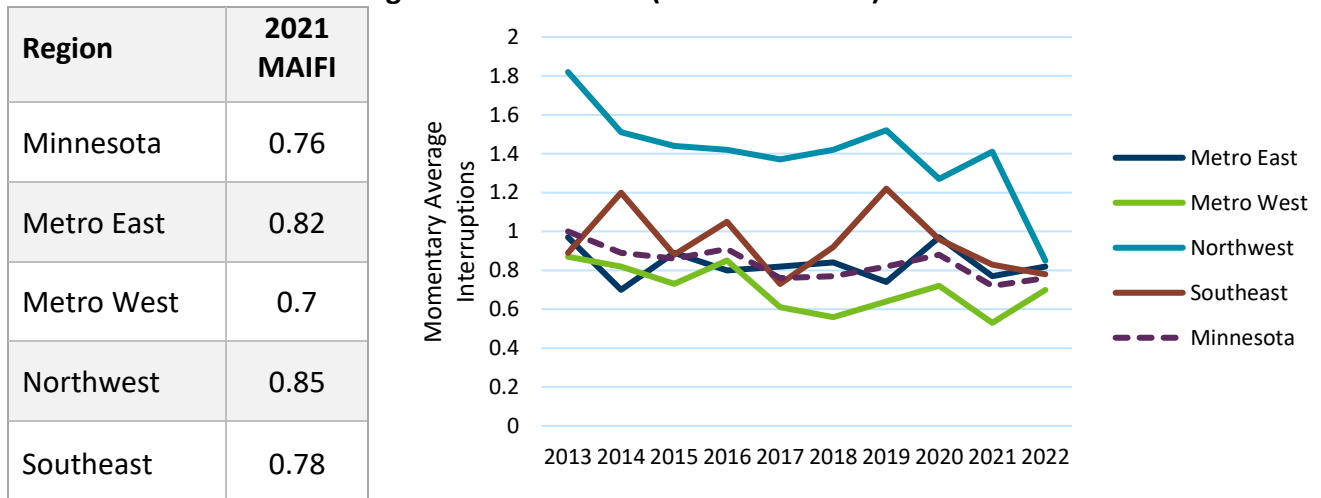
<sup>44</sup> Docket 23-76, Initial Filing, p. 7

<sup>45</sup> OTP, Initial Filing, Docket 22-159, pdf p. 12

or less that do not result in a sustained loss of power delivery to one or more customer.<sup>46</sup> Xcel noted that “momentary outage information is available at the Feeder-level and above, by Feeder circuit, and only on Feeders that are located in substations with 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.”<sup>47</sup>

These calculations depended on which method the Company used: non-normalized, IEEE, or QSP method.<sup>48</sup> Figure 14 depicts Xcel’s non-normalized 2022 results.

**Figure 14: Xcel MAIFI (non-normalized)<sup>49</sup>**



## CEMI and CELI

CEMI (Customers Experiencing Multiple Interruptions) and CELI (Customers Experiencing Lengthy Interruptions) focus on customers who deal with repeated or longer than average outages.<sup>50</sup> 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.

<sup>46</sup> IEEE Guide for Electric Power Distribution Reliability Indices, definition 3.14

<sup>47</sup> Docket 23-73, Initial Filing, p. 68

<sup>48</sup> Docket 23-73, Initial Filing, p. 70

<sup>49</sup> Docket 23-73, Initial Filing, p. 68

<sup>50</sup> 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.

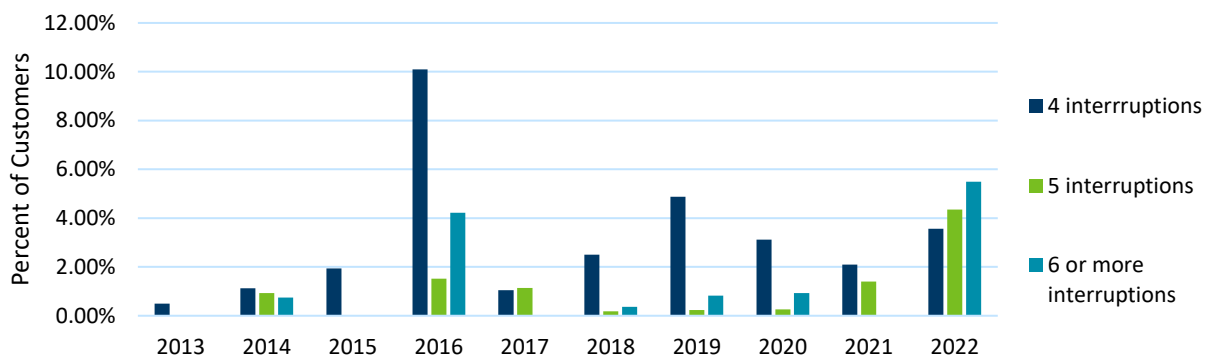


The Commission also required utilities to report the longest interruption and the most interruptions experienced by any one customer (or feeder, if customer level is not available).<sup>51</sup>

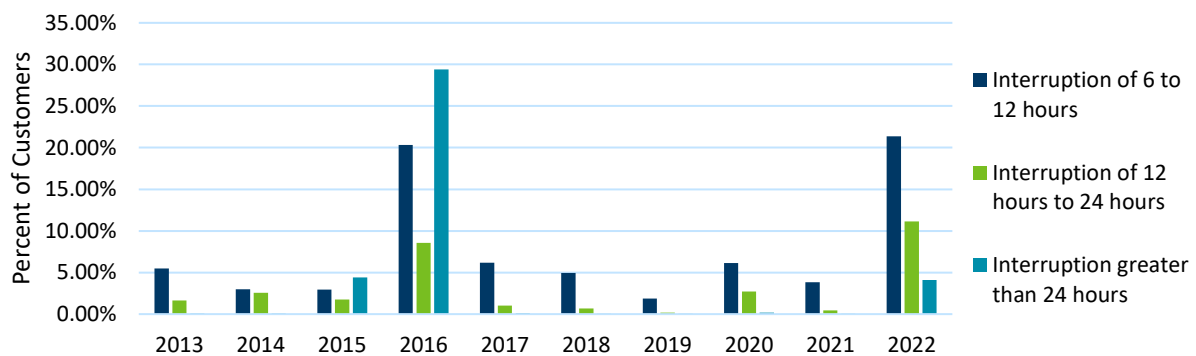
### Minnesota Power

Figure 20 shows Minnesota Power's non-normalized CEMI performance over the past ten years while figure 21 depicts CELI over the same time period. The longest experienced interruption was by one customer in the Central Work Center, with an outage lasting 5,714 minutes (over 95 hours) due to a heavy snow and freezing rain winter storm, occurring in the first day of three days of repeated breaks through the area.<sup>52</sup> The Northern Work Center had the highest CEMI feeder with 8.43 outages.

**Figure 20: Minnesota Power Non-Normalized CEMI**



**Figure 21: Minnesota Power Non-Normalized CELI**



### Otter Tail Power

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

<sup>51</sup> Order Accepting Reports, Setting Reliability Standards, and Requiring Additional Filings, Docket Nos. 19-261, 19-260, 19-254

<sup>52</sup> Docket 23-75, Initial Filing, p. 59

The longest experienced interruption lasted over 51 hours due to a winter storm. The North Feeder from Ottertail City Substation experienced the most interruptions with 4 sustained interruptions and 21 momentary interruptions.<sup>53</sup>

**Figure 22: Otter Tail Non-Normalized CEMI**

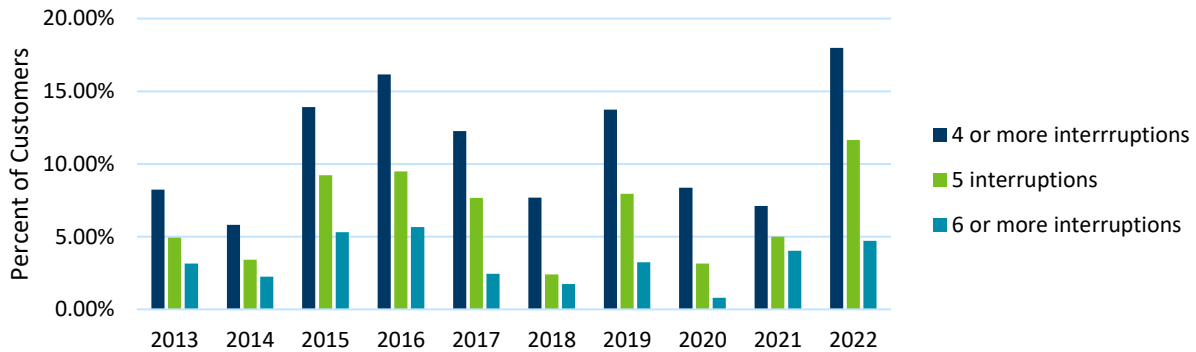
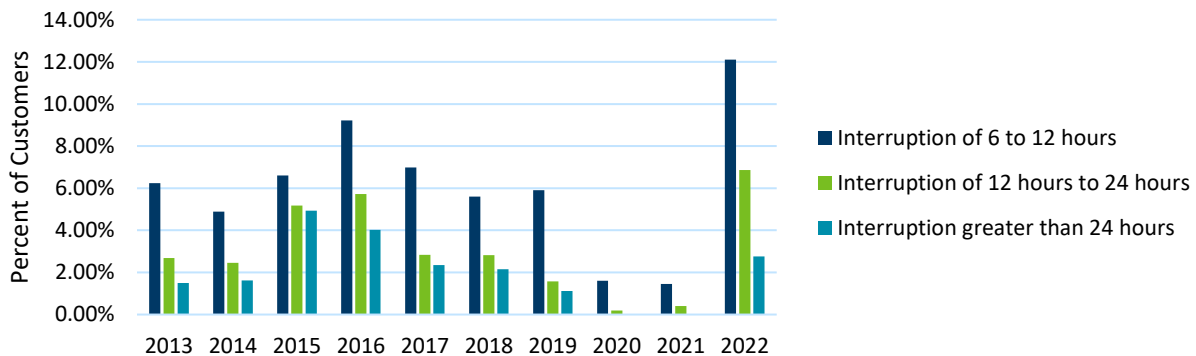


Figure 23 indicates the percentage of customers experiencing outages of 6, 12, or 24 hours or longer for 2013-2022.

**Figure 23: Otter Tail Non-Normalized CELI**



The Department expressed concern regarding the sharp increase in year-over-year CEMI4 and CEMI5 metrics which the Company attributed to extreme drought conditions in 2021 while the spring 2022 season provided more-than-normal severe weather events.<sup>54</sup>

## Xcel Energy

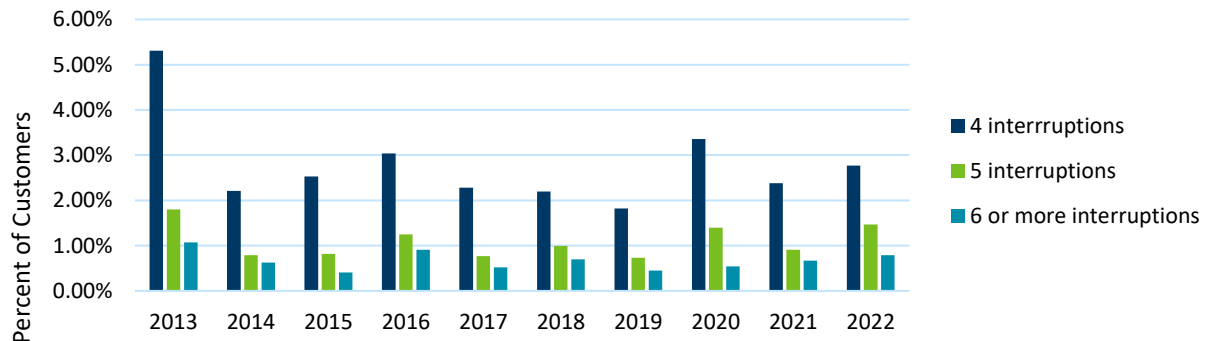
Figure 24 shows Xcel's non-normalized CEMI performance over the past ten years for customers. The most outages experienced was 13 (experienced by two customers in the Metro

<sup>53</sup> Docket 23-76, Initial Filing, pp.35-36

<sup>54</sup> Docket 23-76, Department Letter, p. 2

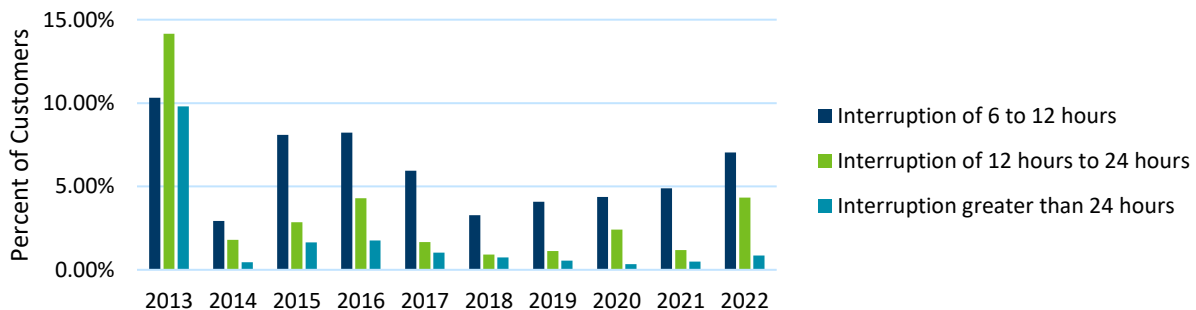
West region). While a majority of the causes were unknown, Xcel was able to determine causes for others, including intentional outages, lightning, and equipment failure.<sup>55</sup>

**Figure 24: Xcel Non-Normalized CEMI<sup>56</sup>**



In 2022 the longest outage experienced by a customer was 105 hours and 57 minutes, during a planned outage impacting one customer in the Metro West Region. This was required for a solar garden installation.<sup>57</sup>

**Figure 25: Xcel Non-Normalized CELI**



## Staff Analysis

This year saw major storms impacting non-normalized CEMI and CELI results for Ottertail and Minnesota Power. Xcel Energy did not see the same storm impacts. These increased CELI and CEMI levels prompted discussion by the utilities regarding utility programming in vegetation management, equipment upgrades and undergrounding. It is important to note that the more rural of the three utilities experienced these challenges this year, indicating the utilities may want to consider future weather proofing measures beyond current programming.

<sup>55</sup> Docket 23-73, Initial Filing, p. 76

<sup>56</sup> Docket 23-73, Initial Filing, p. 75

<sup>57</sup> Docket 23-73, Initial Filing, p. 77

## 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.

### Minnesota Power

Minnesota Power provided data indicating over 98.78% of estimated restoration times were met or exceeded, with only 1.22% underestimating the amount of time to restore power. This is the second year Minnesota Power has tracked the information.<sup>58</sup>

### Otter Tail Power

Otter Tail indicated it is unable to estimate restoration times, due to the lack of an OMS system with which to do so. However, OTP plans to implement an OMS before the end of 2022 allowing them to provide this information in next year's report.<sup>59</sup>

### 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). The Company continues to refine its predicted restoration time algorithm to enhance accuracy such as the introduction of their new Electric Outage Restoration App which provides more convenient and timely status updates.<sup>60</sup> Xcel's restoration accuracy estimates for Minnesota declined slightly in 2022, from 54.8% of customers having their power restored either before or up to the stated restoration event time in 2021 to 51.6% in 2022. In its 2019 Order, the Commission requested Xcel provide the percent of outages restored 0 to 30 minutes after the estimated time which was 11.5% in 2022, slightly up from 2021.<sup>61</sup>

### Staff Analysis

Commission staff look forward to receiving OTP's estimated restoration time in next year's report and note that even a conservative estimate of restoration times is better than no estimate at all.

## Worst Performing Feeder

Minn. Rules 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."

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<sup>58</sup> Docket 23-75, Initial Filing, p. 60

<sup>59</sup> Docket 23-76, Initial Filing, p. 36

<sup>60</sup> Docket 23-73, Initial Filing, p. 65

<sup>61</sup> Docket 23-73, Initial Filing, p.63

## Minnesota Power

The Company identified its four worst performing feeders, two urban and two rural for each of its three work centers (12 total).<sup>62</sup> The highest CAIDI was St. Croix 1 which had outages impacting 161 customers in the Northern Work Center while the highest SAIDI was in the Northern Work Center at Nashwauk 318, impacting 28 customers. Weather, wildlife, vegetation, and equipment failures were the leading causes of poor performance. Hinckley West was rebuilt in 2022 and Nashwauk 318 is scheduled for vegetation clearing in 2023. MP's engineering team is looking at opportunities for strategic undergrounding to enhance storm resiliency and feeder automation.<sup>63</sup>

## Otter Tail Power

The Company 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.<sup>64</sup> OTP's worst performing feeders included the Ottertail City North Feeder serving 876 customers and Crookston Barrette St South Feeder. The South Feeder experienced 5 sustained and 6 momentary interruptions caused by weather and vegetation. It is scheduled for trimming in 2023 with portions being undergrounded during that time. The Ottertail City North Feeder experienced 4 sustained and 21 momentary interruptions due to vegetation, animals, equipment failure, and weather. It was last trimmed in 2021 along with an undergrounding project completed then. There was a plan to replace existing overhead primary with underground cabling in 2022, however supply chain issues delayed delivery of padmount transformers to complete the project. OTP anticipates completing this project in 2023 and has established a Project Material Planning Committee to address supply chain issues for projects identified as far out as 2027.<sup>65,66</sup>

## Xcel Energy

Xcel identified the five worst performing feeders for each of the four work centers, and the efforts taken to improve them which included scheduled tree trimming, equipment repair or replacement if necessary, and installation of Trip Savers.<sup>67</sup>

## Major Service Interruptions

Minn. Rules 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:

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<sup>62</sup> Docket 23-75, Initial Filing, p. 53

<sup>63</sup> Docket 23-75, Initial Filing, pp. 54-55

<sup>64</sup> Docket 23-76, Initial Filing, p. 17

<sup>65</sup> Docket 23-76, Initial Filing, pp. 18-19

<sup>66</sup> Docket 23-76, Department Letter, p. 3

<sup>67</sup> Docket 23-73, Initial Filing Attachment M, pp.1-4



- 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. Rules 7826.0500 Subpart 1(G) to reduce contemporaneous reporting of major outages to the Commission's Consumer Affairs Office as well as with their SQSR report.<sup>68</sup> With the approval of this variance, the utilities did not provide copies of the contemporaneous reporting with their annual reports, but did provide a summary of major outage reporting.

### **Minnesota Power**

MP identified 19 bulk power interruptions.<sup>69</sup> The Department summarized their mitigation actions which included vegetation management and new equipment.<sup>70</sup>

### **Otter Tail Power**

Otter Tail Power reported 4 bulk power supply interruptions with 3 of the four occurring on May 12, a Major Event Day, when a derecho hit their south-central territory, causing significant structural damage. The other interruption is believed to be due to high winds or a possible tornado.<sup>71</sup> The Department received an explanation from OTP highlighting their remedial steps to prevent future interruptions, which included increasing pole class on future designs, prioritizing upgrades to heavy storm event areas, and prioritized patrols and assessments of assets in storm event areas.<sup>72</sup>

### **Xcel Energy**

Xcel reported 258 major service interruptions for 2022.<sup>73</sup>

## **Bulk Power Interruptions**

Minn. Rules 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."

OTP had four bulk power supply interruptions for 2022 which caused sustained interruptions to Minnesota customers, three occurring on a declared Major Event Day, May 12<sup>th</sup>, 2022. The causes are believed to be strong winds or a tornado, and the derecho. In response to concern by the Department, OTP is investigating implementation actions to prevent future situations

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<sup>68</sup> Order Point 4, Docket Nos E002/M-20-406; E017/M-20-401; E015/M-20-404

<sup>69</sup> Docket 23-75, Initial Filing, pp. 52-53

<sup>70</sup> Docket 23-75, Department Comment, p. 13

<sup>71</sup> Docket 23-76, Initial Filing, p. 16

<sup>72</sup> Docket 23-76, Department Comment, p.13

<sup>73</sup> Docket 23-73, Initial Filing, p. 60

similar to this, including increasing pole class on future designs and increasing the frequency of storm guy wire protections in line design to prevent cascade failures.<sup>74</sup>

Minnesota Power identified 19 bulk power interruptions. Remedial steps include vegetation management, installation of additional reclosers, and new remote control capabilities being added to switches.<sup>75</sup>

Xcel did not have any generation outages for 2022 but had 37 bulk power supply interruptions. Remedial steps taken include repair and replacement of poles and insulators, vegetation management, and introduction of galloping mitigation programs.<sup>76</sup>

## Voltage Violations

Minn. Rules 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.”

### Minnesota Power

Minnesota Power reported 16 ANSI Voltage Range B violations in 2022 which were attributed to weather, vegetation, overhead and underground equipment malfunctions and a few unknown causes. The Department noted this is an improvement from 2021.<sup>77</sup>

### 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 2022. OTP noted that most of the feeders with numerous occurrences were feeders serving a single large customer with a very large load.<sup>78</sup> The Department requested additional information from OTP, which responded that in these situations OTP installs monitors at various locations downstream of the feeder substation breaker to help eliminate momentary events and allow voltage regulators to respond to outlier occurrences while circuits with excessive alarms are investigated with remedial steps taken post investigation.<sup>79</sup> The Department observes no significant trend regarding this metric.<sup>80</sup>

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<sup>74</sup> Docket 23-76, Department Comment, pp. 12-13

<sup>75</sup> Docket 23-75, Department Comment, pp. 12-13

<sup>76</sup> Docket 23-73, Initial Filing Attachment N, p. 1

<sup>77</sup> Docket 23-75, Department Comment, p. 15

<sup>78</sup> Docket 23-76, Initial Filing, pp.19-25

<sup>79</sup> Docket 23-76, Department Comment Attachment B, p. 3

<sup>80</sup> Docket 23-76, Department Comment, p. 14

## Xcel Energy

Xcel reported 224 investigations for voltage violations in 2022. Of these, approximately 54%, or 121, resulted in actual voltages problems, typically due to equipment malfunction.<sup>81</sup>

## Grid Modernization Impacts on Reliability Metric

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 2018 reports, the Commission asked for input on a potential new metric 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 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 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 their 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 their reported reliability metrics.<sup>82</sup>

Otter Tail indicated any metric would not currently be applicable as it does not have FLISR or AMI installed. OTP will begin AMI installations in 2023.<sup>83</sup>

MP discussed continued implementation of TripSavers, use of FLISR, and strategic underground as well as smart sensors and intelligent reclosers. In 2022, 244 TripSavers were reprogrammed to operate more efficiently with 19 reclosers installed or replaced to further sectionalize long distribution feeders. Additionally, MP installed 5 IntelliRupters. These improvements have already shown promise, for example from Major Event excluded data, as MP observed newly installed IntelliRupters isolated a fault and automatically restored 1,787 customers in seconds that would have previously experienced a prolonged outage. Another example includes a midline recloser that reduced customer outages from 1,307 customers to 1,066, minimizing outage impacts.<sup>84</sup>

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<sup>81</sup> Docket 23-73, Department Comment, p. 41

<sup>82</sup> Docket 23-73, Initial Filing, pp. 38-39

<sup>83</sup> Docket 23-76, Department Comment, p. 26

<sup>84</sup> Docket 23-75, Initial Filing, pp. 29-30



## Staff Analysis

Commission staff continues to recommend the metric described above for utilities as grid modernization improvements continue to be invested in and implemented. Grid modernization improvements continue to be implemented and described in detail in utilities Integrated Distribution Plans, but staff wish to see more directly how those improvements benefit reliability metrics that we highlight in these SQSR 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 feeder level reliability. Commission staff continues to recommend utilities only start including feeders in the calculations once grid modernization improvements are implemented for one full calendar year.

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

## 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 and the Occupational Safety and Health Division of the Minnesota Department of Labor and Industry during the calendar year (Minn. Rules 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. Rules 7826.0400, Part B)

## Minnesota Power

The Department noted no significant increase or decrease in OSHA and OSHD reports filed, however they did note improvement in days away from work compared to MP's 10-year average. Because of that improvement, the Department requested additional information from MP on programs implemented to improve this statistic.<sup>85</sup> Minnesota Power noted they face a variety of incidents that normally fall into vehicle damage categories such as employee driving

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<sup>85</sup> Docket 23-75, Department Comment, p. 6

failures, transformer failure, and forklift operator error. Therefore, MP offers a variety of safety trainings designed for different departments and scenarios their employees face. Additionally, last year, MP engaged with the Minnesota State Patrol to conduct general training to all field operations departments.<sup>86</sup>

### **Otter Tail Power**

The Department provided tables showing OTP's historic incident rate, which indicated that 2022 saw significant improvement in days of job transfer or restriction but higher than average total annual days away from work.<sup>87</sup> In response to concern from the Department regarding higher total annual days away from work, OTP discussed how with a small employee count, a small number of occurrences have significant impact on their metrics, believing their culture of safety to remain effective.<sup>88</sup> Otter Tail Power had no property damage claims for 2022.<sup>89</sup>

### **Xcel Energy**

The Department noted an increase in employees with respiratory conditions jumping from zero, to two in 2020, 16 in 2021 and 19 in 2022. Xcel discussed these results stating they were directly related to COVID-19 and OSHA-mandated recording of all cases deemed to have a work-related exposure.<sup>90</sup>

Xcel saw 77 property damage claims in 2022, equal to their 10-year average. However, the amount paid in claims was 48% above the average according to the Department. That result is reflected in the average amount paid per claim as well. Absent one large claim, the average claim in 2022 declines by about half and would be below the 10-year average.<sup>91</sup>

### **Recommendation by the City of Minneapolis**

The City of Minneapolis submitted comments regarding Xcel Energy's service reliability and Safety, Reliability, and Service Quality Report in response to a May 18, 2023 Commission Order referring the city's concerns to this docket.<sup>92</sup>

The City of Minneapolis recommended accepting the proposed 2022 2<sup>nd</sup> quartile goal for SAIFI, SAIDI, and CAIDI but also recommended setting the goal at the first quartile, phased in over time to allow a reasonable amount of time to plan for how best to meet the standards (**Decision Options 1 and 5**).<sup>93</sup>

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<sup>86</sup> Docket 23-75, MP Reply, p. 2

<sup>87</sup> Docket 23-76, Department Comment, p. 6

<sup>88</sup> Docket 23-76, MP Reply, p. 1

<sup>89</sup> Docket 23-76, Department Comment, p. 7

<sup>90</sup> Docket 23-73, Department Comment, pp. 5-6

<sup>91</sup> *Id.*

<sup>92</sup> Dockets 17-401 and 20-406.

<sup>93</sup> Docket 23-73, Minneapolis Comment, p. 2

Minneapolis, after being referred to this docket, also discussed concerns raised in previous dockets regarding locational reliability. Minneapolis submitted 2021 data from the U.S. Energy Information Administration (EIA) that shows significant disparity in service reliability levels between Xcel Energy and the four neighboring utilities in the Metro Twin Cities area, with Xcel customers experiencing more frequent and longer outages on average.<sup>94</sup> This suggested to Minneapolis that there is an opportunity and need for Xcel to improve its level of service reliability for Minnesota customers. Minneapolis encouraged Xcel to pursue funding opportunities to address these issues. Minneapolis views this issue as a high priority and requested that the Commission direct Xcel to create a plan to close the locational reliability gap so that customers being serviced by the poorest feeders are brought to similar levels of service as higher performing meters.<sup>95</sup>

### **Xcel's Response**

In response to the City of Minneapolis, Xcel Energy noted they believe that the current reliability standards, within the second quartile, to be the most appropriate standards at this time. They noted this standard was originally proposed by all the electric investor-owned Minnesota utilities in their 2019 SRSQ Reports and set in Order Point 11 of the Commission's December 18, 2020 Order in Docket No. E002/M-20-406. Xcel stated the required investments needed to complete these more stringent targets are in conflict with maintaining the state legislature's goals for affordability<sup>96</sup> while still prioritizing carbon-free policy goals<sup>97</sup> set by the Legislature. Within the context of more stringent standards having both costs and benefits, as well as the need to maintain statute requirements, Xcel believes their proposed standards are reasonable and appropriate.<sup>98</sup>

Regarding locational reliability, Xcel noted the utility invested over \$3 million on reliability improvement projects on feeders in 2022 and is actively pursuing federal funding for resiliency improvement projects in Minnesota such as their Department of Energy grid resilience grant application, a part of the Grid Resilience and Innovation Partnership program funded through the U.S. Infrastructure Investment and Jobs Act.<sup>99</sup>

Xcel noted the Commission is already requiring the Company to conduct an analysis of disparities in the metrics displayed on their interactive map that is required to be filed in 2024.<sup>100</sup>

In response to the Department's Information Request No. 2, Xcel discussed the different factors between the Metro region utilities and systems including how system construction, age, and configuration create different results. Xcel noted that a significant portion of its service area

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<sup>94</sup> EIA data can be found in Docket 23-73, Minneapolis Comments, p. 3 or at the end of this paper in Attachment C

<sup>95</sup> Docket 23-73, Minneapolis Comment, pp. 2-4

<sup>96</sup> Minn. Stat. § 216C.05, subd. 2

<sup>97</sup> Minn. Stat. § 216B.16, subd. 2g

<sup>98</sup> Docket 23-73, Xcel Reply, pp. 12-13

<sup>99</sup> *Id.*

<sup>100</sup> Docket 20-406 and 17-401, May 11, 2023 Order, Order Points 3 & 4

was developed in the 1960s and 1970s when overhead distribution lines were more common vs the 1980s and 1990s for other area utilities which primarily use underground lines.<sup>101</sup>

### Department Response

After reviewing Minneapolis' comments, the Department suggested Xcel instead provide a cost/benefit analysis of the incremental costs associated with achieving first quartile performance before the Commission pursues Minneapolis' recommendation (**Decision Option 7**). The Department believes it may be helpful for the Commission and interested parties to have an analysis that outlines the time, benefits, and costs of achieving this goal.<sup>102</sup>

In response to Minneapolis' concern regarding a locational reliability gap, the Department concluded that the nature of Xcel's overhead and slightly older grid compared to surrounding areas creates the gap seen between utilities. Thus, the Department believes those differences to limit the validity of Minneapolis' comparison. The Department would like to wait for the analysis to be completed before determining a locational reliability gap relative to income.<sup>103</sup>

### Analysis

Minneapolis recommended accepting Xcel's 2<sup>nd</sup> quartile goal for 2022 while aiming to phase in a goal of 1<sup>st</sup> quartile standards. Minneapolis also recommended the Commission direct Xcel to create a plan to close the locational reliability gap (**Decision Option 5**). Xcel did not support the recommendations beyond accepting their 2<sup>nd</sup> quartile goal for 2022. The Department agreed with Minneapolis and Xcel in supporting the 2<sup>nd</sup> quartile goal for 2022 but instead recommended the Commission require Xcel to provide a cost/benefit analysis before adopting a goal of the 1<sup>st</sup> quartile standard that Minneapolis recommended. The Department also concluded that Xcel's ongoing locational reliability gap analysis, to be included in the Company's 2023 SRSQ filing on April 1, 2024, to be sufficient and that further discussion and analysis increasing the scope of the locational reliability analysis is needed if that is the direction the Commission would like to move forward with.

Commission staff agree with the Department that further analysis is required if the Commission wishes to increase Xcel's reliability goal from its current 2<sup>nd</sup> quartile position to the 1<sup>st</sup> quartile, and that that analysis can be included in next year's filing. It is understandable that Xcel's reliability is different than surrounding utilities based on age and types of utility facilities built, which can create challenging comparisons. Commission staff recommend waiting until Xcel completes its locational reliability gap analysis in its 2023 SQSR report filed April 1, 2024, before the Commission makes a determination.

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<sup>101</sup> Docket 23-73, Xcel Reply Attachment A, pp. 1-2

<sup>102</sup> Docket 23-73, Department Reply Comment, p. 2

<sup>103</sup> Docket 23-73, Department Reply Comment, p. 3

## Staff Recommendations Discussion

Commission staff provide discussion regarding Minneapolis' recommendations in the section above. This section provides Commission staff's summarization and analysis of staff's other issues and decision options.

While this is the first time Xcel has included information comparing the reliability of different customer classes, Commission staff believe the data provided warrants a discussion in the 2023 SRSQ report of how Xcel can lower differences in SAIDI, SAIFI, and CAIDI between feeders associated with different customer classes. Between two years of data and a discussion on the costs and benefits of improvement, Commission staff hope to inform the Commission regarding future steps that can be taken in class reliability issues and recommend (**Decision Option 8**).

Staff would like to clarify in Commission Order that 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 region. Recently, Minnesota Power has not been including their overall system (just their individual service regions), requiring Commission staff to request these items via an ex parte filing. Commission staff and parties need to see these items in the initial filing in the future and recommend **Decision Option 9**.

## Decision Options

1. Accept Otter Tail Power's, Minnesota Power's, and Xcel Energy's 2022 Safety, Reliability, and Service Quality reports (*Xcel, MP, OTP, Department, Minneapolis*).

### 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 2023. Decision Options 2-4 maintain the same IEEE benchmarking comparisons (e.g. 2<sup>nd</sup> quartile and utility size) for the utility's 2022 and 2023 reliability standards.*

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. Require Minnesota Power to file a supplement to its 2023 SQSR 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 2023 statewide Reliability Standard at the IEEE benchmarking 2nd Quartile for medium utilities. Set Otter Tail's work center reliability standards at the IEEE benchmarking 2nd quartile for medium utilities. Require Otter Tail to file a supplement to its 2023 SQSR 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 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. Require Xcel to file a supplement to its 2023 SQSR report 30 days after IEEE publishes the 2023 benchmarking results, with an explanation for any standards the utility did not meet. *(Xcel, Department)*
5. Set a goal, to be phased in over time, for Xcel Energy to meet the IEEE benchmarking 1<sup>st</sup> Quartile for large utilities in a future year. *(Minneapolis)*
6. Direct Xcel to create a plan to close the locational reliability gap so that customers being served on the poorest performing feeders are brought to comparable levels of service based on a rolling three-year historic average. *(Minneapolis)*
7. 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. *(Department, Staff)*
8. Require 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. *(Staff)*
9. Clarify that 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. *(Staff)*

*Staff Recommends decision options 1-4, 7-9*

## **Volume 2 Decision Options**

10. Require Xcel Energy to document response times to CAO and external parties regarding new service installations and how the Xcel Advocacy Team will be trained to work with CAO on new service installation efforts. Require Xcel to report this information in its 2023 service quality report. *(Staff)*

*Staff recommends Decision Option 10.*

## Attachment A

## Xcel Energy Matrix

Requirement	Item	Location
<b>7826.0400 ANNUAL SAFETY REPORT.</b>		
	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
<b>7826.0500 RELIABILITY REPORTING REQUIREMENTS.</b>		
	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	Section IV.B.2.b

	considering, or intends to make to improve its performance;	
	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	
<b>7826.0600 RELIABILITY STANDARDS.</b>		
	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
<b>7826.0700 REPORTING MAJOR SERVICE INTERRUPTIONS.</b>		
	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	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
<b>7826.1200 CALL CENTER RESPONSE TIME.</b>		



	<p>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.</p>	Section III.E
	<p>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:</p> <ul style="list-style-type: none"> <li>A. the number of customers affected by the interruption;</li> <li>B. the cause of the interruption;</li> <li>C. the location of the interruption; and</li> <li>D. the utility's best estimate of when service will be restored, by geographical area.</li> </ul>	Section III.E
<b>7826.1400 REPORTING METER-READING PERFORMANCE.</b>		
	<p>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:</p> <ul style="list-style-type: none"> <li>A. the number and percentage of customer meters read by utility personnel;</li> <li>B. the number and percentage of customer meters self-read by customers;</li> <li>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</li> </ul>	Section III.A.1
	<p>D. data on monthly meter-reading staffing levels, by work center or geographical area</p>	Section III.A.1
<b>7826.1500 REPORTING INVOLUNTARY DISCONNECTIONS.</b>		

	<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> <p>A. the number of customers who received disconnection notices;</p> <p>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;</p> <p>C. the total number of customers whose service was disconnected involuntarily and the number of these customers restored to service within 24 hours; and</p> <p>D. the number of disconnected customers restored to service by entering into a payment plan</p>	Section III.C
<b>7826.1600 REPORTING SERVICE EXTENSION REQUEST RESPONSE TIMES.</b>		
	<p>The annual service quality report must include a report on service extension request response times, including, for each customer class and each calendar month:</p> <p>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</p> <p>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.</p>	Section III.D
<b>7826.1700 REPORTING CALL CENTER RESPONSE TIMES.</b>		
	<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</p> <p>include a month-by-month breakdown of this information.</p>	Section III.E
<b>7826.1800 REPORTING EMERGENCY MEDICAL ACCOUNT STATUS.</b>		
	<p>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.</p>	Section III.F

<b>7826.1900 REPORTING CUSTOMER DEPOSITS.</b>		
	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
<b>7826.2000 REPORTING CUSTOMER COMPLAINTS.</b>		
	<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> <p>A. the number of complaints received;</p> <p>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;</p> <p>C. the number and percentage of complaints resolved upon initial inquiry, within ten days, and longer than ten days;</p> <p>D. the number and percentage of all complaints resolved by taking any of the following actions:</p> <p>(1) taking the action the customer requested;</p> <p>(2) taking an action the customer and the utility agree is an acceptable compromise;</p> <p>(3) providing the customer with information that demonstrates that the situation complained of is not reasonably within the control of the utility; or</p> <p>(4) refusing to take the action the customer requested; and</p> <p>E. the number of complaints forwarded to the utility by the commission's Consumer Affairs Office for further investigation and action.</p>	Section III.H
<b>COMMISSION ORDERS</b>		
<p>Docket E,G-999/PR-22-13</p> <p>Docket E002/M-22-162 January 18, 2023</p>	<p>1. Eliminated the standalone Annual Summary of Customer Complaints docket (YY-13).</p> <p>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.</p>	Section III.H

Docket E002/M-22-162 November 9, 2022	4. Set Xcel Energy's 2022 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 and Xcel's Metro East and Metro West work center reliability center standards at the IEEE benchmarking 2nd quartile for large utilities. Require a supplemental filing to Xcel's 2022 SQSR report 30 days after IEEE publishes the 2022 benchmarking results, with an explanation for any standards the utility did not meet.	Section IV.B.1.a
	5. Initiated a work group to simplify Xcel Energy's SQSR reporting requirements. The workshop shall file recommendations or a progress update with the 2023 SQSR report.	Section III.H
	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
	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	STARTS 2024

	filing and in the temporary annual report in Docket No. E-999/CI-16-521.	
	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
<b>DOCKET E002/M-21-237</b> March 2, 2022	<p>8. The Commission sets XE's 2021 statewide reliability standard at the IEEE benchmarking second quartile for large utilities; set XE's SE and NW work center reliability standards at the IEEE benchmarking second quartile for medium utilities; and sets XE's ME and MW work center reliability standards at the IEEE benchmarking second quartile for large utilities.</p> <p>9. Xcel must file a supplemental filing to its 2021 safety, service quality, and reliability report 30 days after IEEE publishes the 2021 benchmarking results. The supplemental filing must include an explanation for any standards the utility did not meet.</p>	Section IV.B.1.a
<b>DOCKET E002/M-21-237</b> December 2, 2021	<p>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> <p>Percentage Uptime to second decimal:  General Website xx.xx% Payment Services xx.xx%</p> <p>Outage map &amp;/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 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-</p>	Section III.I

	based service metrics (for 2021, 2022, 2023 annual reports)	
	<p>4. XE, MP and OTP continue to provide information on electronic utility-customer interaction such that baseline data are collected:</p> <ul style="list-style-type: none"> <li>a. Yearly total number of website visits</li> <li>b. Yearly total number of logins via electronic customer communication platforms;</li> <li>c. Yearly total number of emails or other customer service electronic communications received; and</li> <li>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</li> </ul>	Section III.I
	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	Section III.H
	<p>7. XE, MP and OTP to file public facing summaries with their annual Safety, Reliability, and Service Quality reports. Utilities shall work with Executive Secretary to publish those summaries in locations visible to consumers.</p>	Section IV.A
<b>Docket E002/M-20-406; December 18, 2020 Order</b>	3. Continue filing quarterly status reports on efforts to improve reliability in the Southeast Work Center through fourth quarter 2021.	Section IV.B.2.a
	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	Section IV.B.4.a
	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	Section IV B.1.d

	<p>Isolation and Service Restoration to the historic five-year average reliability for the same feeders before grid modernization investments.</p>	
	<p>14. Each utility must report over the next two reporting cycles, to the extent feasible, the following:</p> <ul style="list-style-type: none"> <li>a. Yearly total number of website visits;</li> <li>b. Yearly total number of logins via electronic customer communication platforms;</li> <li>c. Yearly total number of emails or other customer service electronic communications received; and</li> <li>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</li> </ul> <p>If a utility is unable to report the information, the utility must provide an explanation as to why the information is not filed and the plans for reporting the information in the future.</p>	Section III.I
	<p>16. After consultation with Department and Commission staff, each utility must file revised categories for reporting complaint data. The Commission hereby delegates authority to the Executive Secretary to approve additional reporting categories, with the goal of establishing them by April 1, 2021 reporting deadline.</p>	Section III.H
	<p>17. The Commission hereby delegates to the Executive Secretary the authority to approve Xcel's public-facing summaries. The Executive Secretary may work with the utilities to refine the language and content in the summaries as needed.</p>	Section IV.A

	<p><b>18.</b> Xcel must file the information listed in the revised Attachment A with its Safety, Service Quality, and Reliability report due April 1, 2021. 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> <ul style="list-style-type: none"> <li>a. Reliability reporting region where the feeder is located</li> <li>b. The substation the feeder is on, with its full name</li> <li>c. The zip code in which the feeder is primarily located</li> <li>d. The number of customers on the feeder, including the proportion of residential to commercial and industrial</li> <li>e. Whether the feeder is overhead or underground</li> <li>f. SAIDI, SAIFI, and CAIDI, normalized (IEEE 1366 Standard) and with Major Event Days</li> <li>g. Number of outages, total customer outages, and total customer-minutes-out for the following situations: <ul style="list-style-type: none"> <li>i. All levels, All Causes included</li> <li>ii. Bulk Power Supply - All causes, distribution, substation, transmission substation, and transmission line levels;</li> <li>iii. All levels, no "planned" cause, includes bulk power supply</li> <li>iv. All levels, "planned" cause only, includes bulk power supply (cont'd on next line)</li> </ul> </li> </ul>	Section IV.B.1.b
	<p>18. Cont'd</p> <ul style="list-style-type: none"> <li>h. Number of outages, total customer outages, and total customer-minutes-out in the following primary outage cause categories, normalized and non-normalized</li> <li>i. Equipment - OH</li> <li>ii. Equipment - UG</li> <li>III. Lightning</li> <li>iv. Other</li> <li>v. Power Supply</li> <li>vi. Planned</li> <li>vii. Public</li> <li>viii. Unknown</li> <li>ix. Vegetation</li> <li>x. Weather - non-lightning</li> <li>xi. Wildlife</li> </ul>	Section IV.B.1.b'
<p><b>Docket E002/M-19-261 Order Date:</b> <b>January 28, 2020</b></p>	<p>2. Attachment B, item 1: Non-normalized SAIDI, SAIFI and CAIDI values</p>	Section IV.B.1.b
	<p>2. Attachment B, item 2: SAIDI, SAIFI, and CAIDI, MAIFI, CEMI, and CELI normalized values calculated using the IEEE 1366 Standard.</p>	Section IV.B.1.b



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	2. Attachment B, item 3: MAIFI – normalized and non-normalized.	Section IV.C.1
	2. Attachment B, item 4: CEMI – at normalized and non-normalized outage levels of 4, 5, and 6 interruptions.	Section IV.C.2
	2. Attachment B, item 5: The highest number of interruptions experienced by any one customer (or feeder, if customer level is not available).	Section IV.C.2
	2. Attachment B, item 6: CELI – at normalized and non-normalized intervals of greater than 6 hours, 12 hours, and 24 hours.	Section IV.C.3
	2. Attachment B, item 7: The longest experienced interruption by any one customer (or feeder, if customer level is not available).	Section IV.C.3
	2. Attachment B, item 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.	Section IV.B.6
	2. Attachment B, item 9: 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

	2. Attachment B, item 10: IEEE benchmarking results for SAIDI, SAIFI, CAIDI, and MAIFI from the IEEE benchmarking working group	Section IV.B.1.c
	2. Attachment B, item 11: 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
	2. Attachment B, item 12: Causes of sustained customer outages, by work center.	Section IV.B.2.a
<b>Docket E002/M-19-261 January 29, 2020</b>	12. Utilities shall consult with Commission staff to draft a brief summary of their annual service-quality and reliability metrics that is digestible and useable for general audiences and file it as an attachment to their next annual report due April 1, 2020.	Section IV.A
<b>Docket E002/M-18-239 Order Date: May 14, 2019</b>	2. Utilities shall consult with Commission Staff to draft a brief summary of their annual service-quality and reliability metrics that is digestible and useable for general audiences.	Section IV.A
	6. Xcel shall provide refreshed information responsive to the Commission's	Various Sections

	February 9, 2018 order in Docket Nos. E-002/M-16-281 and E-002/M-17-249 in future annual service-quality reports.	
<b>Docket E002/M-18-239</b> <b>March 19, 2019</b>	<b>3.</b> In future annual reports, Xcel must file the following: <b>(a)</b> Non-normalized SAIDI, SAIFI, and CAIDI values. <b>(b)</b> SAIDI, SAIFI, and CAIDI values calculated using the IEEE 2.5 beta method.	Section IV.B.1.b
	<b>(c)</b> CEMI – at normalized and non-normalized outage levels of 4, 5, and 6.	Section IV.C.2
	<b>(d)</b> CELI – at intervals of greater than 6 hours, 12 hours, and 24 hours. <b>(e)</b> CELL.	Section IV.C.3
	<b>(f)</b> Estimated restoration times.	Section IV.B.4.b
	<b>(g)</b> IEEE benchmarking.	Section IV.B.1.c
	<b>(h)</b> Performance by customer class.	Section IV.B.1.d
	<b>(i)</b> More discussion of leading causes of outages and mitigation strategies.	Section IV.a
<b>Dockets E002/M-17-249 and E002/M-16-281</b> <b>February 9, 2018 Referenced in Docket 18- 239</b> <b>Refers to Dockets: 16-281</b>	<b>3.</b> <b>(a)</b> The Company's data on benchmarking with national IEEE Reliability Standards;	Section IV.B.1.c
	<b>3.</b> <b>(b)</b> A qualitative discussion of ways the Commission looks at increased granularity;	Section IV.B.1.a
	<b>3.</b> <b>(c)</b> An assessment of MAIFI data;	Section IV.C.1
	<b>3.</b> <b>(d)</b> A summary of the Company's estimated response time to customers and steps the Company is taking to measure and communicate more accurately the Company's estimated response time to customers;	Section IV.B.4.b
	<b>3.</b> <b>(e)</b> The Company's internal customer satisfaction goals and a comparison of the Company's actual performance to those goals, as well as an explanation of the basis for those customer satisfaction goals;	Section III.J
	<b>3.</b> <b>(f)</b> With respect to the distribution feeder table identification provided in the report, Xcel shall include the appropriate locational labels, applicable substation name, and region to which the information relates;	Section IV.B.4.b
	<b>3.</b> <b>(h)</b> Data on the number of applicants and participants in the Company's emergency medical accounts.	Section III.F

<p><b>Docket E002/M-14-131 December 12, 2014</b></p>	<p>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.</p> <p>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.</p> <p>5. Required Xcel to report on the major causes of outages for major event days.</p> <p>6. Required Xcel to consider other factors, in addition to historical data, on which to base its reliability indices for 2014 in an effort to demonstrate its commitment toward improving reliability performance.</p> <p>7. Required Xcel to continue reporting major service interruptions to the Commission's Consumer Affairs Office.</p>	<p>Section IV.A Section IV.B.1.b</p>
<p><b>Docket E002/GR-12-961 November 19, 2013</b></p>	<p>In Schedule 11 of its Compliance Filing, the Company provided its proposal for additional reporting of MAIFI data. Xcel provided an example of the following five additional MAIFI reports that will be filed in the April 1, 2014 service quality report:</p> <ol style="list-style-type: none"> <li>1. A table with annual MAIFI results for Minnesota and our four work centers using three different normalization methodologies;</li> <li>2. A table with the MAIFI results and Customer Interruptions by month and by work center;</li> <li>3. A five-year historical look for Minnesota MAIFI that shows the three different normalization methodologies and their associated trend lines;</li> <li>4. A pareto chart showing the top causes for interruptions for the current year; and</li> <li>5. A pareto chart showing the top causes for interruptions for the past five years.</li> </ol>	<p>Section IV.C.1</p>

<p><b>Order: Docket E002/M-10-310</b> <b>Order Date: September 30, 2010</b></p>	<p>2. For reports due April 1, 2011, the Commission requires Xcel to augment their next filing to include a description of the policies, procedures and actions that it has implemented, and plans to implement, to assure reliability. Xcel should include information on how it is demonstrating pro-active management of the system as a whole, increased reliability and active contingency planning;</p> <p>3. For reports due April 1, 2011, the Commission continues to require Xcel to incorporate into its next filing a summary table (or summary information in some other format) that allows the reader to more easily assess the overall reliability of the system and identify the main factors that affect reliability;</p> <p>5. For reports due April 1, 2011, the Commission requires Xcel to report on the major causes of outages for major event</p>	<p>Section IV.A Section IV.B.1.b</p>
<p><b>Order: Docket E002/M-09-343</b> <b>Order Date: August 11, 2009</b></p>	<p>4. Regarding additional issues for reports due April 1, 2010, Xcel shall:</p> <p>(a) 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. Xcel shall include information on how it is demonstrating pro-active management of the system as a whole, increased reliability and active contingency planning, including a specific discussion of the status and actions of its strategic initiatives as set forth in Ordering Paragraph 4a of its Order Accepting Annual Reports, Setting Reliability Standards, and Setting Additional Filing Requirements, Docket No. E-002/M-08-393 (October 24, 2008);</p> <p>(b) incorporate into its next filing a summary, table (or summary information in some other format) that allows the reader to more easily assess the overall reliability of the system and identify the main factors that affect reliability;</p>	<p>Section IV.A Section IV.B.1.b</p>
<p><b>Docket G002/CI-08-871 Docket E, G002/M-09-224</b> <b>November 30, 2010</b></p>	<p>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:</p> <ul style="list-style-type: none"> <li>• Volume of Investigate and Remediate Field orders;</li> <li>• Volume of Investigate and Refer Field orders;</li> <li>• Volume of Remediate Upon Referral Field orders;</li> <li>• Average response time for each of the above categories by month and year;</li> <li>• Minimum days, maximum days, and standard deviations for each category; and</li> <li>• Volume of excluded field orders.</li> </ul>	<p>Section III.B</p>

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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
Docket E002/M-04-511 November 3, 2004	5. Xcel shall file, on a going forward basis, a copy of every notification of an outage event sent to the Consumer Affairs Office which meets the standards set forth in Minn Rules part 7826 0700, subp 1, i e affecting 500 or more customers for one or more hours	Section IV.B.4.a
	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

## Attachment B

### Minnesota Power Matrix

<b>NEW REPORTING REQUIREMENTS</b>		
<b>2021SRSQ Report Order Dated November 9, 2022 in Docket No. E015/M-22-163</b>		
Order Pt 2	Set Minnesota Power's 2022 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. Require a supplemental filing to Minnesota Power's 2022 SQR report 30 days after IEEE publishes the 2022 benchmarking results with an explanation for any standards the utility did not meet.	Anticipated to be filed August 2023
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. 14-15
Order Pt 9	Required Minnesota Power to describe in its 2023 filing its efforts to recruit, hire and train new call center representatives if data for service in 2022 show that the Company has not answered 80 percent of calls either made to the business office during regular business hours or for service interruption within 20 seconds.	Section VIII Pg. 90-92
Order Pt 10	Required Minnesota Power to make a compliance filing, within 30 days of the issuance of this order in Docket No.E015/M-22-163 and in next years' service quality docket, which reports monthly average answer time and call duration for all calls offered to agents, Customer Care and Support Representatives or otherwise, in the Company's Call Center during business hours. Minnesota Power shall provide the data in spreadsheet (.xlsx) format and to the greatest extent practicable. Where the Company is not able to do so, it shall explain why.	Section VIII Pg. 92-98 and Appendix C
<b>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</b>		
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. 103-109
<b>ON-GOING REPORTING REQUIREMENTS</b>		
<b>2020 SRSQ Report Orders Dated December 2, 2021 &amp; March 2, 2022 in Docket No. E015/M-21-230</b>		
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 II, pg. 17; Section V, pg. 44-46

<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> <table border="0"> <tr> <td>Percentage Uptime</td> <td>[to second decimal]</td> </tr> <tr> <td>General Website</td> <td>XX.XX%</td> </tr> <tr> <td>Payment Services</td> <td>XX.XX%</td> </tr> <tr> <td>Outage map &amp;/or Outage Info page</td> <td>XX.XX%</td> </tr> <tr> <td>Error Rate Percentage</td> <td>[to third decimal]</td> </tr> <tr> <td>Payment Services*</td> <td>XX.XXX%</td> </tr> </table> <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</p>	Percentage Uptime	[to second decimal]	General Website	XX.XX%	Payment Services	XX.XX%	Outage map &/or Outage Info page	XX.XX%	Error Rate Percentage	[to third decimal]	Payment Services*	XX.XXX%	<p>Section VII pg.73-75</p>
Percentage Uptime	[to second decimal]													
General Website	XX.XX%													
Payment Services	XX.XX%													
Outage map &/or Outage Info page	XX.XX%													
Error Rate Percentage	[to third decimal]													
Payment Services*	XX.XXX%													
	<p>expired payment methods), and/or some other meaningful categorization.”</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.73-75</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> <ol style="list-style-type: none"> <li>a. Yearly total number of website visits;</li> <li>b. Yearly total number of logins via electronic customer communication platforms;</li> <li>c. Yearly total number of emails or other customer service electronic communications received; and</li> <li>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.</li> </ol>	<p>Section VII Pgs.71-72</p>												

**m** Staff Briefing Papers for Docket No **E002/M-23-73; E015/M-23-75; E017/M-23-76**

Order Pt 7 (12/2/21)	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.	Section I Pg. 14-15
<b>2019 SRSQ Report Order Dated December 18, 2020 in Docket No. E015/M-20-404</b>		
Order Pt. 5	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.	Section III Pg. 30-31
Order Pt. 14	Each utility must report over the next two reporting cycles, to the extent feasible, the following: <b>a.</b> Yearly total number of website visits; <b>b.</b> Yearly total number of logins via electronic customer communication platforms; <b>c.</b> Yearly total number of emails or other customer service electronic communications received; and <b>d.</b> 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 VII Pgs.71-72
<b>2018 SRSQ Report Order Dated January 28, 2020 in Docket No. E015/M-19-254</b>		
Order Pt. 2	The Commission clarifies the reporting requirements from the Commission's March 19, 2019 order, as specified in Attachment B: <b>1.</b> Non-normalized SAIDI, SAIFI, and CAIDI values. <b>2.</b> SAIDI, SAIFI, and CAIDI, MAIFI, CEMI, and CELI normalized values calculated using the IEEE 1366 Standard. <b>3.</b> MAIFI – normalized and non-normalized. <b>4.</b> CEMI – at normalized and non-normalized outage levels of 4, 5, and 6 interruptions. <b>5.</b> The highest number of interruptions experienced by any one customer (or feeder, if customer level is not available). <b>6.</b> CELI – at normalized and non-normalized intervals of greater than 6 hours, 12 hours, and 24 hours. <b>7.</b> The longest experienced interruption by any one customer (or feeder, if customer level is not available). <b>8.</b> 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 V Pg. 44



	<p>9. Estimated restoration time accuracy, using the following windows:</p> <ol style="list-style-type: none"> <li>a. Within -90 minutes to 0 of estimated restoration time</li> <li>b. Within 0 to +30 minutes of estimated restoration time</li> </ol> <p>10. IEEE benchmarking results for SAIDI, SAIFI, CAIDI, and MAIFI from the IEEE benchmarking working group.</p> <p>11. Performance by customer class: ASAI, SAIDI, SAIFI, CAIDI, MAIFI Residential Non-normalized &amp; Normalized, Commercial Non-normalized &amp; Normalized; Industrial Non-normalized &amp; Normalized. If reporting by class is not yet possible, an explanation of when the utility will have this capability.</p> <p>12. Causes of sustained customer outages, by work center.</p>	
<b>Reconnect Pilot Program Order Dated December 9, 2020 in Docket No. E015/M-19-766 (See pg. 4)</b>		
	<p>The Company committed to providing specific data related to its remote-reconnect pilot program (Reconnect Program)</p> <ol style="list-style-type: none"> <li>1. Number of customers participating in the remote-reconnect program;</li> <li>2. Total number of Minnesota Power customers receiving low-income home energy assistance;</li> <li>3. Number of remote-reconnect participants receiving low-income assistance;</li> <li>4. Number of customers who have opted out of the remote-reconnect program;</li> <li>5. Estimated annual cost savings from the remote-reconnect program;</li> <li>6. Average time to reconnect using the remote-reconnect program compared to the standard reconnection process; and</li> <li>7. Number of reconnections restored within 24 hours of disconnection, distinguishing between standard and remote reconnections.</li> </ol>	Section VIII Pg. 79-83
<b>Minnesota Rules 7826.0400 – 7826.2000</b>		
<b>Annual Safety Report 7826.0400</b>		
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. 42-43
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 IV Pg. 42-43
<b>Reliability Reporting Requirements 7826.0500</b>		
The utility's SAIDI for the calendar year by work center and for its assigned service area as a whole.		Section V Pg. 49
The utility's SAIFI for the calendar year by work center and for its assigned service area as a whole.		Section V Pg. 49
The utility's CAIDI for the calendar year by work center and for its assigned service area as a whole.		Section V Pg. 49
An explanation of how the utility normalizes its reliability data to account for major storms.		Section V Pg. 50

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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. 51-52
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. 52-53
A copy of each report filed under part 7826.0700 REPORTING MAJOR SERVICE INTERRUPTIONS.	Section V Pg. 53
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. 53-54
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. 556
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. 56-58
Any other information the utility considers relevant in evaluating its reliability performance over the calendar year.	Section V Pg. 58-60
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. 110
REPORTING METER-READING PERFORMANCE 7826.1400	
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: <ul style="list-style-type: none"> <li>A. The numbers and percentages of customer meters read by utility personnel.</li> <li>B. The numbers and percentages of customer meters self-read by customers.</li> <li>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.</li> <li>D. Data on monthly meter-reading staffing levels, by work center or geographical area.</li> </ul>	Section VI Pgs. 61-68
REPORTING INVOLUNTARY DISCONNECTIONS 7826.1500	

<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"> <li>A. the number of customers who received disconnection notices;</li> <li>B. the number of customers who sought cold weather rule protection under chapter 7820 and the number who were granted cold weather rule protection;</li> <li>C. the total number of customers whose service was disconnected involuntarily and the number of these customers restored to service within 24 hours; and</li> <li>D. the number of disconnected customers restored to service by entering into a payment plan.</li> </ul>	<p>Section VIII Pgs. 76-79</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"> <li>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 reads for service.</li> <li>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.</li> </ul>	<p>Section VIII Pgs. 83-89</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. 89-100</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. 101-102</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. 102</p>
<p>REPORTING CUSTOMER COMPLAINTS 7826.2000</p>	
<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"> <li>A. The number of complaints received;</li> <li>B. The number and percentage of complaints alleging billing errors, inaccurate metering, wrongful disconnection, high bills, inadequate service, and the number involving service</li> </ul>	<p>Section VIII Pgs. 103-109</p>



<p>extension intervals, service restoration intervals, and any other identifiable subject matter involved in five percent or more of customer complaints;</p> <ul style="list-style-type: none"><li>C. the number and percentage of complaints resolved upon initial inquiry, within ten days, and longer than ten days;</li><li>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.</li><li>E. The number of complaints forwarded to the utility by the Commission's Consumer Affairs Office for further investigation and action.</li></ul>	
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## Attachment C

### EIA Electric Power Industry Report (submitted by Minneapolis) <sup>104</sup>

Utility Name	All Events (with Major Event Days)			Without Major Event Days			Number of Customers	Outages Recorded Automatically
	SAIDI (minutes per year)	SAIFI (times per year)	CAIDI (minutes per interruption)	SAIDI (minutes per year)	SAIFI (times per year)	CAIDI (minutes per interruption)		
Connexus Energy	38.792	0.501	77.429	27.535	0.367	75.027	139,583	Y
Dakota Electric Association	57.700	0.680	84.853	21.000	0.330	63.636	111,103	Y
Shakopee Public Utilities	7.323	0.114	64.237	7.323	0.114	64.237	18,772	N
Wright-Hennepin Cooperative Electric Association	34.629	0.484	71.548	30.723	0.484	63.477	53,390	Y
Northern States Power Co-Minnesota	129.935	1.042	124.698	92.270	0.934	98.790	1,311,845	Y

<sup>104</sup> Docket 23-73, Minneapolis Comment, p. 3