minnesota power
AN ALLETE COMPANY

30 West Superior Street
Duluth, MN 55802-2093
www.mnpower.com

April 1, 2025

VIA E-FILING
Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

Re: In the Matter of Minnesota Power's 2024 Safety, Reliability and Service Quality Standards Report
Docket No. E015/M-25-XX

Dear Mr. Seuffert:

Minnesota Power (or the "Company") submits its annual Safety, Reliability and Service Quality Standards Report ("Report") to the Minnesota Public Utilities Commission ("Commission") in accordance with Minn. Rule 7826 - ELECTRIC UTILITY STANDARDS, and relevant Commission-issued orders. This Report covers Minnesota Power's safety, reliability and service quality for 2024 and its corresponding reliability results. Through this Report, Minnesota Power details the Company's efforts and commitment to provide safe, reliable and affordable electric service to its unique customer base in northeastern and central Minnesota.

Please contact me at (218) 591-4870 or avang@mnpower.com if you have any questions regarding this filing.

Yours truly,

Analeisha Vang
Regulatory Compliance Specialist, Senior

AV:th
Attach.

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Minnesota Power's 2024 Safety, Reliability and Service Quality Standards Report in Accordance with Minn. Rule 7826	Docket No. E015/M-25-XX **2024 SRSQ REPORT**

SUMMARY OF FILING

Minnesota Power (or the "Company") respectfully submits its annual Safety, Reliability and Service Quality ("SRSQ") Report ("Report") to the Minnesota Public Utilities Commission ("Commission") in accordance with Minnesota Rules Chapter 7826 - ELECTRIC UTILITY STANDARDS, and relevant Commission-issued orders, including the Commission's January 13, 2025 order in the Company's 2023 SRSQ (Docket No. E15/M-24-29). Through this Report, Minnesota Power provides the Commission, Department of Commerce - Division of Energy Resources ("Department") and other stakeholders information detailing the Company's efforts and commitment to providing reliable, safe, and affordable electric service to its unique customer base.

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STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Minnesota Power's 2024 Safety, Reliability and Service Quality Standards Report in Accordance with Minn. Rule 7826	Docket No. E015/M-25-XX **2024 SRSQ REPORT**

I. INTRODUCTION

Minnesota Power (or the "Company") respectfully submits its annual Safety, Reliability and Service Quality ("SRSQ") Report ("Report") to the Minnesota Public Utilities Commission ("Commission") in accordance with Minn. Rule 7826 - ELECTRIC UTILITY STANDARDS, and relevant Commission-issued orders, including the Commission's January 13, 2025 order in the Company's 2023 SRSQ (Docket No. E15/M-24-29). Through this Report, Minnesota Power provides the Commission, Department of Commerce - Division of Energy Resources ("Department") and other stakeholders information detailing the Company's efforts and commitment to provide reliable, safe, and affordable electric service to its unique customer base.

Throughout 2024, the Company performed strongly in many areas including reliability benchmarking, safety, storm response, and system resilience, even as it continued to encounter supply chain challenges, inflation, and labor shortages. Minnesota Power is proud to have provided over 99.9 percent reliable power for its customers in 2024 and reports, by both Company wide and by work center, on how it performed compared to peer utilities. As described in this report, Minnesota Power continues to initiate several efforts to improve reliability, including strategic undergrounding, grid modernization, and asset maintenance and renewal programs.

The Company continued to provide quality customer experiences including establishing and maintaining service, accurate and timely billing, inquiry resolution, and general customer care. Minnesota Power is very pleased to have met formal service quality expectations related to response times for customer calls in 2024 and strives to restore

service in a timely manner through effective processes and prudent adoption of technology.

Minnesota Power remains committed to meeting all goals in 2025 and will increase its efforts to meet the metrics for the goals missed in 2024, including the System Average Interruption Duration Index ("SAIDI") goal for Western, and System Average Interruption Frequency Index ("SAIFI") goal for Overall, Northern and Western. In addition to ensuring reliability of its system and caring for its customers, Minnesota Power is dedicated to helping communities and fellow utilities as they endure extreme weather event related outages.

The Company looks forward to further advancing its Energy*Forward* resource strategy, alongside the valued customers and communities we have the privilege to serve.

A. Procedure and Authority

Minnesota Power is submitting this Report in accordance with Minn. Rules 7826.0400, 7826.0500, 7826.0600, subp. 1, and 7826.1300, 7820.0500 and in compliance with Commission rules and orders relating to annual filings associated with Minnesota Power's Safety, Reliability, Service Quality, and proposed reliability results. The Company provides the following required general filing information.

1. Name, Address, and Telephone Number of Utility
(Minn. Rule 7829.1300, subp. 3(A))

   Minnesota Power
   30 West Superior Street
   Duluth, MN 55802
   (218) 722-2641

2. Name, Address, and Telephone Number of Utility Attorney
(Minn. Rule 7829.1300, subp. 3(B))

   Sarah Whiting
   Attorney
   ALLETE
   30 West Superior Street
   Duluth, MN 55802
   (218) 355-3033
   swhiting@mnpower.com

3. Date of Filing and Date Proposed Changes Take Effect
(Minn. Rule 7829.1300, subp. 3(C))

This petition is being filed on April 1, 2025. Until Commission approval, the existing reliability results will remain in effect.

4. Statute Controlling Schedule for Processing the Petition
(Minn. Rule 7829.1300, subp. 3(D))

This petition is made pursuant to Minnesota Rules 7826.0400, 7826.0500, 7826.0600, subp. 1, and 7826.1300.

Furthermore, Minnesota Power's request for approval of its proposed reliability results falls within the definition of a "Miscellaneous Tariff Filing" under Minn. Rules 7829.0100, subp. 11 and 7829.1400, subp. 1 and 4 permitting comments in response to a miscellaneous filing to be filed within 30 days and reply comments to be filed no later than 10 days thereafter.

5. Utility Employee Responsible for Filing
(Minn. Rule 7829.1300, subp. 3(E))

Analeisha Vang
Regulatory Compliance Specialist, Senior
30 West Superior Street
Duluth, MN 55802
(218) 591-4870
avang@mnpower.com

6. Official Service List

Pursuant to Minn. Rule 7829.0700, Minnesota Power respectfully requests the following persons to be included on the Commission's official service list for this proceeding:

Sarah Whiting
Attorney
ALLETE
30 West Superior Street
Duluth, MN 55802
(218) 355-3033
swhiting@mnpower.com

Analeisha Vang
Regulatory Compliance Specialist, Senior
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7. Information Request Service List

Minnesota Power Discovery Manager
discoverymanager@mnpower.com

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ALLETE
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8. Service on Other Parties

Minnesota Power is eFiling this report and notifying all persons on Minnesota Power's SRSQ Service List that this report has been filed through eDockets. A copy of the service list is included with the filing along with a certificate of service.

9. Filing Summary

As required by Minn. Rule 7829.1300, subp. 1, Minnesota Power is including a summary of this filing on a separate page.

B. Organization of Filing

This Report covers Minnesota Power's safety, reliability, and service quality for 2024 and its corresponding reliability results; and is organized into several sections. Each section is dependent on information from the other sections, making it appropriate to file the collection of sections as a single document. The sections and information addressed are:

- Key Reliability Performance Metrics

- ❖ List of Reporting Requirements
- ❖ Overview of Distribution System
- ❖ Public Facing Summary
- ❖ 2024 Year in Review
- ❖ Grid Modernization, System Construction and Protection
- ❖ Safety Reporting
- ❖ Reliability Metrics Reporting
- ❖ Meter-Reading Performance
- ❖ Customer Service Data
- ❖ Service Quality Performance Reporting
- ❖ Proposed Reliability Standards

Prior Commission-issued orders require Minnesota Power to respond in this filing with additional information not delineated in the administrative rules.

C. Key Reliability Performance Metrics

Reliability of the Company's distribution system is evaluated based on multiple metrics. The primary metrics used for this Report are the following:

- **System Average Interruption Duration Index ("SAIDI")**: Provides the total number of minutes of interruption the average customer experiences.

- **System Average Interruption Frequency Index ("SAIFI")**: Provides the frequency of sustained power outages (longer than five minutes) experienced by the average customer.

- **Customer Average Interruption Duration Index ("CAIDI")**: Derived by dividing SAIDI by SAIFI. The statistic generally speaks to the amount of time needed to respond to an outage.

- **Momentary Average Interruption Frequency Index ("MAIFI")**: Provides a measure of the average number of short outages, an interruption of electrical service Minnesota Power defines as lasting less than five minutes in duration.

- **Customers Experiencing Multiple Interruptions ("CEMI"):** Percent of customers experiencing more than 4, 5, or 6 outages in a year.

- **Customers Experiencing Lengthy Interruptions ("CELI"):** Percent of customers experiencing outages lasting longer than 6 hours, 12 hours, and 24 hours.

- **Average Service Availability Index ("ASAI"):** Percentage of customer's hours that service was available, out of total customer hours demanded, during a given year.

- **Customer Minutes of Interruption ("CMI"):** Total number of customers interrupted multiplied by the total minutes of customer interruption.

Other reliability and service-specific performance metrics are addressed in this Report to provide further information and transparency into Minnesota Power's safety, reliability, and service quality performance in 2024. A list of acronyms is provided as Attachment C to this report.

D. List of Reporting Requirements

This Report provides information required by various Minnesota Rules, as well as prior Commission orders. Table 1 cross references these reporting requirements to their location within the Report.

Table 1 - 2024 Reporting Requirements

NEW REPORTING REQUIREMENTS		
2023 SRSQ Report Order Dated January 13, 2025 in Docket No. E015/M-24-29		
Order Pt 2	Set Minnesota Power's 2024 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.	Section IX Pg. 111
Order Pt 3	Required Minnesota Power to file a supplement to its 2024 SQSR report 30 days after IEEE publishes the 2023 benchmarking results, with an explanation for any standards the utility did not meet.	Anticipated to be filed Q3 2025
Order Pt 8	Minnesota Power must include a discussion on alternative approaches to reliability standard setting in their 2024 safety, reliability, and service quality reports.	Section V Pg. 48-54

Order Pt 9	Minnesota Power must include a discussion on the IEEE reporting sample size and data exclusion challenges from this year.	Section V Pg. 48-54
Order Pt 10	Minnesota Power must include a discussion of using the EIA 861 data to benchmark utility reliability performance.	Section V Pg. 48-54
Order Pt 12	Minnesota Power must include a discussion on the impact of its new OMS on reporting metrics and a comparison of data from its existing OMS system and its new OMS data, as available, in its 2024 safety, reliability, and service quality report.	Section V Pg. 68-69
ON-GOING REPORTING REQUIREMENTS		
2022SRSQ Report Order Dated December 5, 2023 in Docket No. E015/M-23-75		
Order Pt 7	Minnesota Power is required to provide CEMI (3, 4, 5, 6) and CELI (6, 12, 24), storm included, and storm excluded, for their overall system, as well as their individual service regions, until such time the Commission changes or rescinds this requirement.	Section V Pg. 66-67
2021SRSQ Report Order Dated November 9, 2022 in Docket No. E015/M-22-163		
Order Pt 8	Required Xcel Energy, Minnesota Power, and Otter Tail Power to each display, either directly or via a link to a PDF file, the utility's public facing summary, as shown in Attachment A, on the utility's website placed such that the summary is available to a website user after a single click away from the home page.	Section I Pg. 13-14
Annual Summary of Customer Complaints Pursuant to Minn. R. 7820.0500 Order Dated January 18, 2023 in Docket No. E, G-999/PR-22-13		
Order Pt 2	Required utilities to include customer complaint data from Minnesota Rules 7820.0500 in their Annual Service Quality reports with data filed as part of Minnesota Rules 7826.2000.	Section VIII Pg. 105-110
2020 SRSQ Report Orders Dated December 2, 2021 & March 2, 2022 in Docket No. E015/M-21-230		
Order Pt 4 (3/2/22)	Establish three work centers for Minnesota Power, as described on pages 25-26 of the Company's 2020 Safety, Reliability, and Service Quality Report.	Section V Pg. 46-47
Order Pt 2 (12/2/21)	Provide the following new information regarding electronic utility-customer interaction beginning with the reports filed in April 2023: 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% *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."	Section VII Pg.81-82
Order Pt 3 (12/2/21)	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.	Section VII Pg.81-82
Order Pt 4 (12/2/21)	Continue to provide information on electronic utility-customer interaction such that baseline data are collected: a. Yearly total number of website visits; b. Yearly total number of logins via electronic customer communication platforms; c. Yearly total number of emails or other customer service electronic	Section VII Pg.79-81

	communications received; and d. Categorization of email subject, and electronic customer service communications by subject, including categories for communications related to assistance programs and disconnections as part of reporting under Minn. R. 7826.1700.	
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. 13-14
2019 SRSQ Report Order Dated December 18, 2020 in Docket No. E015/M-20-404		
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. 28-30
2018 SRSQ Report Order Dated January 28, 2020 in Docket No. E015/M-19-254		
Order Pt. 2	The Commission clarifies the reporting requirements from the Commission's March 19, 2019 order, as specified in Attachment B: 1. Non-normalized SAIDI, SAIFI, and CAIDI values. 2. SAIDI, SAIFI, and CAIDI, MAIFI, CEMI, and CELI normalized values calculated using the IEEE 1366 Standard. 3. MAIFI – normalized and non-normalized. 4. CEMI – at normalized and non-normalized outage levels of 4, 5, and 6 interruptions. 5. The highest number of interruptions experienced by any one customer (or feeder, if customer level is not available). 6. CELI – at normalized and non-normalized intervals of greater than 6 hours, 12 hours, and 24 hours. 7. The longest experienced interruption by any one customer (or feeder, if customer level is not available). 8. A breakdown of field versus office staff as required Minn. Rules 7826.0500 Subp. 1, J, including separate information on the number of contractors for each work center. 9. Estimated restoration time accuracy, using the following windows: a. Within -90 minutes to 0 of estimated restoration time b. Within 0 to +30 minutes of estimated restoration time 10. IEEE benchmarking results for SAIDI, SAIFI, CAIDI, and MAIFI from the IEEE benchmarking working group. 11. Performance by customer class: ASAI, SAIDI, SAIFI, CAIDI, MAIFI Residential Non-normalized & Normalized, Commercial Non-normalized & Normalized; Industrial Non-normalized & Normalized. If reporting by class is not yet possible, an explanation of when the utility will have this capability. 12. Causes of sustained customer outages, by work center.	Section V Pg. 55
Reconnect Pilot Program Orders Dated December 9, 2020 and January 9, 2024 in Docket No. E015/M-19-766		
	The Company committed to providing specific data related to its remote-reconnect pilot program (Reconnect Program) 1. Number of customers participating in the remote-reconnect program; 2. Total number of Minnesota Power customers receiving low-income home energy assistance; 3. Number of remote-reconnect participants receiving low-income assistance; 4. Number of customers who have opted out of the remote-reconnect program;	Section VIII Pg. 86-90

	5. Estimated annual cost savings from the remote-reconnect program; 6. Average time to reconnect using the remote-reconnect program compared to the standard reconnection process; and 7. Number of reconnections restored within 24 hours of disconnection, distinguishing between standard and remote reconnections.	
Minnesota Rules 7826.0400 – 7826.2000		
Annual Safety Report 7826.0400		
Summaries of all reports filed with United States Occupational Safety and Health Administration and the Occupational Safety and Health Division of the Minnesota Department of Labor and Industry during the calendar year.		Section IV Pg. 42-44
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. 42-44
Reliability Reporting Requirements 7826.0500		
The utility's SAIDI for the calendar year by work center and for its assigned service area as a whole.		Section V Pg. 55
The utility's SAIFI for the calendar year by work center and for its assigned service area as a whole.		Section V Pg. 55
The utility's CAIDI for the calendar year by work center and for its assigned service area as a whole.		Section V Pg. 55
An explanation of how the utility normalizes its reliability data to account for major storms.		Section V Pg. 56-57
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. 56-57
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. 58
A copy of each report filed under part 7826.0700 REPORTING MAJOR SERVICE INTERRUPTIONS.		Appendix A
To the extent technically feasible, circuit interruption data, including identifying the worst performing circuit in each work center, stating the criteria the utility used to identify the worst performing circuit, stating the circuit's SAIDI, SAIFI, and CAIDI, explaining the reasons that the circuit's performance is in last place, and describing any operational changes the utility has made, is considering, or intends to make to improve its performance.		Section V Pg. 60-63
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. 63
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. 64-65
Any other information the utility considers relevant in evaluating its reliability performance over the calendar year.		Section V Pg. 66-68
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. 111
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: A. The numbers and percentages of customer meters read by utility personnel. B. The numbers and percentages of customer meters self-read by customers. C. The number and percentage of customer meters that have not been read by utility personnel for periods of six to twelve months and for periods of longer than twelve months, and an explanation as to why they have not been read. D. Data on monthly meter-reading staffing levels, by work center or geographical area.	Section VI Pg. 70-76
REPORTING INVOLUNTARY DISCONNECTIONS 7826.1500	
The annual service quality report must include a detailed report on involuntary disconnections of service, including, for each customer class and each calendar month: A. the number of customers who received disconnection notices; B. the number of customers who sought cold weather rule protection under chapter 7820 and the number who were granted cold weather rule protection; C. the total number of customers whose service was disconnected involuntarily and the number of these customers restored to service within 24 hours; and D. the number of disconnected customers restored to service by entering into a payment plan.	Section VIII Pg. 83-90
REPORTING SERVICE EXTENSION REQUEST RESPONSE TIMES 7826.1600	
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: 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. 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.	Section VIII Pg. 90-97
REPORTING CALL CENTER RESPONSE TIMES 7826.1700	
The annual service quality report must include a detailed report on call center response times, including calls to the business office and calls regarding service interruptions. The report must include a month-by-month breakdown of this information.	Section VIII Pg. 97-103
REPORTING EMERGENCY MEDICAL ACCOUNT STATUS 7826.1800	
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.	Section VIII Pg. 104-105
REPORTING CUSTOMER DEPOSITS 7826.1900	
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 VIII Pg. 105
REPORTING CUSTOMER COMPLAINTS 7826.2000	
The annual service quality report must include a detailed report on complaints by customer class and calendar month, including at least the following information: A. The number of complaints received; B. The number and percentage of complaints alleging billing errors, inaccurate metering, wrongful disconnection, high bills, inadequate service, and the number involving service extension intervals, service restoration intervals, and any other identifiable subject matter involved in five percent or more of customer complaints;	Section VIII Pg. 105-110

C. the number and percentage of complaints resolved upon initial inquiry, within ten days, and longer than ten days; D. The number and percentage of all complaints resolved by taking any of the following actions: (1) taking the action the customer requested; (2) taking an action the customer and the utility agree is an acceptable compromise, (3) providing the customer with information that demonstrates that the situation complained of is not reasonably within the control of the utility; or (4) refusing to take the action the customer requested. E. The number of complaints forwarded to the utility by the Commission's Consumer Affairs Office for further investigation and action.	

E. Overview of Distribution System

Minnesota Power is transforming the way it energizes communities and businesses through its Energy*Forward* resource strategy. First incorporated in 1906, Minnesota Power serves electricity to approximately 150,000 customers,[1] 14 municipal systems, and some of the nation's largest industrial customers across northeastern and central Minnesota. Minnesota Power's distribution system is comprised of 6,253 miles (about twice the width of the United States) of distribution lines and 193 distribution substations ("distribution system"). The Company's service territory spans over 26,000 square miles from International Falls in the north, to Royalton in the south, and from Duluth in the east, to as far west as the Long Prairie and Park Rapids communities as shown in Figure 1.

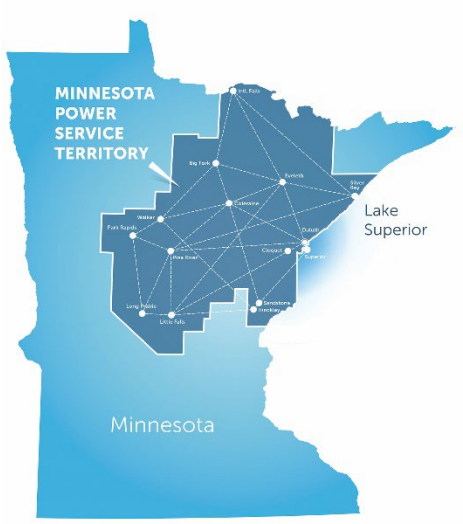


Figure 1 - Minnesota Power's Territory

Residential and commercial customers are the primary users of the distribution system, with residential customers comprising a relatively large portion of Minnesota Power's distribution system load but only representing about 12 percent of Minnesota Power's annual retail electric sales. Much of the Company's service territory across northern and central Minnesota consists of rural communities. These rural communities and customers present unique challenges when planning for investment in the distribution system. Customers located at the end of

[1] While 150,000 customers was used in the ALLETE, Inc. 2024 Form 10-K and the Company's 2023 Integrated Distribution Plan filing (Docket No. E015/M-23-258), 138,546 customers is used in this filing. It is a count that removes interruptible meters such as dual fuel and off peak. This is in an attempt to count each premise only once.

multiple miles of line on a single feeder will present different service and reliability considerations than a customer located in a more populated area with feeder redundancy.

The Company also serves a diverse group of commercial customers with varying needs and expectations depending on the specific business (i.e., electric costs as a percentage of total operating/production costs, power quality and reliability needs, etc.). Commercial customers comprise approximately 14 percent of Minnesota Power's annual retail electric sales. Reliability is of the utmost priority to commercial customers, and for many of these customers, any interruption in electric service has the potential to stop business and immediately impact their bottom line. For those customers with sensitive loads and technology-related businesses, power quality, and even momentary outages (<5 minutes), may be a significant issue.

Minnesota Power's large industrial customers are served directly from the transmission system, except for required ancillary services, such as pumps and lighting, which are served from the Company's distribution system.

To meet the needs of its unique customer base, Minnesota Power built its distribution strategy on the foundation of technology, innovation, and continuous learning. Customers expect reliable, safe, affordable and increasingly low-carbon electric service, all of which are encompassed in the Company's distribution planning strategy. Meeting these expectations requires deploying right time/right fit distribution technology that is flexible, adaptable, and upgradable. The Company has strategically positioned its distribution system for the deployment of emerging distribution technology through thoughtful planning in all areas of its business while maintaining a focus on customers' needs, upholding distribution planning principles,[2] and aligning these investments with the Company's sustainability[3] goals. Sustainable prosperity which balances economic, environmental, and social needs for both the Company and its customers over the long term is Minnesota Power's goal. Safety, integrity, environmental stewardship, employee

[2] *In the Matter of Minnesota Power's 2023 Integrated Distribution Plan*, Docket No. E015/M-23-258, 2023 Integrated Distribution Plan, at 9 (Oct. 16, 2023).
[3] Detailed in Minnesota Power's *2025-2029 Integrated Resource Plan*, Docket No. E015/RP-25-127.

development, and community engagement must be in the balance of every decision made and action taken.

The public summary communication regarding Minnesota Power’s 2024 SRSQ results is included below.

2024 SAFETY, RELIABILITY, AND SERVICE QUALITY

Minnesota Power, a division of ALLETE Inc., is committed to the reliability and security of the regional power system that provides electricity in a 26,000-square-mile electric service area in northeastern Minnesota.

minnesota power
AN ALLETE COMPANY

MINNESOTA POWER PROVIDES OVER

99% RELIABILITY FOR ABOUT 150,000
residential, commercial and industrial customers.

Reliability is having the energy when it's needed.

OUR MISSION

We are committed to a sustainable future for the climate, our customers and our communities while delivering safe, reliable and affordable power.

CUSTOMER SERVICE

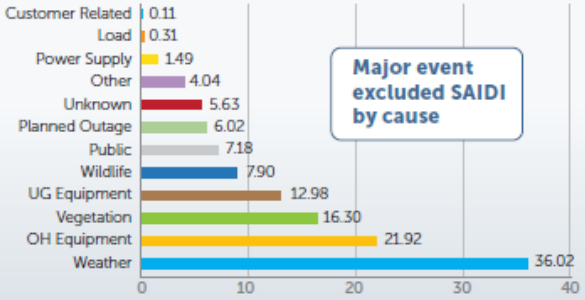
Minnesota Power is dedicated to providing safe, reliable, affordable and increasingly clean electric service and to achieving high levels of customer satisfaction.

In 2024, 104 lineworkers and 29 substation technicians responded to trouble calls and worked on maintenance of our distribution lines and associated equipment.

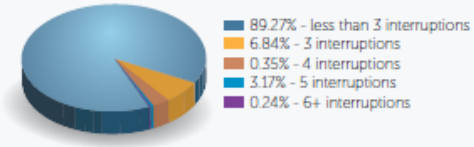
In 2024, 84 employees working in a variety of positions, including vegetation management, fleet, inventory, service dispatch, and system operations, provided line operation support.

SYSTEM RESILIENCY

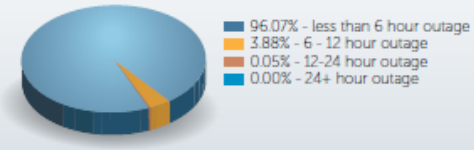
Interruptions are the total loss of electric power to one or more customers connected to the distribution system.



89% of customers
experienced less than 3 interruptions in 2024



96% of customers
experienced less than 6 hours of outage in 2024



What causes interruptions?

During 2024, Minnesota Power's service territory experienced several severe weather events resulting in it being the leading cause of interruptions, followed by equipment failure, vegetation and wildlife. Minnesota Power continues to invest in and execute reliability and resiliency initiatives to strengthen the company's system.

We work to minimize weather-related outages in a variety of ways, including:

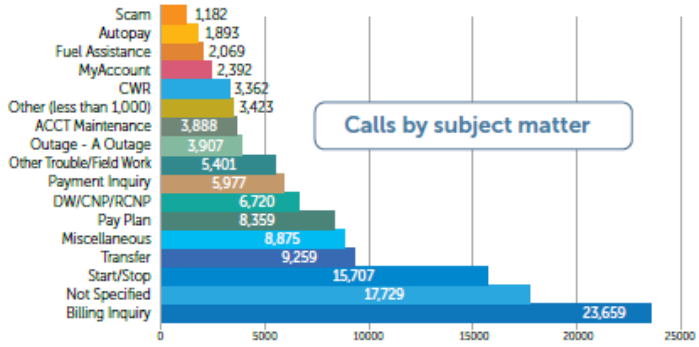
- **Using Trip Saver technology** to minimize long duration outages and dispatch of service technicians.
- **Providing resiliency during storm events** and strategically strengthening the distribution system through our strategic underground initiative.
- **Optimizing the use of a secure fiber-optic network and technology** to quickly isolate and restore customers through the use of intellirupters and motor operated switches.

25066 03.26.25

2024 SAFETY, RELIABILITY, AND SERVICE QUALITY | MINNESOTA POWER

CALL CENTER

In 2024, we received over 131,000 customer calls, and just under 20,000 customer emails in our Call Center.



COMPANY READ METERS:

In 2024, our meter reading systems provided over **99.86%** of meters read across all customer classes. Beginning in 2024, **100%** of the reads used for billing are through our systems or by employees.

MUTUAL AID

Minnesota Power is a respected mutual aid partner lending assistance in the Midwest as a member of the Midwest Mutual Assistant Group as well as on a national level. Crews and line support staff have assisted on many natural disasters over the years including hurricanes and wildfires. In August 2024, staff helped restore power in St. Louis Park, Minn. after two rounds of severe storms. In October 2024, staff helped restore power in the Tampa Bay area after being devastated by Hurricane Milton.

In recognition of our mutual aid, Minnesota Power received an **Emergency Assistance Award** from the Edison Electric Institute for our responses to an historic winter storm in the company's service area in 2022, a nor'easter in New York in 2021, a derecho in Illinois in 2020, a severe snow and windstorm in Manitoba in 2019, and hurricanes in Puerto Rico in 2018 and Miami in 2017.

MYACCOUNT

MyAccount allows customers to track their energy use, set markers to see how events or home upgrades affect how much energy they use, and gives quick access to paying bills and managing their account online.

The Minnesota Power app makes it easier for customers to access the company's outage map and other outage information. Users are able to check on the status of power outages in their area, learn when their power will be restored or report an outage.

mnpower.com/mobileapp

COMMUNICATIONS

We communicate with our customers in person; by phone; through news releases, media, direct mail, social media and bill inserts; on mnpower.com; through MyAccount at mnpower.com/myaccount; and via the Minnesota Power app.

NEED INFORMATION OR ASSISTANCE?

Customer Service: 1 (800) 228-4966 or
CustomerService@mnpower.com
Minnesota Relay/TTY: 711 or (800) 627-3529

REPORT AN OUTAGE OR ENTER A TROUBLE ORDER:
www.mnpower.com/OutageCenter/ReportAnOutage or call **800-30-POWER (218-307-6937)**; if emergency, call **911**

People who communicate in a language other than English can request translation services by calling Minnesota Power at 800-228-4966. We also offer a translation option at www.mnpower.com.

Figure 2 - Minnesota Power's Public Summary for 2024

II. 2024 YEAR IN REVIEW

Minnesota Power performed strongly on many of the metrics established and included in this SRSQ Report, particularly in the areas of reliability benchmarking, safety, storm response, system resilience, call response times, and timely restoration of service. The Company maintains its strong commitment to excellent customer service, accurate and timely billing, inquiry resolution, and general customer care, while striving to meet or exceed formal service quality expectations. As part of these efforts, the Company works with customers on payment agreements, assistance program funding, and many other topics while advancing important system and rate transitions. Further details are shared below and discussed throughout this Report.

Regarding safety and reliability, the Company continues to see a recent trend in storms occurring outside of the normal storm season, with many larger storms occurring during typically quiet months. However, in 2024, none of these storms reached the major event exclusion threshold.

Grid modernization ("Grid Mod") efforts increased substantially with strategic undergrounding, recloser and IntelliRupter rollouts, and preventative maintenance activities. However, these efforts encountered supply chain challenges, inflation, and labor shortages again in 2024. The Company continued to be impacted by supply chain disruptions which include unexpected, significant increases in commodity prices and lengthy delays in material delivery times. The Company has been proactively finding creative ways to address these impacts including working with neighboring utilities, communicating with customers, working diligently with vendors and suppliers to identify new options, and incorporating longer lead times into its planning process. For critical items, the Company increased inventory levels to account for increased lead times observed to replenish stock.

The Commission recognized in its January 28, 2020, Order in Docket No. E015/M-19-254 that some metrics, including the method by which it currently sets reliability goals, may need to be modified and agreed that benchmarking provides a better way to understand how utilities are performing in relation to peer utilities. In Order Point 2 of its

January 13, 2025 Order in Docket No. E015/M-24-29, the Commission set Minnesota Power's 2024 statewide Reliability Standard at the Institute of Electrical and Electronics Engineers ("IEEE") benchmarking 2nd Quartile for medium utilities and set the Company's Work Center reliability standards at the IEEE benchmarking 2nd quartile for small utilities. There will be further discussion about benchmarking and reliability goal setting in Section V.C. Benchmarking Review on page 48.

Based on the standards for medium utilities, the Company met these major event-excluded IEEE 2nd quartile target goals for SAIDI by 1.10 minutes, and CAIDI by 46.59 minutes. The Company did not meet the SAIFI target, missing it by 0.30 interruptions per customer.

Based on the standards for small utilities,[4] the Company met these major event-excluded IEEE 2nd quartile target goal for SAIDI in the Central and Northern Work Centers by 111.54 and .01, respectively, but failed to meet this goal in the Western Work Center by 3.72.

The Company met the goal for SAIFI in the Central Work Center by 0.18 but failed to meet this goal in Northern and Western Work Centers by 0.71 and 0.60 respectively. Lastly, the Company met the goal for CAIDI in the Central, Northern and Western Work Centers by 58.08, 32.97 and 24.73, respectively.

Table 2 - 2024 Overall & Work Center Reliability Results in Comparison to IEEE Standard

2024	SAIDI	SAIFI	CAIDI
IEEE 2024 Medium Utilities 2nd Quartile	**121**	**1.00**	**139**
Results- Overall	119.9	1.30	92.41
IEEE 2024 Small Utilities 2nd Quartile	**180**	**1.11**	**132**
Results- Central	68.46	0.93	73.92
Results- Northern	179.99	1.82	99.03
Results- Western	183.72	1.71	107.27

*Red indicates goal not met

[4] Details of the Company's performance in relation to the work center reliability standards at the IEEE benchmarking 2nd quartile for small utilities are included in Section V.

For all SAIDI values throughout 2024, there were no major event days, there were more than 5,120 unique sustained outages (over five minutes in duration), of which 85 Large SAIDI Events (greater than 50,000 CMI but below the Major event exclusion threshold) contributed more than 48.97 percent of overall SAIDI. The Company is experiencing a greater number of larger SAIDI events even with a decrease in the major event exclusion threshold. These non-excluded larger events account for a significant amount of the Company's SAIDI minutes.

In Figure 3 below, the Company shows a slight increase in the total number of incidents (all power interruptions), including momentary outages, compared to 2023.

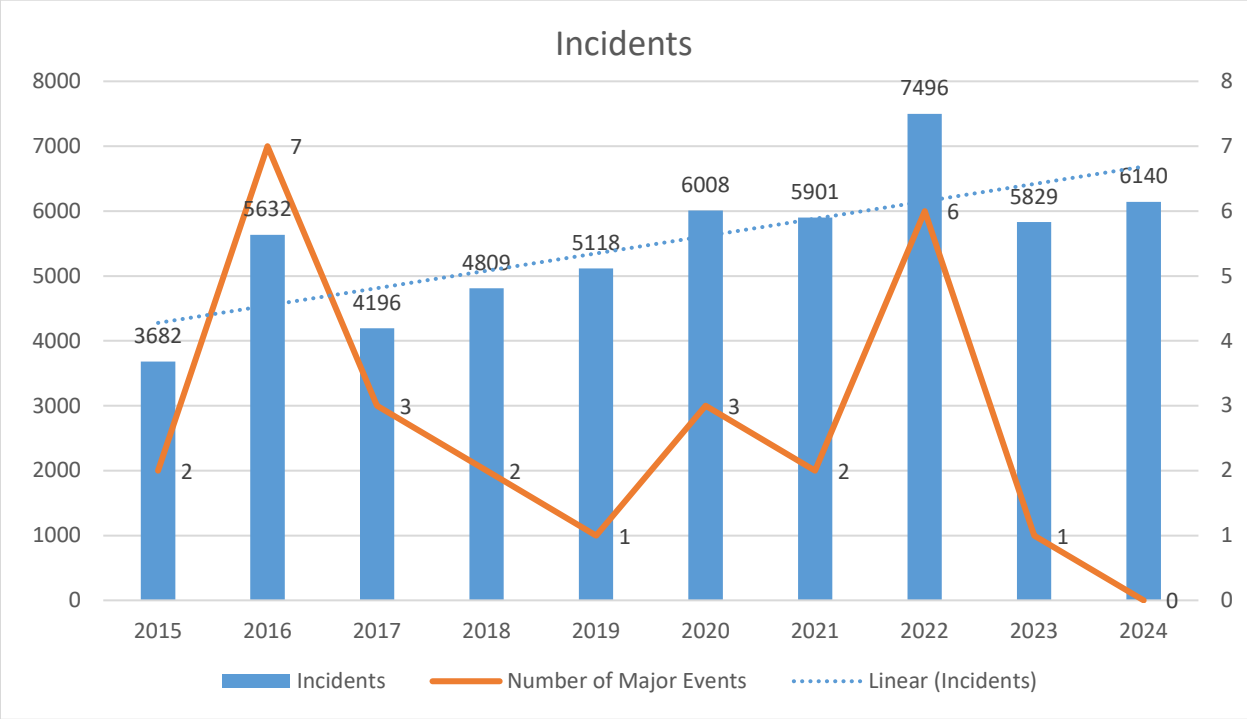


Figure 3 - 2024 Incident Trends

In total, the Company experienced 6,140 incidents in 2024. Figure 3 illustrates the trend in these incidents and the correlation to Major Events Days since 2015. Years higher than the "Linear Incidents" trend line occur in years with higher storm activity such as 2016 and 2022. Advances in system technology throughout this period are improving the visibility across the entire distribution system. The technology advances include the rollout

of Advanced Metering Infrastructure ("AMI") and the systematic replacement of obsolete voltage and outage sensors with smart grid line sensors. This improved visibility is in part responsible for the increase in the number of detected and recorded incidents. The Company continues to assess this trend as it seeks to refine its expectations for the near term and beyond.

A. Factors Affecting Reliability

For Major Event-excluded SAIDI data, weather events caused 36 percent, overhead equipment failure 22 percent, Vegetation 16 percent,[5] underground equipment failure 13 percent, wildlife events 8 percent, and public events (car accidents, excavation damage to cables, etc.) 7 percent. The remaining outage minutes consisted of incidents related to planned outages, unknown, other, power supply, load and customer related. More on causes of outages can be found in Section V of this Report.

Weather was the largest reliability factor contributing to outages in 2024. Minnesota Power is continually developing solutions and is executing several reliability initiatives to help minimize weather-related and vegetation outages in the future. TripSavers, which are maintenance free single phase reclosers that replace cutouts, are being installed across the Company's service territory to clear temporary faults resulting from tree contacts and lightning. Strategic undergrounding efforts are one solution considered for some of the Company's worst performing overhead lines. For its strategic undergrounding effort, the Company is targeting areas where customers limit access to vegetation management, areas where overhead lines were installed in inaccessible areas with heavy vegetation and the age or condition of the lines. The new standard for customer line extensions is to install underground facilities in all feasible locations. Throughout 2024, over 54 miles of underground conductor was installed across our distribution system including the conversion of overhead facilities to underground.

Overhead equipment failures are also being addressed. The Company is continuing the implementation of its Preventative Maintenance ("PM") program on substation and

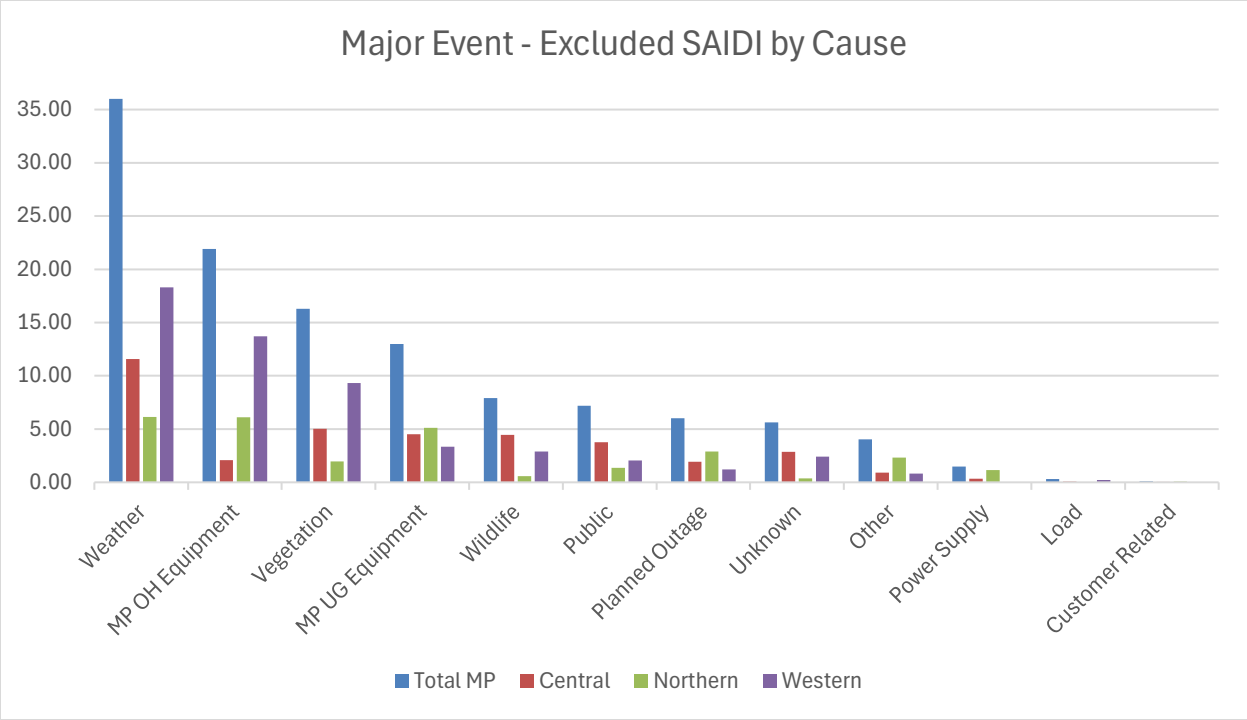
[5] See pages 33-36 for details on the Company's vegetation management program.

distribution equipment. This PM program includes replacement or refurbishment of switches, capacitor banks, and reclosers and will begin to add condition-based monitoring of some types of equipment, including regulators. All voltage regulator units are catalogued, and work continues to build a procedure to refurbish or replace aging units. Currently, the Western Work Center conducts maintenance on overhead regulators which are rotated out on a time-based frequency.

In the future, the PM program will expand its focus to include the replacement of distribution transformers and in 2025 the testing of Distribution substation transformers. By focusing on the development and implementation of all these PM programs, the Company can verify at any time that system equipment is functioning as expected. PM reviews will also more readily identify[6] areas that may need additional asset renewal or replacements.

In Figure 4 below, the graph and table depict Major Event-excluded SAIDI values by cause. The units shown are Company SAIDI minutes and display Company Total, Central Work Center, Northern Work Center, and Western Work Center, sorted by cause in descending order for Total Company values.

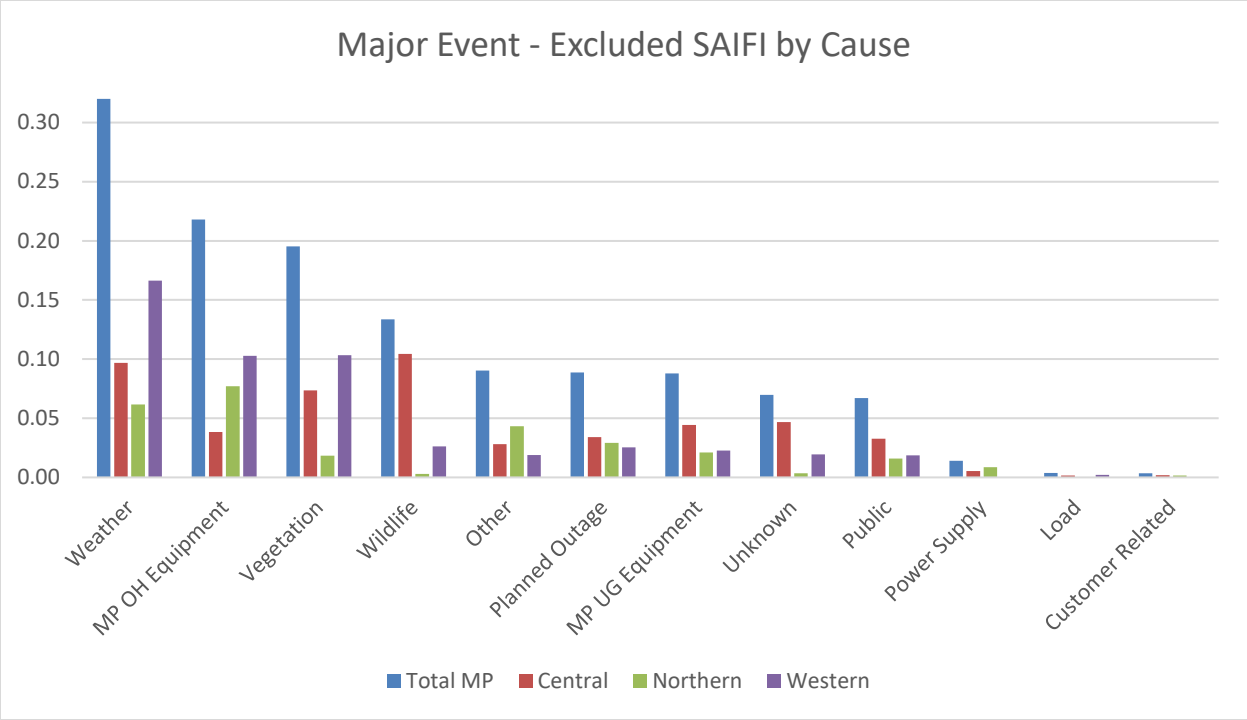
[6] For more information regarding the Company's reliability improvement efforts, including strategic undergrounding and asset renewal, please see Section II of Minnesota Power's 2023 Integrated Distribution Plan in Docket No. E015/M-23-258.



2024 SAIDI Causes	Weather	MP OH Equipment	Vegetation	MP UG Equipment	Wildlife	Public	Planned Outage	Unknown	Other	Power Supply	Load	Customer Related
Total MP	36.02	21.92	16.30	12.98	7.90	7.18	6.02	5.63	4.04	1.49	0.31	0.11
Central	11.58	2.09	5.03	4.51	4.45	3.75	1.93	2.86	0.91	0.35	0.07	0.03
Northern	6.13	6.11	1.95	5.13	0.57	1.38	2.89	0.37	2.32	1.14	0.01	0.07
Western	18.32	13.72	9.32	3.34	2.89	2.05	1.20	2.40	0.81	0.00	0.23	0.00

Figure 4 - Major Event-excluded SAIDI Results

In Figure 5 below, the graph and table depict Major Event-excluded SAIFI values by cause. The units are Company SAIFI interruption frequency values and display Company Total, Central Work Center, Northern Work Center, and Western Work Center sorted by cause in descending order for Total Company values.



2024 SAIFI Causes	Weather	MP OH Equipment	Vegetation	Wildlife	Other	Planned Outage	MP UG Equipment	Unknown	Public	Power Supply	Load	Customer Related
Total MP	0.32	0.22	0.20	0.13	0.09	0.09	0.09	0.07	0.07	0.01	0.00	0.00
Central	0.10	0.04	0.07	0.10	0.03	0.03	0.04	0.05	0.03	0.01	0.00	0.00
Northern	0.06	0.08	0.02	0.00	0.04	0.03	0.02	0.00	0.02	0.01	0.00	0.00
Western	0.17	0.10	0.10	0.03	0.02	0.03	0.02	0.02	0.02	0.00	0.00	0.00

Figure 5 - Major Event-excluded SAIFI Results

B. Reliability Cost Overview

The following graphs show the 2024 values: SAIDI with trouble costs, SAIFI with trouble costs, SAIDI with capital costs and SAIFI with capital costs. The increased capital spending reflects the Company's commitment to improve the reliability of its system through strategic investments. The Company experienced a slight increase in trouble costs in 2024 due to the volume of storms and events throughout the year. There were no major events, which is below the ten-year average.

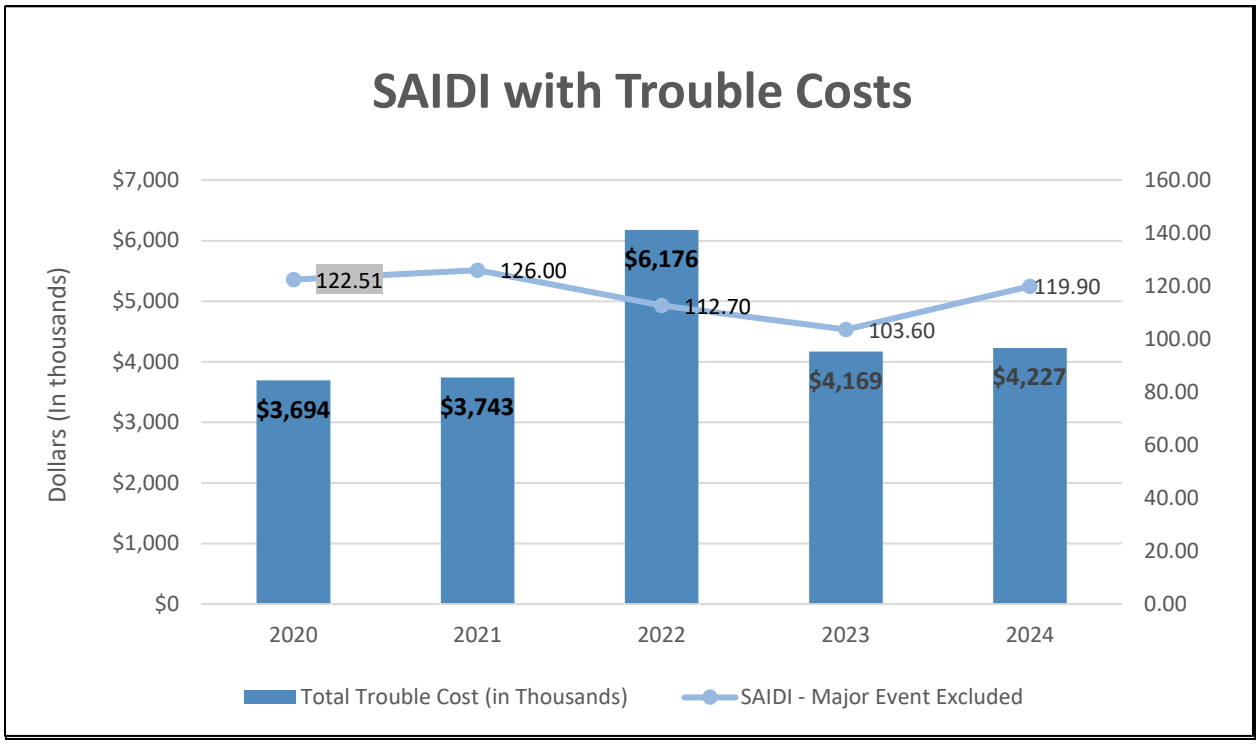


Figure 6 - SAIDI with Trouble Costs (In Thousands)

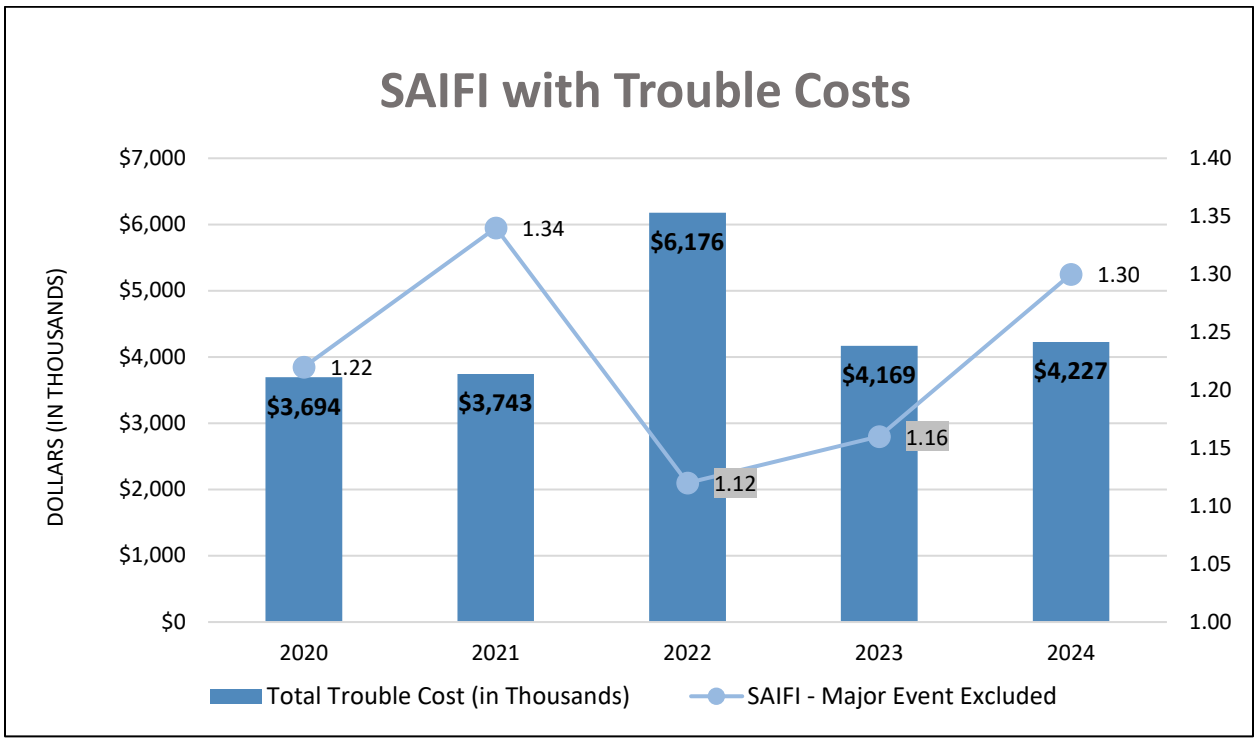


Figure 7 - SAIFI with Trouble Costs (In Thousands)

For 2024, the Company chose to provide a more comprehensive view of distribution system capital spend/investments. This approach captures distribution-related capital spending across multiple functional areas of the company, including substation upgrade projects, asset renewal programs, metering infrastructure, Electric Vehicle Supply Equipment (EVSE) initiatives, new customer line extensions, distribution damage claims, and general plant costs.

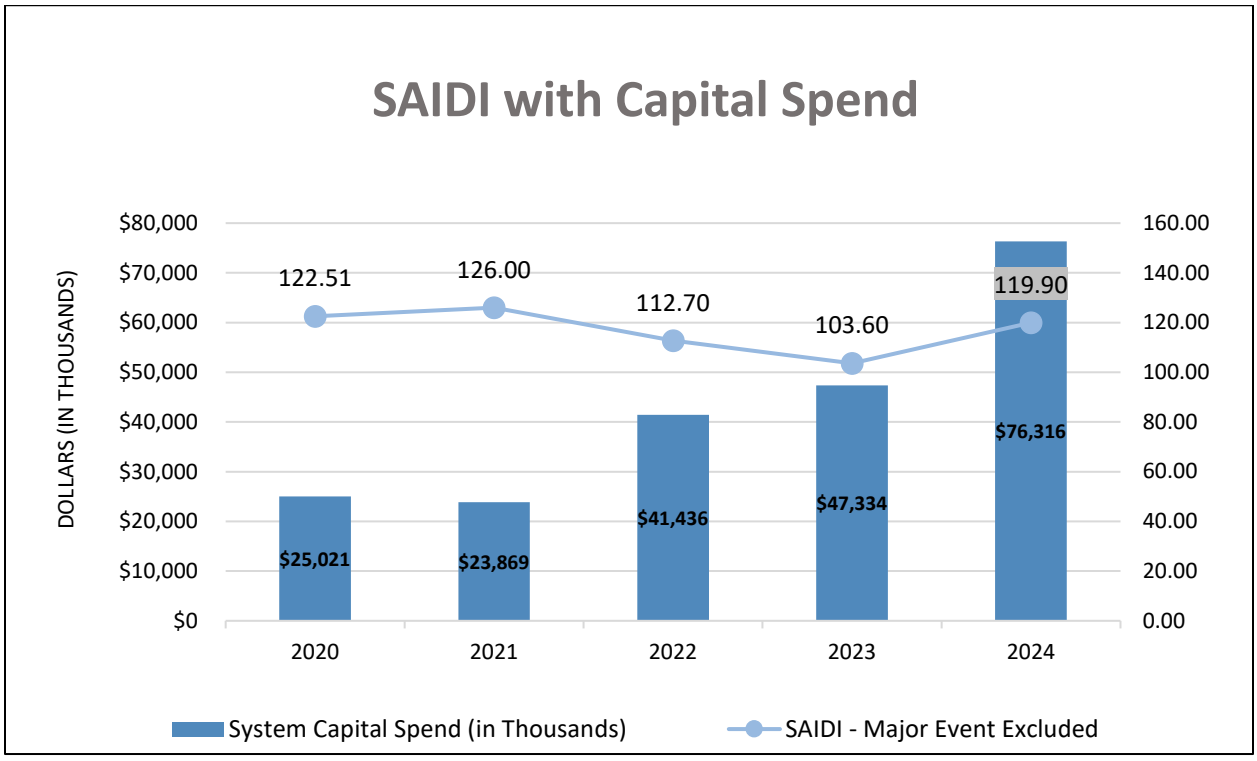


Figure 8 - Major Event-excluded SAIDI with Capital Spend (In Thousands)

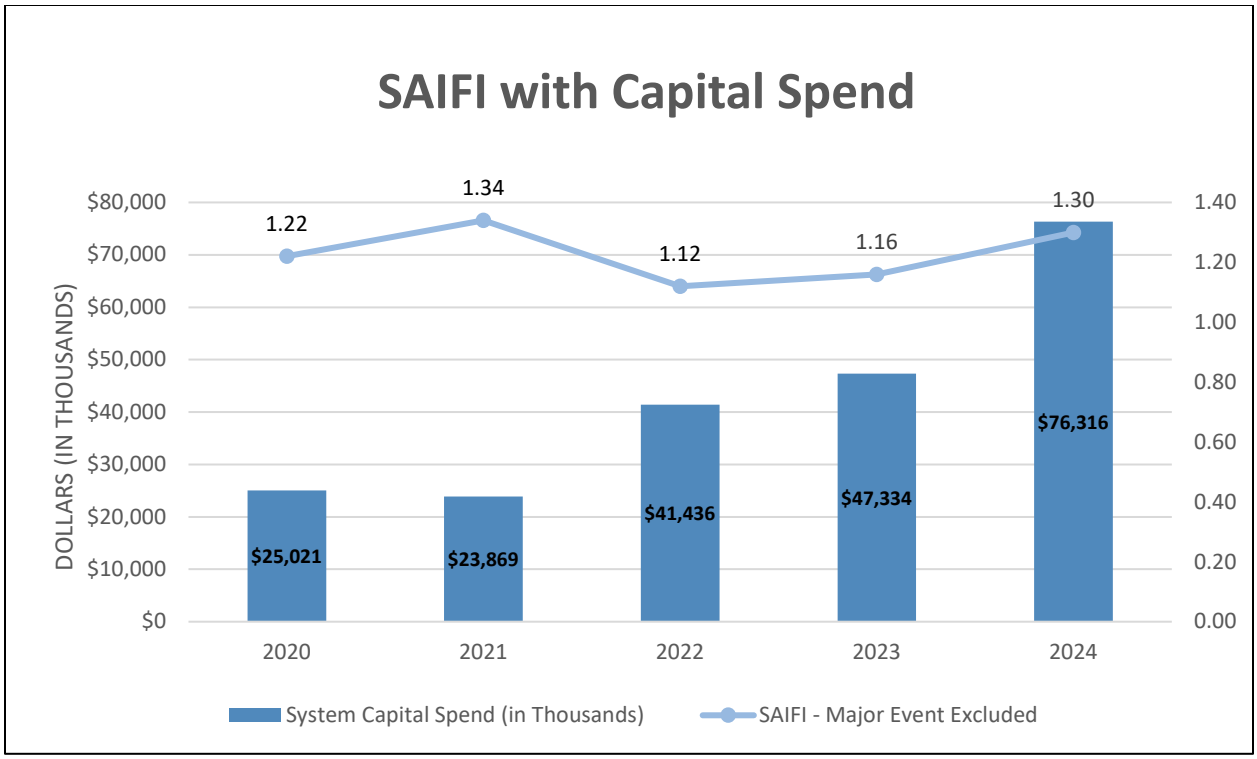


Figure 9 - Major Event-excluded SAIFI with Capital Spend (In Thousands)

Minnesota Power maintains a Long-Range Capital Plan that includes Transmission to Distribution Substation projects that is anticipated to include individual projects with a total cost of greater than two million dollars. The current estimated cost and overview of these projects are discussed in Table 3.

Table 3 - Five-Year Transmission to Distribution Projects

Project Category	Preliminary Projected Costs	Anticipated In-Service -Date	Project Area
Switchgear Replacement Program (Asset Renewal)	$23.4 M	2029	*Anticipated Substations*:* Haines Road (Hermantown) **Subject to change based on asset renewal project prioritization*
Substation Modernization Program (Asset Renewal)	$5.7 M $6.2 M $10.7 M $15.8 M $8.6 M $20.1 M $24.1 M $10 M $17.1 M	2026 2026 2026 2028 2028 2028 2028 2029 2029	*Anticipated Substations*:* Winton, Boswell, Maturi (Chisholm), Mahtowa, Hibbing, Verndale, Cloquet, Wrenshall, Virginia South **Subject to change based on asset renewal project prioritization*
Reliability	$8.2 M $4.0 M	2027 2028	*Anticipated Projects:* Ridgeview 115/34 kV Transformer Addition, LSPI 115/34 kV Transformer Replacement

III. GRID MODERNIZATION, SYSTEM MAINTENANCE AND PROTECTION

The following section outlines the Company's efforts to modernize and strengthen the distribution system to maintain reliable, safe, affordable – and increasingly resilient – energy to meet customer and stakeholder expectations.

A. Grid Modernization

Grid Mod projects are efforts that go beyond the Company's baseline efforts to maintain reliable, safe, and affordable energy, but are necessary to keep pace with changing technology, regulatory requirements, and customer expectations.

Grid Mod continues to be a priority for Minnesota Power. The Company has developed a plan to modernize the system and ensure reliability of service. With many assets more than 40 years old, asset management programs and investments have become an area of significant focus for the Company.

Asset renewal programs have been bolstered in recent years to target areas known or likely to impact customer reliability and system resiliency. The Company has taken a strategic approach that targets key feeder and substation connected assets that are both at end-of-life and contributing negatively to reliability. At the substation level, programs have been initiated to modernize all the individual substation components into a complete substation modernization project designed to efficiently address all the asset renewal needs at once (See Table 3).

Reliability improvements will continue to be implemented. A key component to improving reliability is to harden the system to be more resilient to storms via strategic undergrounding. The Company is also deploying equipment such as TripSavers, motor-operated equipment, modern reclosers, IntelliRupters, smart sensors, and soon FLISR-equipped reclosers. IntelliRupters are a FLISR technology, (*Fault Location, Isolation, and Service Restoration)* that utilize a secure fiber optic network to quickly isolate and restore customers automatically. This is possible when a group of IntelliRupters (IntelliRupter team) reconfigures the feeder to isolate the fault and reroute power to customers downstream of the fault. The FLISR-equipped reclosers use a loop scheme with localized

logic and onboard sensors to allow automated FLISR in rural areas where communications infrastructure is cost prohibitive. The team of reclosers across adjacent feeders includes logic for reclosers, sectionalizers, and a normally open tie to restore the largest number of customers. System operators will have visibility and control of these reclosers.

The Company plans to continue and expand the use of TripSavers, which are relatively maintenance free and significantly lower cost than traditional oil-filled reclosers that have historically been used for similar applications. TripSavers clear temporary faults, resulting in improved reliability and reduced incidents requiring a line worker to be dispatched to restore an outage. In 2024, the Company has continued with the TripSaver program by standardizing settings and conducting full feeder fuse coordination. There are now 350 TripSavers on Minnesota Power's system with the updated settings. To ensure coordination, all reclosers and fuses on a feeder are sized for proper coordination before installing the TripSavers. Fuse size labels are being installed on all poles to prevent future miscoordination in outage situations. System reliability improvements with TripSavers are detailed in Table 4 below.

Motor-operated switches are being added to improve system controllability. These switches will be able to be operated remotely by the system operators. This remote operation can dramatically reduce outage times, especially when switch locations have limited or difficult access.

The Company is also installing electronically controlled, solid-dielectric, vacuum reclosers to replace the traditional oil-filled reclosers. These modern reclosers do not contain oil and require minimal maintenance, thus eliminating potential environmental incidents. In 2024, ten reclosers were either installed or replaced across the Company's system to further sectionalize distribution feeders. These modifications typically reduce the number of customers impacted by a single event. Additionally, fifteen IntelliRupters were installed in 2024.

Smart grid line sensors replaced obsolete line voltage and outage monitors starting in 2017. The new technology improves system monitoring including outages, momentary

outages, voltage levels (under or over), current levels, line disturbances, faults, and other power quality issues. These sensors monitor approximately 70% of the distribution feeders that don't otherwise have SCADA.[7] visibility. Most of these sensors have low maintenance operation, are inductively powered requiring no battery, and require no regular maintenance. In 2024, Battery powered sensors were also deployed in areas where the line current was not sufficient to power the inductively powered sensors. Fifty failed sensors were also replaced.

In compliance with Order Point 5 of the December 18, 2020 Order for the 2019 SRSQ Report, Minnesota Power provides the SAIDI, SAIFI, CAIDI, and MAIFI (normalized/non-normalized) for feeders with grid modernization investments to the historic five-year average reliability for the same feeders before grid modernization investments.

[7] Supervisory control and data acquisition ("SCADA") is a system comprised of hardware and software components used to monitor and control industrial processes. A SCADA system collects and analyzes real time production data, monitors and manage alarms, and programs automatic control responses triggered by certain events or system parameters.

Table 4 - Reliability Metrics for Feeders with Grid Modernization Investment

FBG-269 TripSavers installed 2016	Storm Included				Storm Excluded			
Year	SAIDI	SAIFI	MAIFI	CAIDI	SAIDI	SAIFI	MAIFI	CAIDI
Before Install 5 Year Avg. (2011-2015)	238.55	1.25	0.00	190.84	234.72	1.25	0.00	187.78
2024	106.29	1.04	0.00	101.93	106.29	1.04	0.00	101.93
RGV-252 IntelliRupters installed 2011	Storm Included				Storm Excluded			
Year	SAIDI	SAIFI	MAIFI	CAIDI	SAIDI	SAIFI	MAIFI	CAIDI
Before Install 5 Year Avg. (2006-2010)	195.37	1.47	7.80	132.90	55.32	0.66	7.40	83.82
2024	2.04	0.39	9.33	5.27	2.04	0.39	9.33	5.27
RGV-256 IntelliRupters installed 2012	Storm Included				Storm Excluded			
Year	SAIDI	SAIFI	MAIFI	CAIDI	SAIDI	SAIFI	MAIFI	CAIDI
Before Install 5 Year Avg. (2007-2011)	143.72	0.60	3.20	239.53	24.23	0.32	1.80	75.72
2024	2.48	0.02	1.00	122.72	2.48	0.02	1.00	122.72
SLA-203 IntelliRupters installed 2015	Storm Included				Storm Excluded			
Year	SAIDI	SAIFI	MAIFI	CAIDI	SAIDI	SAIFI	MAIFI	CAIDI
Before install 5 Year Avg. (2010-2014)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2024	0.17	0.00	5.00	70.67	0.17	0.00	5.00	70.67
LSP-208 IntelliRupters installed 2015	Storm Included				Storm Excluded			
Year	SAIDI	SAIFI	MAIFI	CAIDI	SAIDI	SAIFI	MAIFI	CAIDI
Before install 2 Year Avg. (2013-2014)	0.00	0.00	0.20	0.00	0.00	0.00	0.20	0.00
2024	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
PQT/BAX-531 IntelliRupters installed 2022	Storm Included				Storm Excluded			
Year	SAIDI	SAIFI	MAIFI	CAIDI	SAIDI	SAIFI	MAIFI	CAIDI
Before Install 5 Year Avg. (2017-2021)	102.82	0.67	2.60	154.12	35.44	0.38	2.42	92.63
2024	0.00	0.00	3.45	0.00	0.00	0.00	3.45	0.00

In Table 4, some of the feeders listed are bulk feeders, with few or no customers. Reliability statistics are directly tied to customer outages. As a result, the impact of the grid modification projects can be quantified by including these bulk feeders' impact on their step-down substations and feeders. The events that occurred on the improved, bulk feeders were compiled to build accurate statistics that involved all affected customers.

The PQT/BAX 531 feeder continues to perform exceedingly well. Throughout 2024, six separate faults were detected on 531 feeder that would have previously locked out the feeder. In each instance, the IntelliRupter team automatically detected the fault, isolated the fault and automatically reconfigured the circuit. The line crew followed up and performed repairs in the faulted section that had been deenergized by the IntelliRupters before returning the feeder to its normal configuration. As a result, none of the 4,435 customers experienced a prolonged outage (>5 minutes) from these events. Minnesota Power estimates a savings of 11.4 company SAIDI Minutes (aka 1.57 million customer outage minutes avoided).

Feeders SLA-203 and LSP-208 are a special case. These feeders were built with IntelliRupters already installed. As a result, there is no previous 5-year history to compare to 2024 reliability. Subjectively, both feeders perform very well. The feeder with TripSavers installed experienced a 55.5 percent reduction in SAIDI minutes in 2024. Feeders with IntelliRupter teams saw a 98.3-100 percent reduction in SAIDI minutes in 2024 compared with the prior 5-year average.

B. Mobile Workforce Applications

Minnesota Power has developed several Mobile Workforce applications that allow all field employees to identify and improve areas of concern on the system. Minnesota Power has implemented Mobile Workforce in multiple phases, including:

- General Service Request application
- VxField
- Pole Maintenance Collector

Since the app was created in 2017, over 10,000 service requests have been entered through Minnesota Power's General Service Request application. Maintenance work identified by the program is prioritized and executed daily. The Company expects to see rates of failed equipment decrease in future years as these issues are resolved. In 2020, this program was expanded to employees within vegetation management and

transmission departments. In 2022, it was expanded to power delivery so those areas could also report and resolve issues discovered within substations.

In 2019, processing trouble tickets was moved to a mobile workforce application called VxField. Trouble tickets from the Outage Management System are pushed to lineworkers in the field through this application, allowing trouble tickets to be processed electronically. There has been considerable success in managing and completing these tickets electronically, eliminating many phone calls and a paper process, as shown in Table 5 below.[8]

Table 5 - Mobile Application Tickets Entered

Year	Tickets Entered
2019	2,933
2020	9,588
2021	9,623
2022	14,057
2023	11,333
2024	11,810

This improved process allows line workers to receive and complete these tickets in the field, oftentimes leading to improved outage prioritization and shortened outage durations.

Starting in 2020, the pole maintenance inspection application was created for line personnel to actively inspect, address issues and track issue resolution on distribution feeders. This application also tracks which areas have been inspected and which areas still require inspection. By proactively identifying and fixing issues such as cracked insulators, cutouts, crossarms, and damaged poles, the Company expects reliability to improve as all feeders are inspected.

Lastly, EzMaxPlanner, an add-on scheduling tool for Maximo was implemented in late December 2023 with improvements planned for 2025. This business solution is designed

[8] The increased number of tickets entered for 2022 is attributed to the higher number of weather events as shown in Figure 3.

to assist planners with expanded capabilities for crew management and work order assignments.

Minnesota Power is developing digital work packets that will focus on the integration of work and asset management systems to transition from a paper process to an electronic process utilizing mobile software.

C. Voltage Monitoring

Smart grid line sensors provide alarms and profiles to help identify areas that may be experiencing momentary outages or have temporary voltage drop or rise outside of normal operating limits. This information is sent to area engineers, supervisors, and line personnel as events happen on the feeders. In one example, sensors detected eight momentary outages on a single feeder, the line crew was dispatched from these alarms, patrolled the feeder and found some cracked insulators that were tracking and starting to burn the crossarm. These insulators were quickly replaced and no additional momentaries were detected throughout the remainder of the year. This proactive identification and repair likely prevented a sustained outage for all 387 customers on this feeder.

In another example, the smart grid line sensors detected repeated line disturbances on a feeder. This type of alarm could be considered a power quality alert because no outage occurred. The local line supervisor was monitoring these alerts and dispatched line workers to patrol the feeder for issues that could cause these recurring alerts. Failed insulators were found and replaced. This prevented future outages for 1,141 customers.

Voltage monitoring is also managed through the Company's AMI system and a report is generated monthly to identify areas that need to be reviewed for improvements. In addition to these sources, the Company's outage management system ("OMS") allows service dispatch to coordinate line crew efforts to find and repair voltage-related issues.

D. Vegetation Management

Vegetation Management is essential to improve reliability and mitigate risks of wildfire and power outages on the distribution system – and is even more critical for overhead portions of the distribution system that have long radial single-sourced feeders, primarily in rural areas. System reliability can be adversely impacted by many external environmental factors, and vegetation encroachments are one of the more significant factors that can impact the Company's system. A coordinated and systematic vegetation management program is a key component of Minnesota Power's distribution reliability effort. Minnesota Power has designed this program to address each distribution line approximately every six years and transmission lines every seven years. Vegetation management benefits the system in numerous ways, such as:

- Reduces momentary outage events due to vegetation contact
- Improves system performance by reducing wildlife contacts
- Improves restoration time as circuits are easier to access

Figure 10 presents Minnesota Power's budget to spend for vegetation management over the past five years.

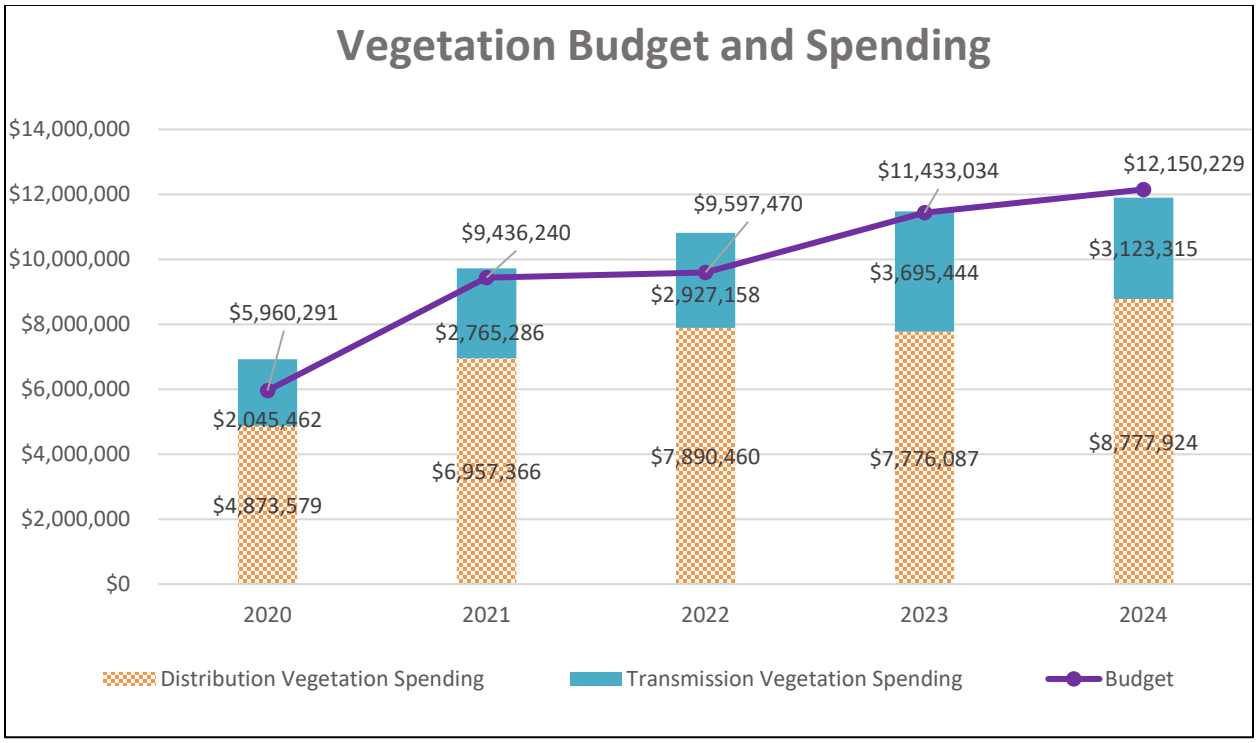


Figure 10 - Vegetation Budget and Spend 2020- 2024

Minnesota Power's vegetation management program for its distribution system manages 313 electrical circuits spanning 4,542 miles of overhead distribution right-of-way. Routine vegetation management activities are typically scheduled on a six-year timetable, but this schedule may be advanced or delayed, depending on actual conditions. Vegetative growth depends on many conditions such as precipitation, temperature, length of growing season, type of vegetation, soil fertility, and the time of year the circuit was previously maintained. As such, the actual maintenance schedule may be longer or shorter than six calendar years.

Vegetation maintenance is normally accomplished through tree pruning, tree removal and/or application of herbicide. In addition to routine vegetation maintenance, Minnesota Power responds directly to tree concerns from its customers. When a customer calls with a tree concern, a Company representative visits the customer's property to investigate the situation. In cases where the vegetation creates a potential electrical hazard due to its proximity with the electric facilities, Minnesota Power eliminates the hazard. However,

it should be noted that trees can fall onto lines that are well outside of the prescribed vegetation management limits addressed as part of the regular maintenance cycle.

Minnesota Power plans to continue diligent management of the vegetation on its distribution system on a targeted six-year basic cycle. The Company's vegetation management program utilizes four International Society of Arboriculture (ISA) Certified Arborists in determining the actual vegetative growth, environmental conditions, reliability performance and growing seasons for each circuit. After examining these factors, the Company determines the timing of circuit clearing activities. This approach has aided in providing customers with reliable service for many years.

Table 6 lists the individual circuits scheduled to receive routine maintenance that have not had vegetation management activities in the six years prior to December 31, 2024. Together they represent 9.5 percent of the Company's total distribution system by line miles.

Table 6 - Circuits Outside of 6-Year Trimming Cycle

Sub	Feeder	Mileage	Last Done	Scheduled	Years
BAB-2	Babbitt 2	4.9	2018	2025	7
ESS-1	Eveleth 1	5.0	2018	2025	7
FIF-219	15th Ave W 219	2.1	2018	2025	7
FIF-220	15th Ave W 220	7.2	2018	2025	7
FIF-221	15th Ave W 221	1.1	2018	2025	7
FIF-228	15th Ave W 228	0.6	2018	2025	7
FIF-230	15th Ave W 230	5.7	2018	2025	7
FIF-231	15th Ave W 231	2.1	2018	2025	7
FIF-233	15th Ave W 233	8.4	2018	2025	7
FIF-260	15th Ave W 260	4.4	2018	2025	7
FIF-265	15th Ave W 265	0.8	2018	2025	7
FIF-266	15th Ave W 266	3.1	2018	2025	7
GRY-200	Gary 200	20.5	2017	2025	8
GRY-201	Gary 201	17.2	2017	2025	8
HML-1	Half Moon Lake 1	2.3	2018	2025	7
HYN-1	Hoyt Lakes 1	3.1	2018	2025	7
INJ-1	Iron Junction 1	29.2	2018	2025	7
LFS-1	Little Falls South 1	3.9	2018	2025	7
LFW-1	Little Falls West 1	9.0	2018	2025	7
NIN-246	9th Ave E 246	1.2	2018	2025	7

NIN-248	9th Ave E 248	3.9	2018	2025	7
NTH-1	Little Falls North Stepdown	3.6	2018	2025	7
LSP-208	LSPI 208	4.9	2018	2025	7
LSP-223	LSPI 223	21.7	2018	2025	7
LSP-224	LSPI 224	1.9	2018	2025	7
LSP-225	LSPI 225	11.0	2018	2025	7
LSP-280	LSPI 280	15.3	2018	2025	7
LSP-281	LSPI 281	9.5	2018	2025	7
LSP-282	LSPI 282	3.2	2018	2025	7
PIL-1	Pillager 1	15.0	2018	2025	7
PQT-531	Pequot Lakes 531	9.4	2018	2025	7
PZG-1	Pierz - Genola 1	1.1	2018	2025	7
PZG-2	Pierz - Genola 2	39.8	2018	2025	7
RVD-1	Riverton 1	8.8	2018	2025	7
RVT-505	Riverton 505 (34.5kV)	9.9	2018	2025	7
RVT-506	Riverton 506 (34.5kV)	24.2	2018	2025	7
RVT-530	Riverton 530 (34.5kV)	26.2	2018	2025	7
RVT-532	Riverton 532 (34.5kV)	7.4	2018	2025	7
SLA-203	Swan Lake 203	6.5	2018	2025	7
SLA-250	Swan Lake 250	24.2	2018	2025	7
SLA-257	Swan Lake 257	10.9	2018	2025	7
SLA-258	Swan Lake 258	6.4	2018	2025	7
STC-1	St. Croix 1	3.0	2018	2025	7
STC-2	St. Croix 2	16.4	2018	2025	7
TFW-243	25th Ave W 243	11.7	2018	2025	7
TWN-1	Tower Soudan 1	4.8	2018	2025	7
	Total	432.5			

E. Line Inspection Program

Minnesota Power has an active line inspection program which includes the inspection of each pole on a ten-year cycle. In 2022, Minnesota Power moved from an age-based program to an age and species-based inspection program. Poles that are 11 years and older are bored both above and below ground. Prior to 2022, the Company did not bore below the ground line. During this process, the poles are checked internally for structural integrity. Approximately 15,000 poles, or ten percent of total pole plant, are inspected annually. Depending on what is found during the pole inspection, one of the following actions is taken:

1) Poles found to be compliant with inspection criteria are identified as needing no work pending the next ten-year inspection; or

2) If insects or decay within the pole are found and treatable, action is taken to stop further effects from the insect or decay; or

3) If the pole is beyond treatment or stubbing, it is replaced.

Along with poles, line inspectors also visually inspect electrical equipment and other attachments to the pole, as well as ground-mounted equipment, looking for potential problems. The contracted line inspectors are given Minnesota Power contact information that allows them to resolve issues requiring immediate response in the field. Other items are addressed through a standardized Groundline Resolution program. Minnesota Power is currently in the ninth year of its second complete ten-year cycle. The Company estimates that the average age of the poles in its service territory are close to 40 years old, and the average age of a replaced pole is approximately 50 years old. The Company has found this to be a prudent and logical way of evaluating and replacing the poles on its system.

Since 2023, the Company has been using a drone fitted with a video camera and thermal imaging camera to find issues on distribution feeders what weren’t visible by normal ground-based line inspection. All steps were taken to ensure the FAA regulations were followed. Additionally, the Company utilized our customer notification system to notify

area residents of our efforts to perform these line inspections. These inspections have uncovered a conductor that was loose from its insulator in the Duluth area and three failed insulators on a feeder in the Gull Lake area near Brainerd. The Company has started discussions to determine the best use of this newer technology.

F. Emergency Preparedness and Mutual Aid

Mutual aid is the cooperation between utilities to provide labor and vehicles to a utility so profoundly affected by outages that it is unlikely they will have the ability to restore power to all their customers within four to seven days. A robust protocol has been developed between the Midwest Mutual Assistance Group which is comprised of 34 investor-owned utilities. Generally, a utility calls upon Mutual Aid when they face a week or more of outage times and multiple weeks of restoration work. Regionally, neighboring mutual aid partners, when able, respond to outages and restoration work estimated in the 36-to-48-hour timeframe. Responding utilities are reimbursed by the requesting utility for all expenses incurred.

To begin the process, Mutual Aid member representatives are contacted via e-mail, text message and finally a call by an interactive voice response unit. Each company has a minimum of two (and most have three) Mutual Aid representatives, so attendance by each utility on the conference call is virtually guaranteed. At the beginning of a Mutual Aid call, the moderator references a spreadsheet with all the utility names and their representatives. The moderator will work utility-by-utility, obtaining and recording system status, utility needs and utility resources. After all the utilities have reported, the most effective response coordination is formulated and finalized.

Utilities also utilize the Resource Allocation Management Program for Utility Personnel (“RAMP-UP”) tool, where a requesting utility can enter their needed resources, and the other utilities can put in their crew resources until the need is filled. RAMP-UP was created after Superstorm Sandy in 2012 when Edison Electric Institute (“EEI”) leadership initiated the National Response Event to provide a better way to allocate responding resources among the requesting utilities on a national basis. Prior to RAMP-UP, a spreadsheet was developed to capture and manage all resource requests and responses. This

spreadsheet was not designed to be multi-user, had limited reporting capabilities, and was difficult to use. RAMP-UP is a network-based, multi-user application designed to support several hundred concurrent users.

RAMP-UP allows users to: initiate a new event within RAMP-UP; enter their requests for needed resources or offers to provide resources; see a consolidated view of requests and responses displayed in a Map View; run an allocation calculation to determine equitable shares of resources for each requesting company; match the requests with the crews and other resources being offered; produce useful reports; and provide situational awareness to key organizations during an event.

EEI worked closely with its members and utility partners to create RAMP-UP and is another way EEI member companies seek to continually improve and move forward in storm and disaster response. To date, this has been the best tool to get a requesting utility help efficiently and effectively, both regionally and nationally.

Minnesota Power is pleased to report that in 2024 the Company did not require mutual aid support from other utilities. Conversely, Minnesota Power responded to two requests for mutual Aid in 2024 as summarized below.

Eighteen Minnesota Power line workers and two Superior Water, Light and Power line workers were accompanied by two fleet mechanics, two supervisors, two logistics specialists and a safety professional provided mutual assistance to Tampa Electric in Florida from October 9th through October 20th, 2024, to assist in power restoration from damages by Hurricane Milton. According to the Edison Electric Institute, the association that represents U.S. investor-owned electric companies, the local crews joined tens of thousands of line workers and support personnel from at least 29 states, some from as far away as California and Canada, responded to Milton - the second large-scale mutual assistance mobilization since Helene hit on Sept. 26, 2024.

Figure 11 - Minnesota Power and SWL&P Hurricane Milton Mutual Aid Team

In addition to the Hurricane Milton response, 29 Minnesota Power and SWL&P line crews and support personnel assisted in restoring power to Xcel Energy customers in the St Louis Park area of the Twin Cities in late August. Two rounds of severe summer storms producing winds in excess of 60 mph left 150,000 Xcel customers without power.

G. Emergency Response and Mutual Aid Recognition

Minnesota Power crews have assisted other utilities during many natural disaster-related outages over the years, and the Company has received several Emergency Assistance Awards for its service. The Emergency Assistance Award is given to select EEI member companies to recognize their outstanding efforts to assist other electric companies with power restoration after service has been disrupted by severe weather or other major incidents. The winners are chosen by a panel of judges following an international nomination process. Most recently, the Company was awarded the Edison Electric Institute's Emergency Response Award for restoring power after a historic winter storm hit Minnesota Power's service area on December 14, 2022, dropping up to two feet of heavy, wet snow driven by strong winds.

Minnesota Power has a long history of assisting other utilities when needed. In 2021, Minnesota Power assisted Con Edison after a nor'easter[9] damaged underground electric systems in New York City. In 2020, Minnesota Power and Superior Water, Light, & Power assisted Ameren in restoring power to thousands of customers after a derecho[10] event caused widespread severe wind damage across Iowa, northern Illinois, and northern Indiana. In 2019, Minnesota Power and SWL&P assisted Manitoba Hydro in restoring power after Manitoba was hit with heavy snow and high winds in a slow-moving storm. Crews have also joined hurricane responses six times in the past 15 years, including in Florida, Ohio, Maryland, New Jersey; and in Puerto Rico from late 2017 into early 2018 after Hurricanes Irma and Maria. Additionally, in 2018, Minnesota Power foresters helped Pacific Gas and Electric inspect and clear burned and dangerous trees from power line easements in the area affected by the Camp Fire, the deadliest wildfire in California history.

[9] Nor'easters are large, intense areas of low pressure that typically develop off the East Coast during the late fall, winter and early spring.

[10] A derecho event is a widespread, long-lived windstorm associated with rapidly moving showers or thunderstorms.

IV. SAFETY REPORTING

Safety: A Core Value at Minnesota Power At Minnesota Power, safety is not just a practice—it's a core value. The Company is committed to fostering an injury-free environment at work, at home, and in our communities. In accordance with Minn. Rule 7826.0400, Minnesota Power provides crucial safety resources for customers on its website, covering the following topics:

- Call Before You Dig
- Outdoor Safety
- Electrical Safety at Home
- Electrical Safety at Work
- Electrical Safety for Emergency Responders
- Outage Preparedness and Restoration
- Please Drive Safely Around Our Crews

This commitment underscores Minnesota Power's dedication to safety education and community well-being, ensuring preparedness and responsible practices in every facet of life.

A. 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.

Table 7 - 2024 OSHA Reportable Injuries

Number of Cases

Deaths	Total number of cases with days away from work	Job transfer or restriction	Other recordable cases
0	8	4	7

Number of Days

Days of job transfer or restriction	Days away from work
621	114

Injury and Illness Types

Injuries	Skin disorders	Respiratory conditions	Poisonings	All other illnesses
18	1	0	0	0

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.

There were no incidents in 2024 where a response to downed wires or other electrical system failures resulted in an injury requiring medical attention.

A detailed listing of all incidents involving property damage that resulted in compensation due to downed wires or other electrical system failures, along with the remedial actions taken, is provided in Table 8.

Table 8 - 2024 Damage Claims Paid

Date		Cause of Damage	Paid
1/24/2024	MP hit UG		$352.13
2/23/2024	MP hit private sewer		$8,924.00
2/25/2024	Door Locker Damage		$6,819.00
4/12/2024	Dig in - gas line		$357.58
4/29/2024	Siding Damage		$4,500.00
5/22/2024	Private Propane Dig In		$194.10
6/26/2024	Lawnmower Damage		$96.48
7/15/2024	Crop Damage - ND		$6,819.00
7/15/2024	Crop Damage - ND		$11,124.00
7/22/2024	Driveway Damage		$3,584.00
8/6/2024	Crop Damage - ND		$522.00
8/6/2024	Crop Damage - ND		$180.00
8/6/2024	Crop Damage - ND		$1,130.00
8/6/2024	Crop Damage - ND		$2,056.00
8/8/2024	Damaged Equipment		$1,418.43
8/26/2024	Electrician's Invoice		$500.00

9/5/2024	Field Error - Single Phasing	$852.39
9/6/2024	Vehicle Damage	$1,016.80
9/13/2024	Vehicle Damage	$1,008.63
Total Payment for 19 Claims:		**$51,454.54**

V. RELIABILITY METRICS REPORTING

This section includes information submitted in compliance with the following:

- **Minnesota Rule 7826.0500 – RELIABILITY REPORTING REQUIREMENTS**
- **Order Pts. 8, 9 & 10 of January 13, 2025 (Docket No. E015/M-24-29)**
- **Order Pt. 4 of March 2, 2022 Order (Docket No. E015/M-21-230)**
- **Order Pts. 5 & 14 of December 18, 2020 Order (Docket No. E015/M-20-404)**
- **Order Pt. 2 of January 28, 2020 Order (Docket No. E015/M-19-254)**

Minnesota Power is committed to the reliability and security of the regional power system that provides electricity across a 26,000-square-mile electric service area in northeastern Minnesota. In 2024, the Company provided over 99.9 percent reliability for its residential, commercial, and industrial customers. As previously stated, the reliability of the distribution system is evaluated using SAIDI, SAIFI, CAIDI, MAIFI, CEMI, CELI and ASAI.[11]

The utility's SAIDI, SAIFI and CAIDI are calculated using the data excluded by the IEEE 2.5 beta method (data from Major Event Days). A Major Event is defined by the 2.5 beta method developed by the IEEE Standard for Distribution Reliability. If the event reaches this threshold, it is excluded. The exclusion process is designed to remove all outage records attributed to a specific, major event such as a very large storm. Major Event-Included means that all outage events are reported. In other words, major events such as windstorms, ice storms, etc., that are above the exclusion threshold and all events below the exclusion threshold are counted. Since there were no excluded events in 2024, the Major Event-Excluded values are the same as the Major Event-Included values.

[11] Acronyms defined in Appendix C.

A. Work Centers

In compliance with Order Point 4 of the Commission's March 2, 2022, Order, which established future SRSQ reporting guidelines, Figure 12 shows the location of the Company's three Work Centers.

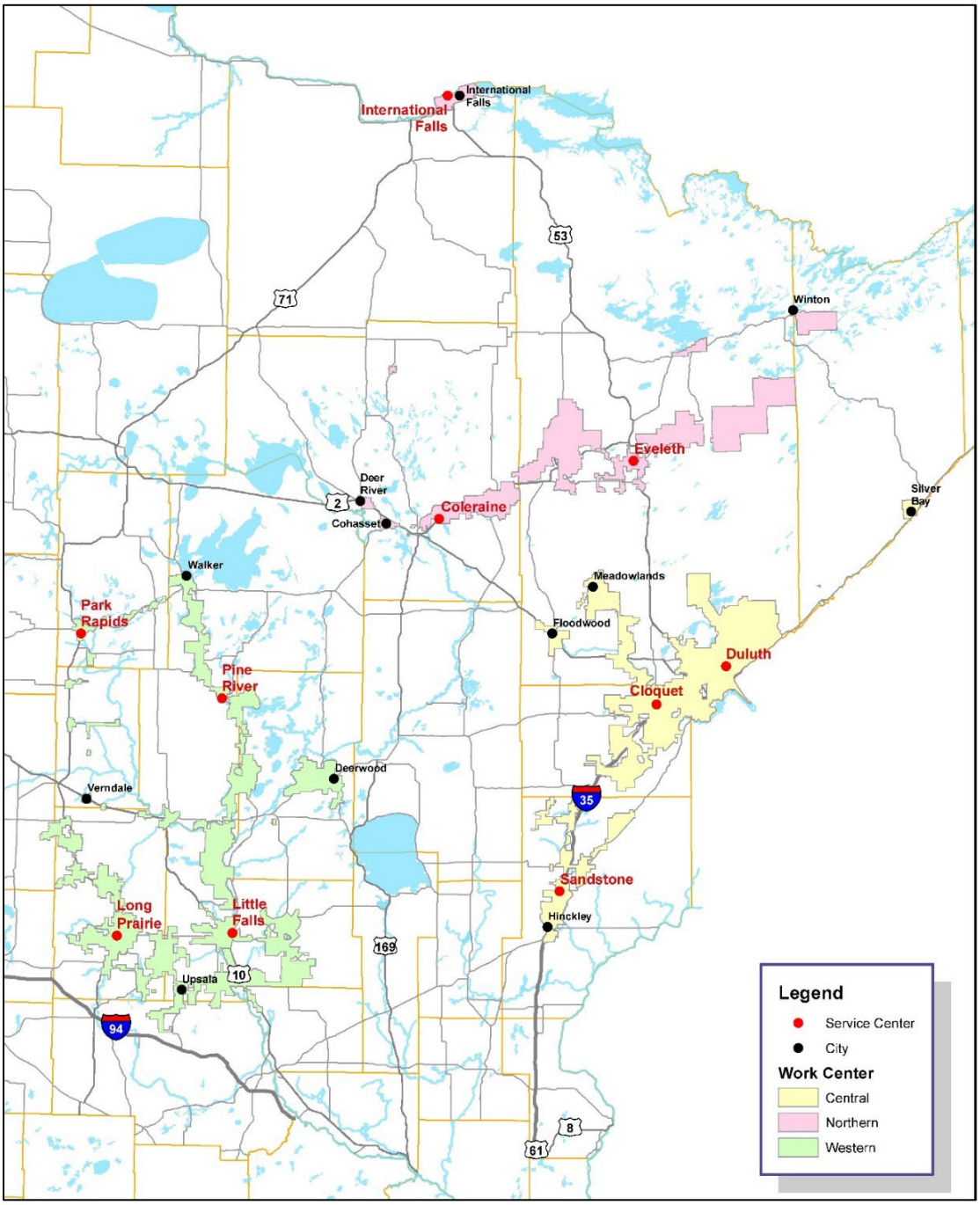


Figure 12 - Location of Central, Northern & Western Work Centers

The Central Work Center includes service centers in Duluth, Cloquet, and Sandstone, with a customer count of over 76,095, as determined by service points. This area is the most populous and contains Duluth, the largest city within the Company's service territory. This area also serves two wholesale municipal accounts. It also includes customers from Floodwood to Silver Bay and Meadowlands to Hinckley.

The Northern Work Center includes service centers in Eveleth, Coleraine, and International Falls. This area has the least number of customers, with a count of 21,632, as determined by service points. However Northern contains all of Minnesota Power's largest mining customers and two major paper customers. This area also serves nine wholesale municipal customer accounts. It includes the customers from Deer River to Winton and International Falls to Cohasset.

The Western Work Center includes service centers in Little Falls, Long Prairie, Pine River, and Park Rapids. This area has over 40,819 customers, as determined by service points, and covers the Brainerd lakes area and rural farming communities, along with three wholesale municipal accounts. It includes customers from Verndale to Deerwood and Walker to Upsala.

B. Benchmarking

The Commission recognized in its January 28, 2020, Order[12] that some metrics, including the method by which it currently sets reliability goals, may need to be modified, and agreed that benchmarking provides a better way to understand how utilities are performing relative to peer utilities.

Order Point 2 of the Commission's November 9, 2022, Order[13] for the 2021 SRSQ Report sets Minnesota Power's 2022 statewide reliability standard at the IEEE benchmarking second quartile for medium utilities and sets Work Center reliability standards at the IEEE benchmarking second quartile for small utilities. These reliability metrics consider various reporting methods, system terrain/age, and customer mix. This depiction of reliability

[12] 2018 Safety, Reliability and Service Quality Report (Docket No. E015/M-19-254).
[13] 2021 Safety, Reliability and Service Quality Report (Docket No. E015/M-22-163).

metrics is a more holistic view of what is happening on electric distribution systems nationwide. The Company has actively participated in the IEEE Distribution Reliability Working Group over the last several years, gaining valuable insights. This working group is working towards a consistent application of IEEE 1366 reliability standard with industry partners and the Company is appropriately benchmarking regionally with others of similar size on reliability measurements and efforts. Figure 13 identifies the regions represented by the participants in the 2024 Benchmark Study (results to be released later in 2025). As required by Order Point 2 of the December 5, 2023, Order, the Company will file a supplemental filing to its 2024 SRSQ Report within 30 days after IEEE publishes the 2024 benchmarking results, including an explanation for any standards Minnesota Power did not meet.

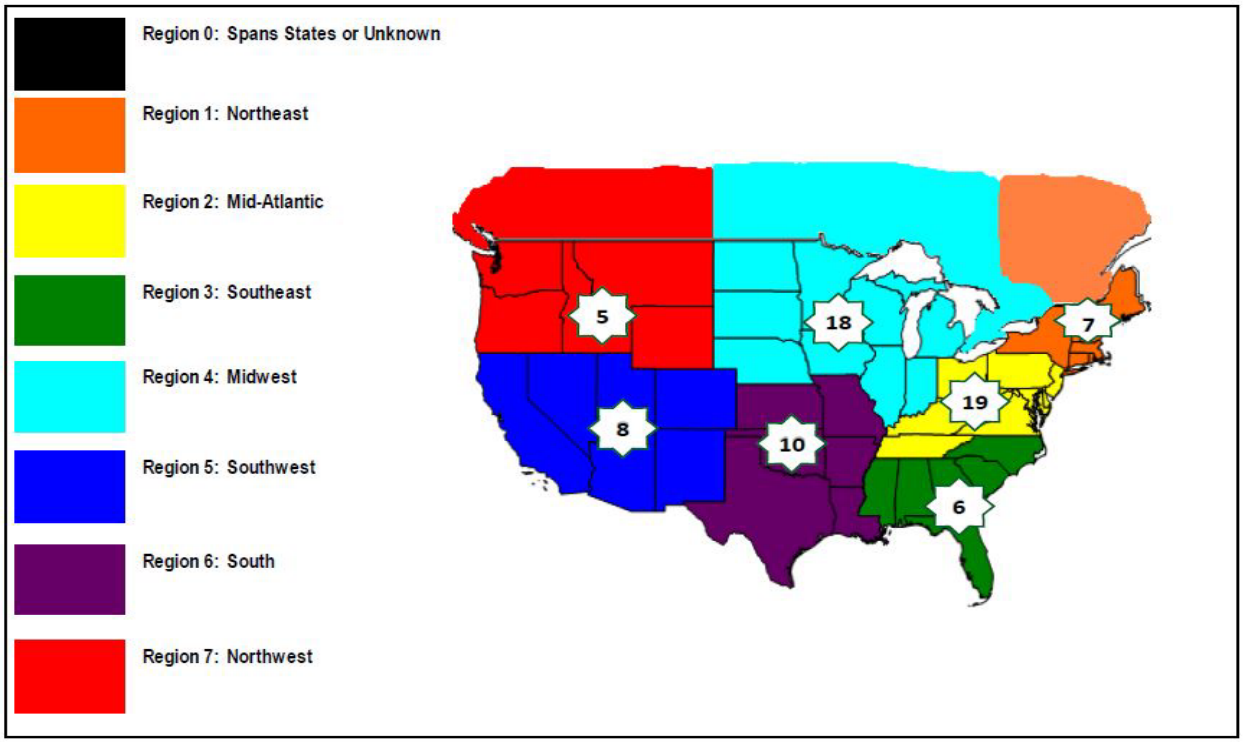


Figure 13 - IEEE Benchmarking Participants

C. Benchmarking Review

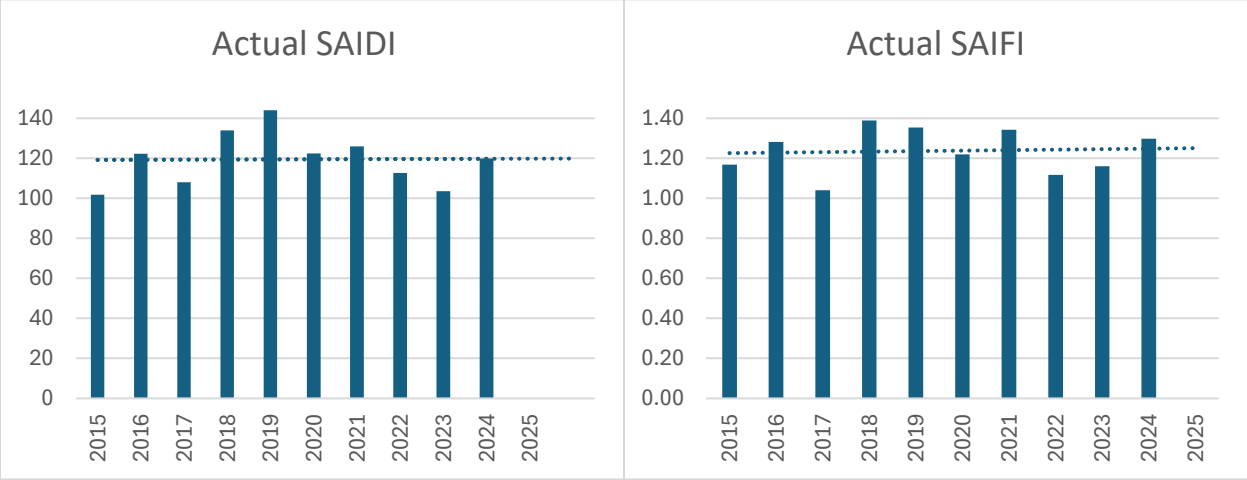
The Company has reviewed how it sets its reliability goals. Internal rolling averages, IEEE Benchmark Survey and EIA 861 were all reviewed over a 10-year period. The preferred method has been narrowed down to a 5-year average of the IEEE Benchmark to be set

as the goal. The following section details the Company's process in determining the preferred method.

Before 2017, the Company used an internal 5-year rolling average for goal setting. The benefit of this method was that the goals were derived from Minnesota Power's system data, averaged, then applied as a target to compete against itself to improve system reliability. The Company was responsible for every level of data quality and consistency. Between 2017 and 2020, the Commission set the goal off the 2017 year as a static goal based off the Company's best performing year. However, the method described above resulted in data that was siloed from the rest of the industry, and raised questions of how the Company was doing compared to its peers.

As shown in Table 9, a review of the Company's 10-year performance shows a flat trend for both SAIDI and SAIFI. The reliability improvements are offset by the increased system visibility due to the implementation of smart grid line sensors and AMI. Minnesota Power's 10-year average for SAIDI was 119.48 and SAIFI was 1.24.

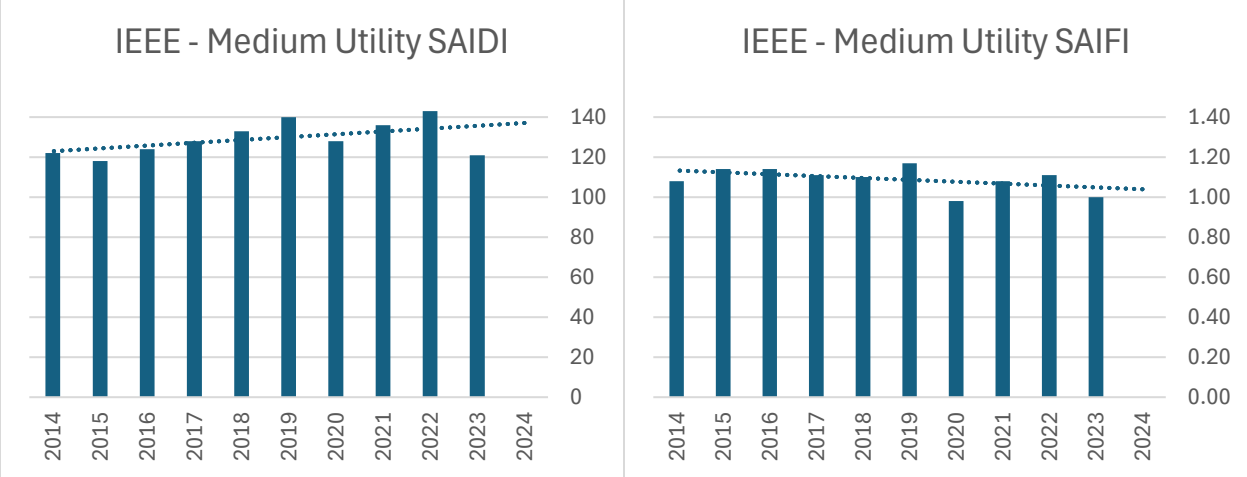
Table 9 - Minnesota Power Storm Excluded performance over a 10-year period, SAIDI and SAIFI



Starting around 2021, IEEE Benchmarking was discussed, and ultimately it was decided to be used for goal setting moving forward. The IEEE Distribution Reliability Working Group relies on voluntary industry participation for its survey. The survey contains a questionnaire of how the Company collects and analyzes reliability information including how are momentaries defined, what cause codes are used, how is the major event

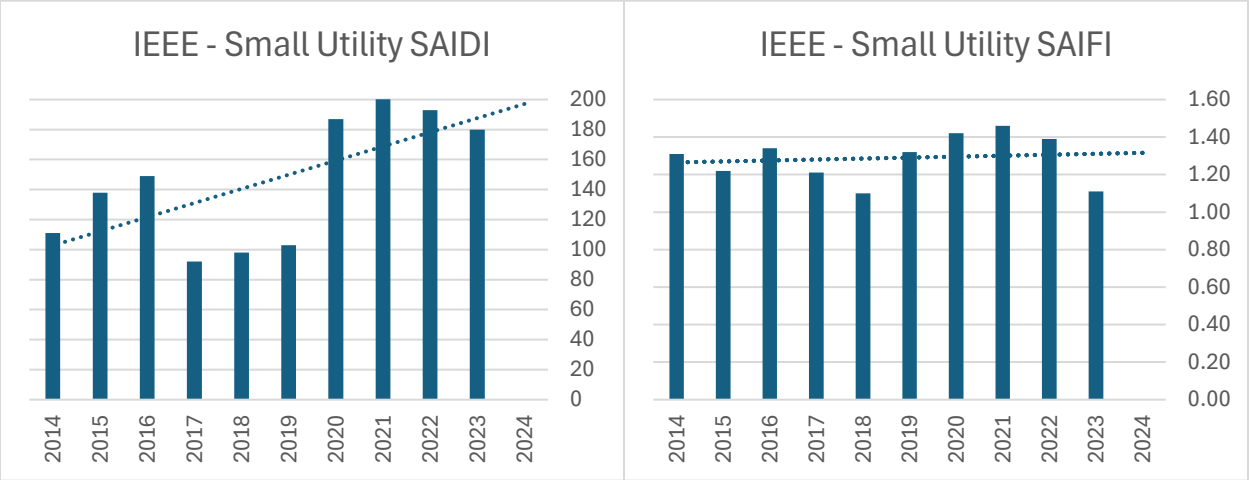
process implemented, etc. Any factor that could cause inconsistencies in the data is reviewed. Participants are then asked to submit a daily summary of their data. If any data is missing or incorrect, the participant cannot move forward with their data submission until the underlying issue is corrected. Once this working group had gathered all the participants data, they recreate the data analysis to calculate the major event exclusion threshold for each participant showing them yearly graphs of how their system performed as well as process the data for the benchmark survey publication. This approach provides the participants with a way to confirm their own processes to ensure accuracy. The 10-year IEEE Benchmark results were analyzed. As shown in Table 10, for medium sized utilities (>100k and <1million customers), the national industry trend for SAIDI is increasing, and decreasing for SAIFI. The 10-year average for Medium Utilities, SAIDI was 129.30 and SAIFI was 1.09 based off an average participation rate of 50 companies per year.

Table 10 - IEEE Benchmark Survey Medium Utility results over a 10-year period, SAIDI and SAIFI



For small sized utilities (<100k customers), the national industry trend for SAIDI is increasing and SAIFI is slightly increasing. As shown in Table 11, the 10-year average for Small Utilities, SAIDI was 145.20 and SAIFI was 1.29 based off an average participation rate of 6 companies (totaling 60 data points).

Table 11 - IEEE Benchmark Survey Small Utility results over a 10-year period, SAIDI and SAIFI



Minnesota Power supplies annual data for EIA 861 each year. For this reliability data, the survey collects number of circuits, number of circuits that employ volt/Var optimization, non-Storm Excluded, Storm Excluded, and non-Storm Excluded minus supply loss SAIDI, non-Storm Excluded, Storm Excluded, and non-Storm Excluded minus supply loss SAIFI, Total Customer count, highest Distribution voltage, and if outages are auto recorded.

Unlike IEEE Benchmark Survey, EIA 861 only asks for annual totals. EIA 861 provides summary information for all participants. Each year a Reliability spreadsheet is published. Statistical analysis is not performed, and comparison tables are not built. The Company found a 10-year average participation of 1,026 companies from US states. Of these 1,026 companies, an average of 623 had complete reliability data submitted (61% of participants). These remaining submissions contained enough data to perform benchmarking. However, it appears efforts to verify data accuracy or consistency were minimal. For instance, one company could define a momentary outage as any outage under one minute while another company might count a momentary as anything under 5 minutes.

There are many companies that don't use the IEEE standards for major event exclusion, cause codes, or momentaries. This results in some data showing company SAIDI ranging from 0.200 to 2,475.09, SAIFI ranging from 0.010 to 16.920, CAIDI ranging from 13.27 to 1,548.24 (these examples are pulled from EIA 861 Reliability 2023, Major Event days excluded). In other years' examples, outlying values of over 18,800 were reported for

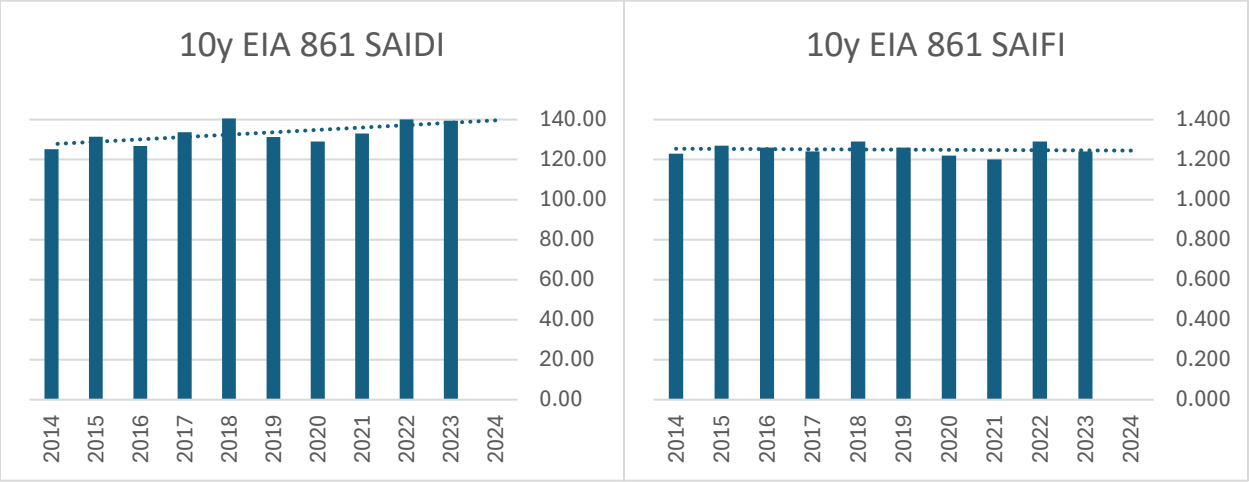
CAIDI. Without an approach like IEEE Benchmarking Survey takes, there is no way to verify EIA data for accuracy or consistency.

Continuing with the 2023 example, when the incomplete entries were removed, Minnesota Power separated the companies into respective sizes based on the IEEE ranges (small <100k, medium >100k to 1 million, large > 1 million). Each category did have sufficient participants. The variety of organizational types of these participants was also noted. These include utilities that are Cooperatives, Investor Owned, Municipals, State Owned, Federal Owned, Retail Power Marketer, and political subdivision. The EIA 861 sample content for direct benchmarking comparison is less comparable than the IEEE sample. Municipals, for example, have a relatively small geographic footprint with much higher customer density. Switching and redundancy options are likely abundant when compared to suburban or rural utilities.

Compared with the types of distribution systems reviewed by the Commission, this is not an ideal comparison. If the sample size covered 9 states (like the IEEE Region 4 in Figure 13 above) focusing on comparable companies, investor-owned utilities, the sample size becomes: Small =12, Medium = 11, and Large = 6.

The 10-year results were analyzed in one group to average all participants' data. Unless a consistent, repeatable, filtered process is formalized, a small and medium size company comparison is ill-advised. The national industry trend for SAIDI is increasing and slightly decreasing for SAIFI. As shown in Table 12, the 10-year average for SAIDI was 133.06 and SAIFI was 1.25 based off the average participation rate of 623 companies per year (Companies that submitted complete data).

Table 12 - EIA 861 Results over a 10-year period, SAIDI and SAIFI



Therefore, Minnesota Power recommends setting reliability goals based on a 5-year average of the IEEE Benchmarking Survey results for Small and Medium-sized utilities, 2nd quartile results. This approach provides a more stable and representative benchmark by using five years of data which will smooth out the effects of quiet weather years and extreme weather events. It shifts the focus from year-to-year comparisons to a broader view of industry trends, allowing for better assessment of the Company and its Work Centers' performance relative to peer utilities of similar size.

Medium Utilities IEEE 2nd Quartile 5-year average:
SAIDI: 133.60 SAIFI: 1.07 CAIDI: 125.09

Small Utilities IEEE 2nd Quartile 5-year average:
SAIDI: 172.80 SAIFI: 1.34 CAIDI: 128.96

This method also accounts for external factors impacting the distribution system, as discussed in detail in this Report, such as weather, supply chain challenges, and infrastructure investments, which may not yield statistically significant improvements in a single year. By leveraging trend-based goal setting, Minnesota Power can more effectively evaluate long-term system modifications and improvements while maintaining transparency and accountability.

Adopting this approach will eliminate the need for the supplemental filing after the IEEE Benchmark results are published. The details of the extensive goal-setting review that informed this recommendation are provided in the following sections.

D. Minn. Rule 7826.0500 Annual Reliability Reporting

Per Subpart 1 of Minn. Rule 7826.0500, *[on or before April 1 of each year, each utility shall file a report on its reliability performance during the last calendar year. This report shall include at least the following information:*

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 normalizes its reliability data to account for major storms;*
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;*
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;*
G. *a copy of each report filed under part 7826.0700;*
H. *to the extent technically feasible, circuit interruption data, including identifying the worst performing circuit in each work center, stating the criteria the utility used to identify the worst performing circuit, stating the circuit's SAIDI, SAIFI, and CAIDI, explaining the reasons that the circuit's performance is in last place, and describing any operational changes the utility has made, is considering, or intends to make to improve its performance;*
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;*
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; and*

K. any other information the utility considers relevant in evaluating its reliability performance over the calendar year.

Minnesota Power provides the required information in the following sections.

1. Subp. 1.A through 1.C. The utilities SAIDI, SAIFI, CAIDI for the calendar year, by work center and for its assigned service area as a whole.

In addition to the information required by Subpart 1. A through C, the information required in Order Point 2 of Docket No. E015/M-19-254 is provided in Table 13.

Table 13 - SAIDI, SAIFI, CAIDI, MAIFI, and ASAI by Overall & Work Centers

		Overall	Central	Northern	Western
Reporting Requirement	**Customer Counts[14]**	**138,546**	**76,095**	**21,632**	**40,819**
Subp. 1.A.	Overall SAIDI	119.90	68.46	179.99	183.72
	Normalized SAIDI	119.90	68.46	179.99	183.72
	Major Event Excluded SAIDI	0	0	0	0
Subp. 1.B.	Overall SAIFI	1.30	0.93	1.82	1.71
	Normalized SAIFI	1.30	0.93	1.82	1.71
	Major Event Excluded SAIFI	0	0	0	0
Subp. 1.C.	Overall CAIDI	92.41	73.92	99.03	107.27
	Normalized CAIDI	92.41	73.92	99.03	107.27
	Major Event Excluded CAIDI	0	0	0	0
Doc. E015/ M-19-254 Order Pt. 2	Overall MAIFI	3.62	3.24	3.11	4.62
	Normalized MAIFI	3.62	3.24	3.11	4.62
	Major Event Excluded MAIFI	0	0	0	0
Doc. E015/ M-19-254 Order Pt. 2	Overall ASAI	99.9773%	99.9870%	99.9658%	99.9651%
	Normalized ASAI	99.9773%	99.9870%	99.9658%	99.9651%
	Difference in ASAI	0	0	0	0

In 2024, there were no major event excluded days based on the 2.5 beta method defined by the IEEE Standard for Distribution Reliability. The normalization process is designed to remove all outage records attributed to a specific major event, such as a large storm.

[14] As determined by service points.

At Minnesota Power, normalization is performed only when the following criterion is met for a major event:

Event SAIDI is greater than the Threshold for an IEEE Major Event

As storms occur, customers can use the online app or call in to Minnesota Power representatives and/or the Interactive Voice Response ("IVR") system to report outages. Customers can also use the Company's outage app to enter outages as they occur. Those calls and entries, along with the Company's AMI meters reporting an outage, are then used to create trouble orders using a prediction engine within the OMS. That information, along with information from other sources, is entered into a database for comparison. Often, events will have been detected by multiple sources. Duplications are eliminated and an accurate time, duration and customer count for each event is recorded.

Once all data streams have been combined and duplications have been eliminated, the resulting database is analyzed by the Reliability Engineer. The database is queried to look for timeframes when the Company SAIDI has incurred an incremental increase above the Threshold for a Major Event. When sets of data are discovered that meet the criterion discussed above, that data is flagged and set aside - what remains is Minnesota Power's Major Event Normalized Data.

Threshold for Major Event Day calculation description

A threshold for a Major Event Day ("$T_{med"}$) is computed once per year. First, data is assembled for the five most recent years of historical values of daily SAIDI. Any day with a SAIDI value of zero is discarded. Then, the natural log of each SAIDI value is computed and the average ("alpha") and standard deviation ("beta") of the natural logarithms is computed. The major event threshold can then be found by using this equation: T_{med} = exp (alpha + 2.5*beta). If any event in the next year has SAIDI greater than T_{med}, it qualifies as a major event. Note: that a Major Event is not limited to a single day and may span consecutive days, depending on the severity and duration of the event.

As stated earlier, major event normalization is designed to exclude data from rare, major events that may skew the overall data. In the last five years, there was generally an average of one to three Major Events excluded each year. There were no Major Events excluded in 2024. See Figure 14 below.

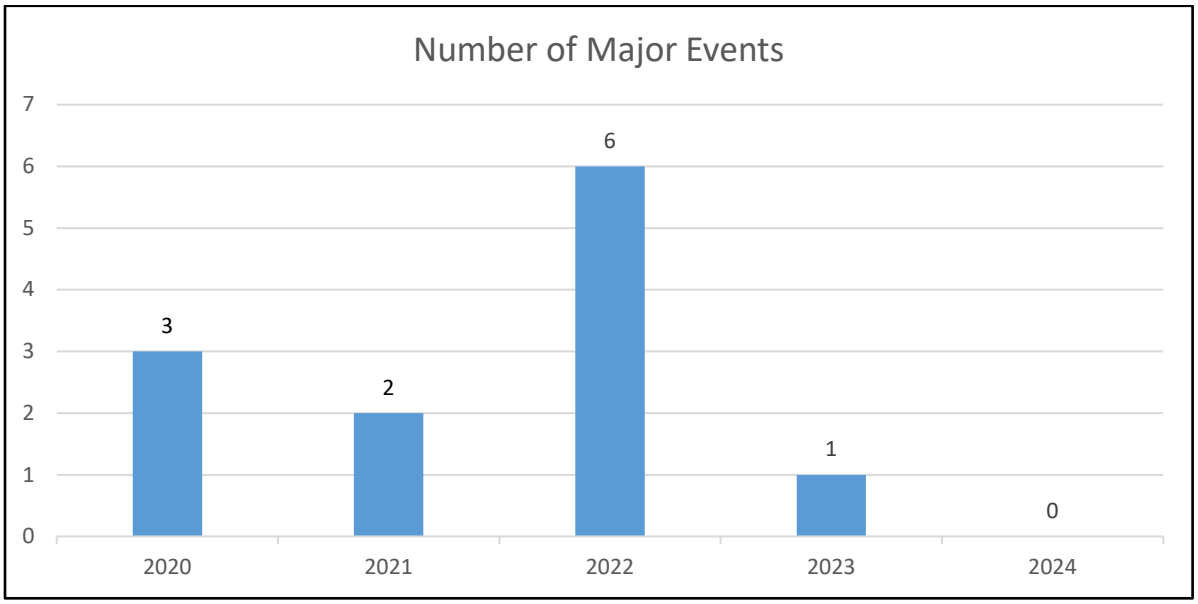


Figure 14 - Major Event Totals by Year

2. **Subp. 1.E. 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:**

Minnesota Power did meet the Commission thresholds for Overall Company SAIDI and CAIDI but exceeded the SAIFI threshold. Two Work Centers met the Commission thresholds for SAIDI, but the Western exceeded the SAIDI threshold. Central Work Center met the Commission thresholds for SAIFI, but Northern and Western exceeded the SAIFI threshold. All three Work Centers met the Commission threshold for CAIDI. Most of the outages throughout 2024 were attributed to weather, overhead equipment failures, vegetation, and underground equipment failures. The Company increased its focus in developing a comprehensive distribution preventative maintenance program along with the grid modernization program.

In May 2017, two assistant engineers were hired to develop a trouble order tracking and remediation system which was put in place in the fourth quarter of 2018. These assistant engineers also began implementation of a switch replacement blanket and commenced auditing of the Company's system in order to develop an asset management preventative maintenance program throughout the Company's service territory. This preventative maintenance program should increase the reliability of Minnesota Power's distribution assets going forward.

In 2020, an inspection app was created for line workers to inspect and address issues while out in the field. By inspecting lines on an ongoing basis, the Company hopes to find and address issues that will lead to better reliability performance in the future. In 2021, another assistant engineer was added to the distribution department to focus on maintenance. Additionally, a Grid Modernization team was developed to plan and execute projects that are tied to reliability betterment and resiliency. In 2022, the Grid Modernization team was refined by assigning specific roles and responsibilities to each member. In 2023, this team took over the responsibility of all grid modernization devices across the distribution system including TripSavers, motor operated switches, reclosers, IntelliRupters, smart grid sensors, and microgrid battery storage. The Grid Mod team was formalized in 2024 with three engineers reporting to a senior engineer in the Enterprise Programs department. The team is now positioned to spend more time on large capital projects focused on improving reliability. The Grid Mod team was also given responsibility over large strategic undergrounding projects.

3. **Subp. 1.F. 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 or will be taken to prevent future interruption:**

Table 14 - List of Interruptions to Bulk Power Supply Facilities

Feeder Name	Date	Duration (Minutes)	CAUSE	REMEDIAL STEPS
31 Line (Babbitt - Winton)	1/18/2024	114	CONTRACTOR ERROR	Replaced and Increased visibility of guy wires and anchors
198 Line (Bear Creek)	5/10/2024	56	VEGETATION	Removed Trees and performed vegetation maintenance
59 Line (Mahtowa-Sandstone)	5/10/2024	72	VEGETATION	Removed Trees and performed vegetation maintenance
31 Line (Babbitt - Winton)	6/12/2024	70	OVERHEAD WIRE	Guy wire and conductors inspected
23 Line (Bear Creek)	7/8/2024	97	WEATHER - LIGHTNING	Area lightning arrestors inspected

The Company has taken remedial steps to prevent future interruptions. For each interruption, the line crew patrolled the line and repaired any issues found. The interruption on January 18, 2024, occurred when a contractor broke a down guy wire, the wire made contact with the energized phases. Minnesota Power repaired the damage, ensured the guy was properly marked, and conducted safety conversations with its contractors.

The interruptions on May 10th occurred when wind caused vegetation to fall and contact the energized conductors of multiple feeders. Vegetation crews removed the vegetation and patrolled the area correcting any other encroachment issues.

The interruption on June 12th occurred when a transmission guy wire fell into the feeder below, locking out 31 line and its step-down substations. The repairs were made, and additional inspections were carried out.

The interruption on July 8th occurred when a lightning strike caused 23 line to lock out. Area lightning arrestors were inspected and replaced as needed.

4. **Subp. 1.G. A copy of each report (major service interruptions) filed under part 7826.0700;**

These reports are provided as Appendix A to this Report.

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

Section H requires that Minnesota Power report on the Company's worst performing circuit for each Work Center. Within previous SRSQ filings, Minnesota Power has responded as one Work Center. Per Order Point 4 of the March 2, 2022 Order, the Company will report for three Work Centers (Central, Northern, and Western). To maintain consistency with past filings, rather than listing only one feeder, the four worst

performing feeders (2 urban and 2 rural) are identified in each Work Center. This is done in recognition of how reliability indices are affected by differing characteristics of feeder length and quantity of customers. (*It is important to note that these SAIDI, SAIFI and CAIDI values are based on the impact to the customers connected to these feeders. Other tables show different values for these feeders but are referencing Companywide impact.)*

The feeder evaluation process utilized high Feeder SAIDI and high total customer-minutes of outage (i.e. # customers x SAIDI) as criteria for selection of two urban and two rural feeders. Table 15 clarifies the selections.

Table 15 - Worst Performing Feeders Using Major Event Normalized Data by Work Center - Central

Central					
Criteria	Circuit Name	# of Customers	SAIDI	SAIFI	CAIDI
High Feeder SAIDI (Urban)	Colbyville 244	2,312	152.80	2.40	63.79
High Customer Outage Minutes (Urban)	Ridgeview 252	3,061	115.70	0.89	129.44
High Feeder SAIDI (Rural)	Pioneer Road 270	336	459.29	6.43	71.38
High Customer Outage Minutes (Rural)	Sandstone 452	1,221	402.38	2.45	164.32

Weather, underground equipment failures, public vehicle accidents and wildlife were the leading causes of these feeders' poor performance. Colbyville 244 was affected when a raccoon got into the substation causing several feeders to see an outage. The Company has piloted a wildlife protection package for substations. These efforts would prevent wildlife from contacting energized substation equipment.

Ridgeview 252 avoided 10 feeder level outages when faults were automatically isolated and restored via its IntelliRupter team. One additional event occurred when a dump truck struck a pole, destroying it. The IntelliRupter team automatically restored 808 customers, but 1,548 customers remained in the damaged section, experiencing a prolonged outage.

Pioneer Road 270 feeder had several underground cable failures and public dig ins. The sections of failed/ damaged cable have been replaced/repaired. Strategic undergrounding summarizes our efforts to reduce impacts of weather-related outages. This initiative has some visibility of old underground cable that is reaching end of life. Over time, this effort will show statistically significant improvements to underground equipment failures.

Sandstone 452 was primarily impacted by weather. Approximately 38% of this feeder has been undergrounded. The remaining overhead portion remains susceptible for impacts by weather, vegetation and wildlife. The Company is reviewing options for continued resiliency projects.

Table 16 - Worst Performing Feeders Using Major Event Normalized Data by Work Center - Northern

Northern					
Criteria	Circuit Name	# of Customers	SAIDI	SAIFI	CAIDI
High Feeder SAIDI (Urban)	International Falls 2	1,376	448.91	2.06	217.42
High Customer Outage Minutes (Urban)	International Falls 2	1,376	448.91	2.06	217.42
High Feeder SAIDI (Rural)	Spudville East 1	62	641.87	2.73	235.48
High Customer Outage Minutes (Rural)	Chisholm 2	570	387.98	5.04	76.92

Underground equipment failures, weather related outages, planned outages, and public vehicle accidents were the leading causes of these feeders' poor performance. International Falls 2 experienced an underground cable failure near the head of the feeder. This accounted for the vast majority of the SAIDI minutes for 2024. This cable was repaired until it can be redesigned and replaced.

Spudville East 1 was primarily affected by planned work to its parent feeders' substation modernization project. Other notable causes include a failed insulator, that was quickly

replaced and another outage where repairs were needed when a public vehicle accident struck a pole. The Company will continue to perform periodic inspections and system upgrades to the parent feeder.

Chisholm 2 experienced a large impact from weather, failed insulators and jumper wires in its substation. The Chisholm area is going to experience a complete overhaul in the next few years. The parent feeder source is changing to a much closer, rebuilt source. The Chisholm stepdown substation will be replaced by a new padmount stepdown, and the low side voltage will be converted from 4kV to 12.5kV as well. This work will require significant upgrade and rebuilding of this city's infrastructure.

Table 17 - Worst Performing Feeders Using Major Event Normalized Data by Work Center - Western

Western					
Criteria	Circuit Name	# of Customers	SAIDI	SAIFI	CAIDI
High Feeder SAIDI (Urban)	Nature Road Stepdown 1	658	388.42	3.39	114.51
High Customer Outage Minutes (Urban)	South Pine River Stepdown 1	926	316.44	2.33	135.53
High Feeder SAIDI (Rural)	Cuyuna 1	115	1,103.63	4.72	233.73
High Customer Outage Minutes (Rural)	Little Falls North Stepdown 1	596	1,058.79	3.28	322.62

Weather, equipment failures and vegetation were the leading causes of these feeders' poor performance. Nature Road Stepdown 1 experienced a weather-related outage, a few bad insulators and a section of bad wire. The most significant cause of this poor performance was a failing recloser that went undetected until it failed later in the year.

South Pine River Stepdown 1 was mainly impacted by weather. The Company has plans to build a feeder tie to allow for switching options. Other grid mod investments to sectionalize this feeder are also being reviewed.

Cuyuna 1 is fed from a parent feeder that is 28 miles long that also experiences weather related outages. The rural nature of this feeder limits our number of solutions. Our team is reviewing options to improve the weather resiliency in this area.

Little Falls North Stepdown 1 was primarily impacted by equipment failures and weather. Throughout the year, the company responded to failed arrestors, insulators, and splices. Some of these issues were a result of severe weather. Another likely issue is encroaching vegetation. This feeder will have vegetation management completed in 2025.

6. **Subp. 1.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.**

There were 21 reported instances of ANSI voltage violations in 2024, which were caused by power supply, weather, overhead and underground equipment failures.

Table 18 - Reported Instances of ANSI Voltage Violations 2024

Date	Cause	Voltages		
		Line to Ground	Line to Ground	Line to Line
1/12/2024	Underground Equipment	129	119	240
1/16/2024	Underground Equipment	123	123	49
2/17/2024	Overhead Equipment	120	120	10
2/20/2024	Underground Equipment	108	123	23
3/6/2024	Underground Equipment	143	109	241
3/20/2024	Underground Equipment	131	117	246
5/3/2024	Underground Equipment	120	40	160
5/20/2024	Overhead Equipment	90	120	120
5/22/2024	Underground Equipment	108	123	160
5/28/2024	Underground Equipment	243	109	133
6/13/2024	Weather	100	120	120
6/15/2024	Underground Equipment	26	120	25
6/26/2024	Overhead Equipment	120	120	89
6/28/2024	Underground Equipment	130	130	260
6/29/2024	Unknown	102	102	203
8/13/2024	Overhead Equipment	120	80	210
8/19/2024	Overhead Equipment	107	123	246
9/16/2024	Power Supply	106	106	212
10/15/2024	Underground Equipment	120	70	190
11/14/2024	Underground Equipment	120	60	200
12/21/2024	UG Equipment	136	108	223

7. **Subp. 1.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.**

Prior to the 2020 SRSQ filing, Minnesota Power reported as one Work Center and only provided the total numbers for Distribution System Line Operations Field Workers and Contractors. Shown below are updated numbers that also include support for field workers and engineering support for construction, maintenance, and storm response. Though the Central Work Center[15] shows more employees, many of those individuals assist or concentrate their efforts across the entire service territory.

The Line Operations Field Workers include outdoor field support workers who provide construction, maintenance, and trouble response on the distribution system. This group includes lineworkers, substation technicians, relay technicians, and communication infrastructure technicians.

The Line Operations Support employees include the area Supervisors, Operations Planning and Scheduling employees, System Operators, Vegetation Management employees, Service Dispatch employees, Inventory employees, and Fleet Mechanics.

Engineering Support includes engineers, designers, administrative employees, meter employees, and Geographical Information System specialists responsible for the construction and maintenance of the system. These employees can also be called upon for larger storm events as part of the Company's Emergency Response Plan. If the event is large enough, such as the July 2016 storm, the Company will call mutual aid from other EEI member utilities.

Contractors are seasonal at-hire individuals that perform line construction and maintenance, vegetation management, and ground line inspections on the system. Most of these contractors are hired over the spring, summer, and fall months to help with the peak working conditions once the snow has melted. These employees work across

[15] The Central work center customer count is largest at over 76,095, in comparison to the Northern work center which is over 21,632 and the Western work center at about 40,819.

Minnesota Power's entire service territory and cannot be grouped into individual work centers.

Table 19 - Employees by Work Center

2024 Support	Central	Northern	Western
Line Operations Field Workers	Line – 47 Sub – 14	Line – 25 Sub – 9	Line – 32 Sub – 6
Line Operations Support	OPS – 3 Line – 6 Fleet – 9 Sub – 6 Inv – 7	OPS – 1 Line – 2 Fleet – 3 Sub – 1 Inv – 3	OPS – 2 Line – 2 Fleet – 3 Inv – 3
	Service Dispatch – 8 System Operations – 21 Vegetation Management – 4		
Engineering Support	Dist – 22 Meter – 16	Dist – 10 Meter – 2	Dist – 10 Meter – 5
	GIS -- 10 Relay – 8 Transmission – 7 Substation – 16		
Contractors	Line – 44 Groundline – 12 Engineering -- 12 Vegetation – 100		

8. **Subp. 1.K. Any other information the utility considers relevant in evaluating its reliability performance over the calendar year.**

CEMI

Table 20 - Percentage of Customers Experiencing Multiple Interruptions by Work Center

2024	Overall		Central		Northern		Western	
# of Interruptions	Storm Included	Storm Excluded	Storm Included	Storm Excluded	Storm Included	Storm Excluded	Storm Included	Storm Excluded
6+	0.24%	0.24%	0.44%	0.44%	0.00%	0.00%	0.00%	0.00%
5+	3.17%	3.17%	0.69%	0.69%	12.21%	12.21%	2.98%	2.98%
4+	0.35%	0.35%	0.00%	0.00%	1.47%	1.47%	0.41%	0.41%
3+	6.84%	6.84%	1.08%	1.08%	4.92%	4.92%	18.54%	18.54%

The highest CEMI feeder for overall outage data within the Central Work Center was Pioneer Road 270 with 6.43 outages, within the Northern Work Center was Balkan 2 with 5.95 outages, and within the Western Work Center was Little Falls South 1 with 5.46 outages.

CELI

Table 21 - Percentage of Customers Experiencing Long Outage Durations by Work Center

2024	Overall		Central		Northern		Western	
	Storm Included	Storm Excluded	Storm Included	Storm Excluded	Storm Included	Storm Excluded	Storm Included	Storm Excluded
6 hr.	5373	5373	1406	1406	1677	1677	2290	2290
%	3.88%	3.88%	1.85%	1.85%	7.75%	7.75%	5.61%	5.61%
12 hr.	66	66	18	18	14	14	34	34
%	0.05%	0.05%	0.02%	0.02%	0.06%	0.06%	0.08%	0.08%
24 hr.	0	0	0	0	0	0	0	0
%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Within the Central Work Center, the longest customer outage duration was 1,078 minutes. This outage affected three customers and was caused by strong winds that took down trees. Trees were removed and the overhead lines were repaired. Within the Northern Work Center, the longest customer outage duration was 863 minutes. This outage

affected 12 customer and was caused by strong winds that took down trees. Trees were removed and the overhead lines were repaired.

Within the Western Work Center, the longest customer outage duration was 1,082 minutes. This outage affected one customer and was caused by strong winds that took down trees. Trees were removed and the overhead lines were repaired. This was also the longest outage duration for Overall Company.

Table 22 - Reliability Performance by Customer Class

Customer Class Reliability		SAIDI	SAIFI	CAIDI	MAIFI	ASAI
Residential	Non-normalized	101.06	1.09	92.41	3.05	99.98082%
	Normalized	101.06	1.09	92.41	3.05	99.98082%
Commercial*	Non-normalized	18.53	0.20	92.41	0.56	99.99648%
	Normalized	18.53	0.20	92.41	0.56	99.99648%
Industrial*	Non-normalized	0.31	0.00	92.41	0.01	99.99994%
	Normalized	0.31	0.00	92.41	0.01	99.99994%

*Commercial and Industrial customers that are fed from the Companies' distribution system.

ASAI can be thought of as uptime. For example, for the Company's Industrial customers, normalized data, they had power on average 527,039.68 minutes out of 527,040 minutes in the year, missing only 19.2 seconds during the year.

Estimated Time of Restoration Data

In compliance with Order Point 2 of the January 28, 2020 Order in the 2018 SRSQ Report (Docket No. E015/M-19-254), Minnesota Power provides the estimated restoration time using the specified windows including: Within -90 minutes to 0 of estimated restoration time, within 0 to +30 minutes of estimated restoration time.

Table 23 - Estimated Time of Restoration Accuracy

2024 ETRs used	Total	Less than -91 minutes	-90 to 0 minutes	0 to +30 minutes	Above +31 minutes
Initial #	9472	5099	2831	355	1187
Initial %	100%	53.83%	29.89%	3.75%	12.53%
Final #	9472	6606	2483	123	260
Final %	100%	69.74%	26.21%	1.30%	2.74%

Table 23 is the breakdown of Estimated Times of Restoration ("ETR") in the OMS. This shows the accuracy of the ETRs used on trouble orders throughout the year. Final ETRs improved estimates so that restorations occurred within +30 minutes of the Final ETR 97.26% of the time. Significant effort was placed in reviewing, understanding and implementing process improvements relating to ETRs throughout 2024. The new OMS was operational for the last month of 2024. Initial review shows promising improvements to the ETRs.

A. Impact and comparison of OMS data from retired and new systems

On December 3, 2024, the new OMS went live. As with many large software changeovers, this project faced some challenges and delays. Outage management software needs to seamlessly pull information from many streams of data. This required significant efforts for configuration. Prior to the go live, most efforts were spent to configure the inputs and usability of the OMS for operation's needs. To that end, we can get better, more accurate information to safely dispatch crews to respond to trouble. This has been a welcome upgrade.

Updated features in the new version of OMS include additional call types and hazard classifications that allow better prioritization and response to emergencies. Minnesota Power is now able to view phasing information, and to predict single phase outage; this along with a stronger connection to Sensus ensures more accurate customer count reporting, better initial outage prediction and more reliable restoration information. Additional automated prompt options allow for automatic notifications for outages reaching PUC reportable thresholds and promotes better in-house outage

communication. OMS users are now able to enjoy a better overall user interface with expanded options to customize views and to add additional fields and values without seeking permission from administrators. The new OMS map provides a better overall view of active trouble orders.

After the repairs are completed, the trouble orders go to the Quality Assurance portion of the software. This portion of the OMS is still being configured and is mainly utilized by the Reliability Engineer. Until this section is finished, more effort is required to verify outage details to ensure the same quality of data relating to outages and reliability statistics. The Company does not feel there will be any significant impacts to reliability data due to the new OMS. The reliability engineer reviews all outages for accuracy and reporting.

VI. METER-READING PERFORMANCE

Per Minn. Rule 7826.1400, the annual service quality report must include a detailed report on the utility's meter-reading performance, including, for each customer class and for each calendar month:

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

Table 26 provides an overview of the Company's meter equipment and its deployment across the Minnesota Power distribution system. Metering technology has been thoughtfully deployed as technological advancements have become available and/or end of life is reached on existing infrastructure. For example, MV90 and AMI devices provide automated meter reading. AMI installations, which have two-way communications and other expanded functionality, began in 2009 and were completed in 2023. As such, reporting statistics regarding meters read by utility personnel includes reads obtained through these technologies which did not require manual reads. Generally, manual reads are only required in instances where the meter signal is challenged by location or environmental factors, where consecutive estimates have occurred, or occasions when a residential customer opts out of AMI. In 2023, Minnesota Power, with Commission approval, transitioned to a formal AMI opt-out process for residential customers that includes a monthly fee to read and maintain the meter.

Table 24 - Meter Equipment and Percentage Deployed

Equipment	Percent in Use[16]	Description
Mechanical Meters	0.04%	Traditional electro-mechanical meter that records kWh usage.
AMR – Mechanical Hybrid	0.0%	Traditional electro-mechanical meters that are retro-fitted with a one-way electronic automatic meter reading ("AMR") module capable of reporting multiple quantities including kWh, kW, and outage count.
AMR – Solid State	0.0%	Modern Solid State electronic meters integrated with a one-way AMR module or retrofitted with an external AMR unit. Capable of reporting multiple quantities including kWh, kVARh, kW, and outage count.
AMI – Solid State	99.75%	Modern solid-state devices integrated with a two-way AMI communication module. Capable of multiple measurement functions including Time of Use (TOU), kW, kWh, KVA, kVAh, kVAR, kVARh, instantaneous and average voltage, two channel load profile, and remote disconnect. Also capable of remote firmware, program, and display updates.
MV-90	0.21%	A software system produced by Itron that is used to interrogate a wide variety of meters and recorders using telephone communication and modems to obtain both meter readings and meter interval data generally from commercial and industrial customers.

A. Numbers and percentages of customer meters read by utility personnel.

In 2024, Minnesota Power read an average of 99.94 percent of residential meters, 99.90 percent of commercial meters, 99.84 percent of industrial, 99.94 percent municipal pumping, and 99.67 percent lighting meters.

Table 25 - Residential Meter Reads – Utility 2024

Month	Company Reads	Est	Total	% Read
Jan-24	132,726	59	132,785	99.96%
Feb-24	132,977	68	133,045	99.95%
Mar-24	132,135	51	132,186	99.96%
Apr-24	132,241	89	132,330	99.93%
May-24	120,111	107	120,218	99.91%
Jun-24	145,149	148	145,297	99.90%
Jul-24	132,951	88	133,039	99.93%
Aug-24	120,907	103	121,010	99.91%
Sep-24	145,267	77	145,344	99.95%
Oct-24	132,816	67	132,883	99.95%

[16] As of 1/1/2024.

Nov-24	119,937	50	119,987	99.96%
Dec-24	133,217	60	133,277	99.95%
Average	**131,703**	**81**	**131,783**	**99.94%**

In 2024, Minnesota Power read an average of 99.90 percent of commercial meters.

Table 26 - Commercial Meter Reads – Utility 2024

Month	Company Reads	Est	Total	% Read
Jan-24	22,496	20	22,516	99.91%
Feb-24	22,244	25	22,269	99.89%
Mar-24	22,626	23	22,649	99.90%
Apr-24	22,375	21	22,396	99.91%
May-24	20,839	34	20,873	99.84%
Jun-24	23,878	24	23,902	99.90%
Jul-24	22,560	27	22,587	99.88%
Aug-24	21,010	36	21,046	99.83%
Sep-24	24,111	18	24,129	99.93%
Oct-24	22,406	16	22,422	99.93%
Nov-24	20,377	15	20,392	99.93%
Dec-24	22,051	10	22,061	99.95%
Average	**22,248**	**22**	**22,270**	**99.90%**

In 2024, Minnesota Power read an average of 99.84 percent of industrial meters.

Table 27 - Industrial Meter Reads – Utility 2024

Month	Company Reads	Est	Total	% Read
Jan-24	322	1	323	**99.69%**
Feb-24	447	1	448	**99.78%**
Mar-24	446	1	447	**99.78%**
Apr-24	444	2	446	**99.55%**
May-24	430	2	432	**99.54%**
Jun-24	435	1	436	**99.77%**
Jul-24	467	0	467	**100.00%**
Aug-24	487	0	487	**100.00%**
Sep-24	498	0	498	**100.00%**
Oct-24	499	0	499	**100.00%**
Nov-24	462	0	462	**100.00%**
Dec-24	482	0	482	**100.00%**
Average	**452**	**1**	**452**	**99.84%**

In 2024, Minnesota Power read an average of 99.94 percent of municipal meters.

Table 28 - Municipal Meter Reads – Utility 2024

Month	Company Reads	Est	Total	% Read
Jan-24	276	0	276	**100.00%**
Feb-24	242	0	242	**100.00%**
Mar-24	312	0	312	**100.00%**
Apr-24	283	0	283	**100.00%**
May-24	278	1	279	**99.64%**
Jun-24	288	1	289	**99.65%**
Jul-24	282	0	282	**100.00%**
Aug-24	273	0	273	**100.00%**
Sep-24	277	0	277	**100.00%**
Oct-24	279	0	279	**100.00%**
Nov-24	265	0	265	**100.00%**
Dec-24	267	0	267	**100.00%**
Average	**277**	**0**	**277**	**99.94%**

In 2024, Minnesota Power read an average of 99.67 percent of lighting meters.

Table 29 - Lighting Meter Reads – Utility 2024

Month	Company Reads	Est	Total	% Read
Jan-24	395	1	396	**99.75%**
Feb-24	373	1	374	**99.73%**
Mar-24	396	1	397	**99.75%**
Apr-24	385	1	386	**99.74%**
May-24	355	1	356	**99.72%**
Jun-24	417	1	418	**99.76%**
Jul-24	391	1	392	**99.74%**
Aug-24	365	1	366	**99.73%**
Sep-24	423	1	424	**99.76%**
Oct-24	405	1	406	**99.75%**
Nov-24	360	4	364	**98.90%**
Dec-24	397	1	398	**99.75%**
Average	**389**	**1**	**390**	**99.67%**

B. Numbers and percentages of customer meters self-read by customers.

Residential customer reads were 0.00 percent of the system total in 2024. In 2023, Minnesota Power ended support for residential customer self-reads. These meters are being read by Company personnel as part of the residential AMI opt-out process.

Table 30 - Residential Meter Reads - Self-Read 2024

Month	Cust Reads	Est	Total	% Read
Jan-24	0	0	0	100.00%
Feb-24	0	0	0	100.00%
Mar-24	0	0	0	100.00%
Apr-24	0	0	0	100.00%
May-24	0	0	0	100.00%
Jun-24	0	0	0	100.00%
Jul-24	0	0	0	100.00%
Aug-24	0	0	0	100.00%
Sep-24	0	0	0	100.00%
Oct-24	0	0	0	100.00%
Nov-24	0	0	0	100.00%
Dec-24	0	0	0	100.00%

As with residential customer self-reads, Minnesota Power ended support for commercial customer self-reads. Commercial customer reads averaged 0.00 percent of the system total in 2024, of those Minnesota Power received an average of 100.00 percent of reads.

Table 31 - Commercial Meter Reads – Self-read 2024

Month	Cust Reads	Est	Total	% Read
Jan-24	0	0	0	100.00%
Feb-24	0	0	0	100.00%
Mar-24	0	0	0	100.00%
Apr-24	0	0	0	100.00%
May-24	0	0	0	100.00%
Jun-24	0	0	0	100.00%
Jul-24	0	0	0	100.00%
Aug-24	0	0	0	100.00%
Sep-24	0	0	0	100.00%
Oct-24	0	0	0	100.00%
Nov-24	0	0	0	100.00%
Dec-24	0	0	0	100.00%

C. 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.

Table 32 - Meters Not Read 6-12 Months 2024

Months Estimated	Company Read Service Points	% of Total	Not Read Reason	Customer Read Service Points	% of Total
6 Months	1	0.001%		0	0.000%
7 Months	1	0.001%		0	0.000%
8 Months	1	0.001%		0	0.000%
9 Months	2	0.001%		0	0.000%
10 Months	1	0.001%		0	0.000%
11 Months	2	0.001%		0	0.000%
12 Months	0	0.000%		0	0.000%
12+Months	7	0.005%		0	0.000%
Totals:	**15**	**0.001%**		**0**	**0.000%**

Minnesota Rule 7820.3300 requires that meters are read monthly unless otherwise authorized by the Commission. Customers with Company-read meters that are not read for six to twelve months are left reminder notices at the premises and/or are sent reminder letters of the utility's need to access the meter. Phone calls are made to customers to schedule meter readings. Disconnection warnings are issued for unresponsive accounts. In accordance with the Cold Weather Rule, no disconnections for unread meters are performed during the Cold Weather Rule months.

D. Data on monthly meter-reading staffing levels, by Service Center or geographical area

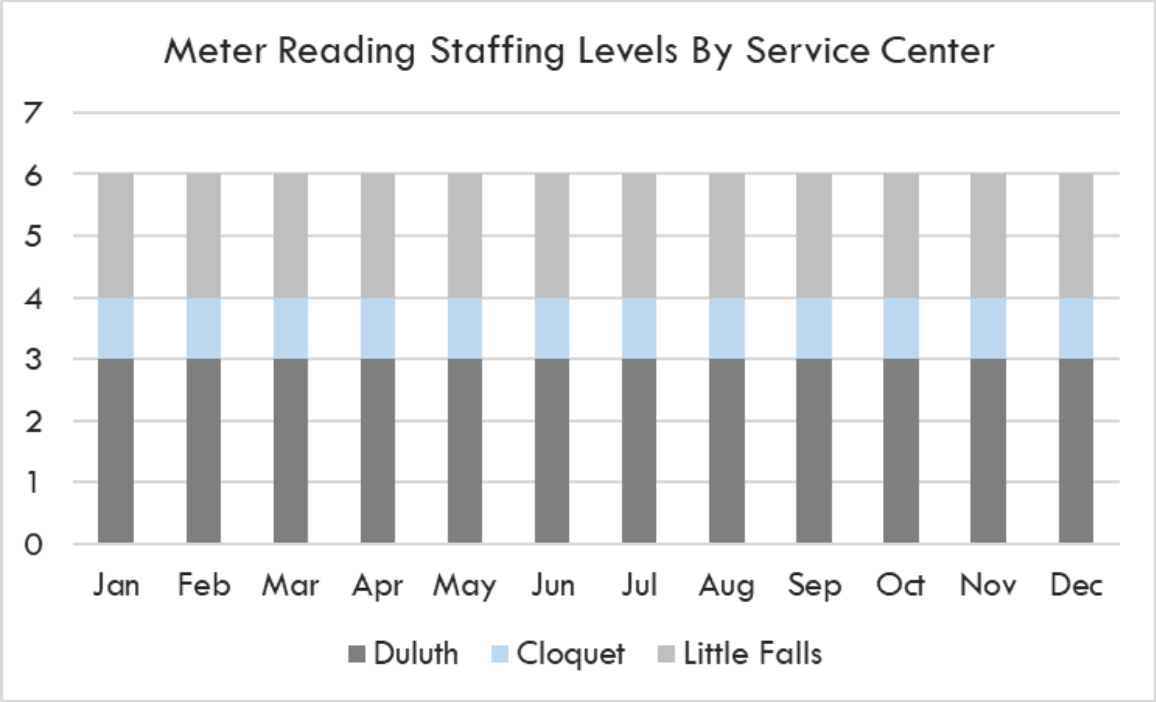


Figure 15 - Meter-reading Staffing Levels by Service Center

VII. CUSTOMER SERVICE DATA

This section includes information submitted in compliance with the following:

- **Order Pts. 2, 3 & 4 of December 2, 2021 Order (Docket No. E015/M-21-230)**

Minnesota Power recognizes that, above all else, customers expect reliable, safe, and affordable electricity. The Company regularly surveys a sample of 800 adults that reflects the census demographics of its residential customer base. Rapp Strategies, Inc. manages the survey contract, with Morris Leatherman LLC providing fieldwork and quality assurance of the data. In four surveys over the last decade, Minnesota Power has asked residential customers about a series of objectives for a utility to achieve, requesting a score for each objective on a scale of 1 to 10. Reliability has ranked at the top of each of these surveys, with safety, affordability, and access to backup power also appearing in the top three at various times, as shown in Figure 16.[17] Residential customers value other objectives, including clean power, energy efficiency, commitment to community and the benefits of green energy jobs, but 24-7 reliability of service consistently ranks at the top. The Company is pleased that more than 85 percent of residential customers give positive marks for overall customer service and response to power outages. Inherent to each of these are quality customer interactions through a variety of channels (i.e. in person, in writing, via email, over the phone, online, through social media, and in the field).

The most recent survey work examined programs and services in three ways. First, it tested satisfaction with basic service needs; 88 percent of customers gave Minnesota Power's customer service a positive rating with 28 percent providing a rating of "excellent." In the area of response to power outages, 89 percent gave a positive rating with 23 percent providing a rating of "excellent." Finally, customers were asked about the overall value they receive from Minnesota Power. Using a ten-point scale, with ten being most positive, customers gave Minnesota Power a rating of 8.14 for the following statement: "Considering the price I pay and the quality of service I receive, the electricity from Minnesota Power is an excellent value."

[17] *Minn. Power Residential Customer Survey – Reputation*, RAPP STRATEGIES (2023).

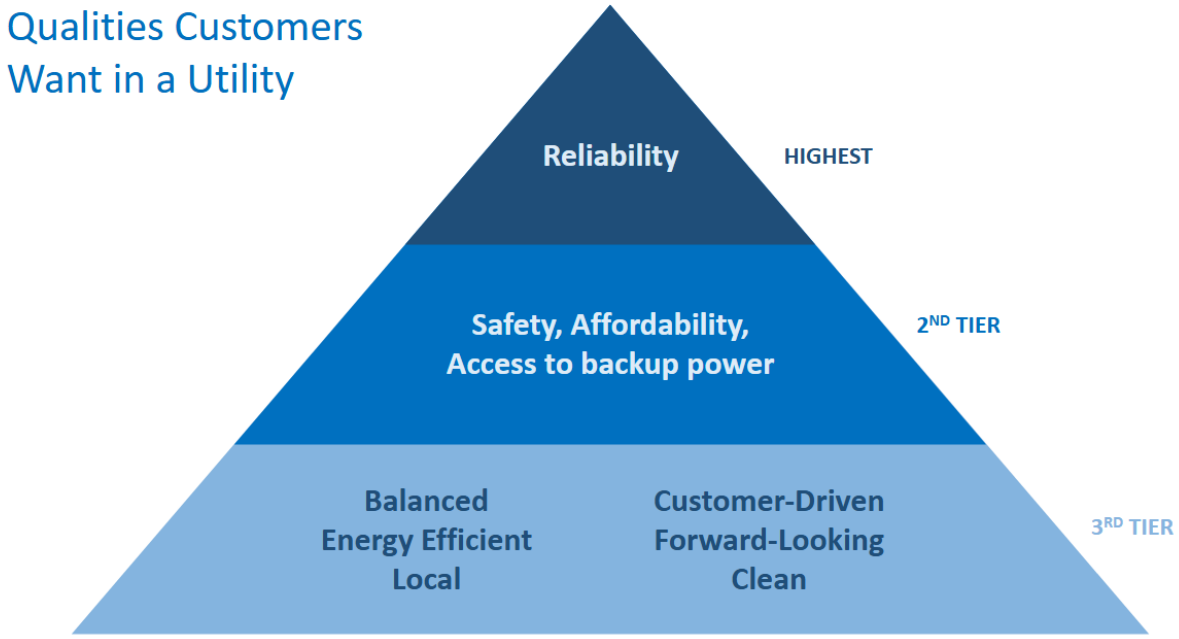


Figure 16 - Qualities Residential Customers Desire in a Utility

A. Customer Care

The Company's approach is to continue to provide core customer services such as establishing and maintaining service, accurate and timely billing, inquiry resolution, and general customer care as effectively as possible, while striving to meet or exceed formal service quality expectations related to response times for customer calls and establishing or restoring service in a timely manner.

Minnesota Power also seeks to leverage technological advances, where applicable and practical, to improve convenience and ensure a positive experience for customers, which means customer relations and the customer experience are always evolving. This is inclusive of day-to-day interactions between the Company and its customers through traditional channels such as the Company's Call Center, billing services, and in the field. It is also inclusive of emerging channels such as online tools, apps, and social media, all of which have proven to be effective options for requesting services and for receiving updates affecting services such as outages.

B. Customer Communication

Customer expectations and preferences regarding communication channels have evolved in recent years, affecting the types of calls the Call Center receives and challenging traditional response metrics such as Call Center response times.

The most recent customer survey identified that approximately 40 percent of customers engage with the Minnesota Power website and approximately 31 percent utilize the Minnesota Power app. Among the customers that use these communication and engagement channels, there was a very high level of satisfaction with over 97 percent rating them good or excellent. These digital platforms are important for customers to access their bill, make payments, review energy use, and to report and monitor outage communications.

Table 33 below summarizes yearly total of web site visits, including Facebook and Instagram page visits; yearly total number of logins via electronic customer communications platforms, including MyAccount logins and app installations; and yearly total number of emails received, as determined by the Customer Service email address, and related tracking tool. The Company has added LinkedIn to the communications metrics as well. Minnesota Power has implemented targeted social media strategies for optimizing content for engagement, leveraging data-driven insights to refine audience targeting, and utilizing advertising campaigns.

Table 33 - Customer Communication Data for 2024

2024 Electronic Customer Communications		
Website	1,725,089	Website Pageviews
MyAccount	613,265	Self Service Successful Logins
Mobile App	8,241	App Installations
Facebook	47,812	Page Visits
Instagram	1,322	Profile Visits
LinkedIn	8,609	Fans & Followers across networks

Table 34 reflects the monthly and yearly number of emails received through CustomerService@mnpower.com, which would be indicative of general inquiries and relatively in line with how calls are tracked for the Call Center. This is the email address

published on the Minnesota Power web site. Categorization by email subject is also provided using consistent wrap codes as those used for calls to the Call Center. The fuel assistance wrap code is indicative of energy assistance inquiries. There are also Customer Affordability of Residential Electricity (CARE) affordability program, payment plan and marketing wrap codes for email, but these were nominal (less than 100) in 2024. Please note that the total number of emails and the number of wrap codes do not reconcile, as multiple representatives may handle an email, and each would choose a wrap code according to their role in addressing the customer inquiry. These figures do not include other operational email distribution groups, direct emails to individual employees, or technical support emails through the online MyAccount tool, as those do not have an established tracking process or subject categorization methodology in place.

Table 34 - Total Number of Emails Received by Month 2024

Emails	
January	1,503
February	1,696
March	1,515
April	1,855
May	1,793
June	1,561
July	1,238
August	1,344
September	2,008
October	1,548
November	1,693
December	1,672
Total:	**19,426**

Categorization of email subject, which uses the same wrap codes used for calls to the Call Center, is as follows:

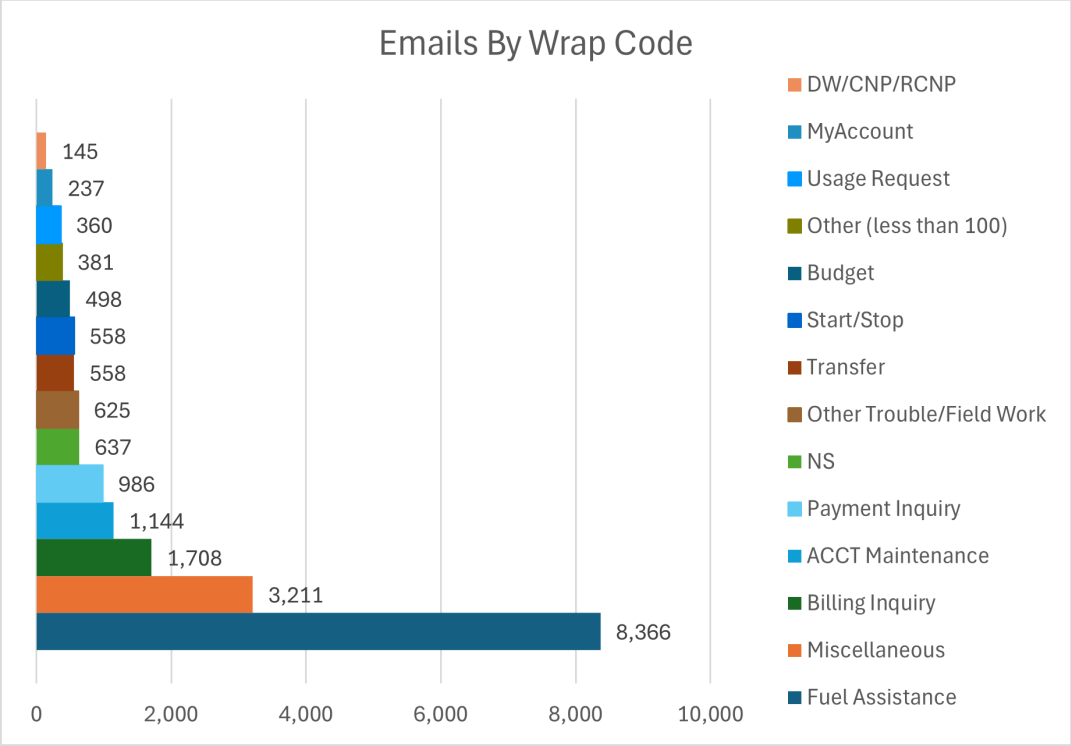


Figure 17 - Email Wrap Codes

In accordance with Order Point 14 of the Commission's December 2020 Order, the tables below show the percentage of uptime for Minnesota Power's website, outage reporting, outage map, Speedpay, and MyAccount.

Table 35 - Percent Uptime on MNPower.com, Outage Reporting, & Outage Map

2024 MNPower.com Outage Details			
Site	Uptime	Downtime (minutes)	# Outages Causing Downtime
MNPower.com	99.99%	59	35
Outage Reporting Form	100.00%	4	1
Outage Map	100.00%	6	1

Table *36* - Percent Uptime on Online Payment Service through Speedpay.com

2024 Uptime on Speedpay.com				
	Extranet	**Internet**	**API**	**IVR**
AVG:	100.00	100.00	100.00	100.00

Table 37 - Percent Uptime on MyAccount

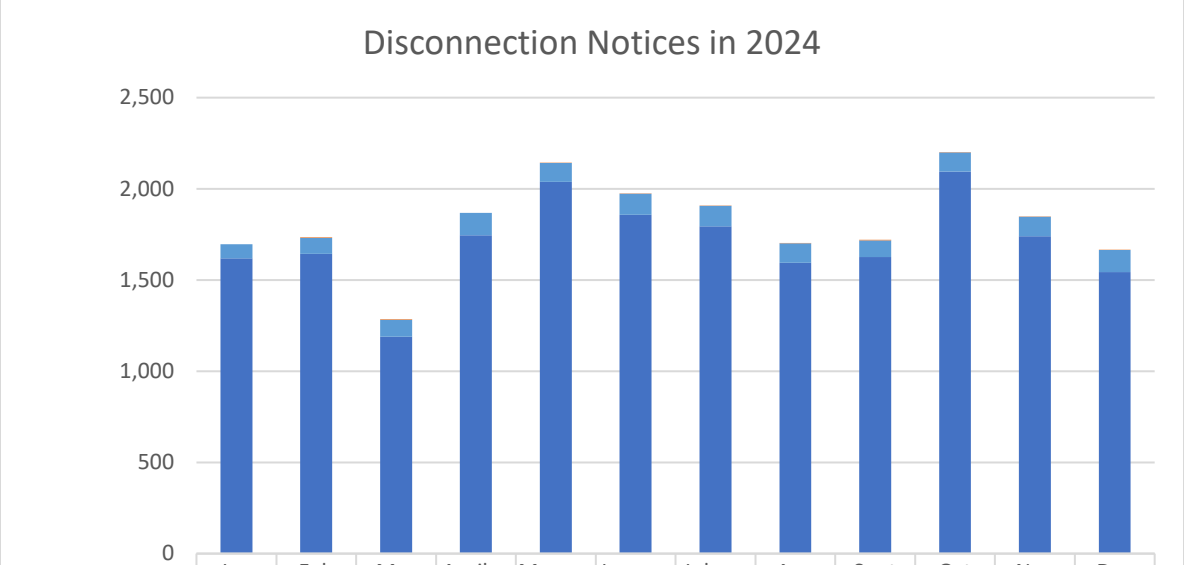
2024 MyAccount Uptime & Outage Detail		
Uptime	Total Minutes	# Outages Causing Downtime
99.99%	4	4

VIII. SERVICE QUALITY PERFORMANCE REPORTING

The information required to be reported under Minnesota Rules 7826.1400 through 7826.2000 is provided on the following pages.

A. Reporting Involuntary Disconnections: Minnesota Rule 7826.1500

Calendar year 2024 represented the second full year of standard collections processes since protections were put in place in 2020. Residential customers typically represent around 80-85 percent of arrears balances. At the end of 2024, approximately 63 percent of past due amounts for residential customers were less than $200 and over 90 percent were less than $500. In 2024, the Company saw a slight increase in the number of disconnections, though 68% of residential customers that were disconnected were reconnected within 24 hours with well over half of those using remote-capable technology. Details regarding residential customers, past due balances, protections, and related information are filed monthly as part of the Residential Customer Status Report under Docket No. E,G-999/PR-YR-2.



	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Industrial	0	2	2	0	1	1	2	1	2	2	2	1
Commercial	77	88	94	124	103	117	113	106	92	104	107	122
Residential	1,619	1,644	1,189	1,745	2,038	1,857	1,794	1,595	1,626	2,095	1,740	1,543

Figure 18 – Number of Customers Who Received Disconnection Notices 2024

Table 38 - Disconnection Notices in 2024

Total Disconnection Notices in 2024		
Residential	**Commercial**	**Industrial**
20,485	1,247	16

1. **Number of customers who sought Cold Weather Rule ("CWR") protection under Chapter 7820 and the number who were granted Cold Weather Rule protection**

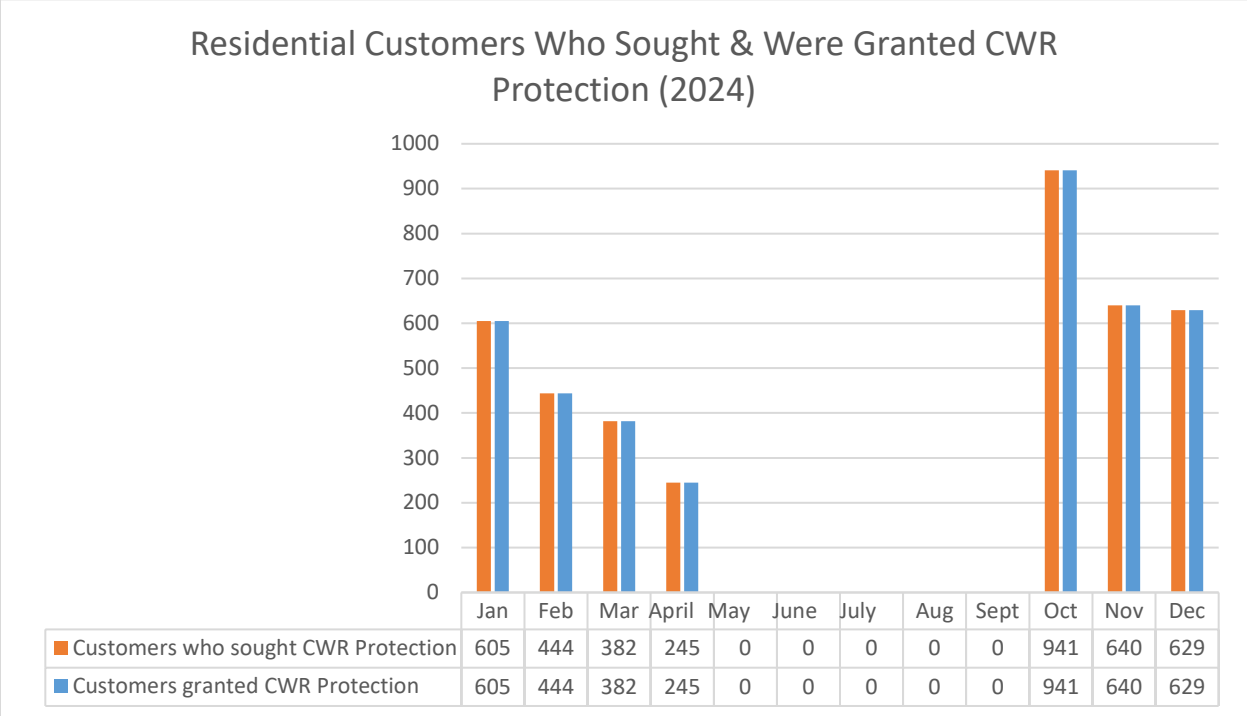


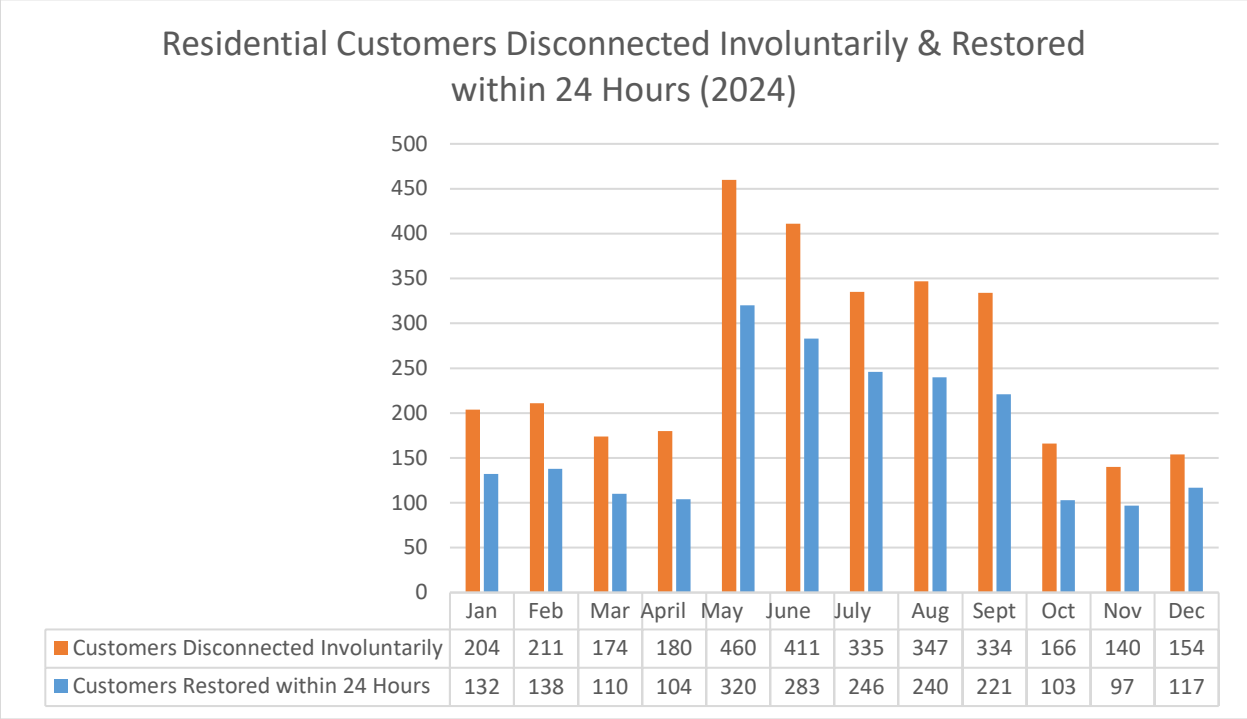
Figure 19 - Customers Who Sought and were Granted CWR Protection 2024

Table 39 - Total Customers Who Sought & Were Granted CWR Protection

Total Residential Customers Who Sought CWR Protection	Total Residential Customers Granted CWR Protection
3,886	3,886

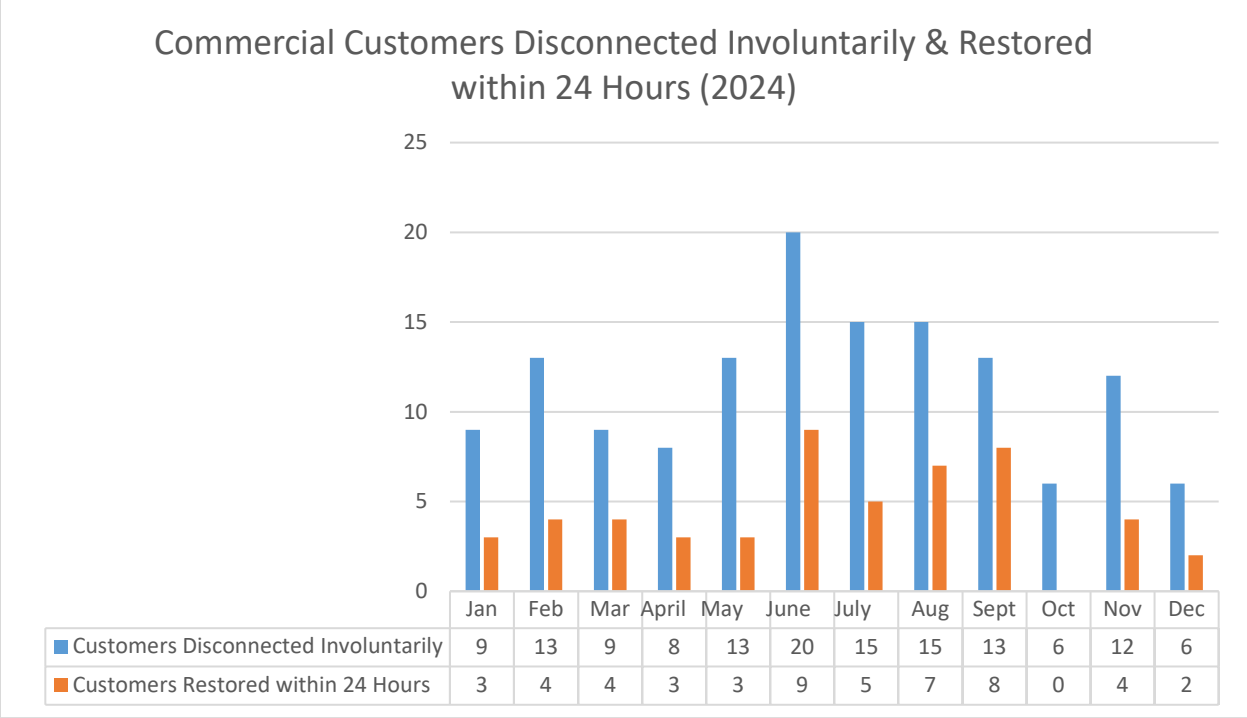
Minnesota Power granted Cold Weather Rule protection to 100 percent of customers who requested protection.

2. **The total number of customers whose service was disconnected involuntarily, and the number of these customers restored to service within 24 hours**



	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Customers Disconnected Involuntarily	204	211	174	180	460	411	335	347	334	166	140	154
Customers Restored within 24 Hours	132	138	110	104	320	283	246	240	221	103	97	117

Figure 20 - Commercial Customers Disconnected Involuntarily & Restored w/in 24 Hours



	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Customers Disconnected Involuntarily	9	13	9	8	13	20	15	15	13	6	12	6
Customers Restored within 24 Hours	3	4	4	3	3	9	5	7	8	0	4	2

Figure 21 - Commercial Customers Disconnected Involuntarily & Restored w/in 24 hrs

Table 40 - Total Customers Disconnected Involuntarily and Restored w/in 24 hours in 2024

Total Customers Disconnected Involuntarily			Total Customers Restored within 24 Hours		
Residential	Commercial	Industrial	Residential	Commercial	Industrial
3,116	139	0	2,111	52	0

3. The number of disconnected customers restored to service by entering into a payment plan

Table 41 – Customers Restored via Payment Plan 2024

Month	Residential	Commercial	Industrial
Jan	124	2	0
Feb	132	4	0
Mar	109	4	0
Apr	104	1	0
May	314	3	0
Jun	272	7	0
Jul	228	7	0
Aug	227	5	0
Sep	204	7	0
Oct	99	0	0
Nov	98	3	0
Dec	115	0	0

B. Reconnect Pilot Program

On December 2, 2019, Minnesota Power filed a petition for a three-year remote reconnect pilot program in Docket No. E-015/M-19-766. This proposal was approved by the Commission on December 9, 2020. Due to the timing of the approval order for this pilot, COVID-19 protections and the related Transition Plan that continued into 2022, the timing for implementation of this voluntary three-year pilot program was deferred until August 2021. Resumption of normal operations where residential customer disconnections for non-payment could occur largely began August 2, 2021; however, there was an exception in the Transition Plan for customers with past due balances who either had a pending energy assistance application or had been determined eligible for energy assistance. For customers under this exception, disconnection protections continued for the duration of the transition period, which was through April 30, 2022. Beginning as early as August 2, 2021, residential electricity customers had the option to participate in the Reconnect Pilot Program. Participating customers whose service has been disconnected for non-payment

have the option to have their service reconnected remotely after meeting reconnection requirements. This is contingent on them having a remote-capable meter. These customers can be reconnected within minutes after calling customer service, which eliminates the need for Minnesota Power to send staff to the customer's location to reconnect service in person.

On September 26, 2023, the Company requested a two-year extension to its Reconnect Pilot Program. On January 9, 2024, this request was approved as part of the consent agenda of the Commission, extending the Pilot through July 2026.

For any residential customer interested in pilot participation who does not have a remote-capable meter, the Company will provide the necessary meter upgrade at no additional charge, upon request by the customer and contingent on meter stock availability.

Under normal operating conditions, Minnesota Power charges customers a $20 fee for in-person service reconnection during business hours or a $100 fee outside of business hours. For any customer utilizing remote reconnection through the pilot, the Company is waiving the reconnection fee, whether during or outside of business hours. Remote reconnection generally enables faster reconnection of service, assuming customer action to get reconnected, and provides potential cost savings and safety benefits by reducing the need to send trucks and staff to customer locations.

As part of the Order approving the Reconnect Pilot Program, Minnesota Power agreed to report the following information in the annual SRSQ:

1. The number of customers participating in the remote-reconnect program.
2. Total number of customers under the low-income home energy assistance program ("LIHEAP").
3. The number of remote-reconnect participants with LIHEAP.
4. The number of customers who have opted out of the remote-reconnect program.
5. The estimated annual cost savings from the remote-reconnect program.

6. The average time to reconnect using the remote-reconnect program compared to the standard reconnection process.

7. The number of reconnections restored within 24 hours of disconnection, distinguishing between standard and remote reconnections.

As of December 31, 2024, there were 11,630 participants in the Remote Reconnect Pilot. This is based on the number of residential customers with remote-capable meters. Figure 22 below shows the total number of LIHEAP customers in 2024. There were 1,862 LIHEAP and 477 Self-Declare customers in the Remote Reconnect Pilot.

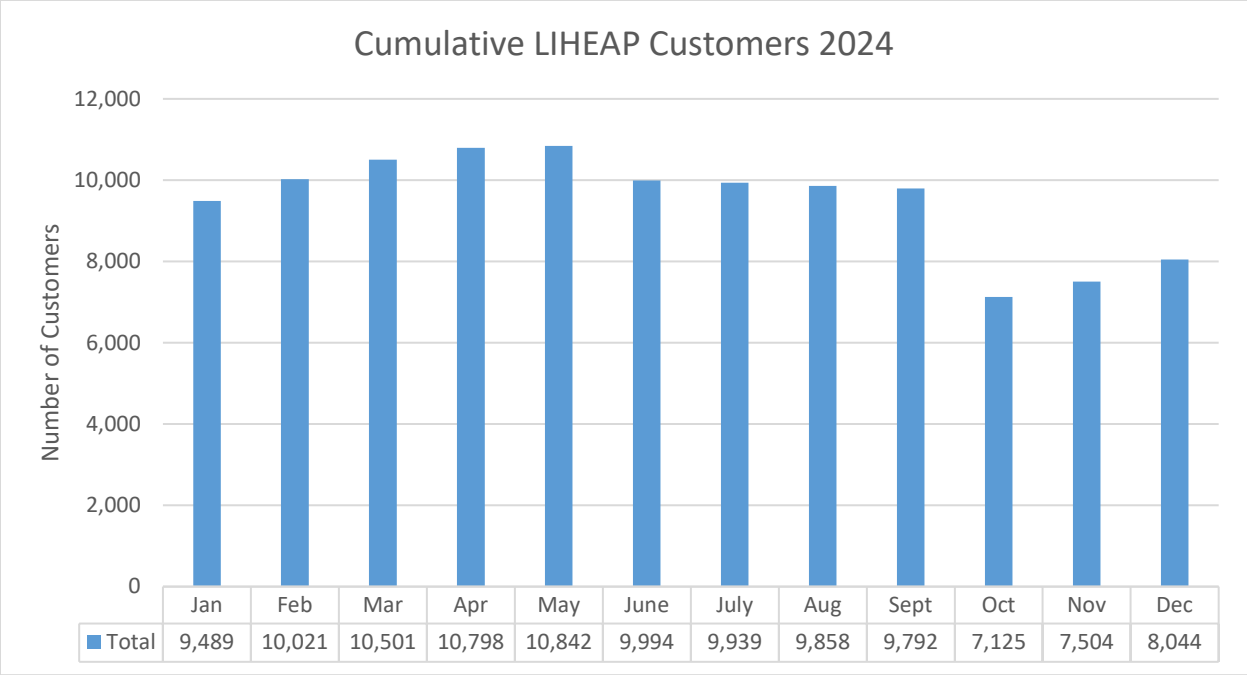


Figure 22 - Cumulative LIHEAP Customers 2024

Most customers have been receptive of AMI in general, with only a small percentage that have opted out of the technology. As AMI is the base technology and remote-capability is an added feature to AMI, opting out of AMI effectively opts a customer out of the pilot. In June 2023, the Company mailed letters to 60 residential customers who had previously expressed that they did not want an AMI meter at their property. The letter explained that, though previously there was no cost to opting out of AMI, the Company would begin charging $20 per month in 2023 as part of a recently approved AMI opt-out provision. This fee is largely to cover the costs associated with providing and maintaining old technology. The letter gave the customers until August 2023 to respond and the opt out

fee went into effect in October 2023. As of December 31, 2024, there were 46 customers in total who have opted out of AMI. Of those opted out in 2024, six provided documentation from a medical professional stating that they must opt out for health reasons. Minnesota Power has waived the monthly opt out fee for these customers. These customers will be required to renew their health exemption on an annual basis, following a similar process to what is used for determining medical necessity.

Minnesota Power estimates the representative net cost changes specifically related to the Remote Reconnect Pilot in 2024 to be approximately $67,000 which is an expenditure increase based on the incremental installed cost of the remote-capable meters less estimated cost-savings from remote reconnections.

Table 42 below shows the average reconnection times for both remote and non-remote-capable meters based on residential customer status as LIHEAP, Self-declare, or Standard, showing duration in days, hours, minutes, and seconds. As disconnection duration is heavily influenced by customer action, Minnesota Power also calculated this based on when the customer initiated the reconnection (i.e. from request). On-average, customers with remote-capable meters were reconnected faster than those with standard AMI. This is true under both the average time to reconnect from disconnect and average time to reconnect from customer request. Notably, LIHEAP customers were reconnected faster overall, with the average time to reconnect under one minute for pilot participants from the point of request.

Table 42 - Average Reconnection Time Based on Customer Status

Average Time to Reconnect from Disconnect	Standard	Remote
LIHEAP Customers	6 Days, 10:15:24	2 Days, 11:15:22
Self-Declare Customers	13 Days, 7:43:0	5 Days, 12:18:23
Standard Customers	31 Days, 12:4:26	15 Days, 0:9:6
All Customers	25 Days, 2:50:3	10 Days, 0:30:23
Average Time to Reconnect from Request	Standard	Remote
LIHEAP Customers	0 Days, 3:29:49	0 Days, 0:0:38
Self-Declare Customers	0 Days, 4:17:41	0 Days, 0:14:37
Standard Customers	0 Days, 11:19:49	0 Days, 0:11:10
All Customers	0 Days, 9:17:58	0 Days, 0:7:25

Figure 23 shows the number of reconnections restored within 24 hours of disconnection, distinguishing between standard and remote reconnections.

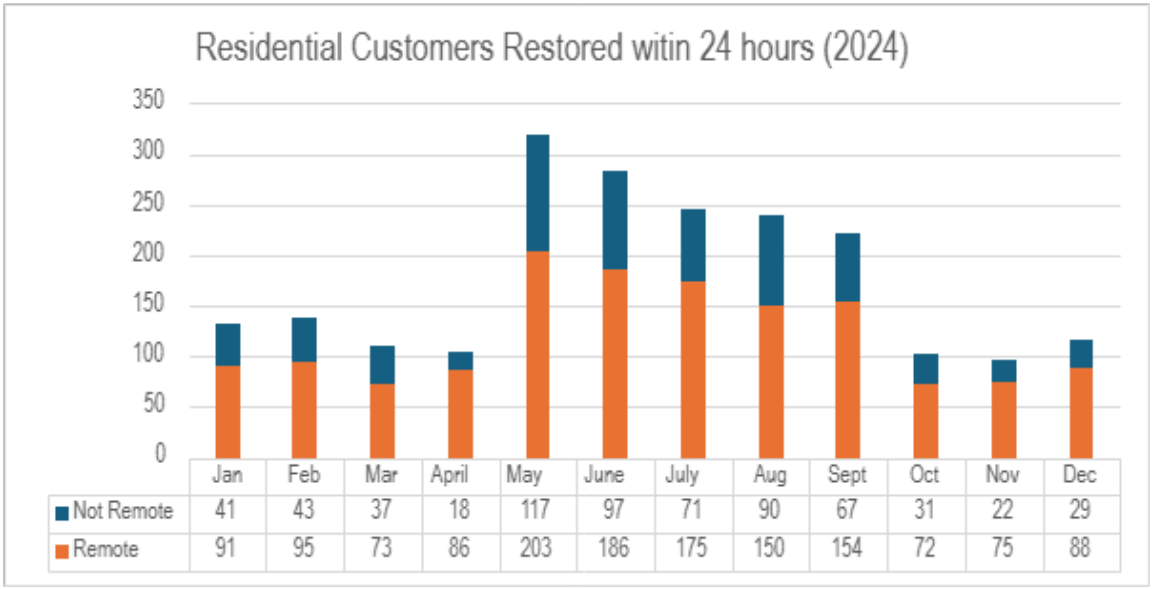
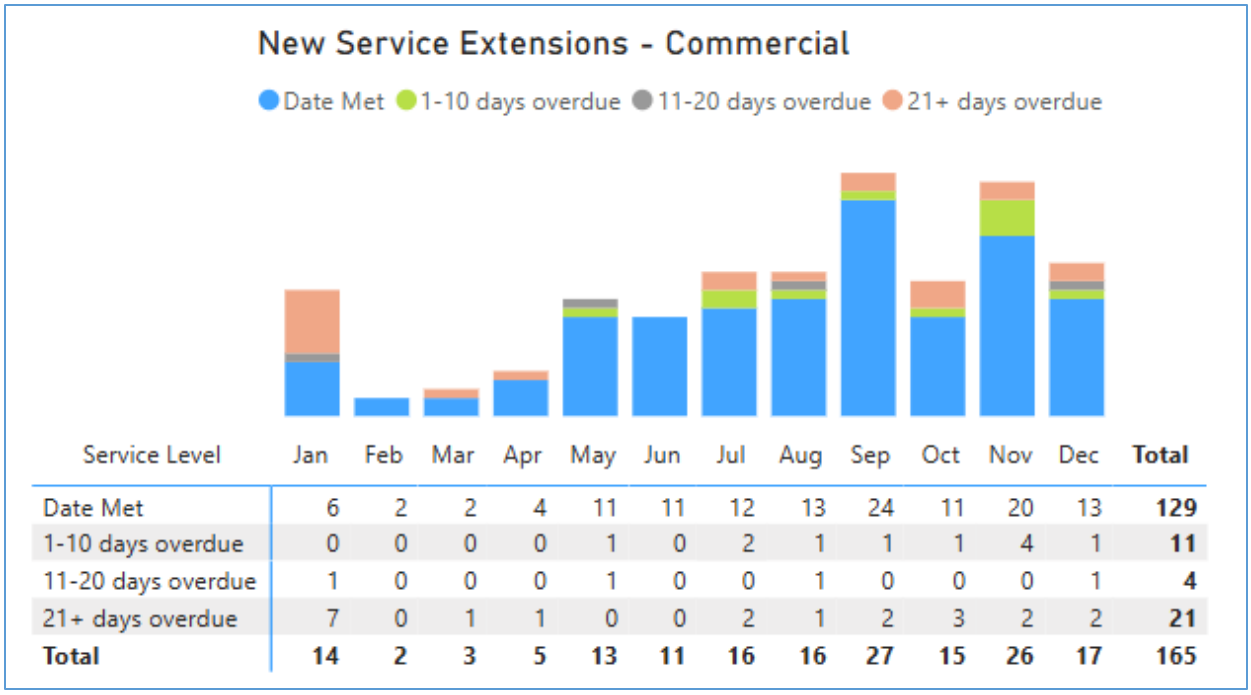


Figure 23 - Residential Customers Restored within 24 Hours

C. Service Extension Request Response Times: Minnesota Rule 7826.1600

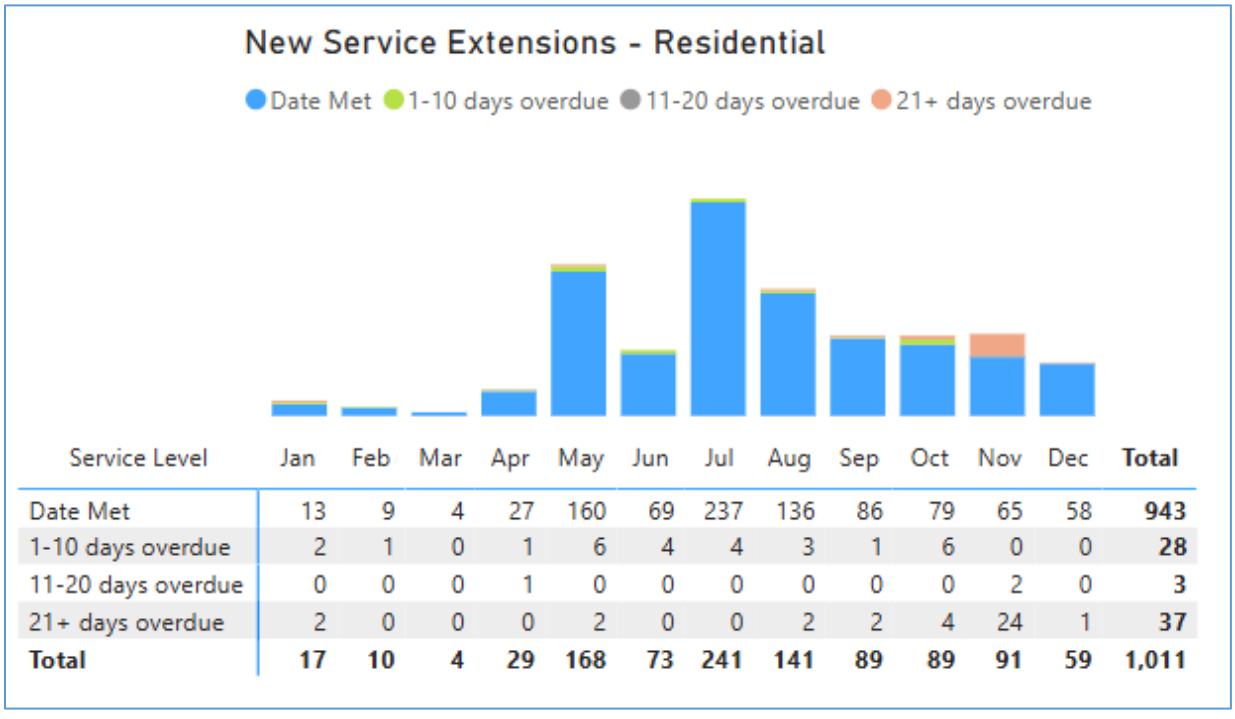
1. The number of customers requesting service to a location not previously served by Minnesota Power and the intervals between the date service was installed and the later of the in-service date requested by the customer or the date the premises were ready for service.

The following charts demonstrate, by customer class, the number of customers requesting service in 2024 to a location not previously served by Minnesota Power.



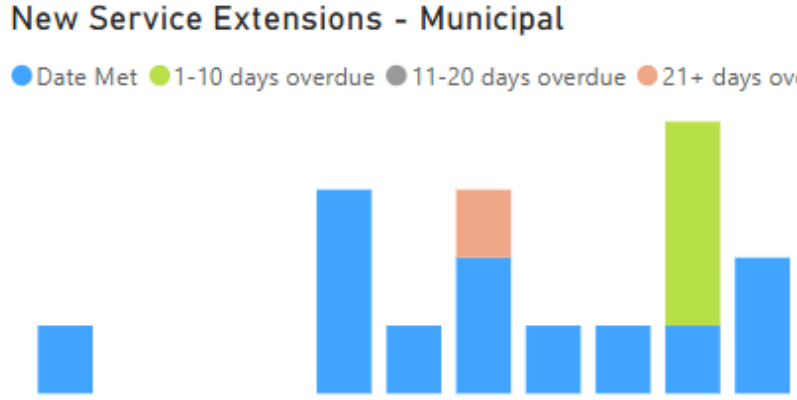
Service Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Date Met	6	2	2	4	11	11	12	13	24	11	20	13	**129**
1-10 days overdue	0	0	0	0	1	0	2	1	1	1	4	1	**11**
11-20 days overdue	1	0	0	0	1	0	0	1	0	0	0	1	**4**
21+ days overdue	7	0	1	1	0	0	2	1	2	3	2	2	**21**
Total	**14**	**2**	**3**	**5**	**13**	**11**	**16**	**16**	**27**	**15**	**26**	**17**	**165**

Figure 24 - New Service Extensions - Commercial 2024



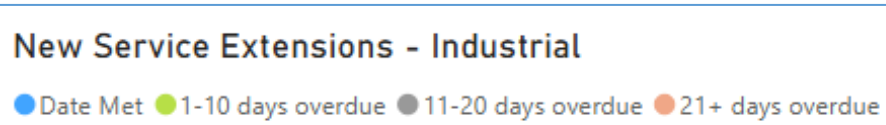
Service Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Date Met	13	9	4	27	160	69	237	136	86	79	65	58	**943**
1-10 days overdue	2	1	0	1	6	4	4	3	1	6	0	0	**28**
11-20 days overdue	0	0	0	1	0	0	0	0	0	0	2	0	**3**
21+ days overdue	2	0	0	0	2	0	0	2	2	4	24	1	**37**
Total	**17**	**10**	**4**	**29**	**168**	**73**	**241**	**141**	**89**	**89**	**91**	**59**	**1,011**

Figure 25 - New Service Extensions - Residential 2024



Service Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**Total**
Date Met	1	0	0	0	3	1	2	1	1	1	2	0	**12**
1-10 days overdue	0	0	0	0	0	0	0	0	0	3	0	0	**3**
11-20 days overdue	0	0	0	0	0	0	0	0	0	0	0	0	**0**
21+ days overdue	0	0	0	0	0	0	1	0	0	0	0	0	**1**
Total	**1**	**0**	**0**	**0**	**3**	**1**	**3**	**1**	**1**	**4**	**2**	**0**	**16**

Figure 26 - New Service Extensions - Municipal 2024



Service Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**Total**
Date Met	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1-10 days overdue	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11-20 days overdue	0	0	0	0	0	0	0	0	0	0	0	0	**0**
21+ days overdue	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Figure 27 - New Service Extensions - Industrial 2024

Figure 28 below lists the number and percentage of New Service Extensions not previously served by Minnesota Power where the service was installed later than the in-service date requested by the customer, or the date the premises were ready for service and the reason for the delay. The customer request date was met for 1,084 of 1,192 customer requests (91 percent). Of the dates not met, the four largest reasons for a delay in meeting in-service date were: Customer's Contractor/Electrician Not Ready (6.21 percent), MP Contractor Not Ready (.67 percent), Customer Late Notification (.50 percent), and MP Unable to Meet Date (.50 percent).

Overall, the major challenges Minnesota Power faced were a result of customer delays. As depicted below, the "Customer's Contactor/Electrician Not Ready" was the most prevailing reason for not meeting the new construction customer requested want date. This includes increased workload for contractors and electricians and material shortages on the customer side for job completion. The reason code "MP Contractor Not Ready" was primarily a result of extensive underground work needing to be done and a limited number of contractors to do said work. Minnesota Power has a 21-day planned schedule. Customers are advised of this and still identify a want date which may not allow for adequate scheduling time. These are coded "Customer Late Notification." "MP Unable to Meet Date" was a result of additional coordination resulting from unplanned work, needing planned power outages, resources, and not being able to meet the date desired by the customer.

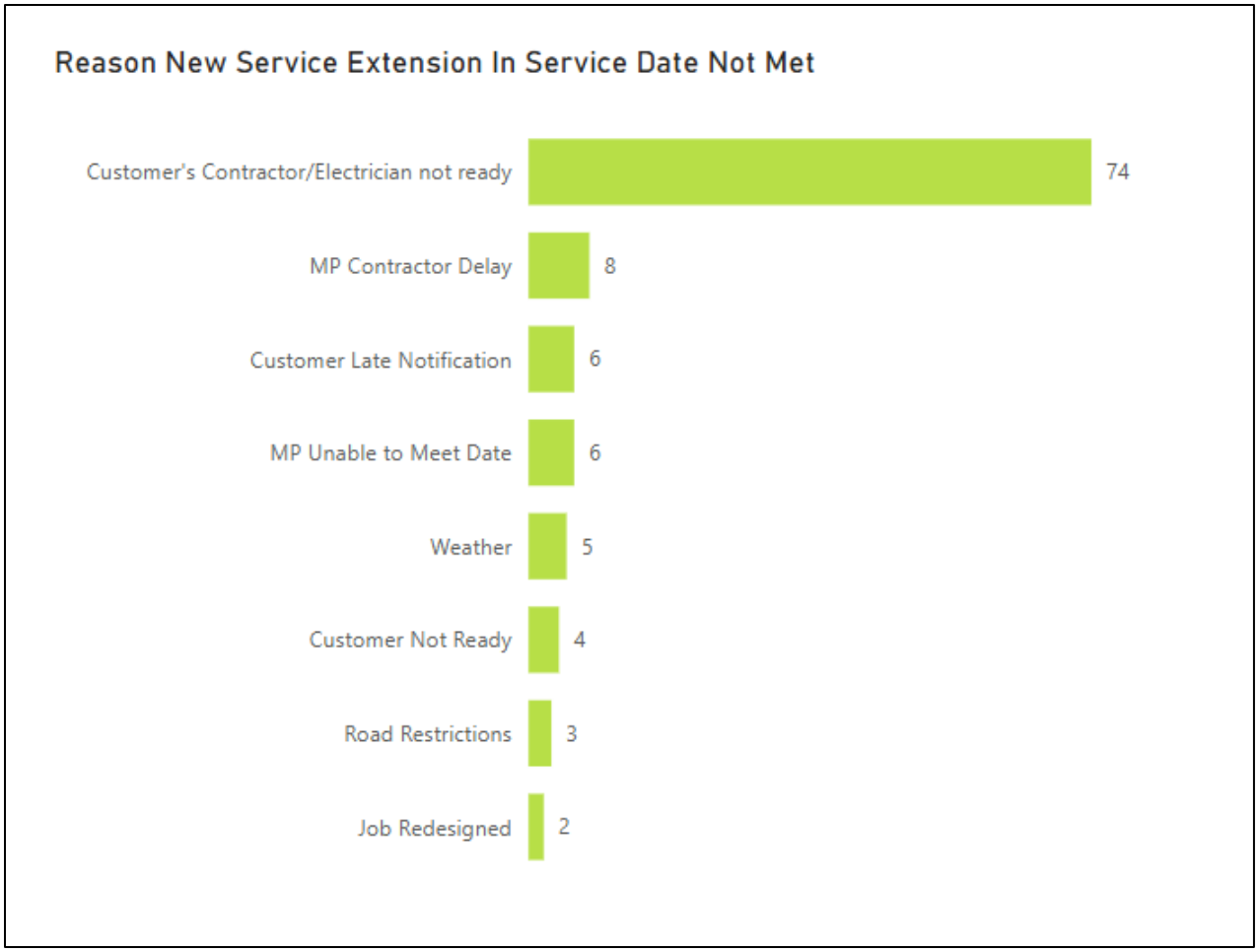
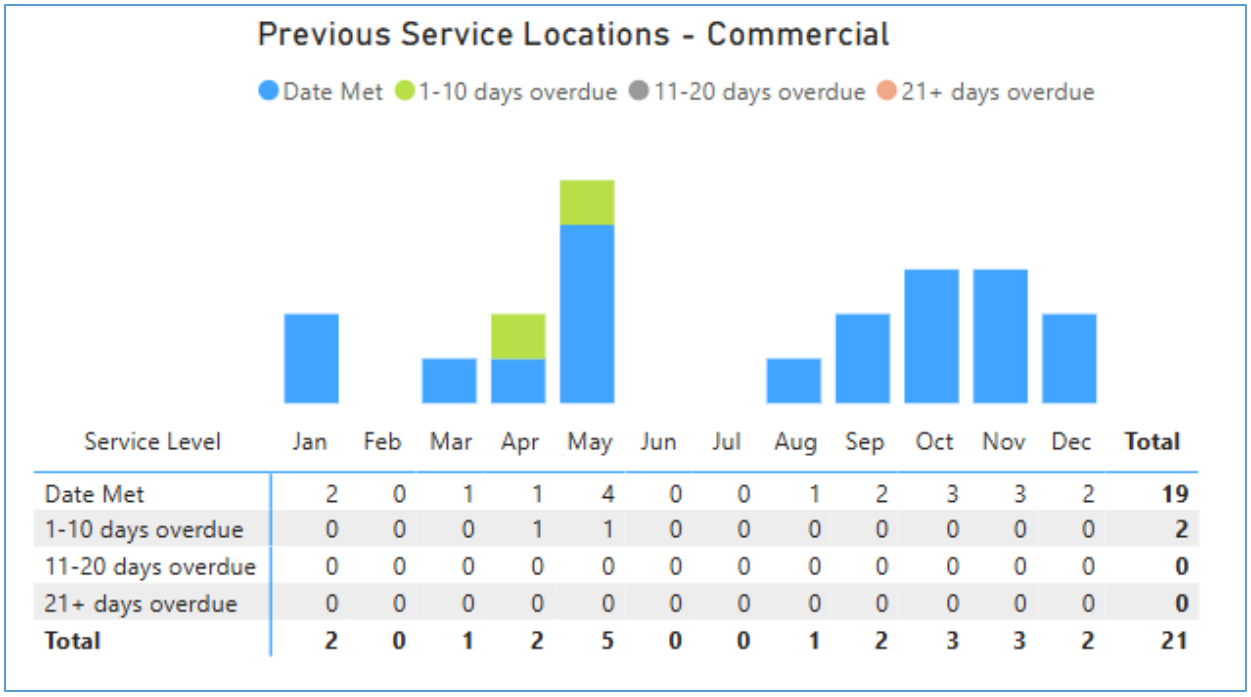


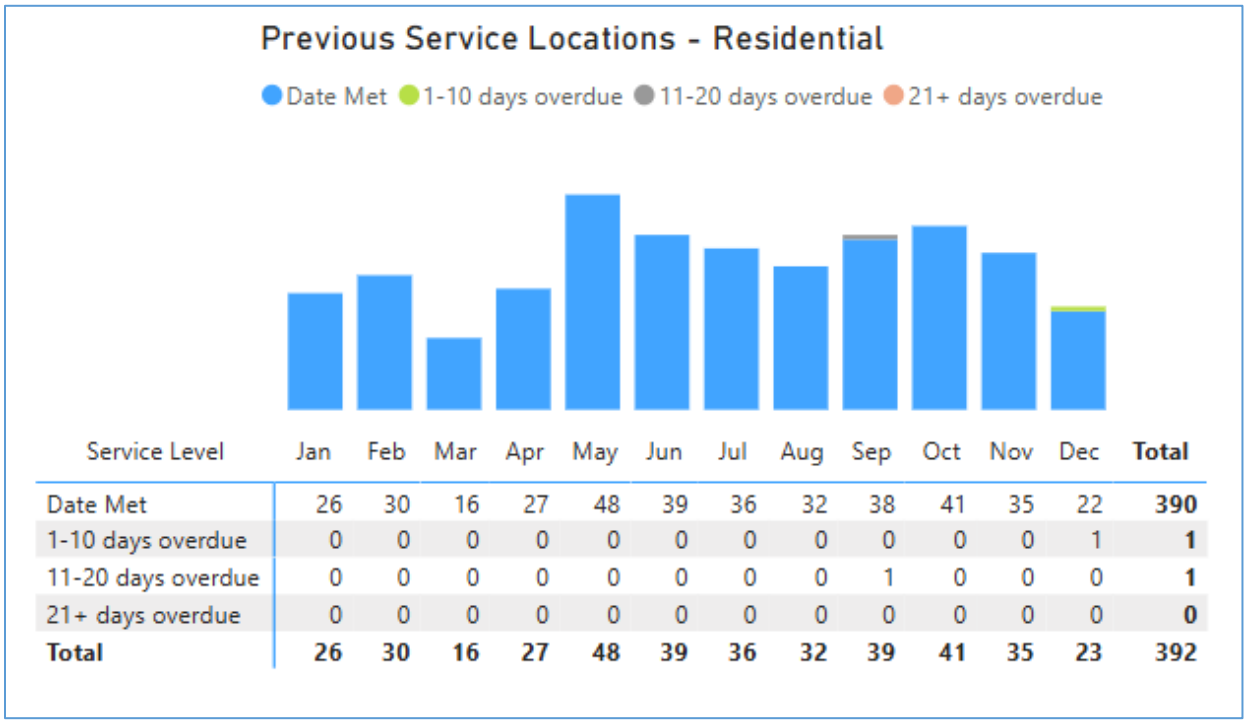
Figure 28 - New Service Extensions - Reasons Dates Not Met 2024

2. **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.**



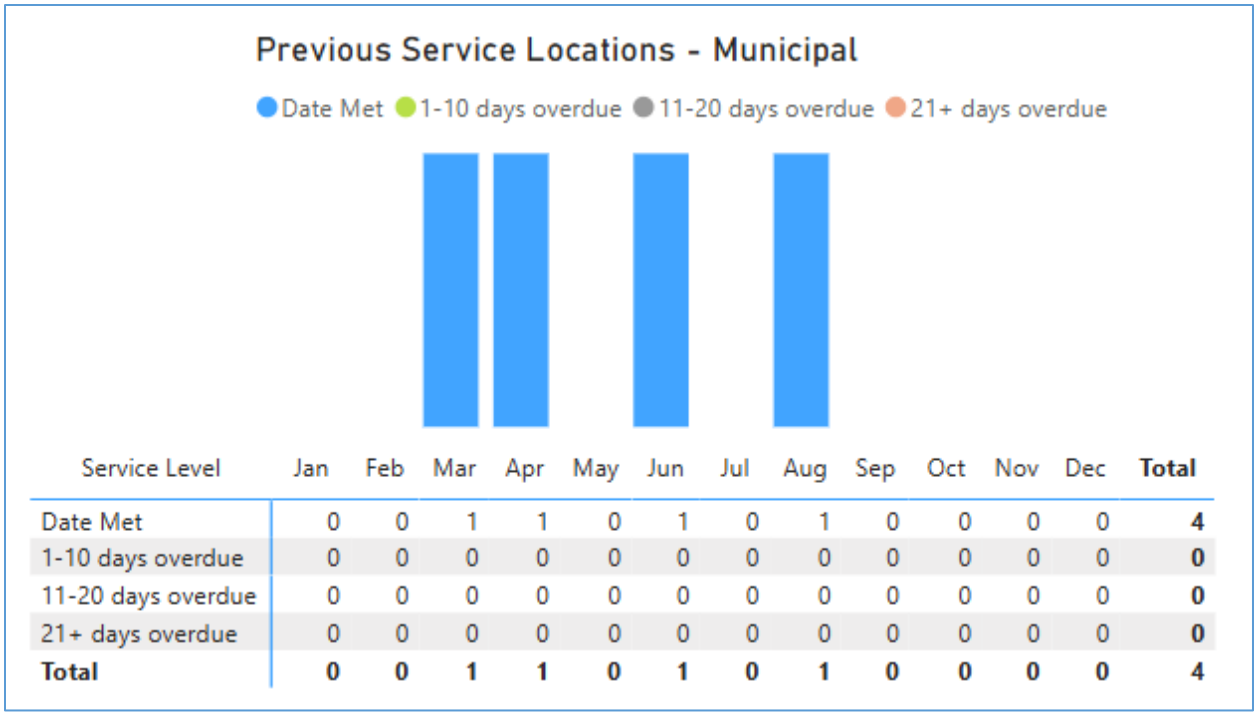
Service Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Date Met	2	0	1	1	4	0	0	1	2	3	3	2	**19**
1-10 days overdue	0	0	0	1	1	0	0	0	0	0	0	0	**2**
11-20 days overdue	0	0	0	0	0	0	0	0	0	0	0	0	**0**
21+ days overdue	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**2**	**0**	**1**	**2**	**5**	**0**	**0**	**1**	**2**	**3**	**3**	**2**	**21**

Figure 29 – Previous Service Locations - Commercial 2024



Service Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Date Met	26	30	16	27	48	39	36	32	38	41	35	22	**390**
1-10 days overdue	0	0	0	0	0	0	0	0	0	0	0	1	**1**
11-20 days overdue	0	0	0	0	0	0	0	0	1	0	0	0	**1**
21+ days overdue	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**26**	**30**	**16**	**27**	**48**	**39**	**36**	**32**	**39**	**41**	**35**	**23**	**392**

Figure 30 - Previous Service Locations - Residential 2024



Service Level	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Date Met	0	0	1	1	0	1	0	1	0	0	0	0	**4**
1-10 days overdue	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11-20 days overdue	0	0	0	0	0	0	0	0	0	0	0	0	**0**
21+ days overdue	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**4**

Figure 31 - Previous Service Locations - Municipal 2024

There were no industrial customers requesting service to a location previously served by Minnesota Power and only four Municipal customers. Figure 32 lists the number of locations previously served by Minnesota Power where the service was installed later than the in-service date requested by the customer or the date the premises were ready for service and the reason for the delay. The largest reason for a delay in meeting in-service date for previous service locations in 2024 were Dates not Updated. This occurs when the dates in the system are not updated in a timely manner.

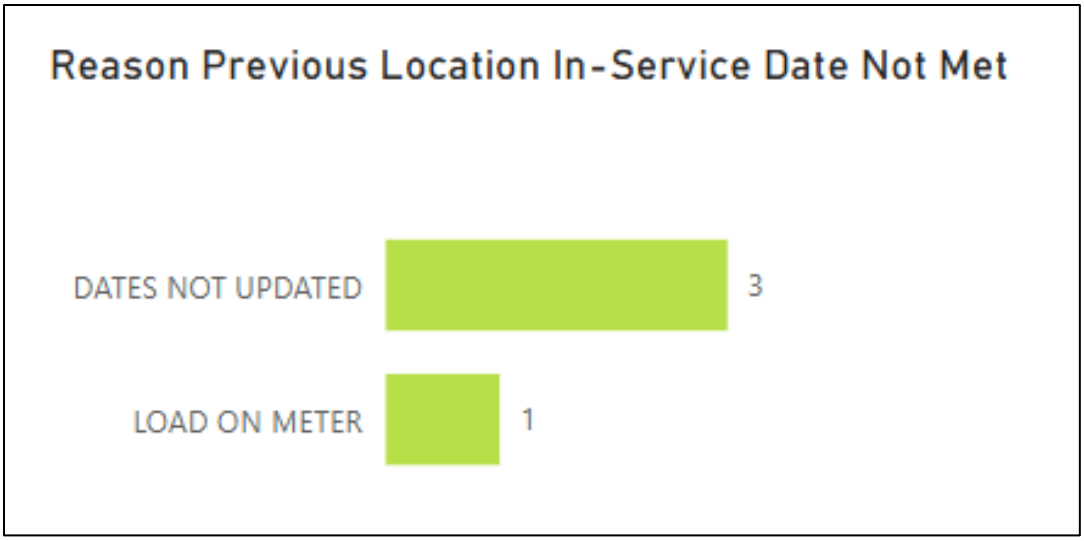


Figure 32 - Previous Service Locations - Reasons Date Not Met 2024

D. Reporting Call Center Response Times: Minnesota Rules 7826.1200 & 7826.1700

7826.1200:

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.

Subp. 2. Calls regarding service interruptions. On an annual basis, utilities shall answer 80 percent of calls directed to the telephone number for reporting service interruptions within 20 seconds. "Answer" may mean connecting the caller to a recording providing, to the extent practicable, at least the following information:

A. the number of customers affected by the interruption

B. the cause of the interruption

C. the location of the interruption; and

D. the utility's best estimate of when service will be restored, by geographical area.

7826.1700:

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.

Generally, calls to Minnesota Power – whether they relate to service interruption, line extension, billing inquiries or any other subject matter – are routed through the Company's Interactive Voice Response ("IVR") unit. Customers have a menu of options within the IVR to choose from to address the subject of their call. The first option is to report an outage by entering a trouble order; and there is an option to speak directly to a Call Center representative.

Calls routed to outage reporting are handled immediately through the automated trouble-order system; calls that are directed to the Call Center are manually entered into the trouble-order system by the Call Center representative.

Consistent with prior SRSQ reporting, Minnesota Power defines business hours as 7:00 am to 5:30 pm, Monday through Friday, excluding holidays. Minnesota Power's response time calculation methodology includes all calls offered. The Company is pleased to report that, on an annual basis, 80 percent of calls offered in 2024 during business hours were answered within 20 seconds, meeting the requirement as defined in Minn. Rule 7826.1200. Overall, in 2024 Minnesota Power was able to exceed the 80% requirement during the months of January (84%), February (86%), March (90%), April (90%), May (84%), July (80%), and December (84%).

The Company narrowly missed the requirement in the months of June (79%) and August (78%). During these months, the service level was impacted primarily due to unplanned absences. Call volume can be higher during the summer months due to customer-driven

activity, such as an increased number of collections related calls, construction-related questions, or requests to transfer service as an increased number of customers change residences during these months.

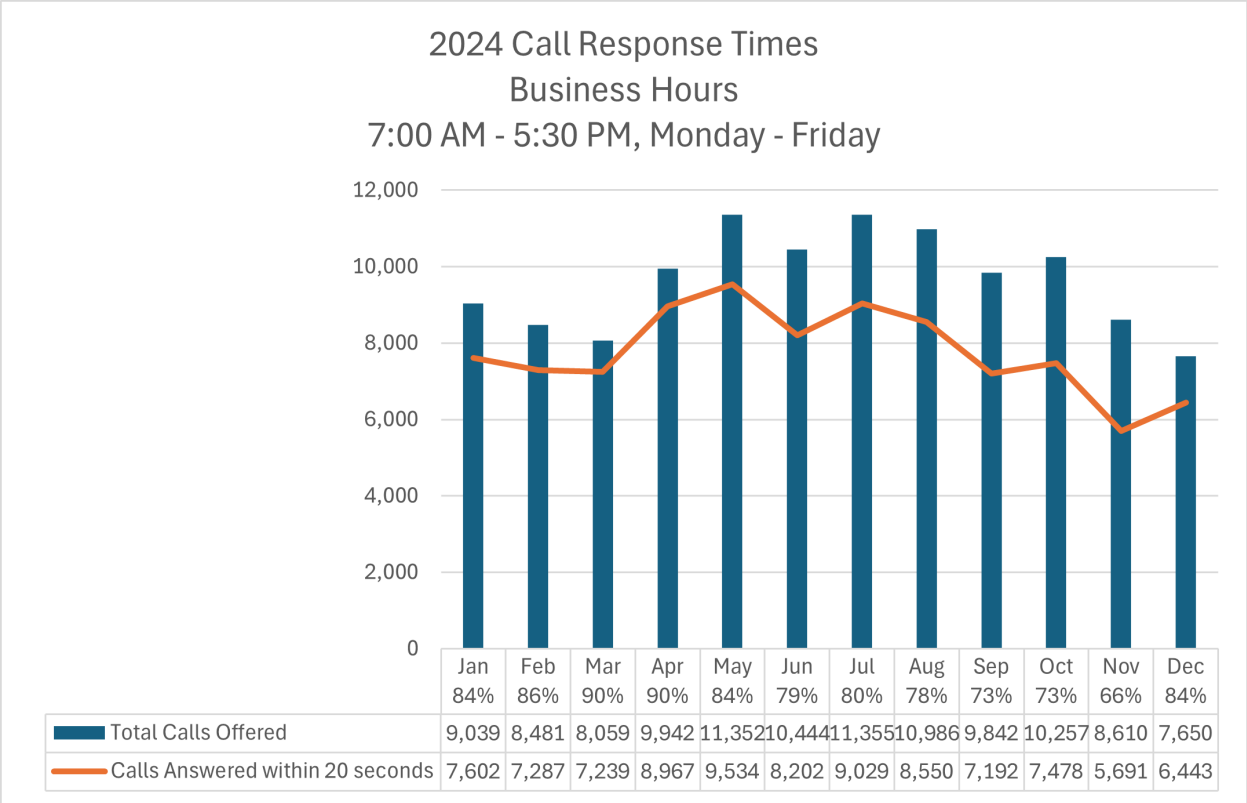
During July and August, three experienced full-time Call Center Representatives transitioned to new roles within the Company, leaving the Call Center short-staffed. The month of September (73%) was spent initiating the hiring and interview process to fill the vacant positions; however, response times were impacted by the absence of three well-seasoned representatives.

The month of October (73%) marks the start of Cold Weather Rule, which generally increases call volume as well as handle time. The duration of these calls can be long due to the nature of the conversations had with customers. Additionally, during the month of October, Minnesota Power began notifying and re-enrolling customers who approached the end of their two-year enrollment period in the Income- and Usage-Qualified Discount. This discount is applied to bills of customers who are income-qualified and use an average of less than 1,000 kWh per month, who have self-declared their income is below 60% of State Median Income. Customers who reported a variable income were enrolled in the discount for two-year period, while customers who reported a fixed income were enrolled in the discount for a four-year period. Minnesota Power customers who were approved for this discount during the initial enrollment period in 2022, and who previously reported a variable income, became eligible for renewal in October of 2024. Communications were sent to customers notifying them of the end of their enrollment and encouraging them to renew their application, which contributed to call volume. Hiring initiatives also continued, resulting in the onboarding of two full-time and two part-time employees by month end.

In November (66%) of 2024, the Call Center was challenged with staffing shortages due to unplanned absences related to illness, in addition to the already vacant positions in the department. Adjustments were made to existing part-time employee schedules to increase coverage during the month. As the month ended, four new employees completed their training, and began assisting with live call taking the first week of

December. The impact of these employees answering calls was evidenced by the increase in response time during the month of December (84%).

As new employees grew in proficiency, and call volume was distributed across a more ideal staffing level, Minnesota Power was able to achieve the overall response requirement of 80% in 20 seconds during 2024.



	Jan 84%	Feb 86%	Mar 90%	Apr 90%	May 84%	Jun 79%	Jul 80%	Aug 78%	Sep 73%	Oct 73%	Nov 66%	Dec 84%
Total Calls Offered	9,039	8,481	8,059	9,942	11,352	10,444	11,355	10,986	9,842	10,257	8,610	7,650
Calls Answered within 20 seconds	7,602	7,287	7,239	8,967	9,534	8,202	9,029	8,550	7,192	7,478	5,691	6,443

Figure 33 - Response Time - Business Hours 2024

Table 43 - Response Time - Business Hours 2024

Business Hours, 7 AM - 5:30 PM, Monday – Friday						
Month 2024	**Response Time**	**Total Calls Offered**	**Calls Answered within 20 seconds**	**Average Speed of Answer (Answer Time)**	**Average Talk Time (Call Duration)**	**Average Handle Time**
Jan	84%	9,039	7,602	0:00:18	0:04:17	0:06:12
Feb	86%	8,481	7,287	0:00:16	0:04:33	0:06:28
Mar	90%	8,059	7,239	0:00:18	0:04:17	0:06:12
Apr	90%	9,942	8,967	0:00:11	0:04:16	0:06:05
May	84%	11,352	9,534	0:00:18	0:04:17	0:06:06
Jun	79%	10,444	8,202	0:00:25	0:04:07	0:05:56
Jul	80%	11,355	9,029	0:00:23	0:04:23	0:06:13
Aug	78%	10,986	8,550	0:00:27	0:04:23	0:06:10
Sep	73%	9,842	7,192	0:00:32	0:04:24	0:06:10
Oct	73%	10,257	7,478	0:00:35	0:04:43	0:06:27
Nov	66%	8,610	5,691	0:00:45	0:04:31	0:06:14
Dec	84%	7,650	6,443	0:00:23	0:04:58	0:06:49
YTD	**80%**	**116,017**	**93,214**	**0:00:24**	**0:04:26**	**0:06:15**

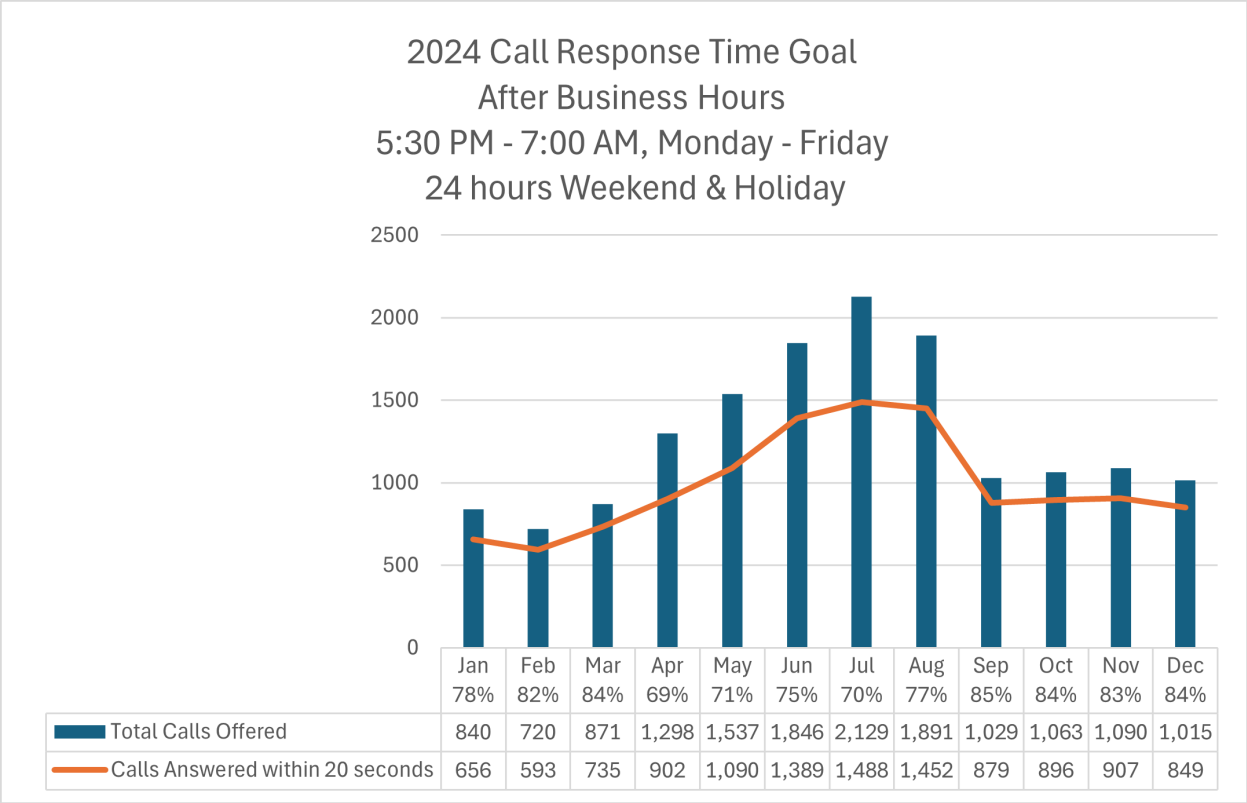


Figure 34 - Response Time - After Hours 2024

Table 44 - Response Time - After Hours 2024

After Hours, 5:30 PM- 7:00 AM Monday – Friday; Weekends & Holidays 24 hours			
Month 2024	**Response Time**	**Total Calls Offered**	**Calls Answered within 20 seconds**
Jan	78%	840	656
Feb	82%	720	593
Mar	84%	871	735
Apr	69%	1,298	902
May	71%	1,537	1,090
Jun	75%	1,846	1,389
Jul	70%	2,129	1,488
Aug	77%	1,891	1,452
Sep	85%	1,029	879
Oct	84%	1,063	896

Nov	83%	1,090	907
Dec	84%	1,015	849
YTD	**77%**	**15,329**	**11,836**

Figure 35 provides a breakdown of calls received in 2024 by subject matter category. This breakdown is based on the wrap codes that are used by representatives when closing and documenting a call. Calls may cover a range of topics, so the primary purpose of the call is determined subjectively by each representative. Please note that the total number of calls and the number of wrap codes do not reconcile, as multiple representatives may handle a single call, and each would choose a wrap code according to their role in addressing the customer inquiry. The Phone Transfer and Not Specified categories generally relate to calls where a representative with primarily operator responsibilities transferred the call or the caller requested to be transferred.

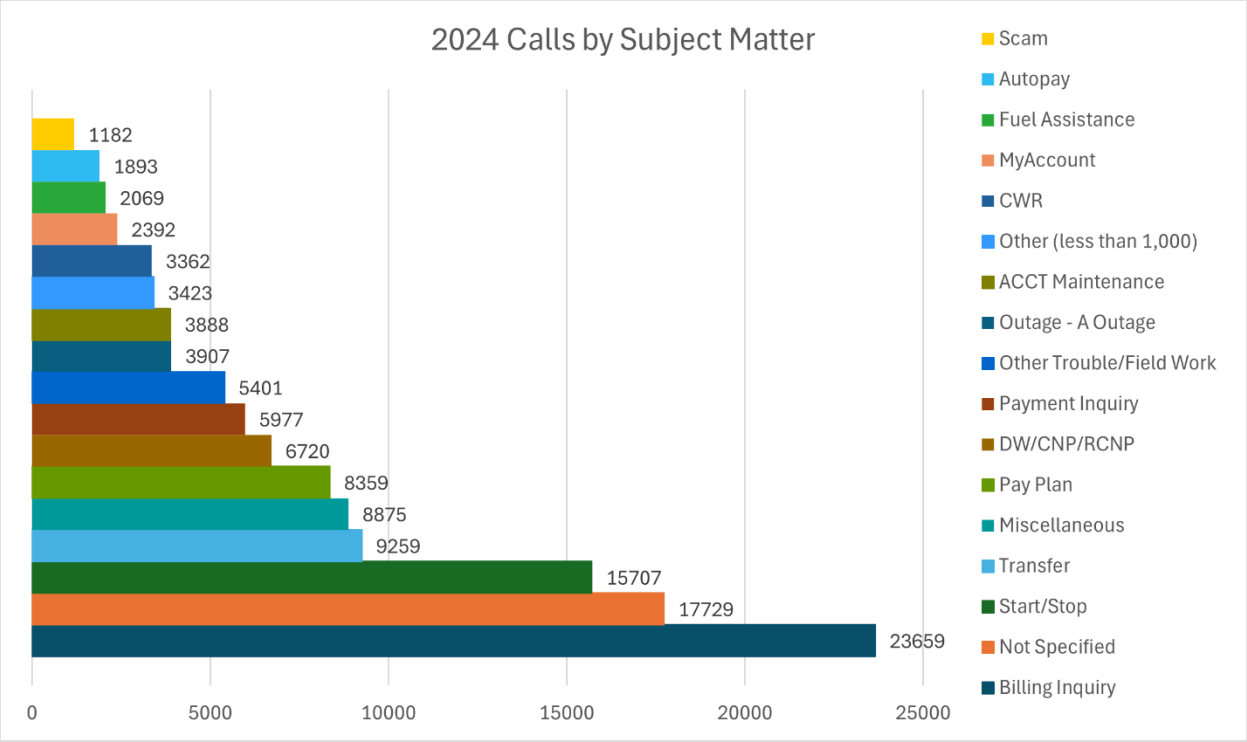


Figure 35 - Calls by Subject Matter 2024

E. Reporting Emergency Medical Account: Minnesota Rule 7826.1800

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.

Table 45 - Emergency Medical Account Status Count 2024

DATE	Requested	Renewed	Added	Denied
Jan	13	9	4	0
Feb	7	5	2	0
Mar	10	6	4	0
Apr	9	8	1	0
May	15	3	12	0
Jun	7	6	1	0
Jul	6	0	6	0
Aug	6	2	4	0
Sep	4	1	3	0
Oct	9	4	5	0
Nov	3	3	0	0
Dec	2	1	1	0
Totals:	**91**	**48**	**43**	**0**

In 2024, Minnesota Power had 91 customers request emergency medical account status. 91 requests were granted after customers provided Minnesota Power with the required signed documentation indicating need. In total with the above referenced requests and renewals, there were 176 customers noted in the system with medical account status designation. Of these, 36 were removed due to non-renewal, customer request, deceased customer, or closed account. All documentation is on file and available upon request.

When customers contact Minnesota Power indicating they have medical/life sustaining equipment, they are advised that to be eligible to participate in the program they should have their physician or medical supply company send the Company a signed letter identifying there is a medically necessary need, and the duration prescribed. The letter is to be mailed or faxed to Minnesota Power's office (mailing/faxing information listed on mnpower.com). When the signed form is received, it is directed to a Customer Care and Support Representative ("CCSR") who updates the account with emergency medical

account status and the form is then filed. This certification must be renewed annually. Approximately 30 days prior to a certification expiration, a CCSR sends a letter to the customer. If Minnesota Power does not receive a response, the Company attempts to reach the customer via phone. If a new letter is received, the account is updated for another year. If not, the medical account status is removed from the account.

F. Reporting Customer Deposits: Minnesota Rule 7826.1900

The annual service quality report must include the number of customers who were required to make a deposit as a condition of receiving service.

Minnesota Power refunded all deposits in 2014. Collection of deposits is generally not conducted but may be reconsidered in the future or as part of a specific electric service agreement provision for a commercial or industrial customer.

G. Reporting Customer Complaints: Minnesota Rule 7826.2000 and 7820.0500

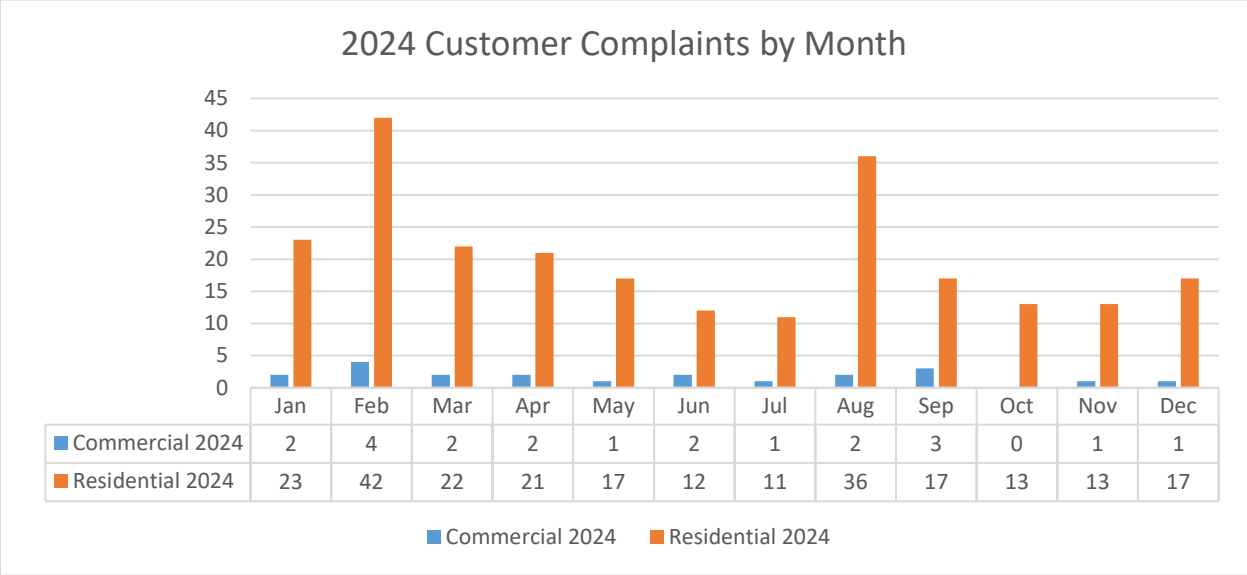
In its January 18, 2023 order in Docket Number E015/M-22-163, the Commission ordered that all Utilities be required to include customer complaint data from Minnesota Rules 7820.0500 in their Annual Service Quality reports with data filed as part of Minnesota Rules 7826.2000. This requirement was put in place to eliminate the standalone Annual Summary of Customer Complaints docket (YY-13).

Minnesota Power was and remains supportive of opportunities to streamline regulatory reporting in general and agreed to file all the complaints information in one section of the SRSQ and footnote the applicable Rule the data applies to. While much of the data required under Minnesota Rules 7820.0500 and 7826.2000 is the same, the Company footnotes data added specifically to comply with inclusion of requirements under Minn. Rule 7820.0500.

The annual service quality report must include a detailed report on complaints by customer class and calendar month, including at least the following information:

Any complaints for customer classes other than Commercial and Residential are handled individually and, as such, not recorded in Minnesota Power's billing system.

1. **The number of complaints received.**



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Commercial 2024	2	4	2	2	1	2	1	2	3	0	1	1
Residential 2024	23	42	22	21	17	12	11	36	17	13	13	17

Figure 36 - Customer Complaints by Month 2024

Table 46 - Customer Complaints Totals

Customer Class	Total	% of Total
Residential	244	92.08%
Commercial	21	7.92%
Total	**265**	**100.00%**

2. **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.**

This table is inclusive of the additional complaint categories determined by consensus through a work group process convened by the Commission Staff, including the

Consumer Affairs Office.[18] Specifically, starting with 2023 data, the following have been added to expand upon Inadequate Service:

- Inadequate Service – Field/Operations
  - Field work delays, property damage related to necessary work/maintenance, scheduling delays/cancellations, etc.
- Inadequate Service – Customer Service
  - Responsiveness, misapplied payments, unsatisfactory employee experience, etc.
- Inadequate Service – Programs and Services
  - Missing rebates, Energy Audit issues, EV issues, etc.
- Inadequate Service – Cold Weather Rule Protection
  - Resetting CWR payment plan, Payment amounts, etc.

Table 47 - Residential and Commercial Complaints by Type 2024

Complaint Description	Complaint Description	Customer	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	% of Total
	Subcategory	Class														
Billing Error		COM	0	1	0	1	0	0	0	0	0	0	0	0	2	**0.75%**
Billing Error		RES	1	0	1	1	0	0	1	0	1	0	0	0	5	**1.89%**
High Bill Complaint		COM	2	2	1	1	1	2	0	1	3	0	1	1	15	**5.66%**
High Bill Complaint		RES	19	40	19	15	12	8	8	27	13	12	7	11	191	**72.08%**
Inadequate Service		COM	0	0	1	0	0	0	1	1	0	0	0	0	3	**1.13%**
Inadequate Service	**Field/Operations**	RES	1	0	1	0	2	0	0	4	0	0	2	2	12	**4.53%**
Inadequate Service	**Customer Service**	RES	1	2	0	1	0	2	2	2	3	0	4	2	19	**7.17%**
Inadequate Service	**Programs & Services**	RES	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.00%**
Inadequate Service	**CWR Protection**	RES	0	0	0	0	0	0	0	0	0	1	0	2	3	**1.13%**
Incorrect Metering		COM	0	1	0	0	0	0	0	0	0	0	0	0	1	**0.38%**
Incorrect Metering		RES	1	0	1	3	3	2	0	2	0	0	0	0	12	**4.53%**
Service Restoration		RES	0	0	0	0	0	0	0	1	0	0	0	0	1	**0.38%**
Wrongful Disconnection		COM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.00%**
Wrongful Disconnection		RES	0	0	0	1	0	0	0	0	0	0	0	0	1	**0.38%**
Total		**ALL**	**25**	**46**	**24**	**23**	**18**	**14**	**12**	**38**	**20**	**13**	**14**	**18**	**265**	**100%**

[18] Regarding Order Point 16 of the 2020 SRSQ Order, Commission Staff, including the Consumer Affairs Office, convened a work group meeting on Monday, March, 1, 2021. Ultimately, parties agreed to additional detail for reporting of the category "Inadequate Service", as listed in Minnesota Rule 7826.2000. Inadequate Service is a broad topic and separating this category further will assist in the overall depiction of the types of complaints reported.

3. **The number and percentage of complaints resolved upon initial inquiry, within ten days, and longer than ten days.**

Table 48 - Timeframe of Complaints Resolved 2024

Days To Resolution	Customer Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	% of Total
Greater Than 10 Days	Commercial	2	0	1	1	0	0	0	0	1	0	0	0	**5**	**22.26%**
Greater Than 10 Days	Residential	4	11	7	4	6	3	2	4	3	1	6	3	**54**	
Less Than 10 Days	Commercial	0	4	0	0	1	1	1	1	1	0	1	1	**11**	**47.55%**
Less Than 10 Days	Residential	12	19	12	9	8	9	6	13	8	5	5	9	**115**	
Same Day Resolution	Commercial	0	0	1	1	0	1	0	1	1	0	0	0	**5**	**30.19%**
Same Day Resolution	Residential	7	12	3	8	3	0	3	19	6	7	2	5	**75**	
Total		**25**	**46**	**24**	**23**	**18**	**14**	**12**	**38**	**20**	**13**	**14**	**18**	**265**	**100.00%**

4. **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.**

Table 49 - Residential Complaints Resolved 2024

Resolution Reason	Commercial	Residential	Total	% Resolved Contacts
Compromise	3	19	22	8.30%
Customer Request	0	29	29	10.94%
No Control	18	194	212	80.00%
Refuse	0	2	2	0.75%
Total	**21**	**244**	**265**	**100.00%**

5. **The number of complaints forwarded to the utility by the Commission's Consumer Affairs Office for further investigation and action.**

Minnesota Power had 27 complaints forwarded to the utility by the Commission's Consumers Affairs Office for further investigation and action in 2024.

Items 6 through 8 were added to include reporting elements included under Minn. Rule 7820.0500. [19]

6. The number of complaints by type and customer class.

The categories below are merged into different complaint type categories, consistent with previous reporting that has been conducted under Minn. Rule 7820.0500. Service includes Inadequate Service, Incorrect Metering, Service Restoration, and Wrongful Disconnection. Billing includes Billing Error and High Bill Complaint. Rate has no data, as Minnesota Power does not have a Rates complaint category. Rules is MPUC complaints forwarded to the Company, consistent with item 5 above.

Table 50 - Complaints by Type and Customer Class

Complaint Type	Residential			Commercial/Industrial			Interruptible		
	Received	Resolved	Unresolved	Received	Resolved	Unresolved	Received	Resolved	Unresolved
Service	48	48	0	4	4	0	0	0	0
Billing	196	196	0	17	17	0	0	0	0
Rate	0	0	0	0	0	0	0	0	0
Rules	25	25	0	2	2	0	0	0	0

7. Number of disconnections for non-payment by customer class.

Table 51 - Number of Disconnections for Non-Payment by Customer Class by Month class

Month	Residential	Commercial/Industrial	Interruptible
Jan	204	9	0
Feb	211	13	0
Mar	174	9	0
Apr	180	8	0
May	460	13	0
Jun	411	20	0
Jul	335	15	0
Aug	347	15	0
Sep	334	13	0
Oct	166	6	0
Nov	140	12	0
Dec	154	6	0
Total	**3,116**	**139**	**0**

[19] Customer complaint data as required under Minnesota Rule 7820.0500.

8. Annual total number of customers by customer class and customers added in the current year.

Table 52 - Total Number of Customers and Customers Added by Customer Class for 2024

		Residential	Commercial	Interruptible
	Number of Customers (year-end)	108,094	16,194	0
	Customers Added During Year	-338	-14	0

IX. PROPOSED RELIABILITY STANDARDS

Minnesota Rule 7826.0600, Subp. 1 requires each utility, on or before April 1 of each year to file proposed reliability standards in the form of proposed numerical values for the SAIDI, SAIFI, and CAIDI values for each of its work centers. In an Order dated March 2, 2022 Order in Docket No. E015/M-21-230, the Commission established three Work Centers for Minnesota Power, as described on pages 25-26 of the Company's 2020 Safety, Reliability and Service Quality Report. Additionally, in this same Order the Commission set the Company's 2024 statewide Reliability Standard at the IEEE benchmarking 2nd Quartile for medium utilities, and its work center reliability standards at the IEEE benchmarking 2nd quartile for small utilities. In compliance with Minn. Rule 7826.0600, Subp. 1, Minnesota Power proposes following the 2nd quartile numbers from the 2024 IEEE Benchmark survey, the results of which will be published in the second half of 2025. At that time, Minnesota Power will submit a supplemental filing with the updated goals.

Table 53 - 2024 Proposed Reliability Performance Standards (These numbers will be updated to 2025 Proposed Reliability Performance Standards when IEEE numbers become available.)

	OVERALL	Central	Northern	Western
SAIDI	**121**	180	180	180
SAIFI	**1.00**	1.11	1.11	1.11
CAIDI	**139**	132	132	132

Based on the Company's review of internal rolling averages, IEEE Benchmark Survey and EIA 861 over a 10-year period, Minnesota Power recommends the Commission set future reliability goals based on a 5-year average, rather than a year-to-year comparison. The five-year timeframe gives more insight into industry trends, accounts for external factors impacting the distribution system such as weather and allows for better assessment of the Company's performance relative to peer utilities of similar size. If adopted, the 2024 goals are listed below.

Medium Utilities IEEE 2nd Quartile 5-year average:
SAIDI: 133.60 SAIFI: 1.07 CAIDI: 125.09

Small Utilities IEEE 2nd Quartile 5-year average:
SAIDI: 172.80 SAIFI: 1.34 CAIDI: 128.96

X. CONCLUSION

Minnesota Power respectfully submits this information on its Safety, Reliability and Service Quality metrics, demonstrating the Company's efforts and commitment to provide reliable, safe, and affordable electric service to its unique customer base. This information provides the Commission and stakeholders transparency into the Company's distribution system and the holistic planning that goes into maintaining the system's robustness and resilience, while remaining responsive to customers and their expectations. Minnesota Power is proud to have provided power that was over 99.9 percent reliable for its customers in 2024 and reports, by Work Center, on how it performed compared to peer utilities. As described in this report, along with the Company's most recent Integrated Distribution Plan, Minnesota Power has initiated several efforts to improve reliability, including strategic undergrounding, grid modernization, and asset renewal programs.

In addition to ensuring reliability of its system and caring for its customers, Minnesota Power is also dedicated to helping communities and fellow utilities as they endure the increasing frequency of severe weather-related outages. Minnesota Power continues to heartily embrace new opportunities to lead the way on energy and grid transition, while also coping with supply chain challenges, staffing shortages and longer product lead times and swiftly responding to an emergence of atypical storm events.

In the midst of significant energy and distribution system transition, the Company has kept service quality at the forefront, delivering on call response time goals, advancing communications across multiple digital platforms, and working closely with customers to maintain service and affordability. Minnesota Power continues to earn high customer satisfaction ratings and remains a leader in adopting technology, programs, and service offerings. The Company remains committed to Energy*Forward* – driving excellence through the Company's shared values of Integrity, Safety, People and Planet.

Form No. 6102 Rev. 7/10

Subject: Four Corners 215 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: FCS-215

Date Out:	1-2-2024	Date In:	1-2-2024
Time Out:	20:32	Time In:	22:09

Duration: 97

Number of Customers Affected: 1545

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Four Corners, Hermantown

Major Customers: St. Louis County Public Works, Pike Lake Elementary School, Super One Foods, St. Louis Emergency Management

Cause: Underground Equipment

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: 31 Line Babbitt-Winton Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: BBT-31, BAB-1, BAB-2, DUN-1

Date Out:	1-18-2024	Date In:	1-18-2024
Time Out:	12:21	Time In:	14:36

Duration: 135

Number of Customers Affected: 892

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Babbitt

Major Customers: Northeast Range School, Babbitt City Hall/ Public Library, Babbitt Ice Arena

Cause: Contractor Error

Follow-Up: Discuss process improvements with Contractors

Form No. 6102 Rev. 7/10

Subject: Aurora 313 (Laskin) Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: AUR-313, HYN-1, HYN-2, LEP-1

Date Out:	1-27-2024	Date In:	1-27-2024
Time Out:	01:38	Time In:	3:50

Duration: 132 minutes

Number of Customers Affected: 1199 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Hoyt Lakes

Major Customers: Hoyt Lakes Fire Station, Hoyt Lakes Arena, Hoyt Lakes Public Utilities, Hoyt Lakes Public Library

Cause: Power supply

Follow-Up: Relay testing completed, Lockout Relay replaced

Form No. 6102 Rev. 7/10

Subject: Birch Lake 509 Feeder Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: BLS-509, HCS-1, TML-1, TML-2

Date Out:	2-8-2024	Date In:	2-8-2024
Time Out:	00:39	Time In:	02:24

Duration: 104 minutes

Number of Customers Affected: 1196 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Hackensack and surrounding area

Major Customers: Cass County Maintenance Garage, Hackensack Fire Department

Cause: Overhead Equipment- insulator

Follow-Up: Failed equipment replaced

Form No. 6102 Rev. 7/10

Subject: Moorhead Rd 451 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: MHR-451

Date Out:	4-27-2024	Date In:	4-27-2024
Time Out:	02:21	Time In:	04:35

Duration: 134

Number of Customers Affected: 511

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Fond Du Lac Reservation,

Major Customers: MnDot Highway signs

Cause: Underground Equipment

Follow-Up: Failed Equipment replaced

Form No. 6102 Rev. 7/10

Subject: Riverton 506 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: RVT-506, CTD-1, CUY-1, DER-1, DER-2, DHY-1, TRM-1

Date Out:	4-28-2024	Date In:	4-28-2024
Time Out:	20:38	Time In:	22:36

Duration: 118 minutes

Number of Customers Affected: 1940

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Trommald, Cuyuna, Deerwood

Major Customers: City of Trommald, Cuyuna Fire Department, Cuyuna Range Elementary School, Cuyuna Range Medical Center, City of Deerwood

Cause: Equipment failure - Arrestor

Follow-Up: Failed equipment repaired

Form No. 6102 Rev. 7/10

Subject: Chisholm Stepdown Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: CHL-1, CHL-2, CHL-3

Date Out:	5-15-2024	Date In:	5-15-2024
Time Out:	14:00	Time In:	15:41

Duration: 101 minutes

Number of Customers Affected: 2526 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Chisholm

Major Customers: Vaughan-Steffensrud Elementary School, Chisholm High School, Chisholm City Hall

Cause: Planned Maintenance- Replaced failed insulator

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Colbyville 244 Feeder Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: COL-244

Date Out:	5-25-2024	Date In:	2-25-2024
Time Out:	06:18	Time In:	07:27

Duration: 69 minutes

Number of Customers Affected: 2312

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Lakeside Community in Duluth

Major Customers: Rockridge Academy, Lester Park Elementary School, Duluth Fire Department Station 6

Cause: Unknown

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Riverton 505 & 532 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: RVT-505, CSB-1, CSB-2, IRN-1, RVT-532, RVD-1

Date Out:	6-9-2024	Date In:	6-9-2024
Time Out:	10:29	Time In:	12:29

Duration: 120

Number of Customers Affected: 1905

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Crosby, Ironton, Riverton

Major Customers: Crosby-Ironton High School, Cuyuna Regional Medical Center, City of Crosby, DNR office- Cuyuna Country State Recreation Area

Cause: Tree fell into both feeders

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Hibbing 310 Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: HIB-310, BAL-1, BAL-2, CHL-1, CHL-2, CHL-3

Date Out:	6-11-2024	Date In:	6-11-2024
Time Out:	8:56	Time In:	10:11

Duration: 75 minutes

Number of Customers Affected: 3015 customers

For information about this alert, contact:

For follow-up information or questions, contact:

Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Chisholm, Balkan

Major Customers: Vaughan-Steffensrud Elementary School, Chisholm High School, Chisholm City Hall

Cause: Failed insulator

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: 31 Line (Babbitt-Winton) Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: BBT-31, BAB-1, BAB-2, DUN-1

Date Out:	6-12-2024	Date In:	6-12-2024
Time Out:	18:44	Time In:	19:54

Duration: 70 minutes

Number of Customers Affected: 892 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Babbitt

Major Customers: Northshore Mine Babbitt, Northeast Range High School, Babbitt City Garage, Babbitt Public Library

Cause: Overhead Equipment- Guy wire

Follow-Up: Guy wire cleared and repaired.

Form No. 6102 Rev. 7/10

Subject: Riverton 506 Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: RVT-506, CTD-1, CUY-1, DER-1, DER-2, DHY-1, TRM-1

Date Out:	6-12-2024	Date In:	6-12-2024
Time Out:	18:45	Time In:	20:48

Duration: 123

Number of Customers Affected: 1940

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Trommald, Cuyuna, Deerwood

Major Customers: City of Trommald, Cuyuna Fire Department, Cuyuna Range Elementary School, Cuyuna Range Medical Center, City of Deerwood

Cause: Weather - Wind

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Moorhead Rd 451 Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: MHR-451

Date Out:	6-18-2024	Date In:	6-18-2024
Time Out:	19:26	Time In:	20:52

Duration: 86 minutes

Number of Customers Affected: 511 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Fond Du Lac Reservation, south end of Cloquet

Major Customers: MnDOT Highway signs

Cause: Weather - Wind

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Swan Lake 250 Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: SLA-250

Date Out:	6-18-2024	Date In:	6-18-2024
Time Out:	20:34	Time In:	22:13

Duration: 99 minutes

Number of Customers Affected: 2500 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Duluth Heights

Major Customers: United Healthcare, City of Duluth, Marshall School, MNDOT District Headquarters Building

Cause: Weather - Wind

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Deerwood Count Hwy 12 Stepdown Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: DHY-1

Date Out:	6-28-2024	Date In:	6-28-2024
Time Out:	04:40	Time In:	07:25

Duration: 165 minutes

Number of Customers Affected: 653 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Rural Deerwood

Major Customers: Residential

Cause: Vegetation

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Eagle Valley 513 Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: EGV-513, BER-1, EGB-1

Date Out:	6-28-2024	Date In:	6-28-2024
Time Out:	00:52	Time In:	03:18

Duration: 146 minutes

Number of Customers Affected: 860 customers

For information about this alert, contact:

For follow-up information or questions, contact:

Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Eagle Bend, Bertha

Major Customers: Bertha Hewitt Public School, Residential

Cause: Overhead Equipment

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Burnett 408 Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: BUR-408

Date Out:	7-1-2024	Date In:	7-1-2024
Time Out:	16:32	Time In:	17:40

Duration: 68 minutes

Number of Customers Affected: 528 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Brookston, Culver, and Alborn

Major Customers: Brookston City Hall, St. Louis County Tool House, Alborn Fire Department, South Ridge School

Cause: Vegetation - Tree fell on feeder near substation

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Blanchard 511 Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: BLD-511, NTR-1, ROY-2

Date Out:	7-2-2024	Date In:	7-2-2024
Time Out:	20:07	Time In:	21:35

Duration: 88 minutes

Number of Customers Affected: 1461 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Royalton and surrounding area

Major Customers: Royalton Middle/High School, residential

Cause: Overhead Equipment - Wire

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Embarrass 317 Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: EMB-317, AUN-1, AUN-2, BIW-1

Date Out:	7-6-2024	Date In:	7-6-2024
Time Out:	17:09	Time In:	18:42

Duration: 93 minutes

Number of Customers Affected: 1479 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Aurora

Major Customers: Mesabi East School, Essentia Health-Northern Pines Hospital, Aurora Fire Hall Complex, Giants Ridge

Cause: Vegetation-Tree

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Burnett 408 Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: BUR-408

Date Out:	7-25-2024	Date In:	7-26-2024
Time Out:	23:52	Time In:	00:55

Duration: 63 minutes

Number of Customers Affected: 528 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Brookston, Culver, and Alborn

Major Customers: Brookston City Hall, St. Louis County Tool House, Alborn Fire Department, South Ridge School

Cause: Transmission line locked out affecting the power supply to the Burnett substation

Follow-Up: Line patroled, Relay events and settings reviewed.

Form No. 6102 Rev. 7/10

Subject: Spirit Lake Stepdown Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: SLS-1

Date Out:	7-31-2024	Date In:	7-31-2024
Time Out:	14:41	Time In:	15:59

Duration: 78 minutes

Number of Customers Affected: 917 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Menahga

Major Customers: Menahga Public School, Menahga City Hall

Cause: Weather

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: South Pine River Stepdown Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: SPR-1

Date Out:	8-3-2024	Date In:	8-3-2024
Time Out:	18:54	Time In:	20:58

Duration: 124 minutes

Number of Customers Affected: 926 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Pine River

Major Customers: Residential

Cause: Weather - Wind

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Little Falls North Stepdown Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: NTH-1

Date Out:	8-17-2024	Date In:	8-17-2024
Time Out:	20:50	Time In:	22:46

Duration: 116 minutes

Number of Customers Affected: 596 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Little Falls

Major Customers: Morrison County Government Center, US Post office, Little Falls Police Department, Little Falls Fire Department

Cause: Overhead Arrestor

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: International Falls 2 Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: INF-2

Date Out:	9-1-24	Date In:	9-2-24
Time Out:	22:03	Time In:	04:51

Duration: 408 minutes

Number of Customers Affected: 1376 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lizzie Holby
Reliability Engineer
Minnesota Power
eholby@mnpower.com
218-355-2656

Communities Affected: International Falls

Major Customers: Falls Memorial Hospital, International Falls Fire Station, Koochiching County Court & Municipal Buildings

Cause: Underground Equipment - Cable

Follow-Up: N/A

Form No. 6102 Rev. 7/10

Subject: Colbyville 240 Feeder Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: COL-240

Date Out:	9-7-2024	Date In:	9-7-2024
Time Out:	00:27	Time In:	03:31

Duration: 184 minutes

Number of Customers Affected: 1805 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Duluth - Woodland, rural Duluth

Major Customers: St. Louis County Garage, City of Duluth - Woodland Pump station, Stella Maris Academy High School

Cause: Overhead Equipment - Switch

Follow-Up: Switch has been replaced.

Form No. 6102 Rev. 7/10

Subject: Birch Lake 509 Feeder Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: BLS-509, HCS-1, TML-1, TML-2

Date Out:	10-12-2024	Date In:	10-12-2024
Time Out:	06:37	Time In:	09:08

Duration: 151 minutes

Number of Customers Affected: 1196 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

Communities Affected: Hackensack and the surrounding area

Major Customers: Cass County Maintenance Garage, Hackensack Fire Department

Cause: Unknown

Follow-Up: Patrol Line

Form No. 6102 Rev. 7/10

Subject: Pequot Lakes 507 Feeder Lock Out Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: PQT-507, PQL-1, PQL-2

Date Out:	11-30-2024	Date In:	11-30-2024
Time Out:	09:07	Time In:	10:24

Duration: 77 minutes

Number of Customers Affected: 1235 customers

For information about this alert, contact:

For follow-up information or questions, contact: Lee Gustafson
Reliability Engineer
Minnesota Power
lgustafson@mnpower.com
218-355-2399

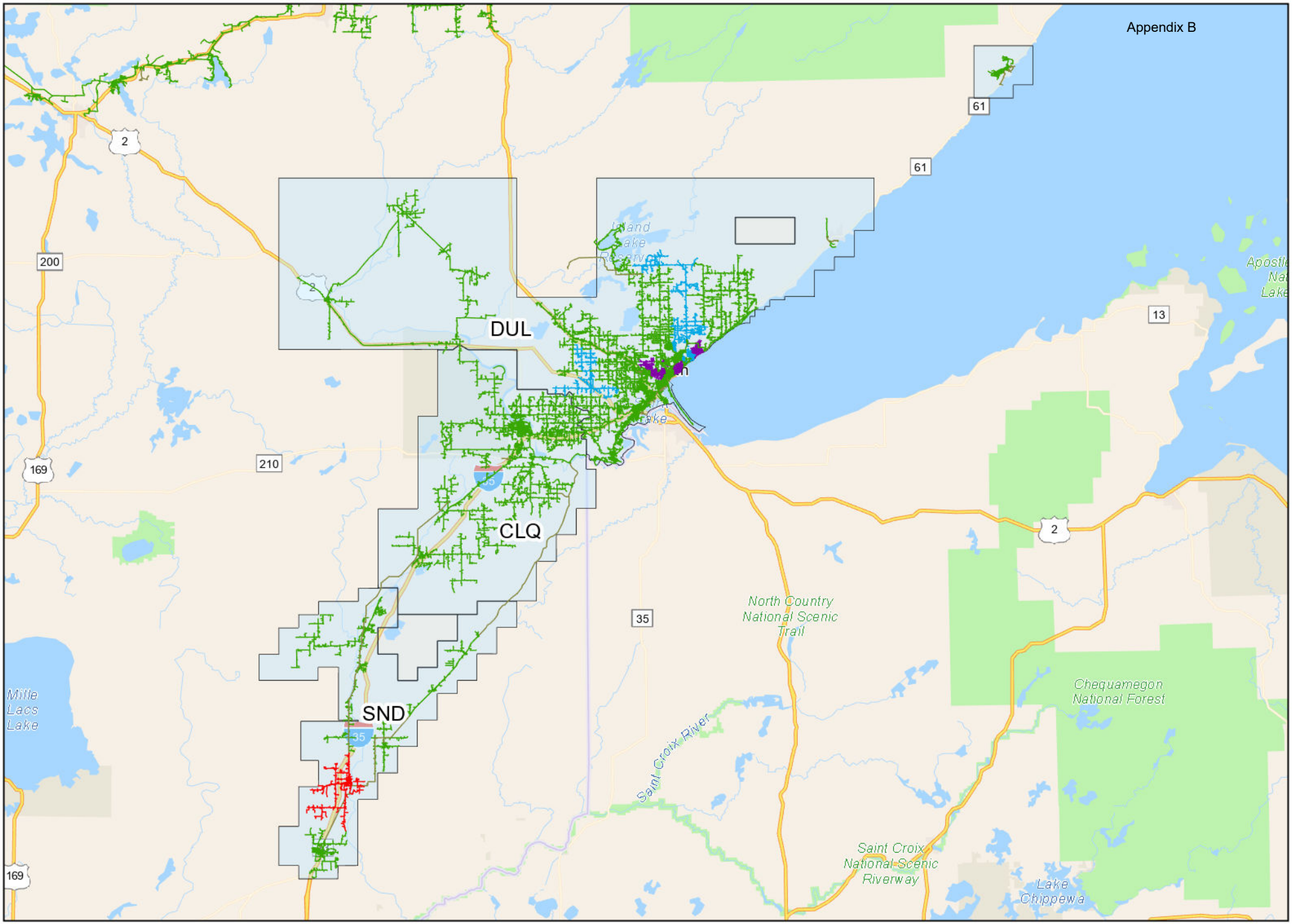
Communities Affected: Pequot Lakes

Major Customers: Pequot Lakes School, Pequot Lakes City Hall, Pequot Lakes Volunteer Fire Department.

Cause: Substation relay failure

Follow-Up: Program new relay and replace failed unit

Appendix B



2024 FEEDER SAIDI

Operations Area: Central Work Center

Operations Areas

SAIDI

- 0
- 0-1
- 1-2
- 2-3
- 3+

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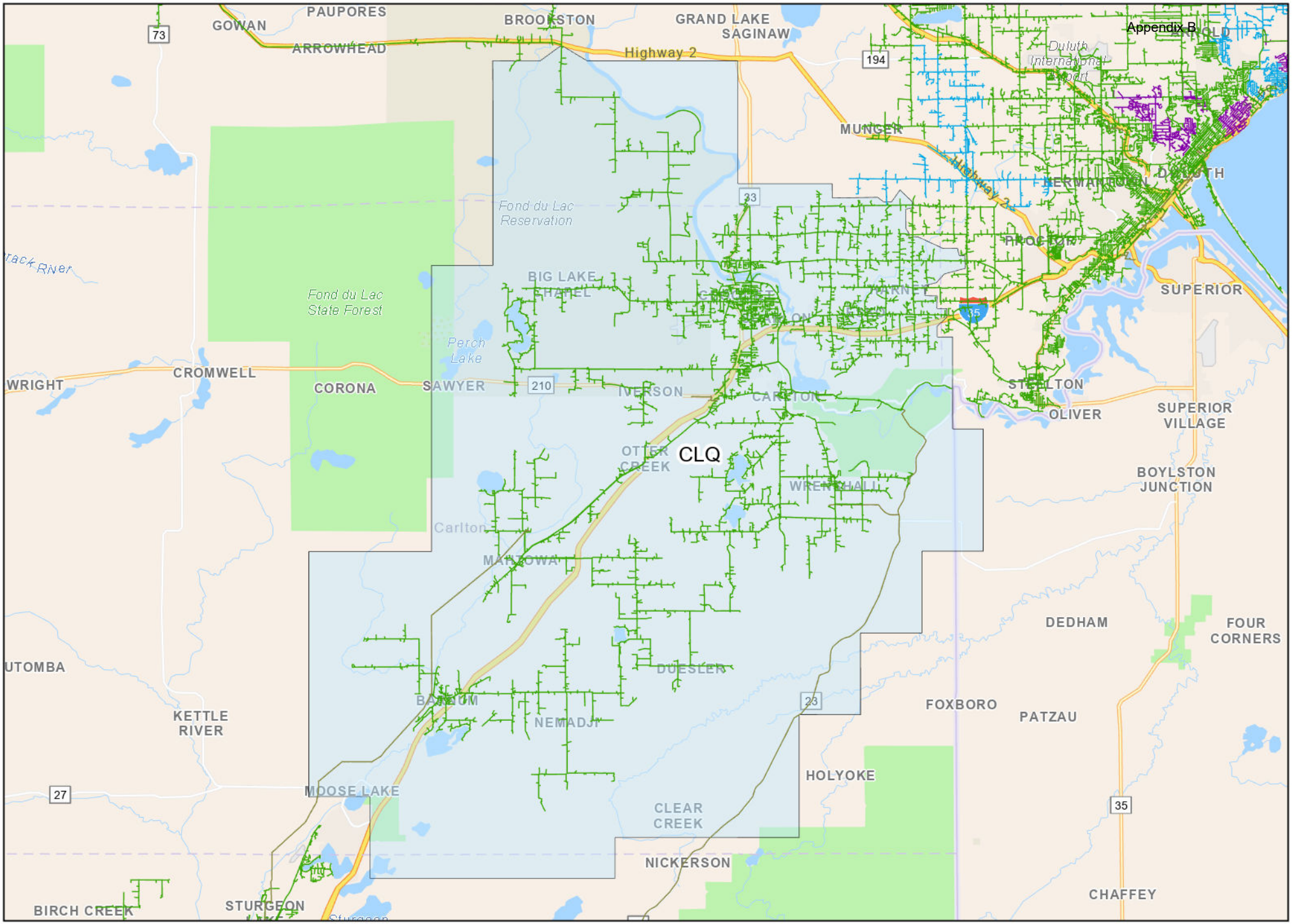

0 1.5 3 6 9 12 Miles

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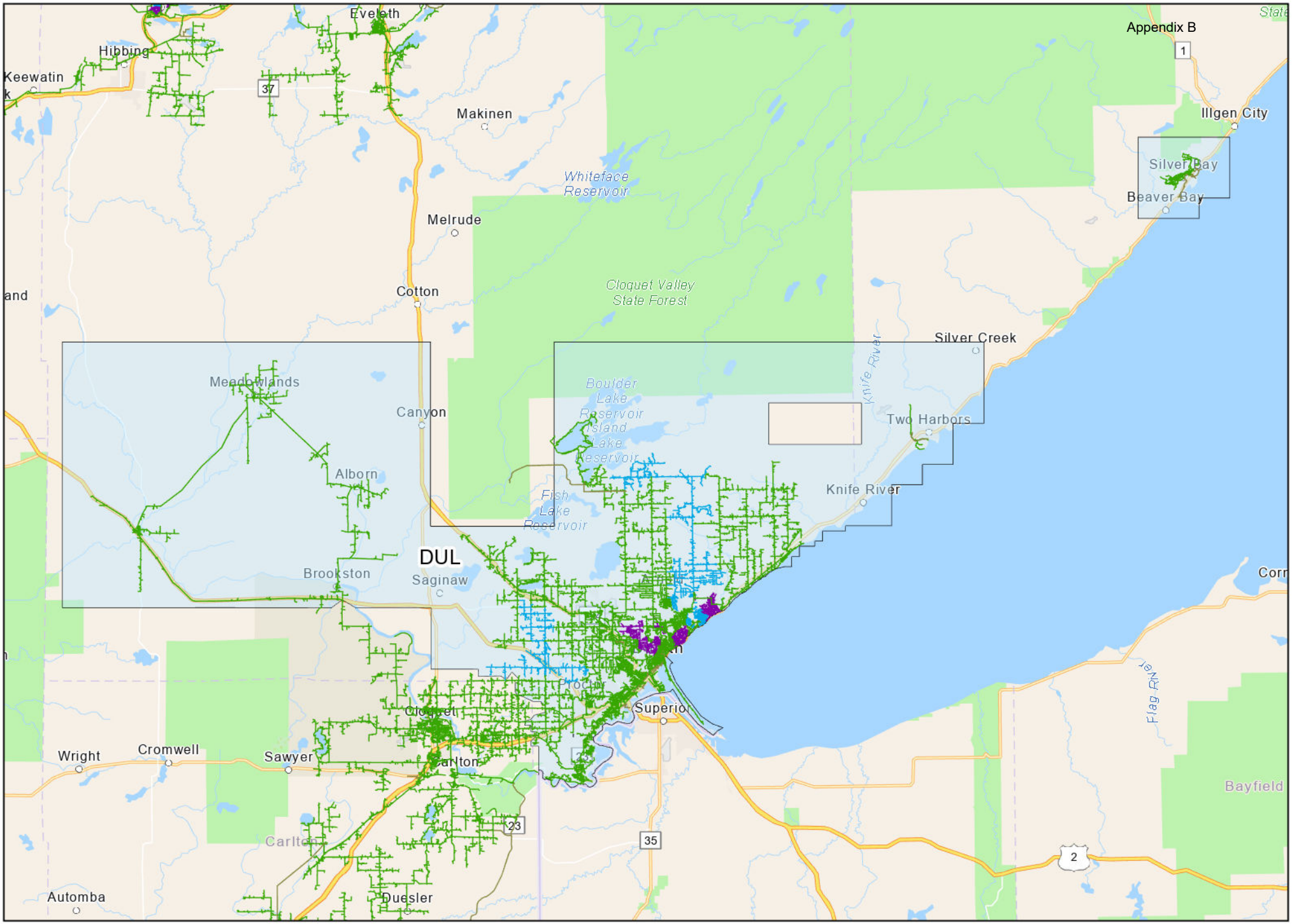
2024 FEEDER SAIDI

Operations Area: CLQ

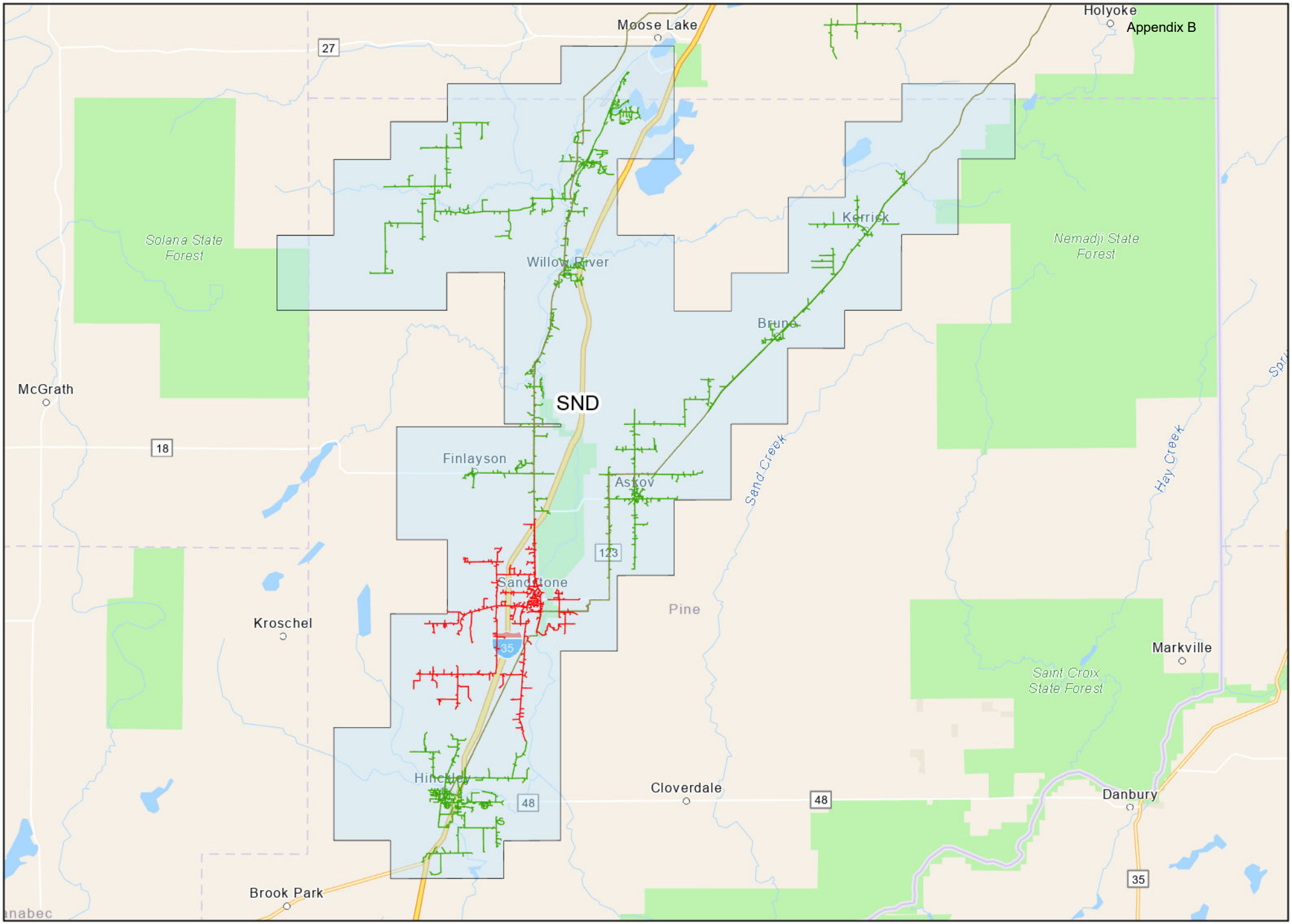
Operations Areas

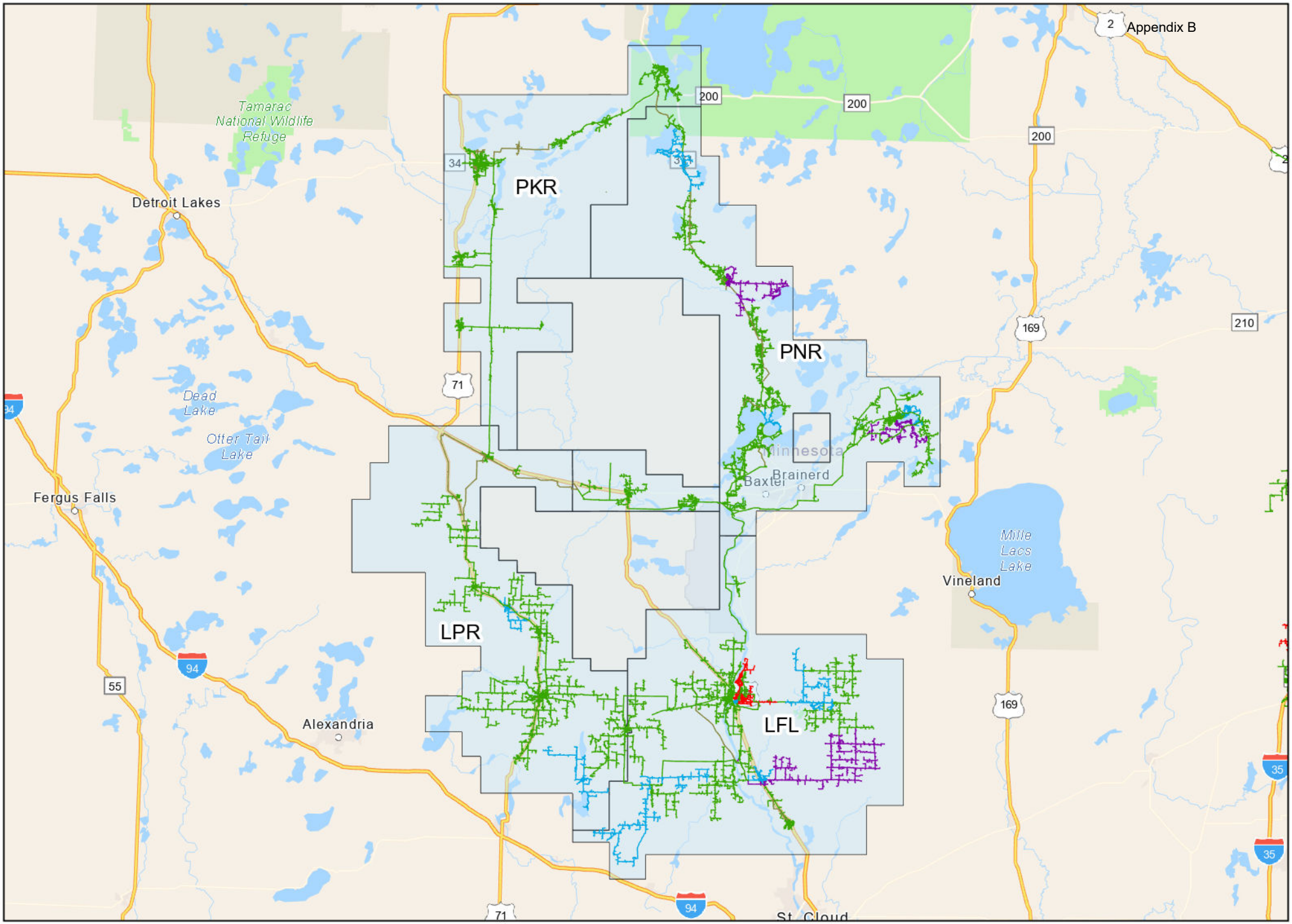
SAIDI

- 0
- 0-1
- 1-2
- 2-3
- 3+

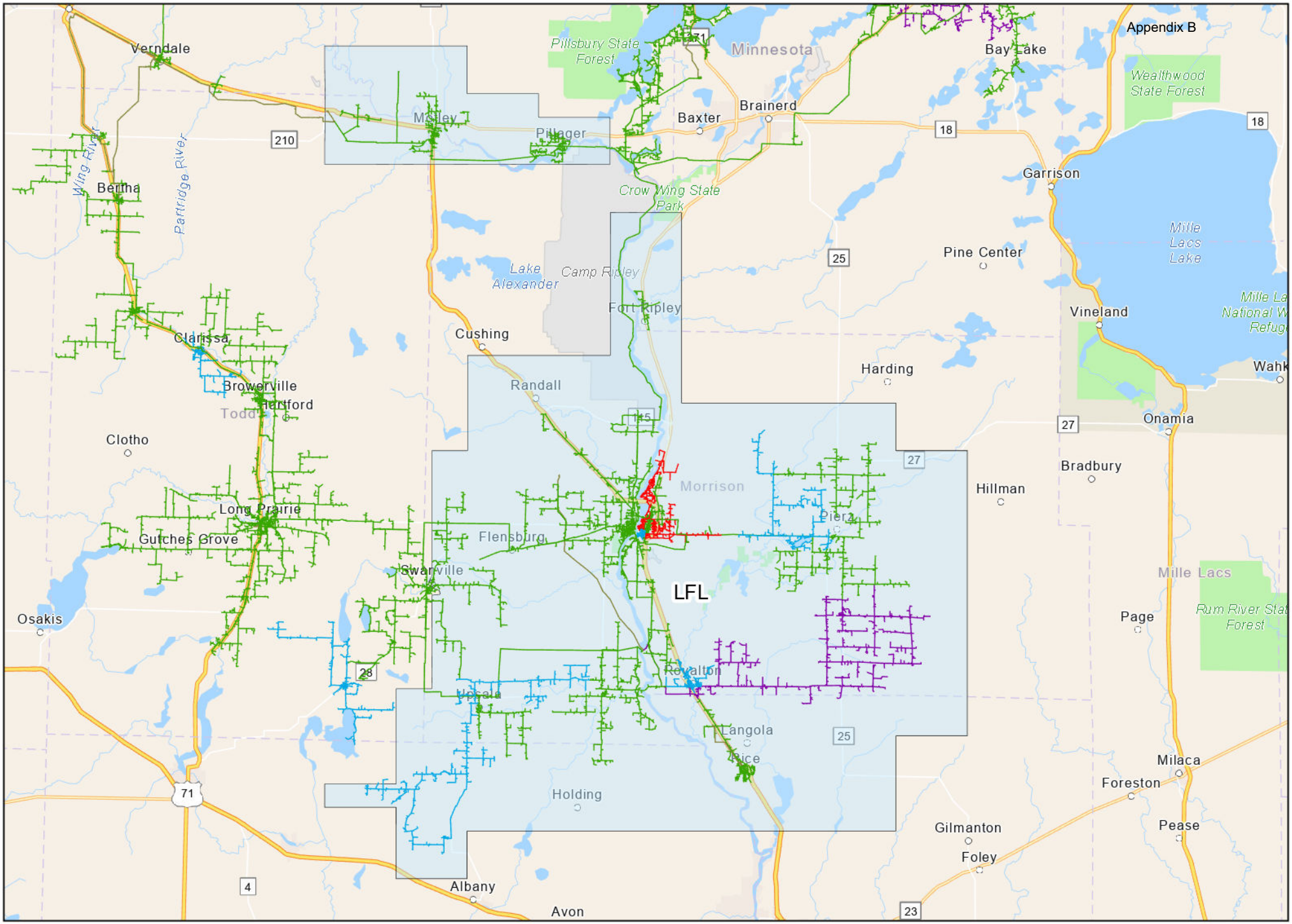

Appendix B
Eveleth
Hibbing
Keewatin
Makinen
Whiteface Reservoir
Melrude
Cotton
Cloquet Valley State Forest
Illgen City
Silver Bay
Beaver Bay
Silver Creek
Knife River
Two Harbors
Meadowlands
Canyon
Boulder Lake Reservoir
Island Lake Reservoir
Alborn
Fish Lake Reservoir
DUL
Brookston
Saginaw
Superior
Wright
Cromwell
Sawyer
Carlton
Bayfield
Automba
Duesler
0 3.25 6.5 13 19.5 26
Miles
2024 FEEDER SAIDI
Operations Area: DUL
Operations Areas
SAIDI
0
0-1
1-2
2-3
3+
nkoski
3/25/2025

Appendix B


Holyoke
Moose Lake
27
Solana State Forest
Willow River
Kerrick
Nemadji State Forest
Brunsville
McGrath
SND
18
Finlayson
Askov
Sand Creek
Hay Creek
123
Sandstone
Pine
Kroschel
35
Markville
Saint Croix State Forest
Hinckley
Cloverdale
48
Danbury
Brook Park
0 1.75 3.5 7 10.5 14
Miles
nkoski
3/25/2025
2024 FEEDER SAIDI
Operations Area: SND
Operations Areas
SAIDI
0
0-1
1-2
2-3
3+


Appendix B
Tamarac National Wildlife Refuge
Detroit Lakes
PKR
PNR
LPR
LFL
Dead Lake
Otter Tail Lake
Fergus Falls
Alexandria
Minnesota
Brainerd
Baxter
Mille Lacs Lake
Vineland
St. Cloud
200
34
71
94
55
169
210
35
0 5 10 20 30 40
Miles
nkoski
3/25/2025
2024 FEEDER SAIDI
Operations Area: Western Work Center
Operations Areas
SAIDI
0
0-1
1-2
2-3
3+

Appendix B



0 2.75 5.5 11 16.5 22 Miles

nkoski 3/25/2025

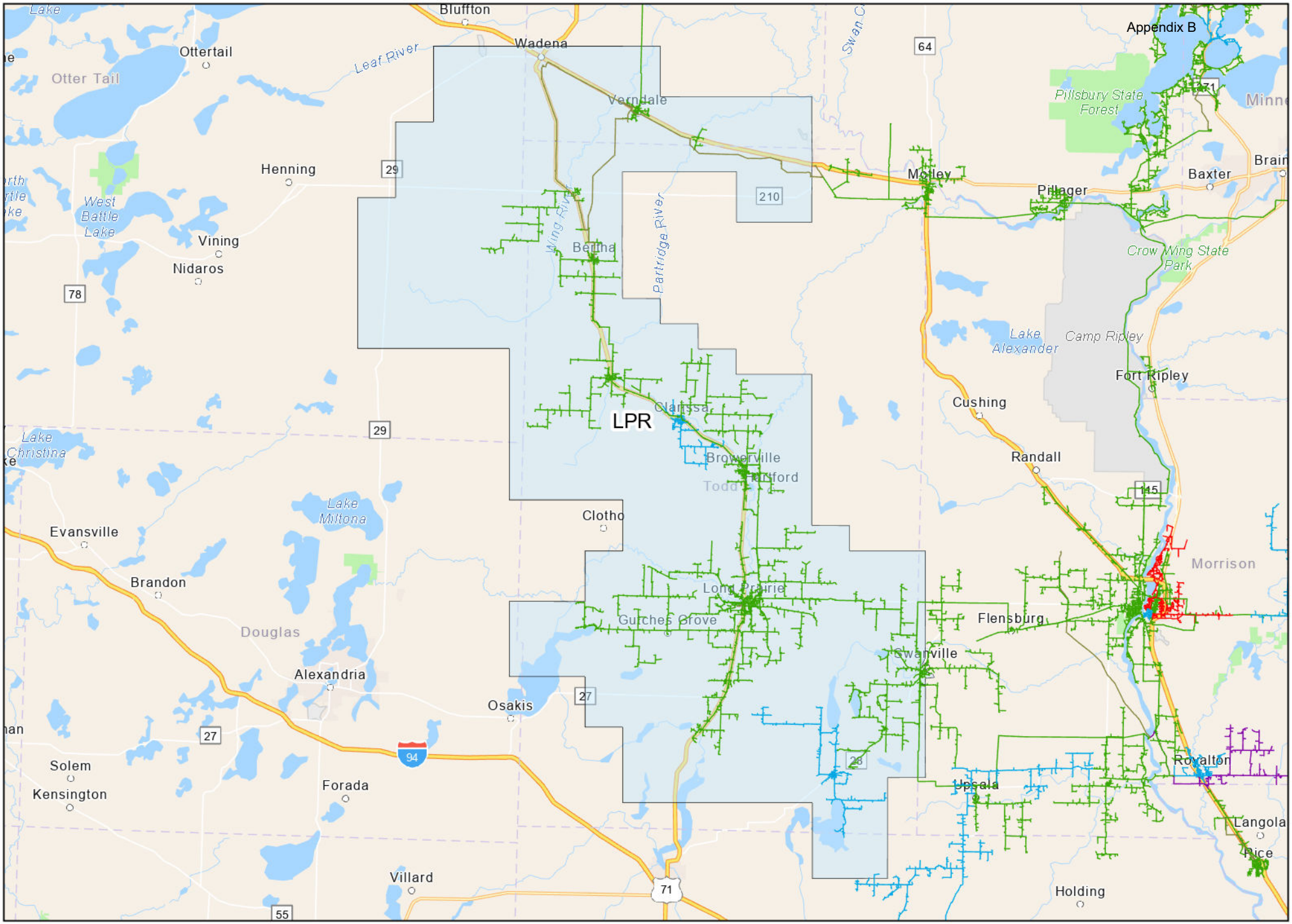
2024 FEEDER SAIDI

Operations Area: LFL

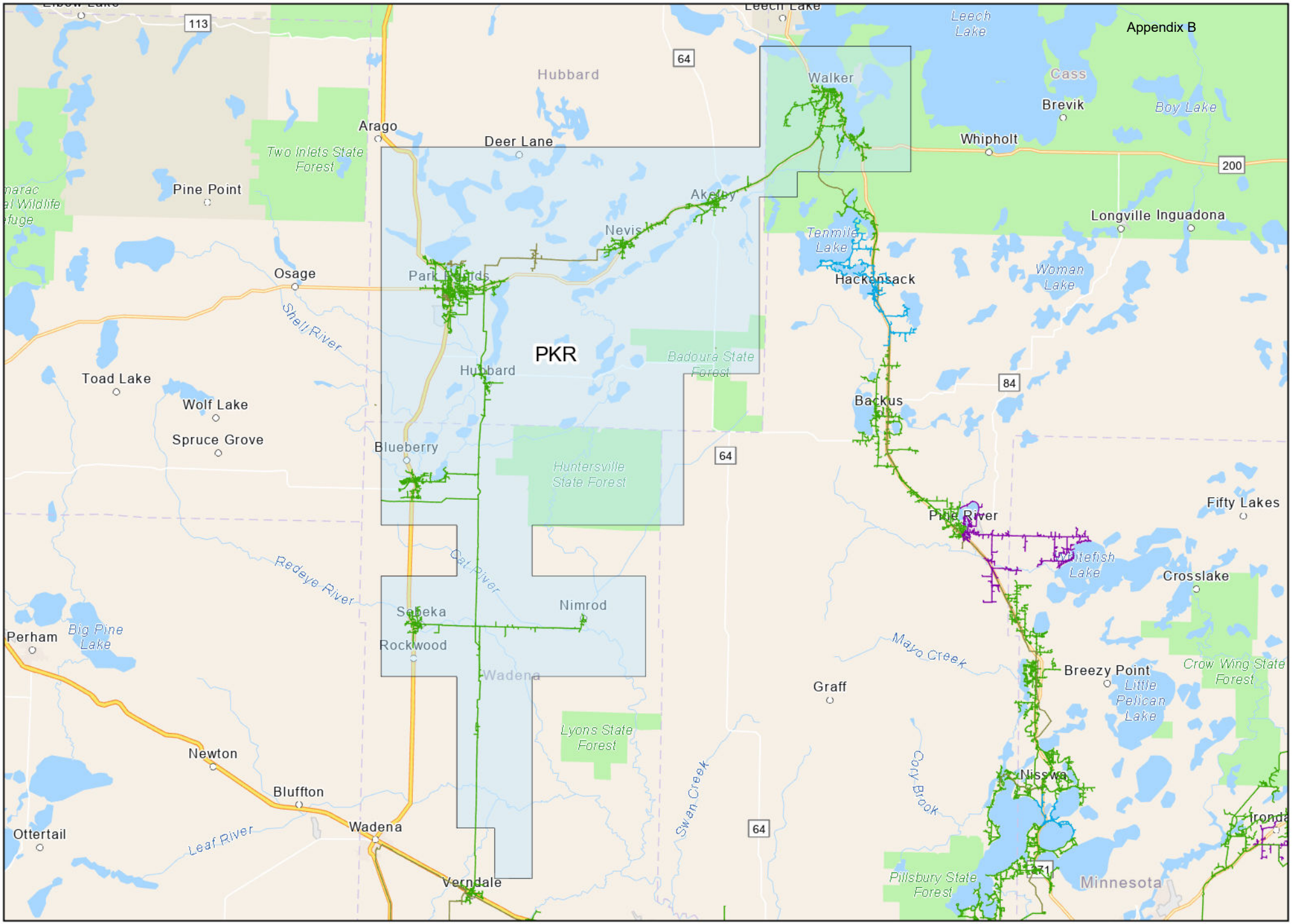
Operations Areas

SAIDI

- 0
- 0-1
- 1-2
- 2-3
- 3+


Appendix B
LPR
Bluffton
Wadena
Ottertail
Otter Tail
Leaf River
Verndale
Henning
Vining
Nidaros
West Battle Lake
Lake
Lake Christina
Lake Miltona
Evansville
Brandon
Douglas
Alexandria
Osakis
Solem
Kensington
Forada
Villard
Bertha
Partridge River
Motley
Pillager
Pillsbury State Forest
Baxter
Crow Wing State Park
Lake Alexander
Camp Ripley
Fort Ripley
Cushing
Randall
Clarissa
Browerville
Todd
Clotho
Long Prairie
Gutches Grove
Flensburg
Swanville
Morrison
Royalton
Upsala
Langola
Rice
Holding
64
29
210
78
145
27
94
71
55
0 2.75 5.5 11 16.5 22
Miles
nkoski
3/25/2025
2024 FEEDER SAIDI
Operations Area: LPR
Operations Areas
SAIDI
0
0-1
1-2
2-3
3+

Appendix B



0 2.75 5.5 11 16.5 22 Miles

nkoski 3/25/2025

2024 FEEDER SAIDI

Operations Area: PKR

Operations Areas

SAIDI

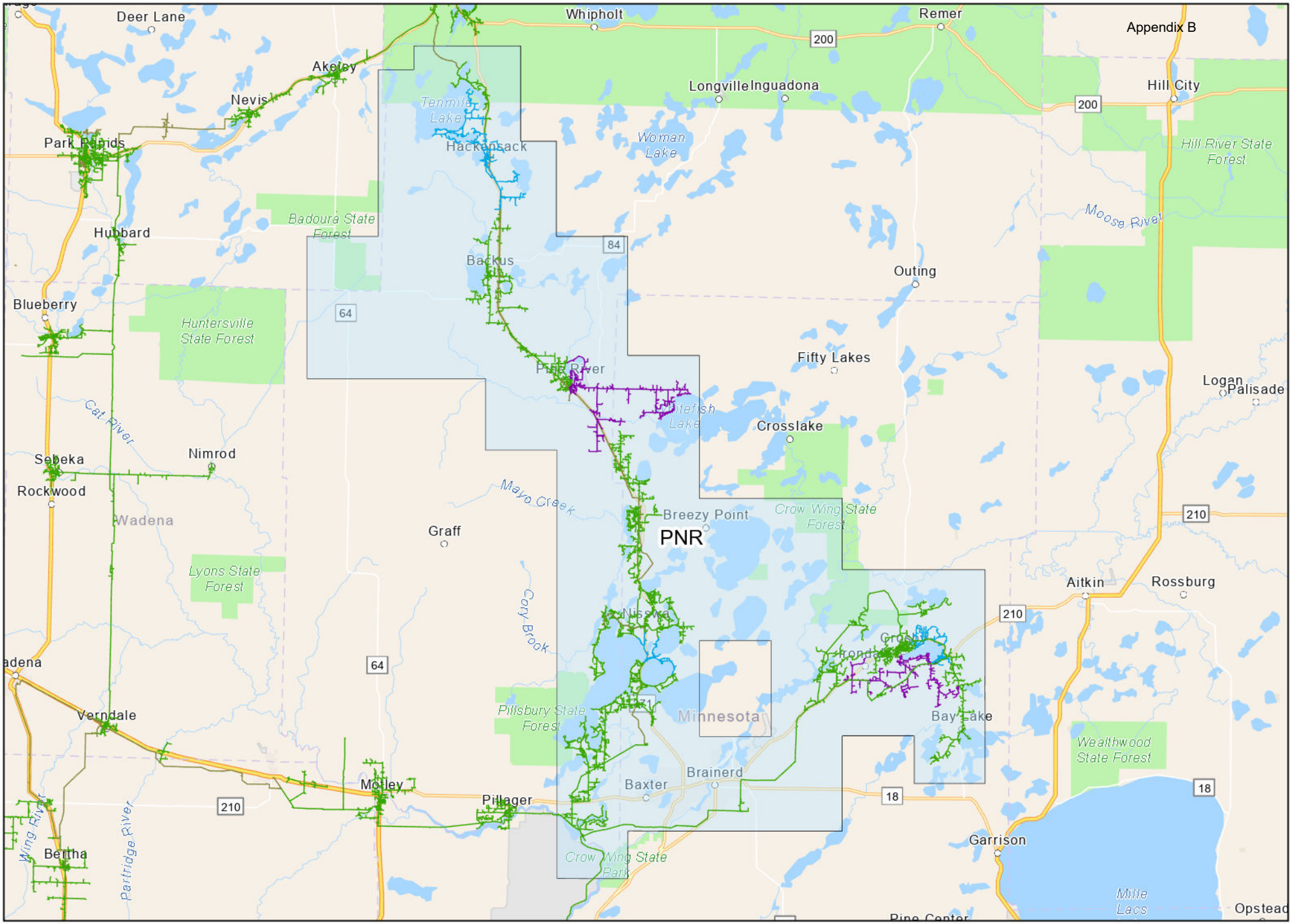
0

0-1

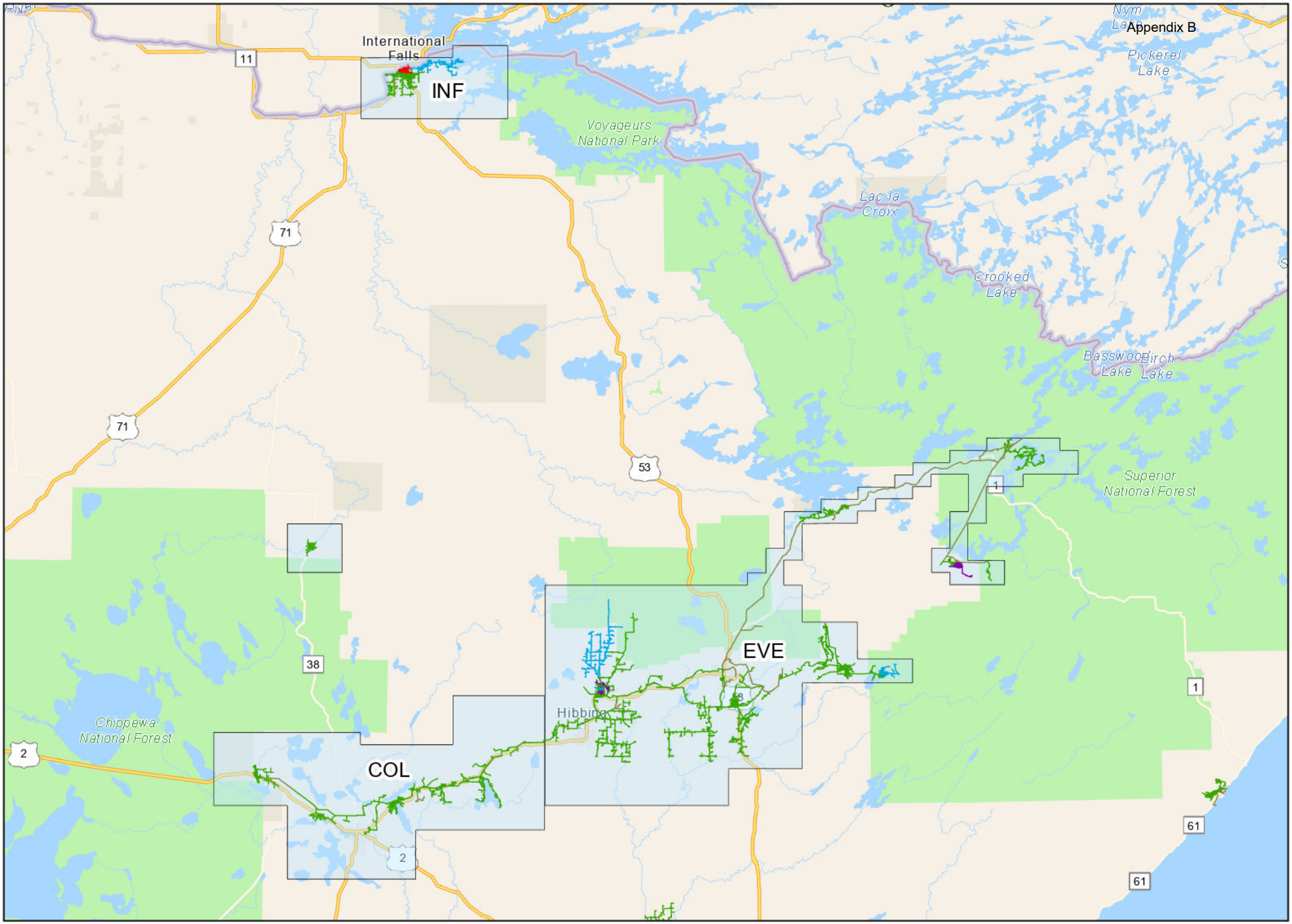
1-2

2-3

3+


Deer Lane
Akeley
Nevis
Park Rapids
Hubbard
Blueberry
Sebeka
Rockwood
Wadena
Verndale
Bertha
Motley
Pillager
Baxter
Brainerd
Breezy Point
PNR
Graff
Nimrod
Backus
Hackensack
Whipholt
Remer
Longville
Inguadona
Outing
Fifty Lakes
Crosslake
Hill City
Logan
Palisade
Aitkin
Rossburg
Garrison
Bay Lake
Minnesota
Tenmile Lake
Woman Lake
Badoura State Forest
Huntersville State Forest
Lyons State Forest
Pillsbury State Forest
Crow Wing State Forest
Crow Wing State Park
Hill River State Forest
Wealthwood State Forest
Mille Lacs
Moose River
Mayo Creek
Cory Brook
Cat River
Wing River
Partridge River
200
84
64
210
18
0 2.75 5.5 11 16.5 22
Miles
nkoski
3/25/2025
2024 FEEDER SAIDI
Operations Area: PNR
Operations Areas
SAIDI
0
0-1
1-2
2-3
3+

Appendix B



0 5 10 20 30 40 Miles

nkoski 3/25/2025

2024 FEEDER SAIDI

Operations Area: Northern Work

Operations Areas

SAIDI

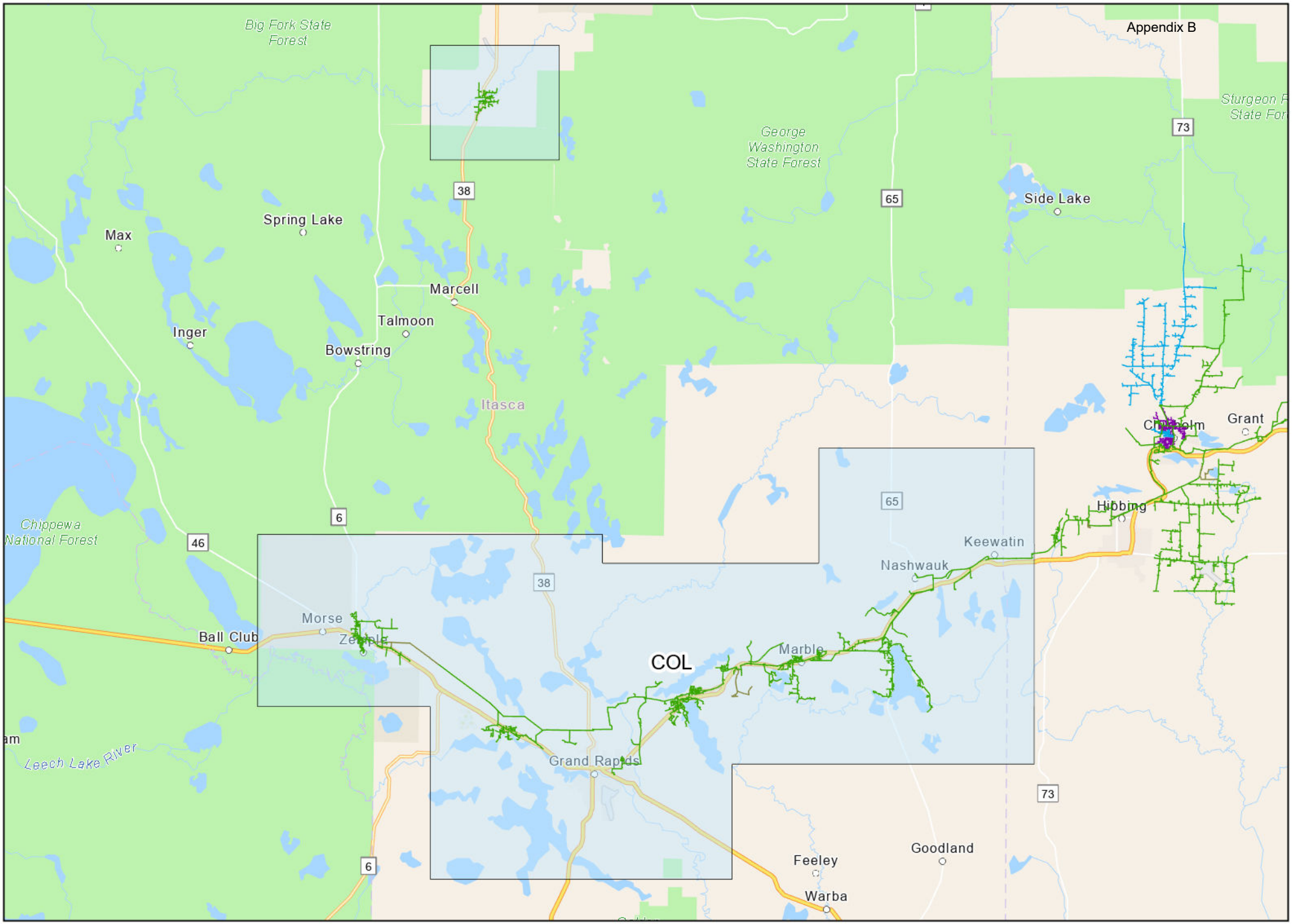
0

0-1

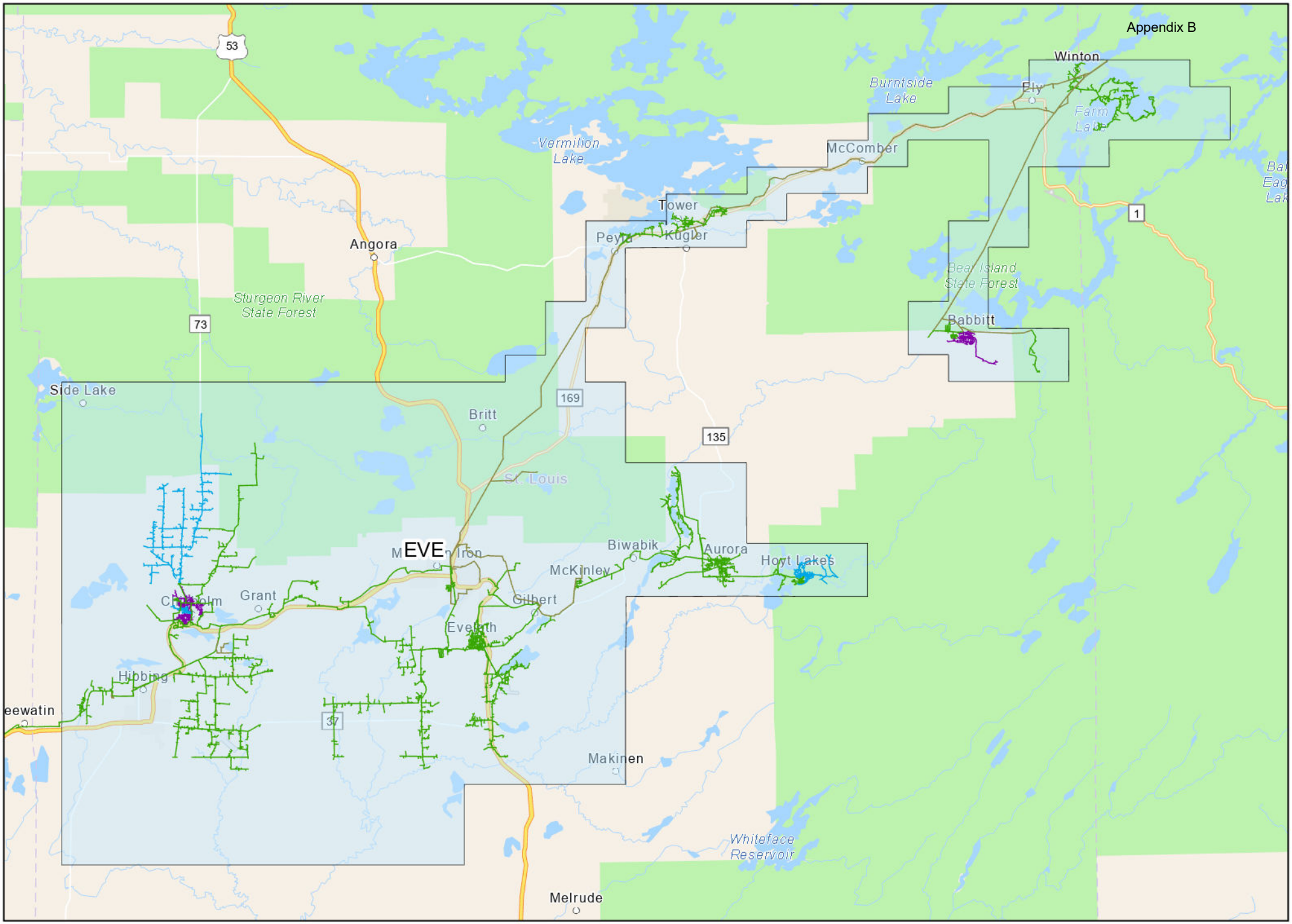
1-2

2-3

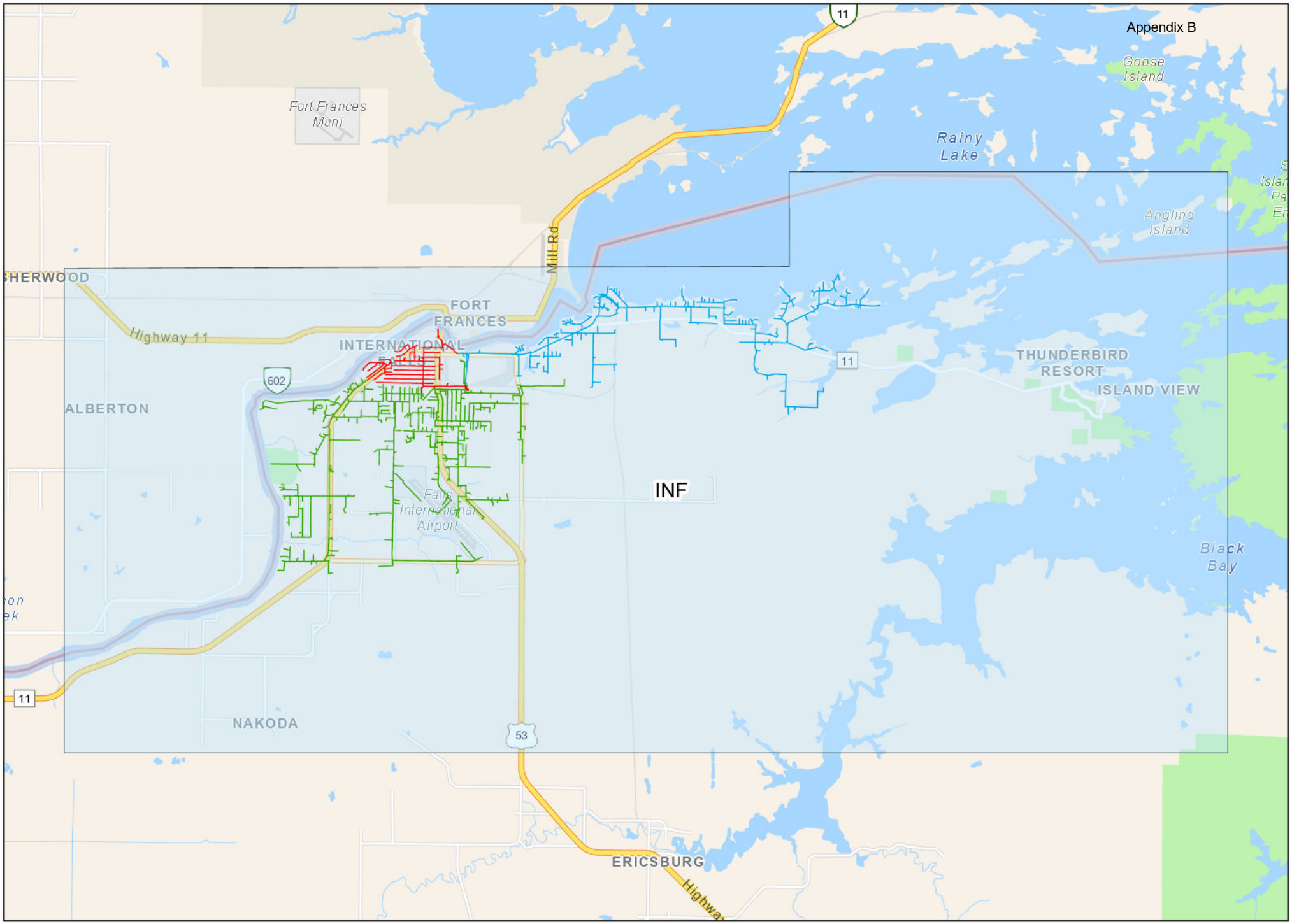
3+


Appendix B
Big Fork State Forest
George Washington State Forest
Sturgeon F State For
Spring Lake
Max
Marcell
Talmoon
Inger
Bowstring
Itasca
Side Lake
Grant
Hibbing
Chippewa National Forest
Keewatin
Nashwauk
Morse
Ball Club
Zemple
COL
Marble
Grand Rapids
Leech Lake River
Feeley
Goodland
Warba
38
65
73
6
46
0 2.25 4.5 9 13.5 18
Miles
nkoski
3/25/2025
2024 FEEDER SAIDI
Operations Area: COL
Operations Areas
SAIDI
0
0-1
1-2
2-3
3+

Appendix B


Winton
Ely
Burntside Lake
Farm Lake
Vermilion Lake
McComber
Tower
Peyla
Kugler
Angora
Sturgeon River State Forest
Bear Island State Forest
Babbitt
Side Lake
Britt
St. Louis
EVE
Biwabik
Aurora
Hoyt Lakes
McKinley
Gilbert
Grant
Hibbing
Makinen
Whiteface Reservoir
Melrude
53
73
169
135
1
37
0 2.5 5 10 15 20
Miles
2024 FEEDER SAIDI
Operations Area: EVE
Operations Areas
SAIDI
0
0-1
1-2
2-3
3+
nkoski
3/25/2025

Appendix B


Fort Frances Muni
Rainy Lake
Goose Island
Angling Island
Mill Rd
SHERWOOD
FORT FRANCES
INTERNATIONAL
Highway 11
602
11
ALBERTON
THUNDERBIRD RESORT
ISLAND VIEW
INF
Falls International Airport
Black Bay
NAKODA
53
ERICSBURG
0 0.5 1 2 3 4
Miles
nkoski
3/25/2025
2024 FEEDER SAIDI
Operations Area: INF
Operations Areas
SAIDI
0
0-1
1-2
2-3
3+

List of Acronyms and Defined Terms

ACRONYM / Term	DEFINITION
AMI	Advanced Metering Infrastructure
ANSI	American National Standards Institute
AMR	Automated Meter Reading
ASAI	Average Service Availability Index
CAIDI	Customer Average Interruption Duration Index
CCSR	Customer Care and Support Representative
CELI	Customers Experiencing Lengthy Interruptions
CMI	Customer Minutes of Interruption
CEMI	Customers Experiencing Multiple Interruptions
CWR	Cold Weather Rule
DSM	Demand-Side Management
EEI	Edison Electric Institute
EMS	Energy Management System
ETR	Estimated Times of Restoration
EVSE	Electric Vehicle Supply Equipment
FLISR	Fault Location, Isolation, and System Restoration
GIS	Geographic Information Systems/Utility Network Model
Grid Mod	Grid Modernization
IEEE	Institute of Electrical and Electronic Engineers
IDP	Integrated Distribution Plan
IVR	Interactive Voice Response
kV	KiloVolt
kVARh	KiloVAR-Hour
kW	Kilowatt
kWh	Kilowatt-Hour
LIHEAP	Low Income Home Energy Assistance Program
MAIFI	Momentary Average Interruption Frequency Index
OMS	Outage Management System
PM	Preventative Maintenance
RAMP-UP	Resource Allocation Management Program for Utility Personnel
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SCADA	Supervisory Control and Data Acquisition
SRSQ	Safety Reliability and Service Quality
TOU	Time-of-Use

STATE OF MINNESOTA	)	AFFIDAVIT OF SERVICE VIA
	)ss	ELECTRONIC FILING
COUNTY OF ST. LOUIS	)	

I, Tiana C. Heger of the City of Duluth, County of St. Louis, State of Minnesota, hereby certify that on the 1st day of April, 2025, I electronically filed a true and correct copy of Minnesota Power's Annual Compliance Filing of its Safety, Reliability and Service Quality Standards Report in **Docket No. E015/M-25-_____** on the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The persons on eDocket's Official Service List for this Docket were served as requested.

Tiana Heger