Jenna Warmuth
Senior Public Policy Advisor
218-355-3448
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April 12, 2019

VIA ELECTRONIC FILING

Daniel P. Wolf
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 2019 Safety, Reliability and Service Quality Standards Report
Docket No. E015/M-19-254

Dear Mr. Wolf:

Minnesota Power herby submits its annual Safety, Reliability and Service Quality Standards Report to the Minnesota Public Utilities Commission ("Commission"). In this year's Safety, Reliability and Service Quality Report, Minnesota Power outlines how the Company continuously strives to provide excellent service to all customers across a unique service territory in northeastern and central Minnesota.

The Company appreciates the Commission's attention to this matter and is available to answer any questions.

Please contact me at the number above with any questions related to this matter.

Respectfully,

Jenna Warmuth

JW:sr
Attach.

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

SUSAN ROMANS of the City of Duluth, County of St. Louis, State of Minnesota, says that on the **12th** day of **April, 2019**, she served Minnesota Power's in **Docket No. E015/M-19-254** on the Minnesota Public Utilities Commission and the Office of Energy Security via electronic filing. The persons on Minnesota Power's SRSQ Service List for this Docket were served as requested.

Susan Romans

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Julia	Anderson	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	No	GEN_SL_Minnesota Power_MP's SRSQ Serv Lst
Carl	Cronin	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	GEN_SL_Minnesota Power_MP's SRSQ Serv Lst
Ian	Dobson	Residential.Utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	No	GEN_SL_Minnesota Power_MP's SRSQ Serv Lst
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	GEN_SL_Minnesota Power_MP's SRSQ Serv Lst
Allen	Krug	allen.krug@xcelenergy.com	Xcel Energy	414 Nicollet Mall-7th fl Minneapolis, MN 55401	Electronic Service	No	GEN_SL_Minnesota Power_MP's SRSQ Serv Lst
Douglas	Larson	dlarson@dakotaelectric.com	Dakota Electric Association	4300 220th St W Farmington, MN 55024	Electronic Service	No	GEN_SL_Minnesota Power_MP's SRSQ Serv Lst
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	GEN_SL_Minnesota Power_MP's SRSQ Serv Lst
Susan	Romans	sromans@allete.com	Minnesota Power	30 West Superior Street Legal Dept Duulth, MN 55802	Electronic Service	No	GEN_SL_Minnesota Power_MP's SRSQ Serv Lst
Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	No	GEN_SL_Minnesota Power_MP's SRSQ Serv Lst

Safety, Reliability and Service Quality Standards Report in Accordance With Minn. Rule 7826

Docket No. E-999/R-01-1671

Minnesota Power

Executive Summary

Minnesota Power (or, "the Company") is dedicated to safely and reliably generating and delivering vital energy to enhance security, comfort and quality of life by providing excellent service to all customers and achieving high levels of customer satisfaction. Minnesota Power has been carefully working to modernize its grid, with prudent investments that increase automation, improve the quality of information to customers, strengthen cyber security, and deliver savings to customers. The Company does all of this while also answering the call to help fellow utilities in times of desperate need, as evidenced by the deployment of mutual aid teams to restore power after natural disasters in Florida, California, and Puerto Rico in 2017 and 2018.

Serving nearly 145,000 electric customers across northeastern and central Minnesota, Minnesota Power's distribution system is comprised of over 5,800 miles of distribution lines, 201 distribution substations, and approximately 125,000 poles owned by Minnesota Power, along with another approximately 25,000 poles used by Minnesota Power but owned by others ("Distribution System"). Minnesota Power'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. Minnesota Power provides excellent service to customers through prudent investments in the Distribution System to add capacity, maintain and improve reliability, and replace assets as necessary to maintain safe system performance.

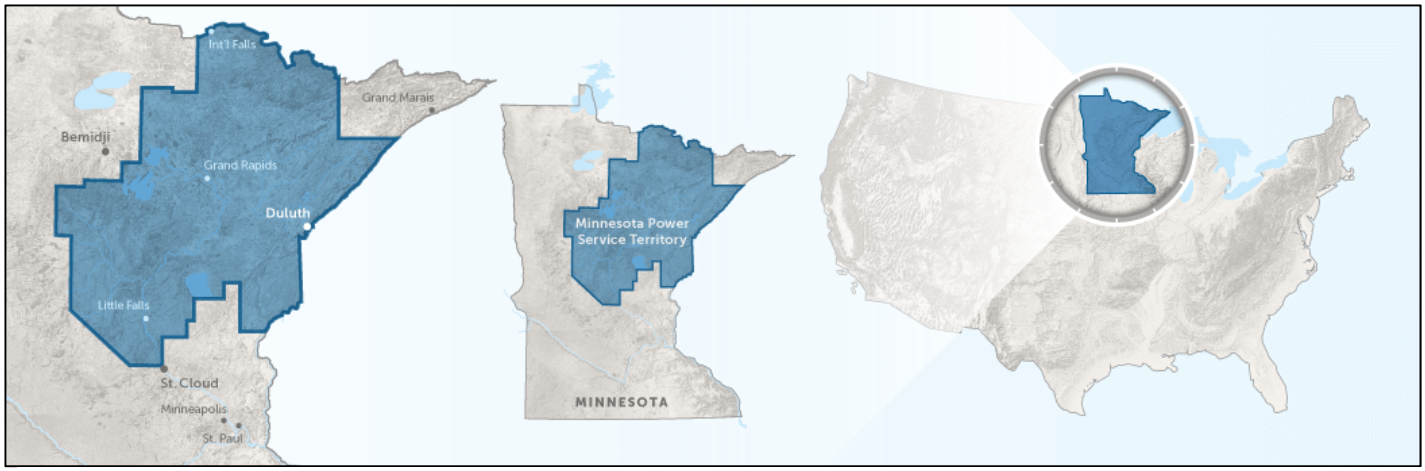

Figure 1: Minnesota Power's Service Territory

Minnesota Power's distribution strategy is comprised of values, technology, innovation, and continuous learning, as depicted in Figure 2. Customers expect reliable, affordable, and safe electric service, all of which is encompassed in Minnesota Power's distribution values. Meeting these expectations requires deploying distribution technology that is flexible, adaptable, and upgradable.

Minnesota Power has strategically positioned its system for the deployment of emerging distribution technology and employs thoughtful planning in all areas of its business while maintaining a focus on its distribution values.

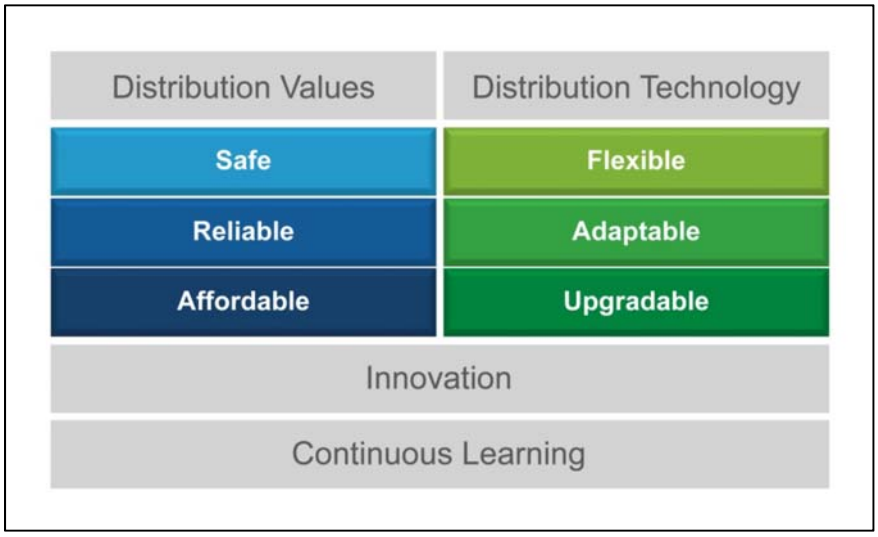

Figure 2: Minnesota Power's Distribution Strategy

The aforementioned distribution values are central to the planning process which guides prudent investments in the distribution system. All system investments must be weighed by cost, customer density, and practicality of expected results. Minnesota Power will be sharing extensive details of its distribution planning process in its upcoming Integrated Distribution Plan ("IDP") filing due to the Commission in October, 2019[1]. That filing will highlight and demonstrate the process by which system investments are made and progress on goals achieved as they relate to distribution strategy, as depicted in Figure 2 above.

Minnesota Power continues to prioritize sound investments in the distribution system to maintain and improve reliability and is focused on maintenance and replacement of critical assets as necessary to maintain safe system performance. Further, routine inspection and vegetation management activities on the distribution system lower the cost of operation over the long term and also help to mitigate potential reliability issues.

In this year's Safety, Reliability and Service Quality Report, Minnesota Power outlines how the Company continuously strives to provide excellent service to all customers across a unique service territory in northeastern and central Minnesota.

[1] Docket E015/CI-18-254

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APPENDICES

2018 Safety, Reliability, and Service Quality Report

I. Introduction & Background

In accordance with Minn. Rule 7826 - ELECTRIC UTILITY STANDARDS, and additional Commission Orders, Minnesota Power submits its fifteenth annual Safety, Reliability and Service Quality ("SRSQ") Report. Prior orders from the Commission have required Minnesota Power to include in this filing additional information not delineated in the administrative rules. For administrative ease, a separate appendix has been provided to specifically respond to the administrative rules which apply to this Report.

Organization of Filing

Minnesota Power respectfully submits this report on its safety, reliability and service quality for 2018 and its corresponding reliability results. This report 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:

- Introduction & Background
- 2018 Year in Review
- 2018 Summary Graphs
- Reliability Cost Matrix
- IEEE Benchmarking
- Estimated Restoration Times
- Customers Experiencing Multiple Interruptions
- Customers Experiencing Lengthy Interruptions
- System Construction and Protection
- Update on Compliance Assessment

Minnesota Power submits the following information:

A. Name, Address, and Telephone Number of Utility
(Minn. Rules 7825.3500 (A) and 7829, subp. 3 (A))

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

B. Name, Address, and Telephone Number of Utility Attorney
(Minn. Rules 7825.3500 (A) & 7829, subp. 3 (B))

David R. Moeller, Senior Attorney
Minnesota Power
30 West Superior Street

Duluth, MN 55802
(218) 723-3963
dmoeller@allete.com (e-mail)

C. Date of Filing and Date Proposed Rates Take Effect

This petition is being filed on April 12, 2019. As discussed with MPUC Staff, Minnesota Power required additional time in order to provide the Commission and other parties a thorough SRSQ Report. To the extent necessary, Minnesota Power respectfully requests a variance to submit the report after the April 1 time period set forth in Minnesota Rules 7826.0400 and applicable Commission orders. Until MPUC approval, the existing reliability metrics will remain in effect.

D. Statute Controlling Schedule for Processing the Petition

This petition is made pursuant to Minnesota Rules 7826.0400, 7826.0500, 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.

E. Utility Employee Responsible for Filing

Jenna Warmuth
Senior Public Policy Advisor
30 West Superior Street Duluth, MN 55802
(218) 355-3448
jwarmuth@mnpower.com (e-mail)

F. 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:

David R. Moeller	Jenna Warmuth
Senior Attorney	Senior Public Policy Advisor
Minnesota Power	Minnesota Power
30 West Superior	30 West Superior Street
Duluth, MN 55802	Duluth, MN 55802
(218) 723-3963	(218) 355-3448
dmoeller@allete.com	jwarmuth@mnpower.com

G. 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.

H. Filing Summary

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

Compliance Requirements

SUMMARY OF FILING REQUESTS

Based on information provided throughout this filing, Minnesota Power requests the following:

From the MPUC:

- Acceptance of its proposed reliability metrics for the year 2019.

PROCEDURE AND AUTHORITY

Minnesota Power is submitting this petition in accordance with Minn. Rules 7826.0400, 7826.0500, 7826.0500, 7826.0600, subp. 1, and 7826.1300 and in compliance with MPUC rules and orders relating to annual filings associated with Minnesota Power's Safety, Reliability, Service Quality and proposed reliability results.

Compliance Items from 2018 Order:

Require some or all of the following reporting requirements on an ongoing basis

- CEMI (thresholds of multiple outages - more than 4,5,6)
- CELI (hour durations – 6, 12, 24)
- Estimated Restoration times
- IEEE Benchmarking

Require Minnesota Power in reports due April 1, 2019, to include a discussion of how grid modernization initiatives could impact reliability metrics and what technologies are needed to advance tracking additional metrics.

This petition constitutes a Miscellaneous Filing as that term is defined in Minn. Rules Chapter 7829 which identifies the time frame and procedures required to process this petition.

II. 2018 Year in Review

In 2018 the Company experienced its second highest number of outage events on record (2016 was the highest). The number of outage events in 2018 was more than 25 percent over the historical average. Eighty-five major events out of more than 4,000 unique events contributed more than 60 percent of overall System Average Interruption Duration Index ("SAIDI"). Weather was the largest reliability factor with wind storms occurring at a higher frequency, particularly in October and April of 2018, which are historically lower contributors to overall outage totals.

Overhead equipment failures led non-weather trends for 2018 and included increased failures of porcelain insulators (primarily on cutouts) on major feeders, which happened at a much higher rate than previous years. This increase mirrors several other experiences of benchmarked utilities with pre-mature failure of porcelain. This failure rate is likely due to material quality, but trend data is not yet complete enough to attribute causation, only correlation to the commodity porcelain material. Underground cable failures of older vintages continue to be a significant factor as well, and are slightly up from previous years in 2018. Actions from people, which includes vehicle accidents and outages caused by customer/contractor activity, were also a major factor in 2018.

The real-time outage data captured by the Company is increasing year-over-year as the Company expands its advanced metering infrastructure ("AMI") meter population. This increase in real-time data correlates to an increase in SAIDI, but given weather activity and other variables, any causation is very difficult to attribute to outage precision. AMI data captures the outage start time and outage location immediately, resulting in far greater precision and less estimation than in previous years. This has likely led to an increase in minutes attributed to an outage given the increase in reporting capability of line segments that may have previously been assumed to be in service. Figure 3 on Page 9 provides a depiction of SAIDI and SAIFI results over time and the trends experienced. It is evidenced that outage reporting is much more aligned between the two metrics with the advent of AMI meter implementation. The Company began piloting AMI in 2009 under a Department of Energy Smart Grid Investment Grant. Minnesota Power has transitioned over 50 percent of its meter population to AMI meters with current deployment at roughly 6-8% per year since plans for full deployment were announced in 2011.

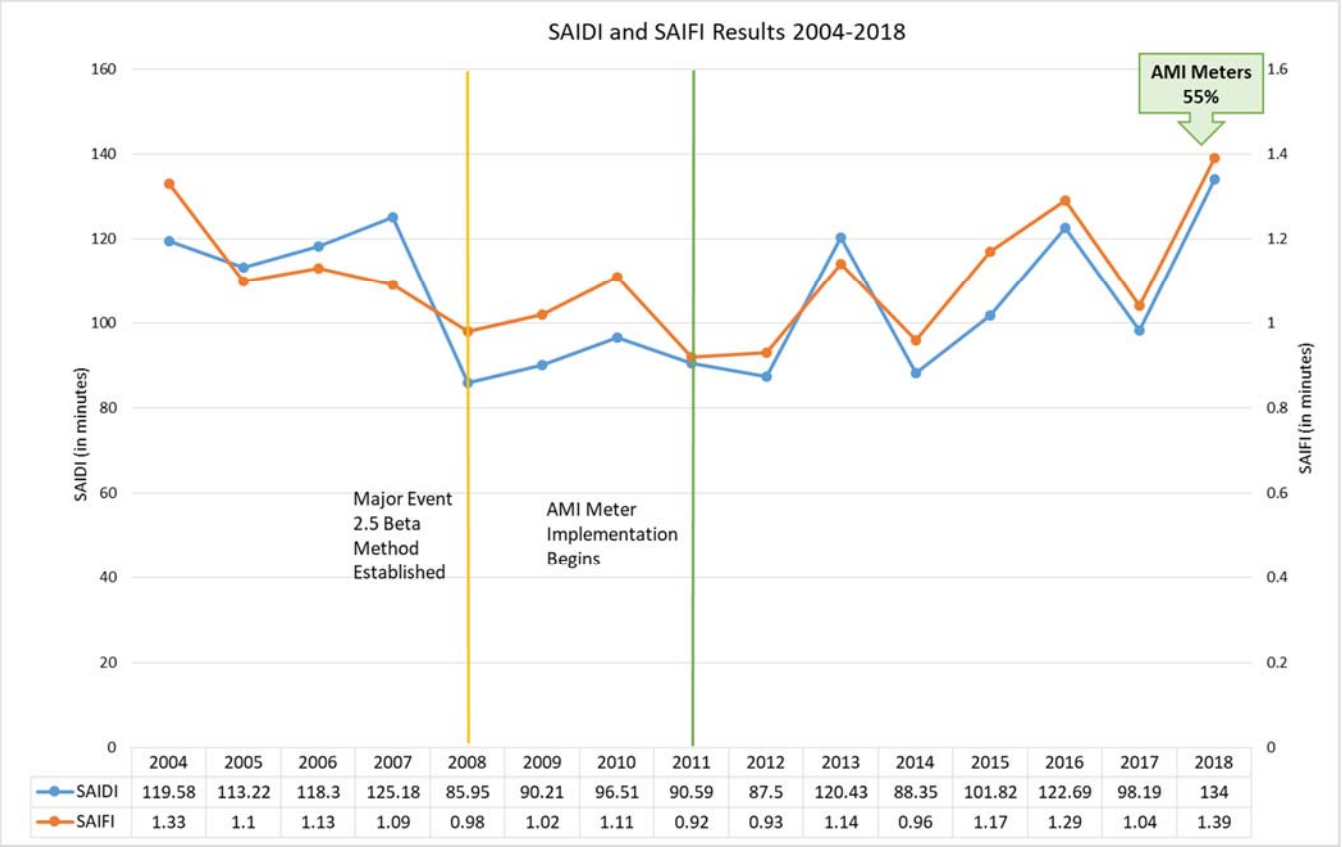


Figure 3: SAIDI and SAIFI Results 2004-2018

A positive trend for 2018 was a large reduction in planned outages, where there was a nearly 5 minute year-over-year reduction as Minnesota Power put focus on process within its control in 2018 to manage this trend. Additionally, automation investments resulted in both reduced truck rolls and avoided outages; however, due to manual data field collection of this information, the magnitude of these impacts in 2018 could not be calculated at the time of this report and the Company is in the process of building metrics to track the impacts of automated restoration going forward.

The Company failed to meet its 2018 goals for SAIDI by just over 35 minutes, for System Average Interruption Frequency Index ("SAIFI") by 0.37 and Customer Average Interruption Duration Index ("CAIDI") by 0.24. Weather events attributed to 35 percent of SAIDI minutes in 2018, overhead equipment attributed to 17 percent, and underground equipment was 11 percent. The remaining outage minutes consist of incidents related to people (car accidents, etc.), trees, animals and unknown causes.

Table 1: 2018 Results

	SAIDI	SAIFI	CAIDI
2018 Standard	98.19	1.02	96.26
2018 Results	134.00	1.39	96.5

In its Order in the docket, the Commission concurred with the Department on establishing standards for 2018 that would reasonably motivate the Company to further its efforts to improve reliability. The Commission set the Company's 2018 reliability standards at the 2017 levels, as outlined above. In the spirit of continuous improvement, Minnesota Power proposes the following weather-excluded reliability indices options as targets not to exceed in 2019. Option 1 freezes the results at 2017 levels for an additional reporting year. The second option for the commission to consider would be the 5 year average that reflects actual performance from 2014-2018 with all reliability variables considered:

Table 2: Proposed Reliability Goals

	Option 1	Option 2 – 5 YR Avg
SAIDI	98.19	110.53
SAIFI	1.02	1.17
CAIDI	96.26	95.04

III. 2018 Summary Graphs

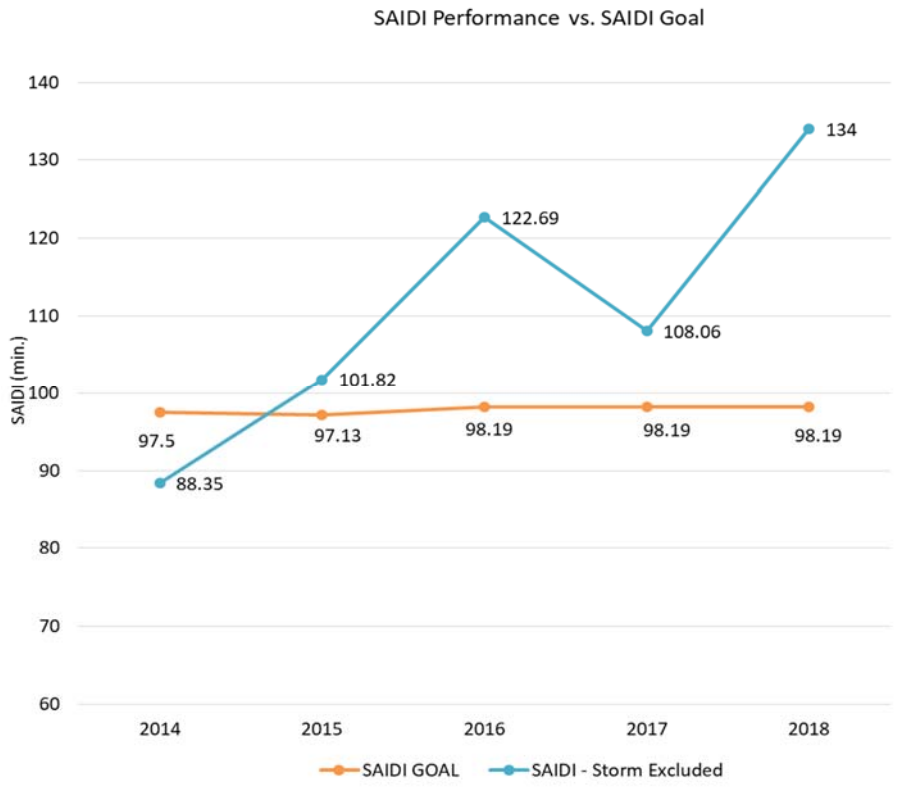


Figure 4: SAIDI Performance vs. SAIDI Goal

SAIDI is the System Average Interruption Duration Index. SAIDI provides the duration, in minutes, of the average time customers are interrupted.

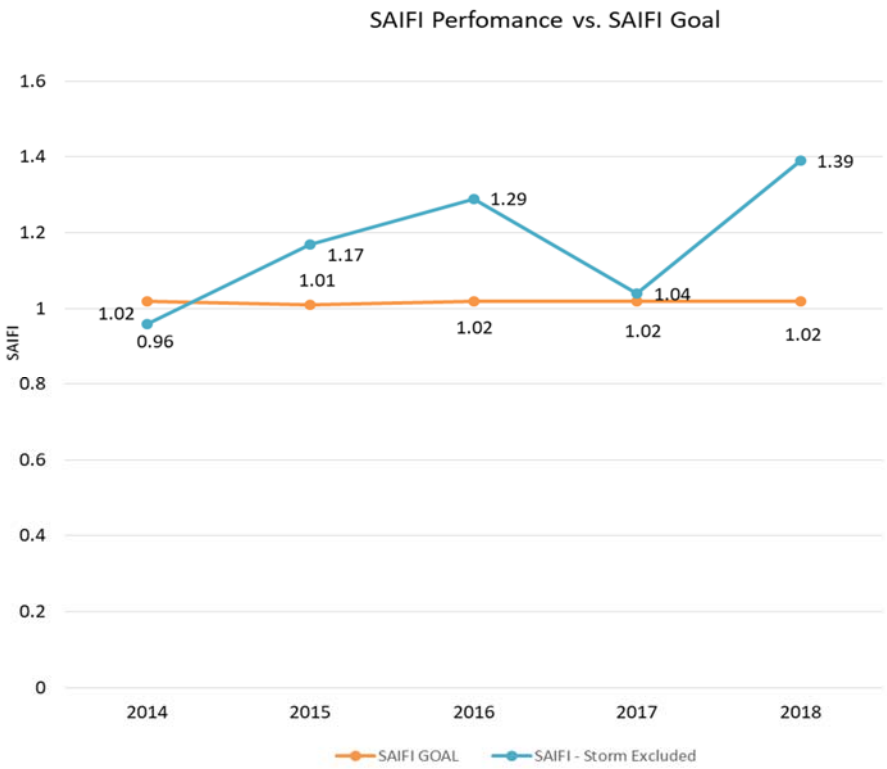


Figure 5: SAIFI Performance vs. SAIFI Goal

SAIFI is the System Average Interruption Frequency Index. SAIFI provides the frequency of sustained power outages (longer than five minutes) experienced by the average customer.

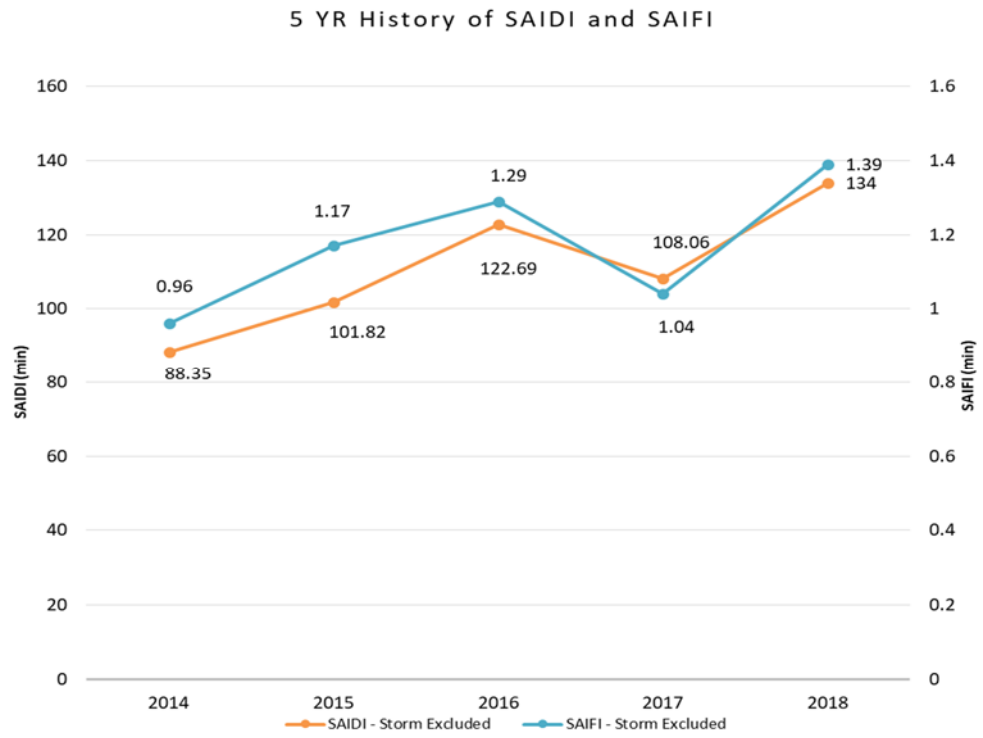


Figure 6: 5 Year History of SAIDI and SAIFI

SAIFI is an indication of how many outages an average customer experiences and SAIDI is an indication of how long the average customer is without power.

POWER QUALITY

Minnesota Power can now monitor larger areas for power quality issues. Over half of its system has AMI meters installed on customer premises. These meters are polled each month and the voltage tolerances are reviewed to aggregate a list of potential issues. These issues are then reviewed by engineering for failing equipment, overloaded transformers, or long secondary runs to customer sites. Minnesota Power also resolves customer power quality issues on a case by case basis. When a customer calls with a complaint or questions regarding a power quality issue, Minnesota Power investigates and resolves all problems found to be caused by the Company. In the event of complaints regarding low voltage or high voltage, Minnesota Power will do an investigation of the customer's service and check for loose or overheated connections. If no problem is found or if the problem is intermittent, the Company will install a recording voltmeter. This meter allows for monitoring of the voltage over time and under various customer and system loading conditions. If those recordings demonstrate that the Company is not meeting its ANSI C84.1 service entrance voltage standards of +/- 5% of nominal voltage, Minnesota Power performs the required maintenance in order to bring the voltage within the prescribed limits. There are seldom requests from customers for power quality studies.

MAIFI

The Momentary Average Interruption Frequency Index ("MAIFI") index provides a measure of the average number of short outages, an interruption of electrical service that Minnesota Power defines as lasting less than five minutes for an average customer experiences in a year. While Minnesota Power has tracked MAIFI statistics for the last decade, it has done so with the knowledge that the Company's MAIFI data collection is and will continue to be incomplete without a significant investment in the technology necessary to enable Minnesota Power to collect and report all momentary outages. The accuracy of the MAIFI index will increase as incident tracking technologies continue to develop and are deployed across the distribution system. The Company continues to evaluate the cost of implementation versus the potential benefits. As the capability to collect momentary information improves, the performance trend of the statistics may likely appear to degrade.

Momentary outage data is collected a few ways. About 30 percent of Minnesota Power's systems report through supervisory control and data acquisition ("SCADA"). The remaining data is collected manually. Some is collected to satisfy a specific customer request, and some is collected when device maintenance is done. The rest is collected in the Outage Management System ("OMS") from customer phone calls reporting a brief interruption.

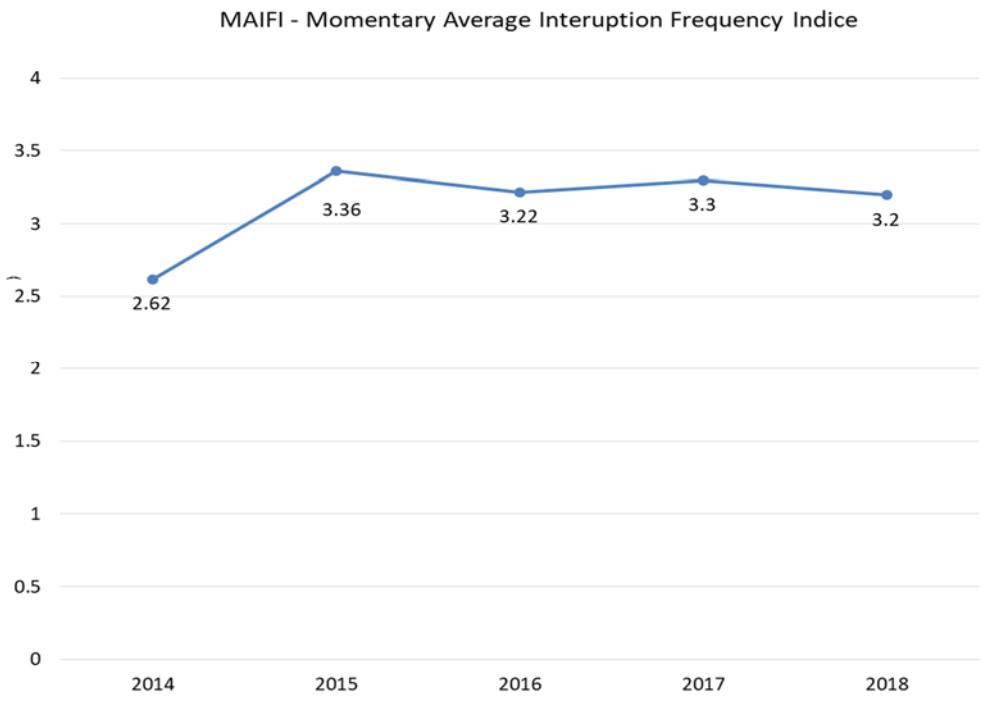


Figure 7: MAIFI

MAIFI is the Momentary Average Interruption Frequency Index.

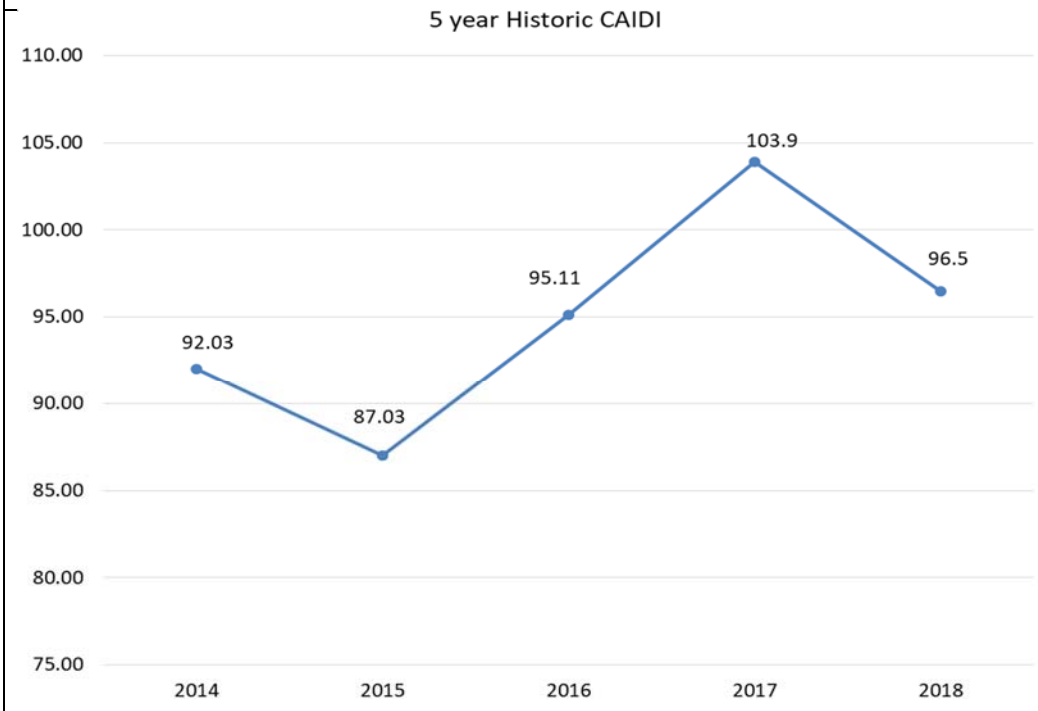


Figure 8: 5 Year Historic CAIDI

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

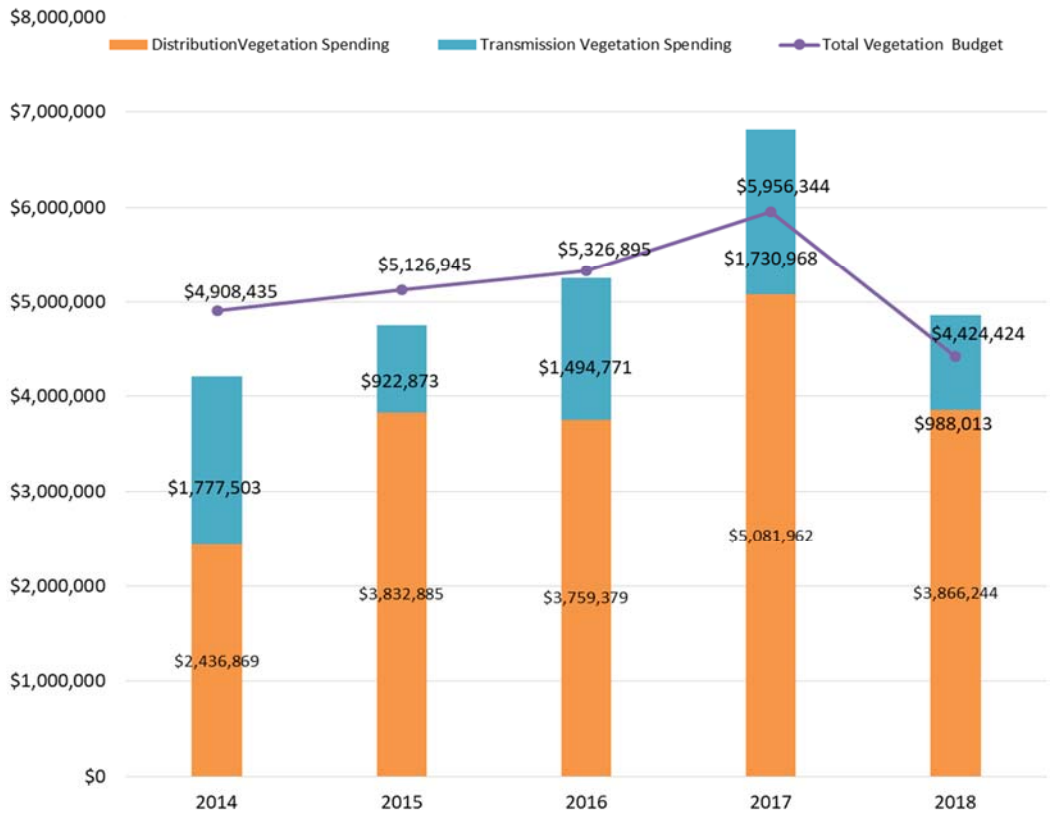


Figure 9:Vegetation Budget vs. Vegetation Spending

Total vegetation budget and spending on the Minnesota Power's system for 2014-2018.

The following tables outline information related to customer care and response. Detailed information can be found in Appendix A of this Report.

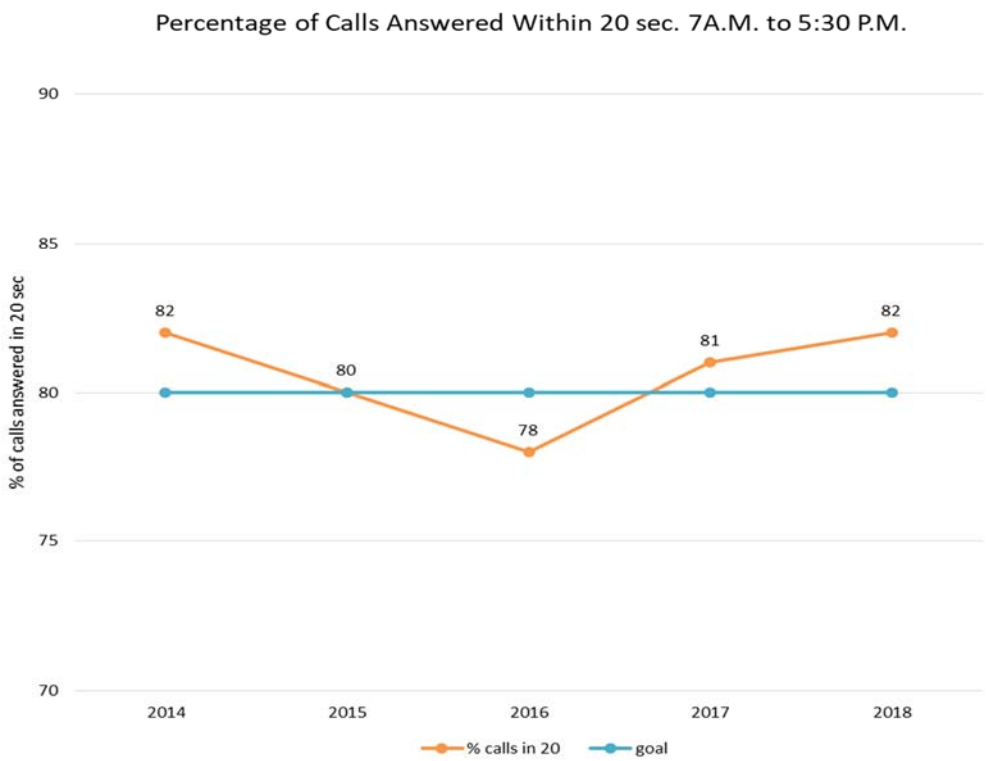


Figure 10: Calls Answered within 20 seconds

Answering a call in 20 seconds generally equates to three rings. The standard, as defined in Minn. Rule 7826.1200, is 80 percent of calls answered in 20 seconds during normal business hours.

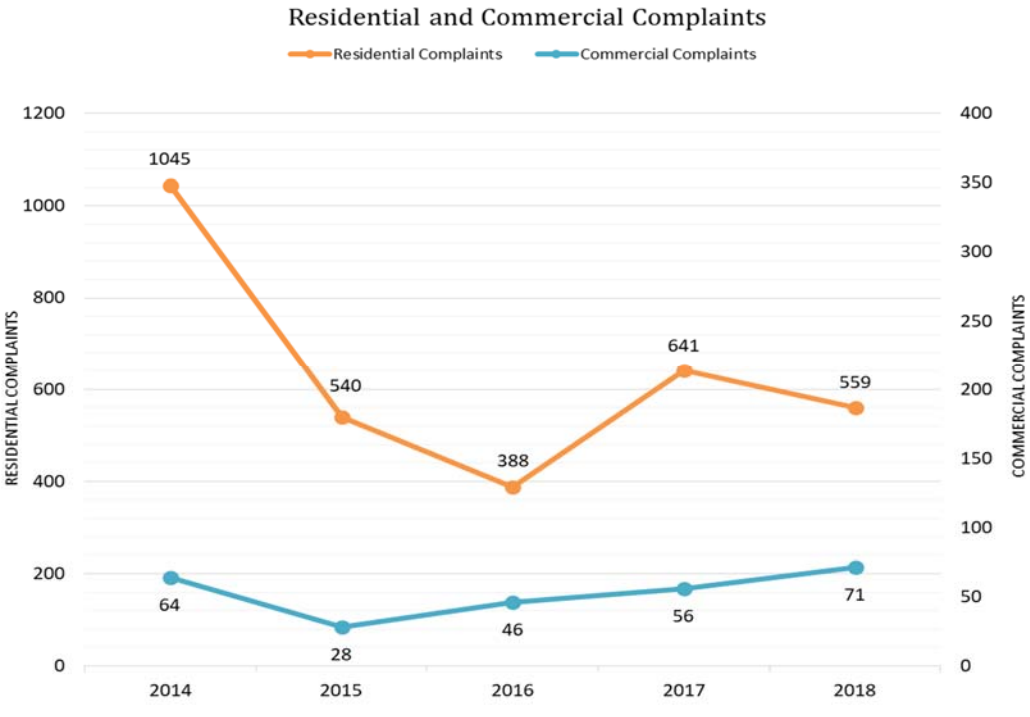


Figure 11: Residential and Commercial Complaints

Customer complaints are generally tracked for potential billing errors, possible inaccurate metering, wrongful disconnection, service extension intervals, service restoration intervals, etc.

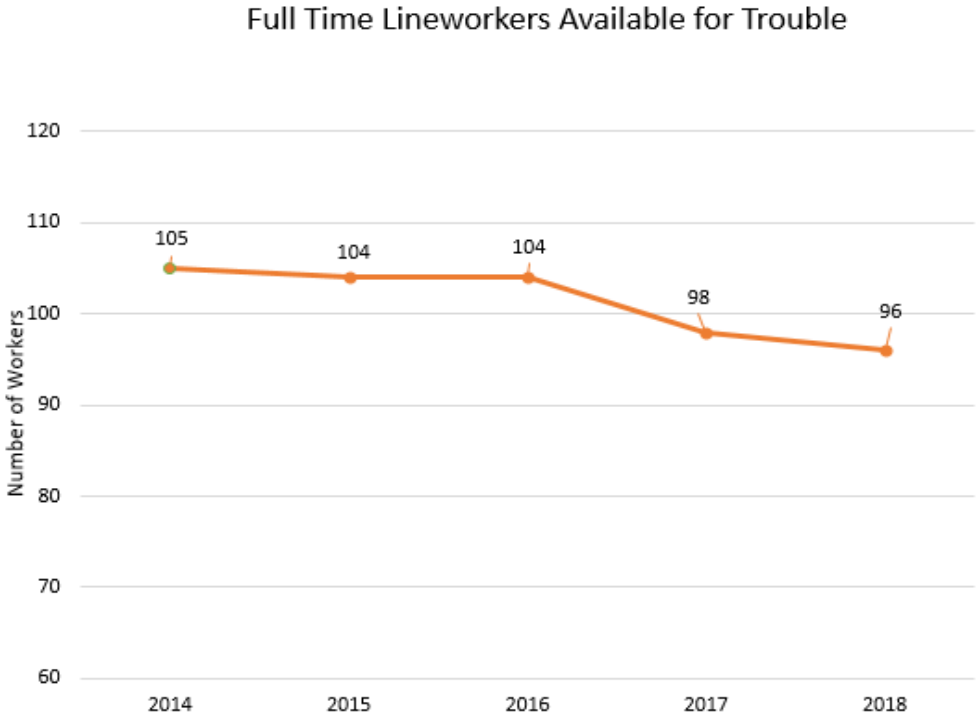


Figure 12: Full Time Lineworkers

Minnesota Power had 96 full-time equivalent employees in Field Operations during 2018.

There was continued attrition in the lineworker department in 2018. Additional employees dedicated to the Great Northern Transmission Line project are not included in this count. The Company is carefully monitoring the necessary staffing levels in order to serve its customers in the most reliable and cost effective means possible. Continued investments in automation, mobile workforce applications, and GIS system upgrades have greatly improved the Company's ability to forecast and analyze its staffing needs.

IV. Reliability Cost Matrix

Minnesota Power has provided summary information to assist stakeholders in understanding the Company's overall system reliability and the main factors that affect reliability. The Company has prepared the charts and graphs below in an effort to convey what it believes are the main contributing factors that can impact the long-term reliability metrics of the distribution system. The graphs and charts in this section show the contributing factors to SAIDI and SAIFI and the relationship between operational performance and cost. The Company strives to provide information in an easily understandable format.

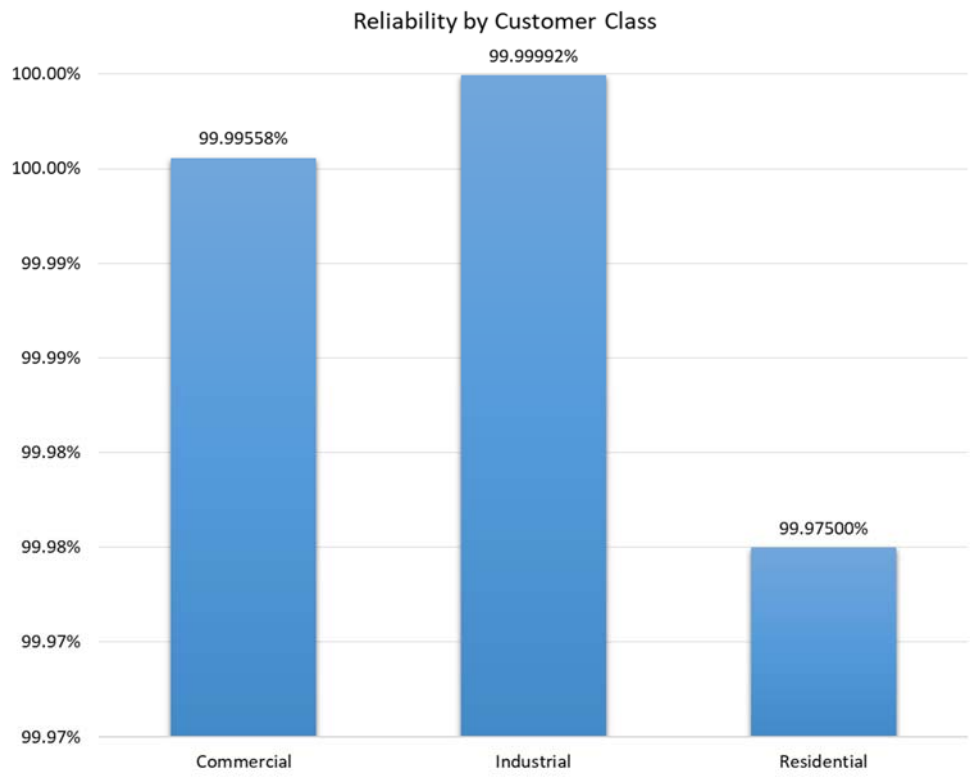


Figure 13: Reliability by Customer Class

Average reliability by customer class. These averages were calculated by taking outage numbers from each class and determining their overall reliability by time served.

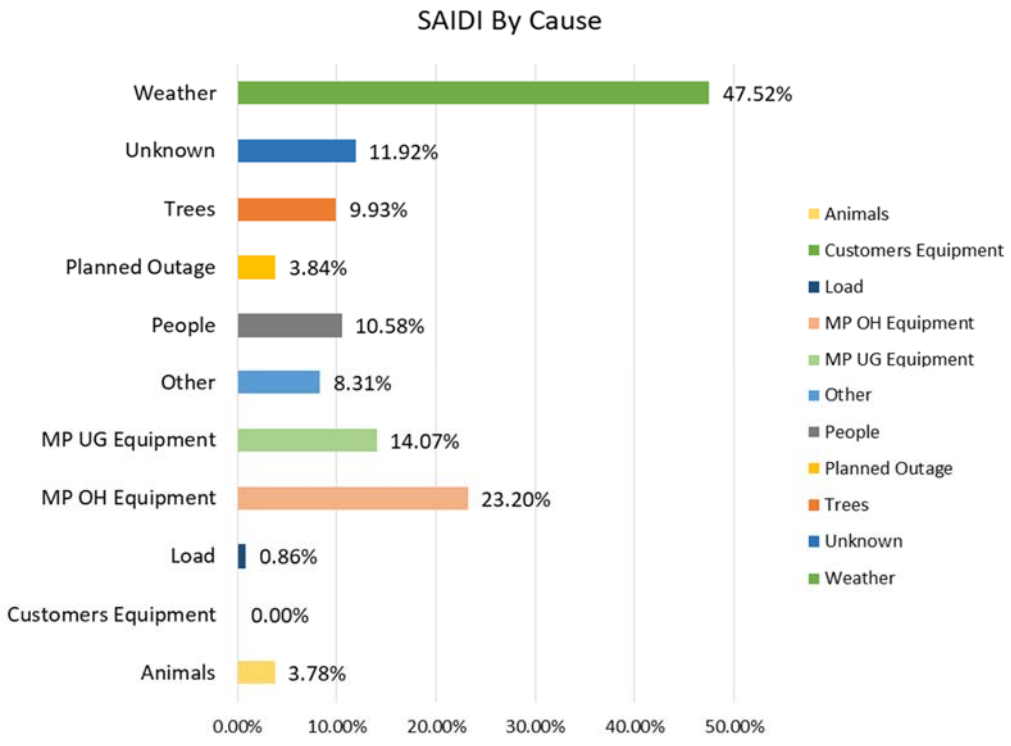


Figure 14: SAIDI by Cause

This chart demonstrates the percentage of Company non-storm excluded SAIDI reported by each of the identified causes.

OH: Overhead
UG: Underground

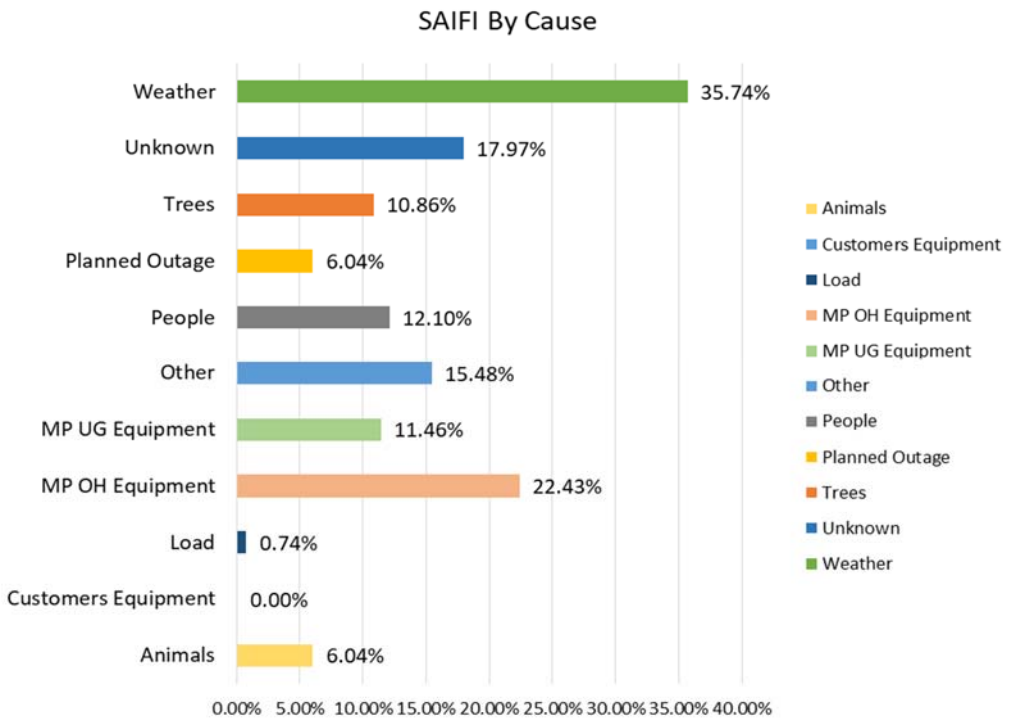


Figure 15: SAIFI by Cause

This chart demonstrates the percentage of Company non-storm excluded SAIFI reported by each of the identified causes in 2018.

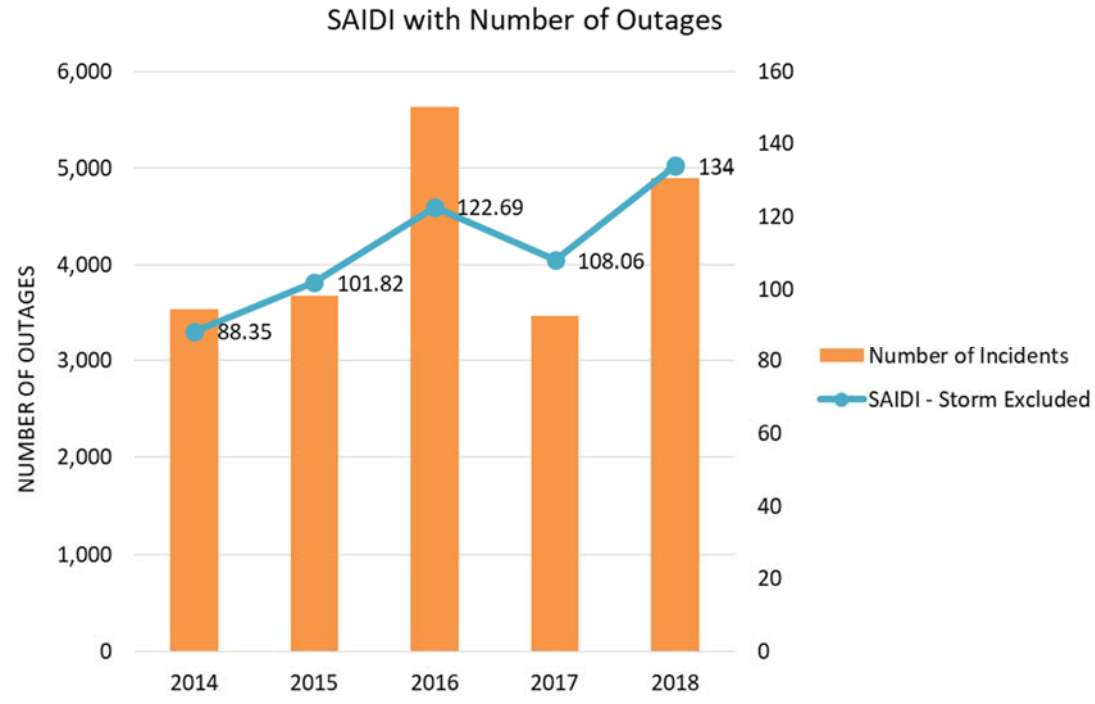


Figure 16: SAIDI with Outages

This chart presents SAIDI against Minnesota Power's historic number of outages 2014-2018.

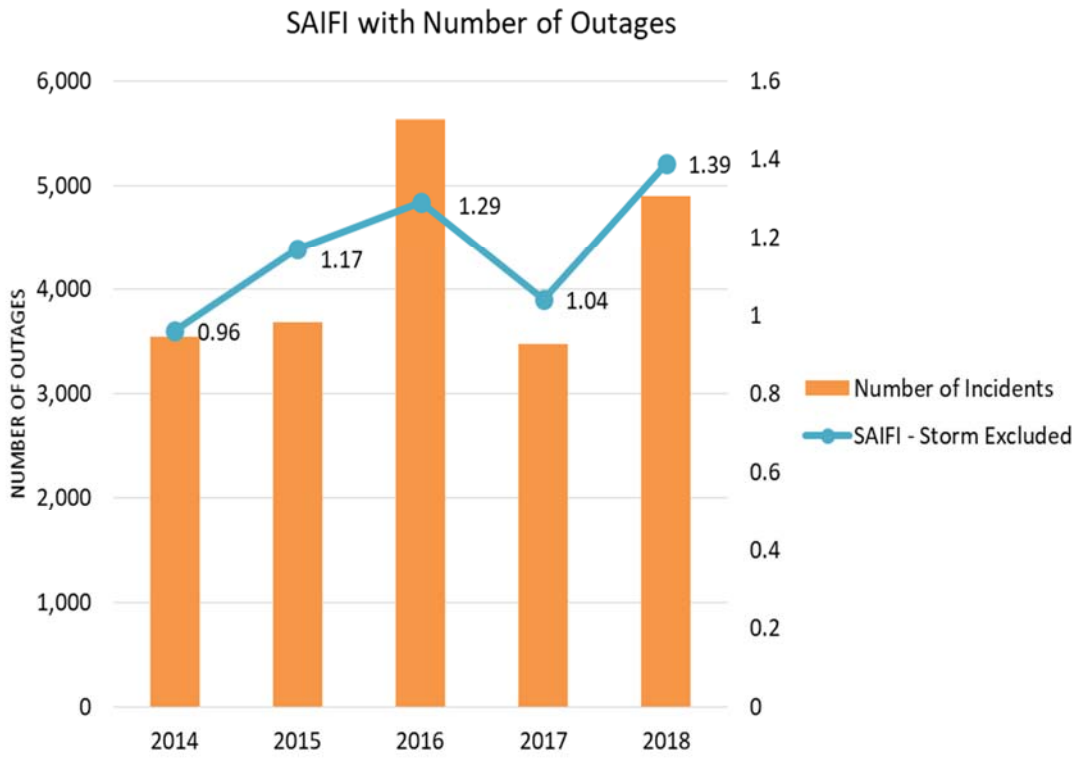


Figure 17: SAIFI with Outages

This chart presents SAIFI against Minnesota Power's historic number of outages 2014-2018.

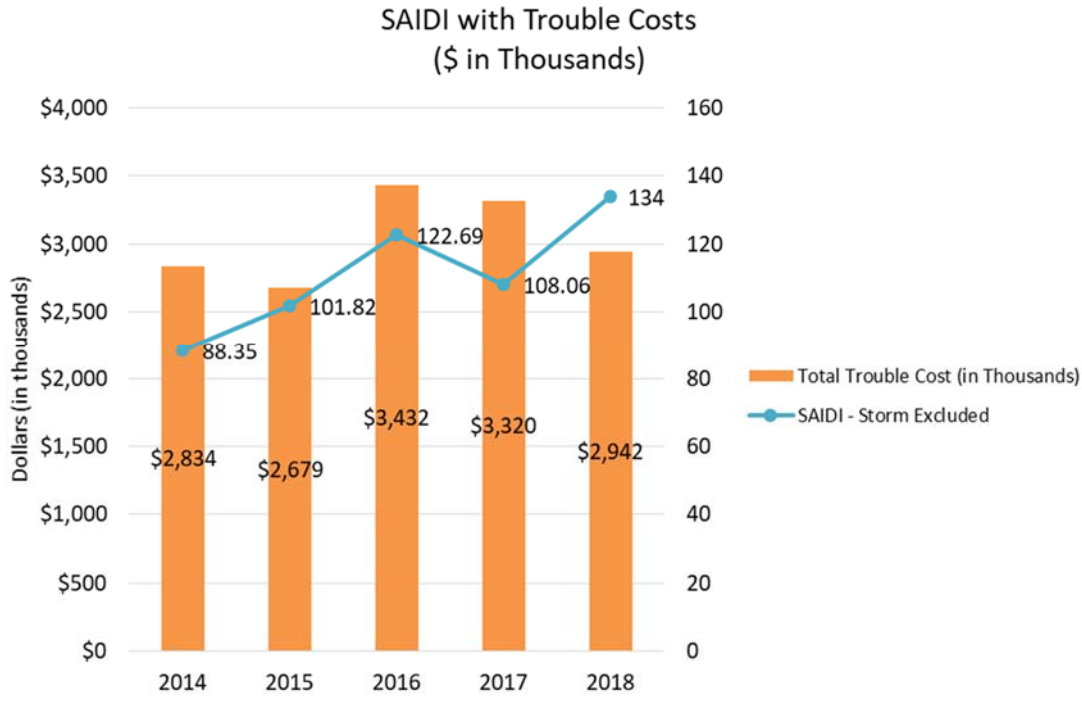


Figure 18: SAIDI with Trouble Costs

This chart shows SAIDI with operation & maintenance dollars spent on trouble calls 2014-2018. This is unplanned work done without the replacement of capital assets.

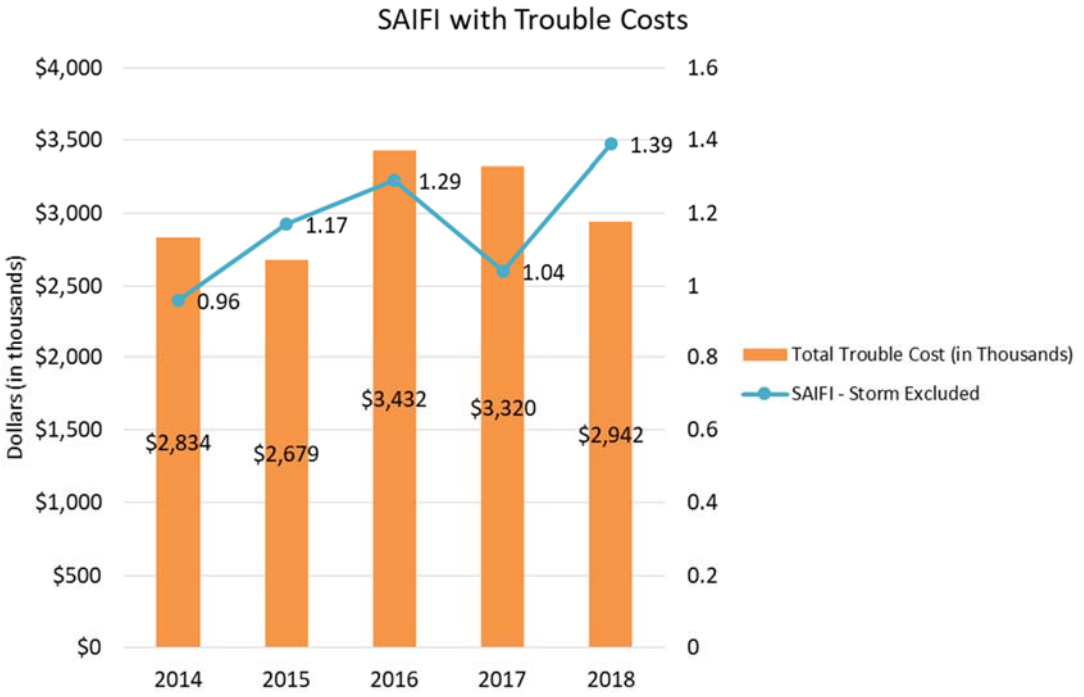


Figure 19: SAIFI with Trouble Costs

This chart shows SAIFI with operation & maintenance dollars spent on trouble calls 2014-2018. This is unplanned work done without the replacement of capital assets.

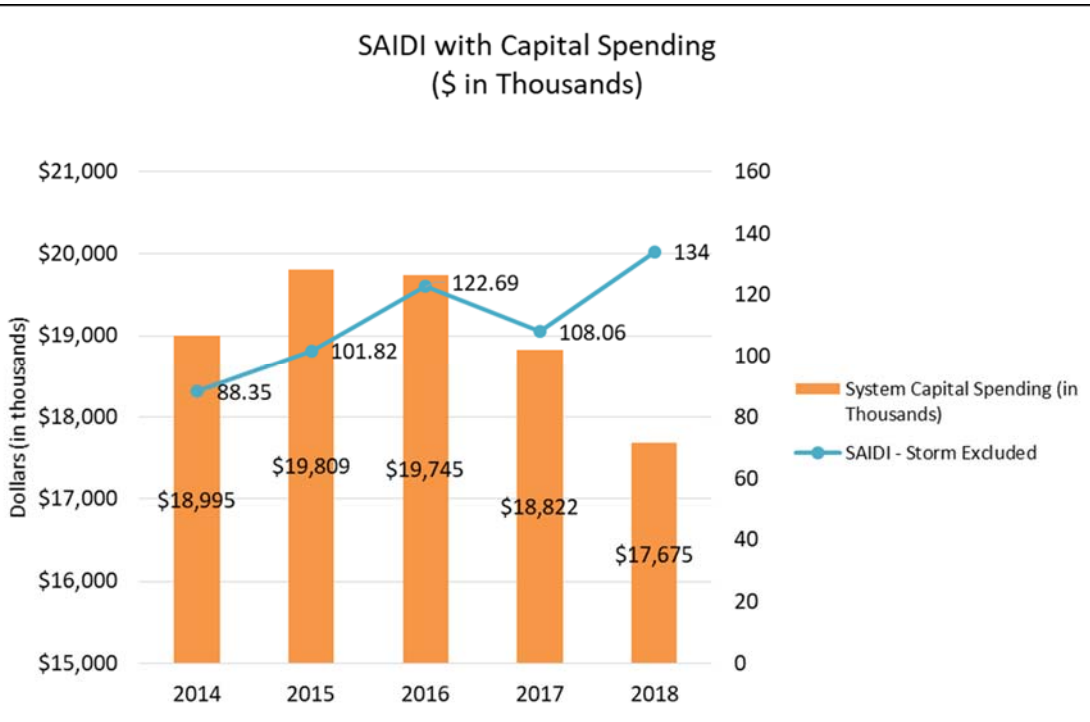


Figure 20: SAIDI with Capital Spending

This chart shows SAIDI compared to capital dollars spent on distribution system 2014-2018.

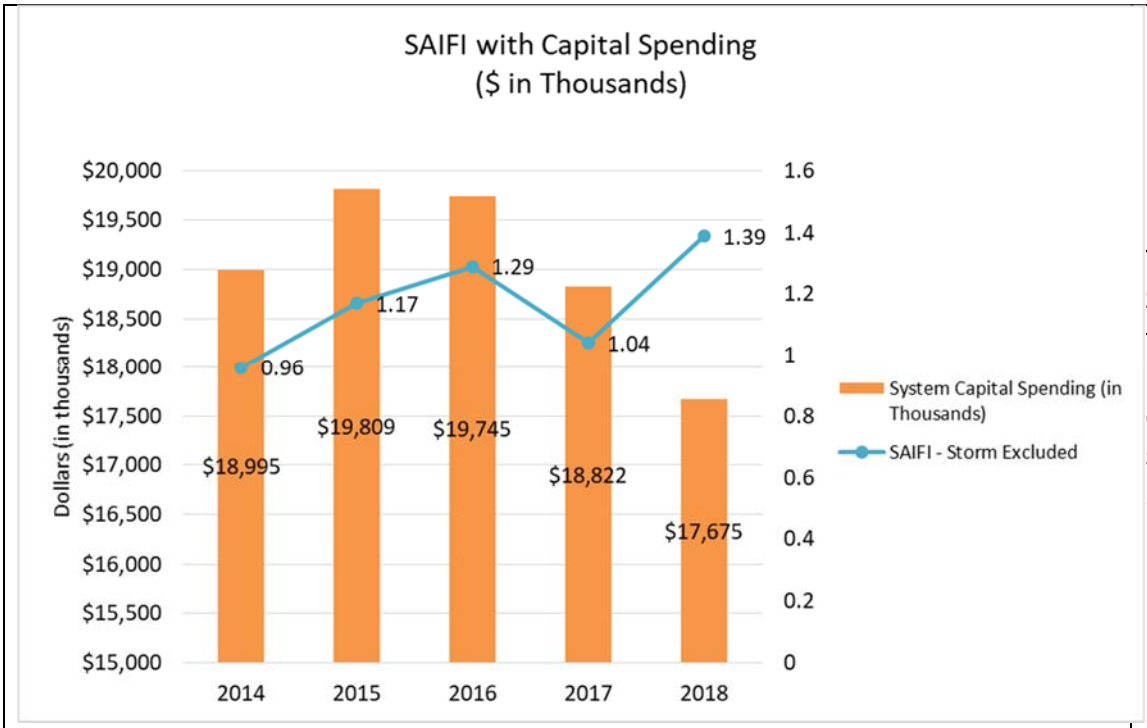


Figure 21: SAIFI with Capital Spending

This chart shows SAIFI compared to capital dollars invested on distribution system 2014-2018.

V. IEEE Benchmarking

In its March 19, 2019 Order in Docket N. E-015/M-18-250 the Commission required Minnesota Power to report on its IEEE benchmarking. Minnesota Power does not currently participate in the IEEE reliability standards benchmarking, but will begin providing data to IEEE in 2019. Minnesota Power is a member of Edison Electric Institute ("EEI") and has been participating in their Reliability Benchmark Survey for more than twenty years. The 2017 EEI Reliability Survey collected data from 89 investor owned utility companies. Summarizing, Minnesota Power performs in the second quartile for CAIDI, SAIDI, and SAIFI, and the third quartile for MAIFI. Minnesota Power uses these benchmarked results from EEI to provide insights into peer group performance and analyze reliability trends nationally as the 89 utilities represent more than half of the nation's electricity consumers. One note regarding MAIFI is that there are fewer than 89 respondents for the MAIFI survey due to lack of response and lack of participating utilities tracking this metric for their utility.

VI. Estimated Restoration Times

Minnesota Power currently does not collect data regarding the comparison between actual restoration time and estimated restoration time. The Company will develop a method for capturing this data during the third quarter of 2019. The current method for determining estimated restoration time is based on the equipment that is currently deployed in the field and

predicted to operate in the Company's Outage Management System ("OMS"). Figure 22 is an example of Minnesota Power's OMS restoration prediction tables.

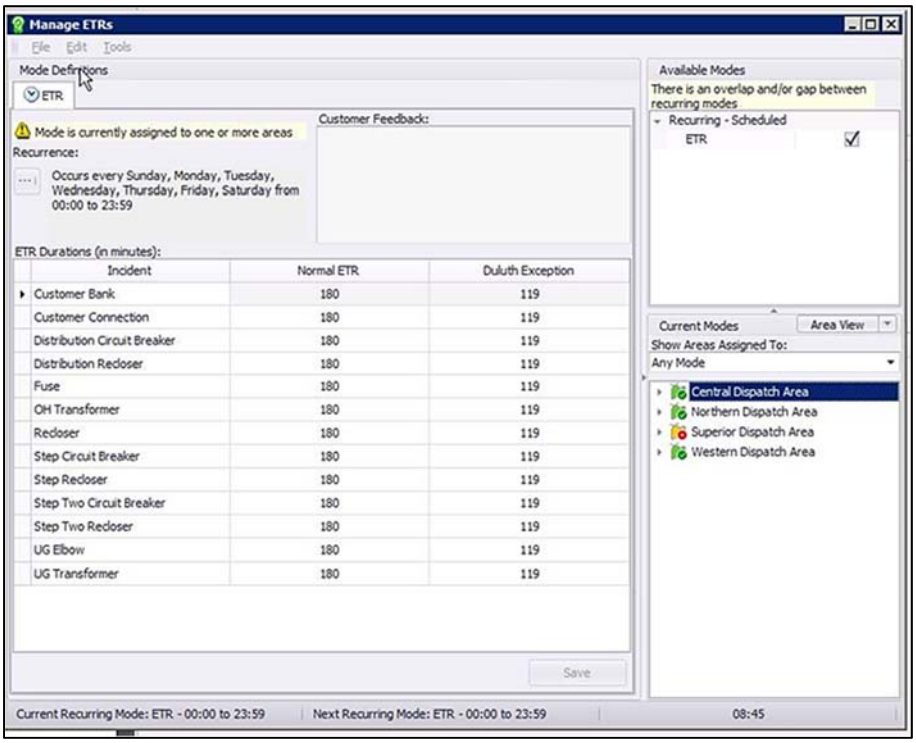


Figure 22: OMS Restoration Prediction Tables

To illustrate the process, after the line crew arrives on site and makes an initial assessment of the damage, the estimated restoration time is updated by service dispatch employees in both the OMS and on the Company's customer-facing Outage App.

When a customer calls in an outage they are linked to a trouble order in the OMS and through the storm center outage App. If larger events occur, an Interactive Voice Response ("IVR") bulletin message may be sent out to update customers as better information is shared from the line personnel in the field. The IVR calls are set to play a recorded message to all customers involved in the outage. If customers call in and have specific questions during their outage, a call center or service dispatch employee will respond to the customer's questions. Within the customer facing Outage App, estimated restoration times and crew status is displayed on an ongoing basis until the restoration process is complete. Larger events are also communicated using other methods such as media outlets (i.e., newspapers and local news channels) and social media including Twitter, Facebook, and the Company's webpage.

VII. Customers Experiencing Multiple Interruptions

Minnesota Power calculates the Customers Experiencing Multiple Interruptions ("CEMI") index at a feeder level. The Company currently does not have a method to track CEMI at a customer level, though number of customers affected during each outage is tracked. Figure 23 on Page 23

shows the percentage of customers on a company-wide basis that experienced three or more outages during a given year. For example, in 2018 the percentage of customers experiencing three outages was 7.07 percent, four outages 1.30 percent and six outages 0.36 percent. In summary, 8.73 percent of Minnesota Power customers experienced three or more outages in 2018.

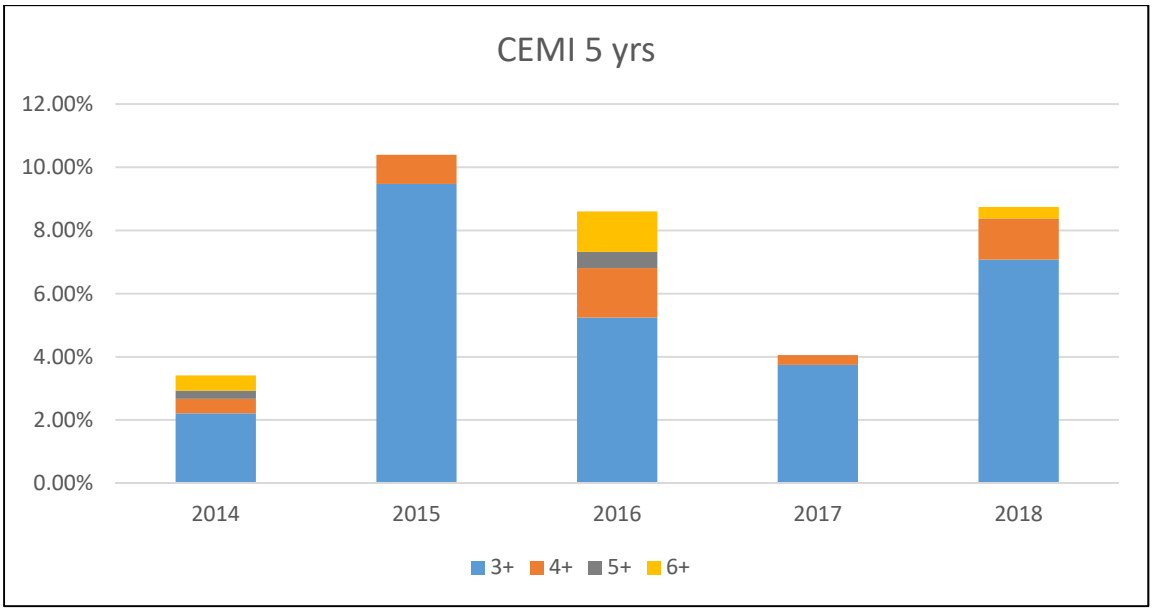


Figure 23: CEMI Results

VIII. Customers Experiencing Lengthy Interruptions

The Figure 24 on Page 24 illustrates the Company's Customers Experiencing Lengthy Interruptions ("CELI") for customers that experienced outages exceeding 12 hours during a calendar year for 2014 to 2018 based on the IEEE normalization methodology. As with the other metrics, although the normalization method attempts to remove the year to year variability, variability does still occur, typically due to weather patterns. Minnesota Power calculates the CELI index at a feeder level. The Company currently does not have a method to track CELI at a customer level, though number of customers affected during each outage is tracked. The 2018 uptick in results is due in part to an outage that took place in International Falls for customers located on islands. Appropriate transportation for the Company's trucks and lineworkers to those islands required a more lengthy dispatch process than is generally required.

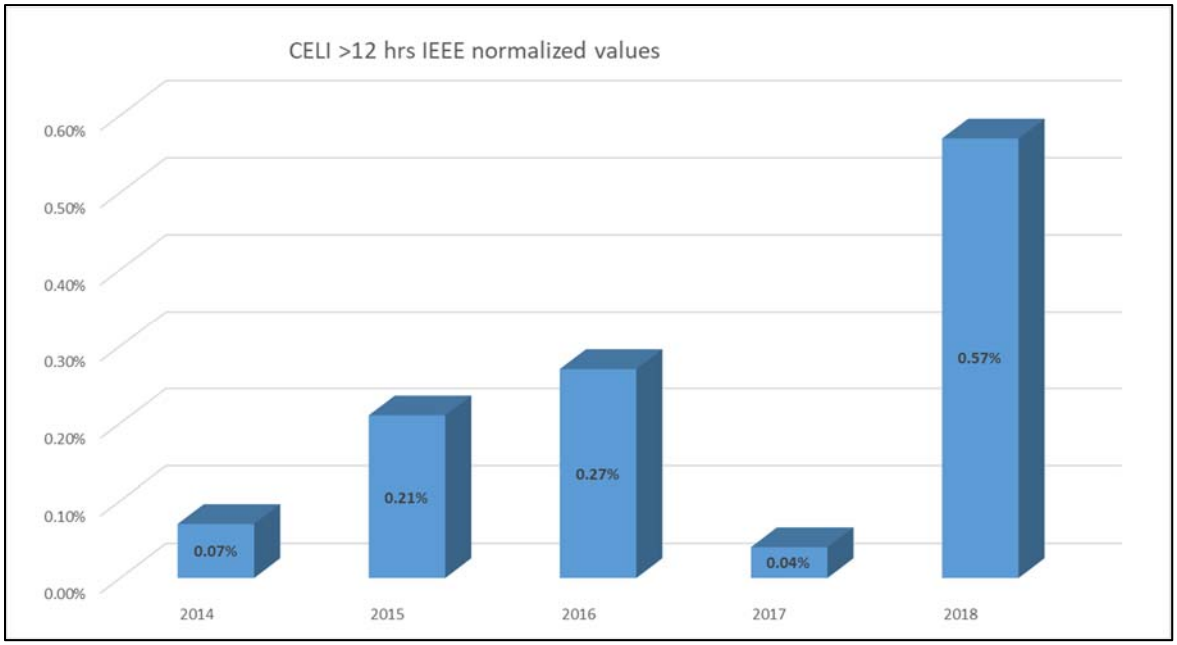


Figure 24: CELI Results

Customer Service

Overall, Minnesota Power is dedicated to providing excellent service to all customers and to achieving high levels of customer satisfaction. The Company recognizes that, above all else, customers continue to expect reliable, affordable, and safe services (Figure 25).

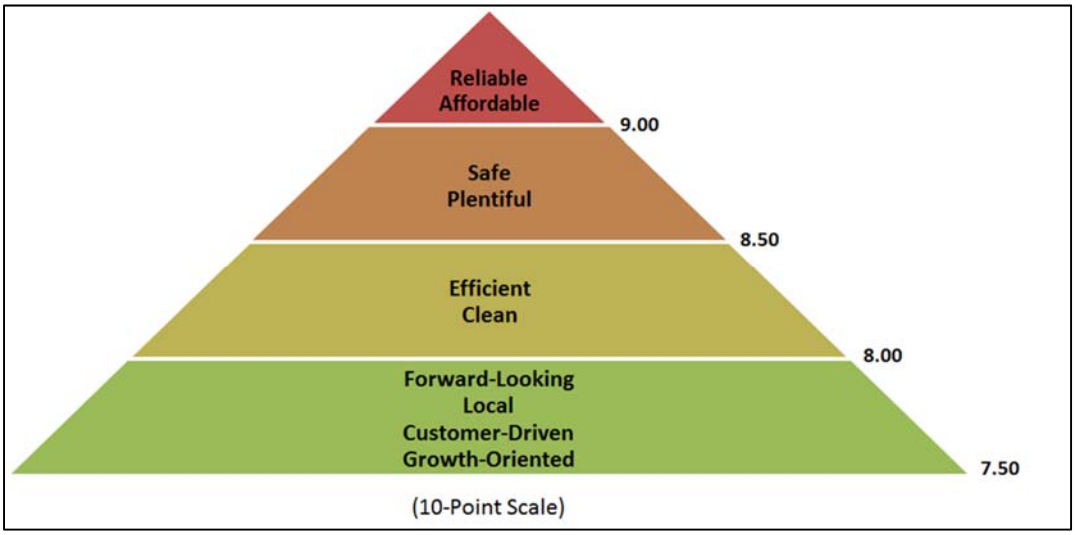


Figure 25: Customer Expectations[2]

[2] Minnesota Power Residential Customer Survey, HIMLE RAPP & CO., INC. (2013).

Minnesota Power's approach to customer service is to continue to provide the core services customers count on as effectively as possible, leveraging technology advances where applicable and practical to meet the modern day needs of customers. In addition, Minnesota Power searches for opportunities to continuously improve upon services and the customer experience through day-to-day interactions with the Call Center, online tools, efficiency programs, and field operations, as well as through a multitude of offerings in which customers can participate. The Company draws upon customer insights gained through interactions, satisfaction surveys, and benchmarking tools, as well as emerging industry best practices, to ensure energy solutions are provided that meet the needs and expectations of customers today and into the future.

IX. System Construction and Protection

Voltage Monitoring

Smart Grid line sensors continue to be deployed throughout the system thereby replacing an outdated sensor system. The new technology improves system monitoring including outages, voltage levels (under or over), current levels, and power quality at critical locations on the system. Alarms and profiles will help identify areas that may be experiencing momentary outages or have temporary voltage drop or rise outside of normal operating limits. In addition, Minnesota Power is currently expanding some of the voltage monitoring capability from the AMI system in order to better predict system issues and look for potential risks to customer service quality prior to trouble calls.

Vegetation Management

Vegetation Management is a cost-effective and essential way in which to improve reliability and reduce momentaries on the Distribution System. System reliability can be adversely impacted by many external environmental factors. 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 a vegetation management program to address each distribution line approximately every six years and transmission lines every seven years. Vegetation management benefits the system in various ways.

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

Minnesota Power's vegetation management program for its distribution system has 339 electrical circuits spanning 4,780 miles of 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. Since 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; the actual maintenance schedule may be longer or shorter than six calendar years.

Vegetation maintenance is normally accomplished through tree trimming, 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 Minnesota Power 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. The Company's vegetation management program utilizes a credentialed forester and two 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.

In 2018 the Company's vegetation management budget levels declined, however more circuits were cleared than in previous years, and this ultimately reduced the number of circuits that are outside the 6 year growth cycle as evidenced in Table 3 on Page 25. Table 3 lists the individual circuits scheduled to receive routine maintenance that have not had vegetation maintenance in the six years prior to December 31, 2018. Together, they represent 5.6 percent of the Company's total distribution system by line miles. In 2019, 87 percent of these lines miles will be completed. The remaining 13 percent of these line miles will be completed in 2020.

Table 3: Circuits outside of 6-year trimming cycle

Sub feeder	Circuit	Mileage	Last Completed	Plan Year	Number of years
AUN-1	Aurora 1	4.4	2011	2019	8
AUN-2	Aurora 2	17.3	2011	2019	8
AUR-313	Aurora 313	3.0	2011	2019	8
BAB-1	Babbitt 1	11.9	2011	2019	8
BIW-1	Giants Ridge 1	4.9	2011	2019	8
CBL-214	Caribou Lake Reg Station	6.3	2012	2019	7
CLQ-412	Cloquet 412	2.4	2012	2020	8
EMB-317	Embarrass 317	12.9	2011	2019	8
FLN-1	Flensberg 1	1.9	2012	2020	8
FLN-2	Flensberg 2	23.3	2012	2020	8
FTR-1	Fort Ripley 1	5.2	2012	2020	8
HNS-229	Haines Road 229	13.4	2012	2019	7
HNS-236	Haines Road 236	48.8	2012	2019	7
HNS-237	Haines Road 237	28.8	2012	2019	7
HYN-2	Hoyt Lakes 2	10.6	2011	2019	8
PLR-214	Pike Lake Reg Station	5.1	2012	2019	7
PQT-507	Pequot Lakes 507	1.7	2012	2020	8
TWN-2	Tower Soudan 2	13.0	2011	2019	8
WRN-411	Wrenshall 411	53.2	2012	2019	7
	Total mileage	**268.3**			

Line Inspection Program

Minnesota Power has an active line inspection program which includes the inspection of each pole on a ten year cycle. Poles that are 20 years and older are bored and checked internally for structural integrity. Approximately 15,000 poles, or ten percent, 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 for potential problems. The contracted line inspectors are given Minnesota Power's 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 third year of its second complete ten year cycle. The Company estimates that the average age of the poles in its service

territory are 35 years old and the average age of a replaced pole is approximately 50 years old. Minnesota Power has found this to be a prudent and logical way of evaluating and replacing the poles on its system.

Emergency Management and Response

Minnesota Power's Emergency Management Policy reinforces its commitment to customers and the communities served. The Company strives to utilize effective emergency management principles and protocols that enhance its ability to provide safe and reliable energy services. Minnesota Power has developed and maintains a comprehensive set of risk mitigation plans to prepare for, respond to and recover from emergencies while informing stakeholders of all types of business interruption incidents that might occur.

The Company has established an Emergency Response Plan ("ERP") for the purpose of managing outages caused by storms and natural disasters, civil unrest, major equipment failure, or other emergency events - and to recover from them expeditiously. It is intended to be simple, flexible and readily adapted to any type of Emergency Event. The ERP provides the framework for the orderly response and concise role definition for company resources during emergency events. The plan is focused on public safety, workforce safety and the safety of outside aid. Minnesota Power utilizes the National Incident Management System ("NIMS") to guide its ERP. The NIMS is a comprehensive national approach to incident management that is utilized by the Federal Emergency Management Agency ("FEMA") and is applicable at all jurisdictional levels and across functional disciplines. Furthermore the ERP improves the effectiveness of emergency response providers and incident management organizations across a full spectrum of potential incidents and hazard scenarios. NIMS relies on the Incident Command System ("ICS") to coordinate and manage the response of an organization. Overall, this approach improves Minnesota Power's coordination and cooperation between public and private entities in a variety of domestic incident management activities.

Minnesota Power has leveraged the structure of the ICS for the purpose of combining facilities, equipment, personnel, procedures and communications to operate within a common organizational structure. The intent of this design is to manage all types of incident activities and have a structure that is both scalable and malleable to a variety of emergency situations and can fit in with local, county, state, and national response efforts. Minnesota Power's ERP accommodates events of every size by ensuring the key elements of an ICS organization exist and are readily replicated using common roles and responsibilities. This scalable approach to emergency events allows MP to manage them at the strategic, tactical or operational level based upon their type, severity and impact.

The other major contingency situation that the company plans for is a complete failure of the regional grid. In the event that a catastrophic failure of the interconnected grid happens regionally, a complete and coordinated restart may be required. This situation is generally referred to as a "black start". Black start is also an important element of the existing Emergency Response Plan. This plan has been developed in conjunction with the Midwest Reliability Organization ("MRO") to restore the Minnesota Power Bulk Electric System ("BES") after a partial

or complete system blackout or major outage where all or nearly all generation and load has been lost with little or no significant equipment damage. This could be due to unusual circumstances such as instability or other transient conditions where all external sources of energy are unavailable. If the system suffers the loss of critical equipment such as key generators or key transmission lines, the System Operator will initiate action to begin repair of these facilities while working closely with System Performance to identify alternative paths for generator station service and restoring load.

The objective of this section of the plan is to set forth procedures and guidelines, which will assure prompt, orderly and efficient restoration of service following a sudden and unpredictable system shutdown. Additional objectives are coordinated communications to facilitate the restoration activities while monitoring and operating the system within operating limits to maintain the system in a secure state and a coordinated interconnection process to result in an interconnected BES. The Company has provided the table of contents from its Emergency Response Plan as Appendix C as an illustration and roadmap for its emergency management processes.

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 of their customers within four to seven days. A robust protocol has been developed between the Midwest Mutual Assistance Group ("MMAG") which is comprised of 34 investor owned utilities. Generally, a utility calls upon Mutual Aid when they face a week or more of outage time and multiple weeks of restoration work. To begin the process, Mutual Aid member representatives are contacted via e-mail, text message and finally a call by an IVR 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 of 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 of the utilities have reported, the most effective response coordination is formulated and finalized. New in 2017 to the MMAG is the implementation of the RAMP UP tool. This is an application that eliminates, in most cases, the need for a conference call and allows utilities to quickly input resource requests or availability of crews to help others through any smart device. The support that can be requested, or offered, is defined by resources experienced in transmission, distribution, vegetation or damage assessment. Through the Mutual Aid agreements, requesting companies are required to reimburse responding companies for all costs and expenses incurred in providing Mutual Aid.

In 2018, Minnesota Power continued to respond to calls for Mutual Aid from fellow utilities. The Company remained in Puerto Rico assisting the Puerto Rican Electric Power Authority ("PREPA")

from November 20, 2017 to March 20, 2018. Through this effort Minnesota Power assisted with the rebuilding of PREPA's distribution system post-hurricane Maria.[3]

In November of 2018, Minnesota Power responded to Pacific Gas & Electric's ("PG&E") call for assistance after the deadly Camp Fire tore through California. The fire started on November 8, 2018 and was contained on November 25, 2018[4]. The fire destroyed 153,000 acres of land and contributed to 86 deaths. Minnesota Power deployed three foresters to California from November 24, 2018 to December 14, 2018. The foresters assessed trees, identified and mitigated hazards on the work sites, and directed tree crews for the rebuilding of PG&E's distribution system.

Figure 26: Minnesota Power Employees at Camp Fire Work Site

Cyber Security

As conveyed to Commissioner Tuma during his October 5, 2018 visit to Duluth, Minnesota Power has built out a multi-layered cyber security program based on the Center for Internet Security's internationally accepted Critical Security Controls for Effective Cyber Defense framework to prevent, limit the impact of, and ultimately recover from long term outages caused by cyber threats. In practice, Minnesota Power's cyber security program addresses:

[3] More details on the PREPA mutual aid response can be found in Minnesota Power's 2018 SRSQ Report: Docket No, E015/M-18-250

[4] https://www.npr.org/2018/11/25/670652466/northern-california-camp-fire-contained

Dedicated Cyber Security Program and Leadership – An eight person Cyber Security & Compliance department led by a Manager focused solely on cyber security and compliance is charged with continuously refining Minnesota Power's cyber security strategy, advocating for its adoption, engaging Minnesota Power employees on the importance of cyber security, communicating/raising awareness of cyber security best practices, and prioritizing/following through on cyber security improvement initiatives. In 2018, this team was expanded by one full-time equivalent employee to increase its total size to its current eight persons.

External Sensing – Minnesota Power actively augments its cyber security expertise/intelligence with information obtained from multiple external sources. Examples include:

- Active interaction with North American Electric Reliability Corporation ("NERC"), Electricity Information Sharing and Analysis Center ("E-ISAC"), Downstream Natural Gas Information Sharing and Analysis Center ("DNG-ISAC"), EEI, North American Transmission Forum, Electricity Subsector Coordinating Council Cyber Mutual Assistance ("ESS CMA") program, Mid Continent Compliance Forum ("MCCF"), Midwest Reliability Organization – Security Advisory Council ("MRO-SAC") and its weekly calls, and various other resources via the internet;
- Retention of a third party cyber security services firm to continuously monitor and analyze the Company's internal cyber environment;
- Biannual engagement of external cyber security firms to assess Minnesota Power's cyber environment vulnerabilities and, starting in 2018, perform penetration testing against it;
- Performance of regular audits of Minnesota Power's bulk electrical system cyber environment/practices by the Midwest Reliability Organization ("MRO") and financial cyber environment/practices by Price Waterhouse Coopers.

Note: beginning in 2018, MRO changed the frequency that it audits utilities from one full audit every three years with spot checks in the intervening years to an annual audit of a subset of the NERC standards every year. Concurrent with this change, MRO also granted Minnesota Power self-logging status to document minor self-reports – MRO Self-Logging is not granted to every organization they audit. Lastly, Minnesota Power is expanding its cyber security program to encompass the new NERC CIP standards on "low impact bulk electric system cyber assets" and "supply chain" that will become effective in January and July of 2020, respectively.

Internal Sensing – Minnesota Power actively monitors the state of its internal cyber security posture to determine where further cyber security investments should be made. External and internal vulnerability assessments with both broad and targeted objectives are performed approximately bi-annually, and each year Minnesota Power's Internal Audit department performs multiple targeted independent audits of the company's cyber environment (the most recent examples centered on Cloud applications, assessing external vulnerabilities, and Personally Identifiable Information). Minnesota Power's executive leadership, ALLETE's executive leadership, and ALLETE's Board of Directors actively monitor the current state of the company's cyber security posture and progress made on the execution of its cyber security strategy. At the end of 2017, Minnesota Power performed a self-assessment of its performance

against the Center for Internet Security's 20 Critical Security Controls. At the end of 2018, Minnesota Power repeated this self-assessment to track its program's progress and to prioritize areas for continuous improvement. Going forward, Minnesota Power will continue to perform this self-assessment annually.

Intrusion Prevention – Minnesota Power's approach to preventing cyber intrusions is multilayered. First, the Company trains its employees on a recurring basis to practice good cyber security hygiene to improve their recognition of suspicious activity and reduce their risk of inadvertently introducing malware to its system. This training's effectiveness is measured on a recurring basis through a simulated phish testing tool. Second, the Company designs its cyber environment to be hardened against cyber intrusions. This means a) its entire internal network is segmented off from the internet, b) operational technology is further segmented off within the internal network, c) a network access control system is in place that prevents unauthorized devices from connecting to its internal network, d) cyber systems are regularly patched, e) all cyber systems deployed on its internal network require strong passwords to access them, f) e-mail attachments are scanned for viruses, g) employee access to malicious web sites is blocked based on information received from a third party, and h) operational technology consoles are not allowed to access e-mail services or the internet. Third, the Company has implemented a vulnerability management system that is aware of the cyber technology deployed in its environment, informs the Company when external sources indicate it contains vulnerabilities, and recommends which patches to apply to mitigate those vulnerabilities.

Intrusion Mitigation – Minnesota Power's cyber intrusion mitigation program consists of ten primary components. 1) Minnesota Power employs multiple layers of embedded segmentation within its cyber environment. If a cyber intrusion gets past the preventative defenses, its impact is limited only to the segment that was compromised. Furthermore, breaching a network segment does not provide automatic access to the devices located on it – their local access control measures must first be overcome. 2) The Company is currently executing on an initiative to encrypt its stored and in transit data. Once completed, even if an intruder was able to compromise a network segment and its associated devices, they would not be able to read/interpret/use the data stored/traveling on it/them. 3) The Company has implemented multiple Security Information and Event Monitoring ("SIEM") tools that utilize different methods to detect suspicious activity on its networks, desktops, and servers. 4) To further enhance its monitoring capability, the Company has retained an external party to monitor its cyber environment and assist in identifying suspicious activity. 5) The Company is able to import cyber security alerts provided by external sources into its monitoring tools to rapidly determine if the cyber threat is present in its cyber environment. 6) The Company has implemented a tool that enables it to rapidly quarantine infected devices and remotely cleanse them. 7) All critical Minnesota Power cyber systems are regularly backed up. 8) All data center based cyber systems can be recovered to an alternative Minnesota Power data center. In the case of the Company's Energy Management System, this failover is part of a larger operational plan for controlling the power grid from a backup facility. 9) Minnesota Power hones its ability to rapidly respond to and recover from cyber-attacks through active participation in NERC's GridEx simulation. Planning for the next GridEx is currently underway with the exercise scheduled for November 2019. This

broadly-scoped recurring exercise tests Minnesota Power's Cyber Security Incident Response Plan, builds proficiency in its execution and continuously improves it. 10) Minnesota Power is implementing a Security Orchestration Automation Response ("SOAR") tool to enable it to more quickly respond to cyber events. This tool will automatically inject externally sensed Indicators of Compromise into Minnesota Power's security tools to determine whether they are present in its cyber environment. It will also reduce the time between an e-mail phish being reported and removed from Minnesota Power's e-mail systems.

Taken together, the above areas of focus provide Minnesota Power's cyber security program with a solid foundation on top of which many layers of defense are built. They ensure its critical vision, leadership, external sensing, internal sensing, intrusion prevention, intrusion mitigation, and intrusion recovery aspects are accounted for, strategically addressed, and continuously improved.

X. Update on Compliance Assessment

As outlined in its January 14, 2019 letter in Docket No. E015/M-18-250, the Company is currently completing a compliance review and assessment of Minnesota Power's payment agreements, disconnection, reconnection, and Cold Weather Rule and related service practices for residential customers. The purpose of the assessment is to gather information and data about the Company's treatment of customers with past due payments, service disconnections and reconnections, and reporting requirements. The scope of work was finalized with Winthrop & Weinstine on January 2, 2019 with an anticipated completion timeframe of up to six months.

XI. Conclusion

Minnesota Power appreciates the opportunity to provide relevant information regarding its employee safety, distribution system, and service reliability and quality results for 2018. While the Company did not meet its reliability goals in 2018, it is demonstrated through this Report that Company operations were able to effectively and prudently manage a large increase in outages due to weather patterns and equipment failures. The increase in real-time data garnered from its AMI meters, and the correlation to an increase in outage duration minutes (SAIDI) is an important contextual framework to consider when reviewing Minnesota Power's reliability results. Additionally, many of the advances that the Company is making with regard to restoration automation, mobile workforce, response metrics, planned outages, and response times continue to reinforce positive momentum with the aspects of reliability under immediate, near-term control.

Information in this Report can be utilized by stakeholders to gain a better understanding of the Company's processes and procedures. It also highlights the Company's holistic distribution planning and the outstanding efforts of Minnesota Power employees that contribute to

maintaining the system's robustness and resilience. The multitude of factors that affect system reliability necessitates a nimble workforce and effective planning processes to face the myriad of issues that can arise when delivering electrical service to customers. Minnesota Power works towards the goal of meeting all stakeholders' needs, maintaining the core tenants of a safe, affordable and reliable grid while enhancing reliability performance by deploying flexible, adaptable, and upgradable technology solutions.

Annual Safety Reporting in Accordance With Minn. Administrative Rule 7826

(Docket No. E-999/R-01-1671)

Safety, Reliability and Service Quality Standards Report

Contents

Table of Figures:

Table of Charts:

ANNUAL SAFETY REPORT: 7826.0400

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.*

Number of Cases

Deaths	Days away from work	Job transfer or restriction	Other recordable cases
0	1	3	14

Number of Days

Days of job transfer or restriction	Days away from work
87	2

Injury and Illness Types

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

TABLE 1: OSHA REPORTABLE INJURIES

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 2018 in which injuries requiring medical attention occurred as a result of downed wires or other electrical system failures.

A listing of all incidents in which property damage resulting in compensation occurred as a result of downed wires or other electrical system failures and the remedial actions taken is included in Figure 1 on Page 5.

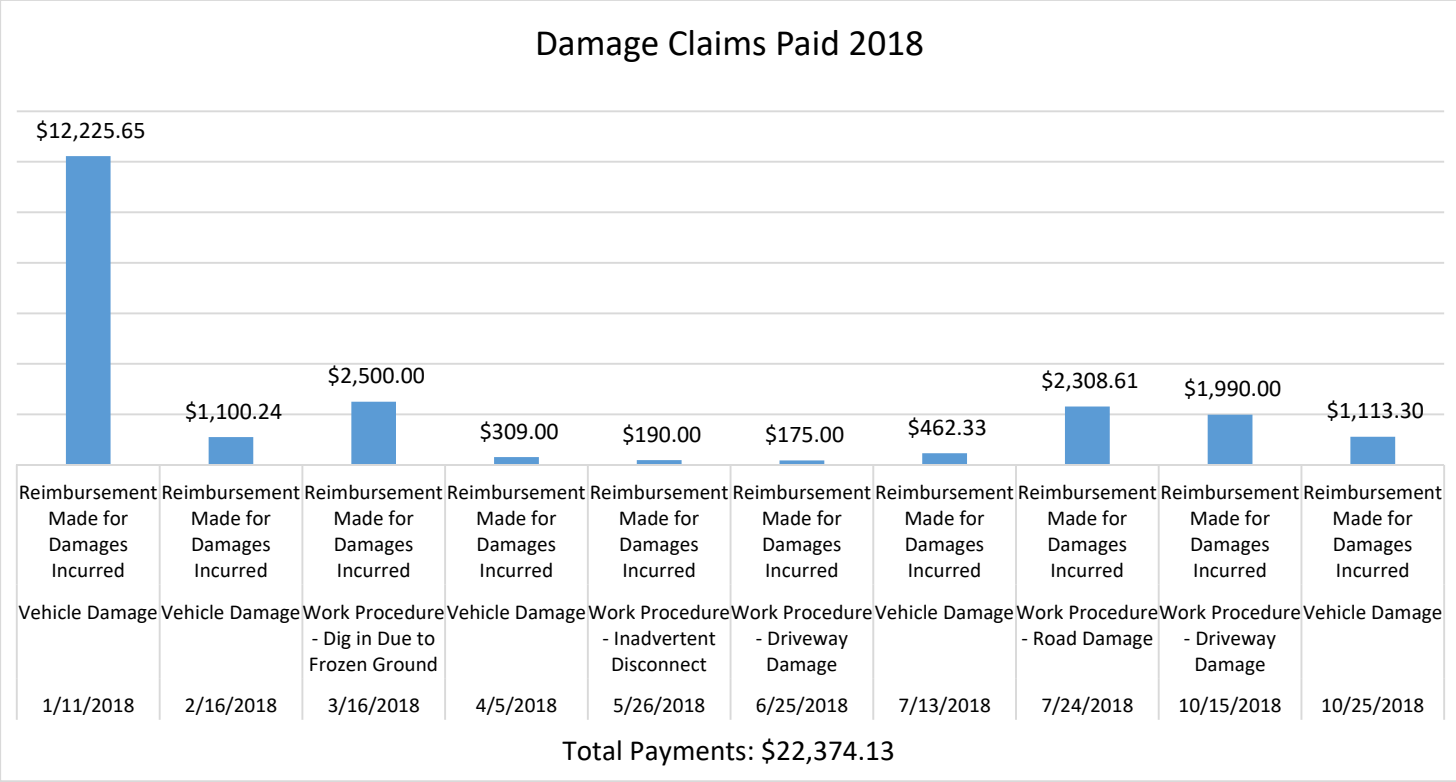


FIGURE 1: DAMAGE CLAIMS PAID 2018

Reliability Reporting Requirements: 7826.0500

Subpart 1. Annual reporting requirements. 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:

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). Included are the causes of outages occurring on major event days as well as the outage data using two different methods and detailed explanations of the differences: A major event is excluded 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. Non-Major Event normalized means that all major events such as a wind storms, ice storms, etc, are included in the reliability calculations. Since there were two excluded events in 2018, these values are different from the Major Event normalized values.

A. The utility's SAIDI for the calendar year by work center and for its assigned service area as a whole:

SAIDI (in minutes) **2018**	134.00

SAIDI calculated from Major Event Excluded data:

SAIDI (in minutes) **2018**	24.51

Major Event normalized using the IEEE 2.5 Beta method:

SAIDI (in minutes) **2018**	134.00

Non-Major Event normalized:

SAIDI (in minutes) **2018**	158.51

B. The utility's SAIFI for the calendar year by work center and for its assigned service area as a whole:

SAIFI (# of outages) **2018**	1.39

SAIFI calculated from Major Event Excluded data:

SAIFI (# of outages) **2018**	0.10

Major Event normalized using the IEEE 2.5 Beta method:

SAIFI (# of outages) **2018**	1.39

Non-Major Event normalized:

SAIFI (# of outages) **2018**	1.49

C. The utility's CAIDI for the calendar year by work center and for its assigned service area as a whole:

CAIDI (outage min/customer) **2018**	96.50

CAIDI calculated from Major Event Excluded data:

CAIDI (outage min/customer) **2018**	245.10

Major Event normalized using the IEEE 2.5 Beta method:

CAIDI (outage min/customer) **2018**	96.50

Non-Major Event normalized:

CAIDI (outage min/customer) **2018**	106.04

D. *An explanation of how the utility normalizes its reliability data to account for major storms:*

In 2018, there were two major events excluded 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. 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 Major Event Days:
As storms occur, customers call into Minnesota Power representatives and/or the Interactive Voice Response ("IVR") system to report outages. Those calls are then used to create trouble orders using a prediction engine within the Outage Management System ("OMS"). That information, along with information from other sources, is entered into a database for comparison. Often the weather event will have been detected by multiple sources. Duplications are eliminated and an accurate time and duration for each event is calculated.

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 Major Event Days. 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 Storm 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 day threshold can then be found by using this equation: T_{med} = exp (alpha + 2.5*beta). If any day in the next year has SAIDI greater than T_{med}, it qualifies as a major event day. Note that an excluded event is not limited to a single day and may span consecutive days, depending on the severity of the event.

As stated earlier, storm 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 1-3 major events excluded. The year 2016 was an outlier in that it saw seven major storm events excluded.

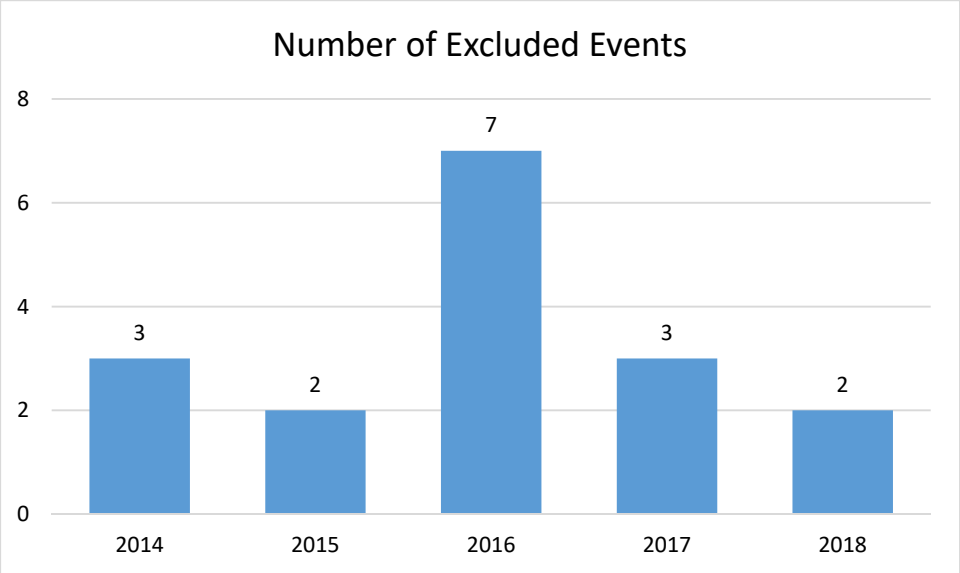


TABLE 2: MAJOR EVENT TOTALS BY YEAR

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 not meet the MPUC thresholds for both SAIDI and SAIFI in 2018. The majority of the outages throughout 2018 were attributed to weather and equipment failure. Minnesota Power increased focus on distribution equipment maintenance and replacement in

2018 and will continue to develop these programs into the future. Two assistant engineers were hired in May 2017 to develop a trouble order tracking and remediation system which was put in place in Q4 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 was fully developed in 2018 and should increase the reliability of Minnesota Power's distribution assets going forward.

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:*

23 Line –

- On April 12th, 23L locked out due to a failed insulator. This caused 496 customers to be out for 68 minutes and the remaining 260 customers were out for 94 minutes, for an average outage time of 77 minutes. The bad insulator was replaced and no follow up is needed.
- On August 10th**,** 23L locked out due to a failed center phase breaker. All customers were out for 89 minutes. The breaker was fixed and no follow up is needed.

30 Line –

- On December 20th, 30L locked out due to a vehicle accident. Crews were able to switch in 288 customers after 53 minutes, then restoring the remaining 1,148 customers 5 minutes later for an average outage time of 58 minutes. The damage was fixed and no follow up is required.

32 Line –

- On May 29th, 32L locked out due to a storm. Crews were able to restore 816 customers after 103 minutes, with the final customer being restored after 138 minutes for an average outage time of 104 minutes. The damage was fixed and no follow up is required.
- On December 16th, 32L locked out due to an unknown cause. All customers were out for 67 minutes, and no apparent cause was found after monitoring the line for several days.

33 Line –

- On June 29th, 33L locked out due to weather. Customers were out for 56 minutes. Crews repaired spot damage and no follow up is needed.

- On July 3rd and 4th, two storm cells moved through the service territory causing 33L to lock out four separate times over two days. The lock out times were 23 minutes, 22 minutes, 39 minutes, and 66 minutes. All customers were out and restored in the same timeframe.

59 Line –

- On December 27th, a tree fell onto lines causing 59L to lock out. Crews were able to switch around the damage and restore 305 customers after 75 minutes, 865 customers after 96 minutes, and the final 1,104 customers after 134 minutes. The average outage time was 112 minutes. Crews fixed the damage and no follow up is needed.

G. *A copy of each report filed under part 7826.0700*;
These reports are provided as Appendix B to this Report.

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. Since Minnesota Power considers our entire service area a single work center, this would result in only one circuit being reported. As in the past, rather than listing only one feeder, the four worst performing feeders (2 urban and 2 rural) are identified. This is done in recognition of how reliability indices are affected by differing characteristics of feeder length and quantity of customers.

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. The following table clarifies the selections:

Criteria	Circuit	# of Customers	SAIDI	SAIFI	CAIDI
High Feeder SAIDI (Urban)	Verndale 1	382	665.45	2.04	326.20
High Customer Outage Minutes (Urban)	Cloquet 406	3241	230.65	2.18	105.80
High Feeder SAIDI (Rural)	St. Croix 2	514	896.70	7.55	118.77
High Customer Outage Minutes (Rural)	Colbyville 240	3738	240.01	2.06	116.51

TABLE 3: WORST PERFORMING FEEDERS USING MAJOR EVENT NORMALIZED DATA

Verndale 1

Major Outage Events:

- July 1st – A vehicle accident caused Verndale 1 to lock out for 348 minutes while crews worked to repair the damage caused.
    - Crews fixed the damage caused by the vehicle and power was restored.
- September 12th – Verndale 1's step down transformer failed. This caused 119 customers to be out of power for 347 minutes, 127 customers for 322 minutes, and 111 customers for 265 minutes, this equals an average outage time of 313 minutes.
    - C&M installed a mobile substation and power was restored.

Cloquet 406

Major Outage Events:

- April 29th – Cloquet 406's conductor fell off the insulator resulting in the feeder locking out while crews worked to isolate the fault and put out a small grass fire the fault had started. Crews were able to restore power to 166 customers after 110 minutes, 1,574 customer after 175 minutes, and 1,417 customer after 190 minutes.
    - Crews had to wait for assistance from the fire department before they were able to fix the damage and restore power.
- June 15th – Minnesota Power had a large storm roll through its central service territory. This storm affected several thousand customers through the means of downed trees on lines, wind, and lightning.
    - Crews fixed the damage caused by the storm and restored power.

St. Croix 2

Major Outage Events:

- May 29th – A storm rolled through Minnesota Power's Service territory damaging multiple feeders and requiring many crews to work through the night.
    - Crews fixed the damage caused by the storm and restored power to the customers.

Colbyville 240

Major Outage Events:

- April 21st – 240 locked out due to failed underground equipment. Due to a few circumstances a back feed was not available. This situation coupled with the failed equipment located in close proximity to the substation caused 2,724 customers to be out of power for 65 mins and 655 customers for 376 mins while crews worked to fix the damaged equipment. In addition, the 240-275 tie switch was closed to back feed a section of Ridgeview 275 at the time of the equipment failure. The outage in turn affected 335 customers on this section of feeder for 376 minutes.
    - Crews fixed the damaged underground equipment and power was restored.
- May 29th – A storm rolled through a majority of Minnesota Power's service territory damaging many feeders and requiring many crews to work through the night.
    - Crews fixed the damage caused by the storm and restored power to the customers.

- June 24th – A tree fell through the primary on Colbyville 240 causing 436 customers to be out of power for 185 minutes while crews worked to remove the tree and restring the line. Crews discovered an issue with a switch which was repaired after the outage was restored.
    - Crews fixed the damage caused by the tree and restored power.

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 6 reported instances of ANSI voltage violations in 2018:

Date	Account #	Trouble Order
5/3/2018	6590104159	356109
5/3/2018	575381130	356119
5/28/2018	660090449	357782
7/1/2018	610164017	361408
10/6/2018	4080104893	379208
12/28/2018	30211579	385891

TABLE 4: REPORTED INSTANCES OF ANSI VOLTAGE VIOLATIONS

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.*

Minnesota Power had on average 111 full-time equivalent field employee positions in 2018, 96 of which are lineworkers responsible for responding to trouble calls and for the operation and maintenance of distribution lines.

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

Minnesota Power has no additional information to report at this time.

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.

Minnesota Power proposes the following weather-excluded reliability indices options as targets not to exceed in 2019:

	Option 1	Option 2 – 5 YR Avg
SAIDI	98.19	110.53
SAIFI	1.02	1.17
CAIDI	96.26	95.04

These targets follow the Commission's guidance in its February 19, 2019 Order in Docket No, E015/M-18-250 and also provides a second option of a 5 year rolling average of the Company's reliability results.

REPORTING METER-READING PERFORMANCE: 7826.1400

Advanced Metering Infrastructure ("AMI"):
Since 2011, the Outage Management System ("OMS") has been integrated with the Company's AMI system. This integration provides real-time messages from the AMI system when the power goes out at the customer service and when the power is restored to a customer service. The AMI-OMS integration also allows service dispatchers to "ping" individual customer meters to verify power restoration and service status manually. This feature is integrated into the current OMS screens utilized by the dispatchers.

Overall, where the AMI system is deployed and once an MDM solution is implemented, it allows efficient metering access and enhanced communication and situational awareness between Minnesota Power and its customers. With the meters acting as "smart nodes" on each premise, a multitude of benefits can be derived, including: efficient deployment of advanced time-based customer rate offerings, outage notifications, and notification of service issues (such as low/high voltage and tamper warnings), improved load control, more frequent customer usage data, and the ability to more quickly reconnect customers who may have been involuntarily disconnected due to non-payment. The expansion of Minnesota Power's AMI capabilities lays the groundwork for further Smart Grid initiatives and improvements to the customer experience.

Minnesota Power continues the process of implementing its AMI meter installation. Currently, over 50 percent of Minnesota Power's meters in the field are AMI. Minnesota Power is actively deploying AMI throughout its service territory, largely through meter attrition, at a rate of approximately 6-8 percent (roughly 10,000 meters) annually, continuing over the next several years. Minnesota Power estimates full deployment of all AMI meters by the end of 2025. Along with the AMI meter deployment, Minnesota Power completed implementation of its Radio Frequency AMI network communications infrastructure in 2018, selected an MDM vendor and is in the process of selecting a system integrator to begin process implementation.

Equipment	Percent in Use[1]	Description
Mechanical Meters	< 1%	Traditional electro-mechanical meter that records kWh usage.
AMR – Mechanical Hybrid	44%	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	2%	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.

[1] As of 1/1/2018

AMI – Solid State	55%	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.

TABLE 5: METER EQUIPMENT AND PERCENTAGE DEPLOYED

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.*

In 2018, Minnesota Power read an average of 98.76% of residential meters, 99.9% of commercial meters and 99.98% of industrial, municipal pumping, and lighting meters.

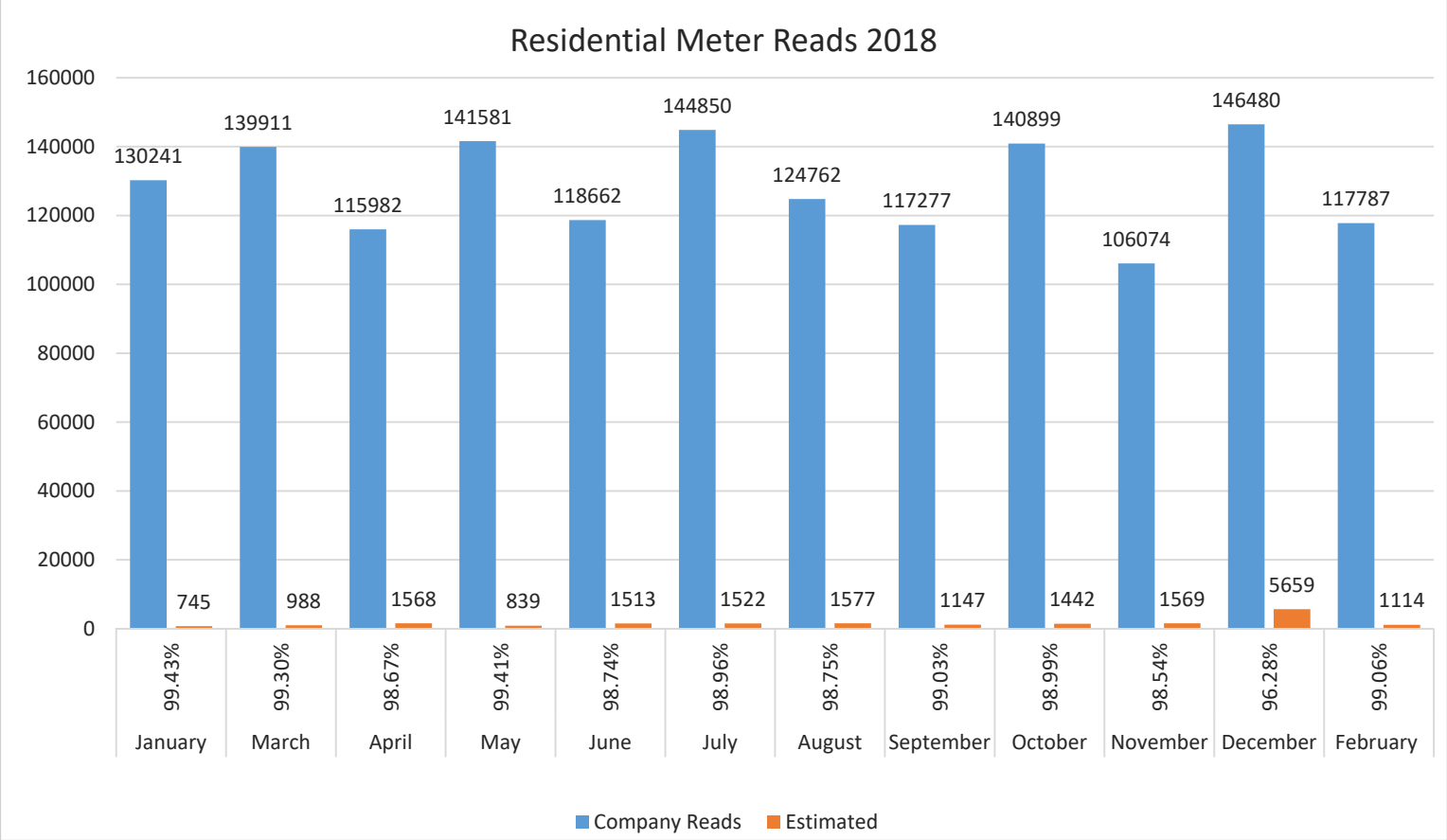


FIGURE 2: RESIDENTIAL METER READS – UTILITY 2018

In 2018, Minnesota Power read an average of 99.90% of commercial meters.

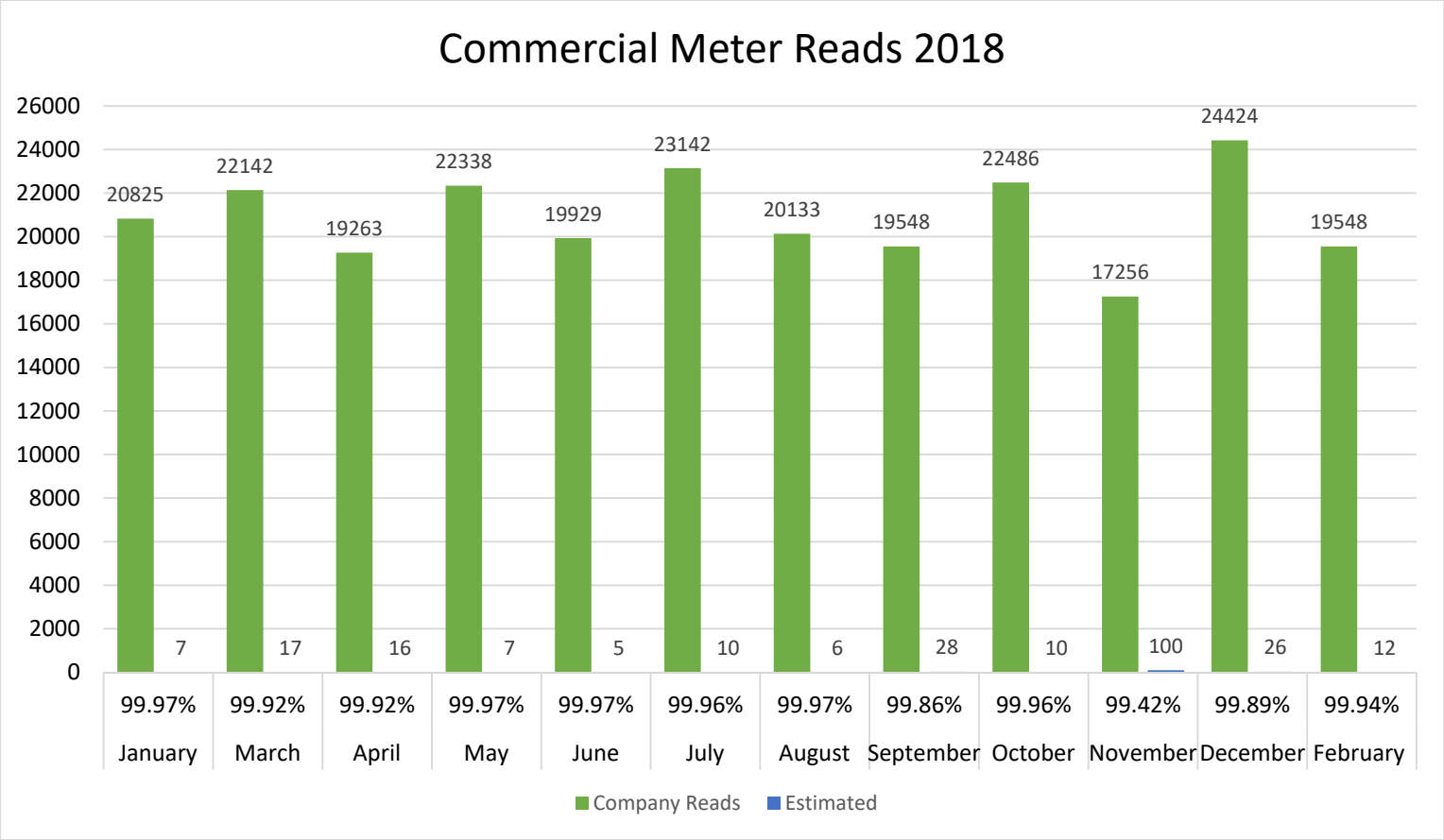


FIGURE 3: COMMERCIAL METER READS – UTILITY 2018

Industrial

In 2018, Minnesota Power read an average of 99.98% of industrial meters.

Municipal Pumping

In 2018, Minnesota Power read an average of 100% of 275 municipal meters.

Lighting

In 2018, Minnesota Power read an average of 99.97% of 362 lighting meters.

B. *The numbers and percentages of customer meters self-read by customers*

Customer reads averaged 0.04% of the system total in 2018, of those Minnesota Power received an average of 95.84% of reads.

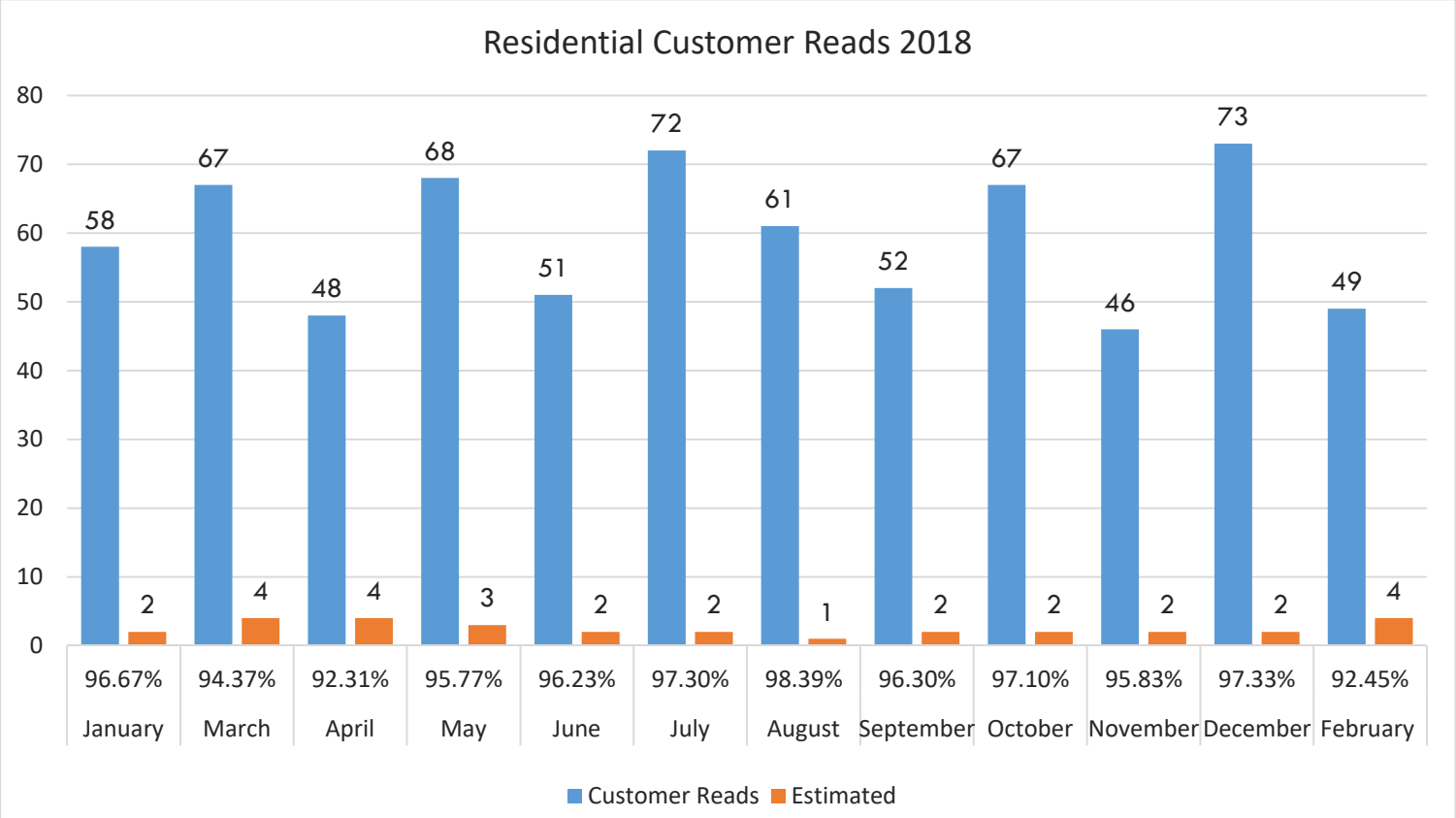


FIGURE 4 : RESIDENTIAL METER READS – SELF-READ 2018

Customer reads averaged 0.01% of the system total in 2018, of those Minnesota Power received an average of 100% of reads.

FIGURE 5: COMMERCIAL METER READS – SELF-READ 2018

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.*

Months Estimated	Company Read Service Points	% of Total	Not Read Reason	Customer Read Service Points	% of Total
6 Months	6	0.004%	No Access/AMR	0	0.000%
7 Months	7	0.005%	No Access/AMR	0	0.000%
8 Months	5	0.003%	No Access/AMR	0	0.000%
9 Months	2	0.001%	No Access/AMR	0	0.000%
10 Months	0	0.000%	No Access/AMR	0	0.000%
11 Months		0.000%	No Access/AMR	0	0.000%
12 Months	0	0.000%	No Access/AMR	0	0.000%
12+Months	0	0.000%	No Access/AMR	0	0.000%
Totals:	**20**			**0**	

TABLE 6: METERS NOT READ 6-12 MONTHS 2018

Minnesota Rules 7820.3300 requires that meters are read annually. Customers with Company read meters that are not read for six to twelve months are left reminder notices at the home premise and/or are sent reminder letters of the utility's need to access the meter. A similar process is used for customer read meters not read for over twelve months. In addition, phone calls are made to each customer in an attempt to schedule a meter reading. 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 work center or geographical area*

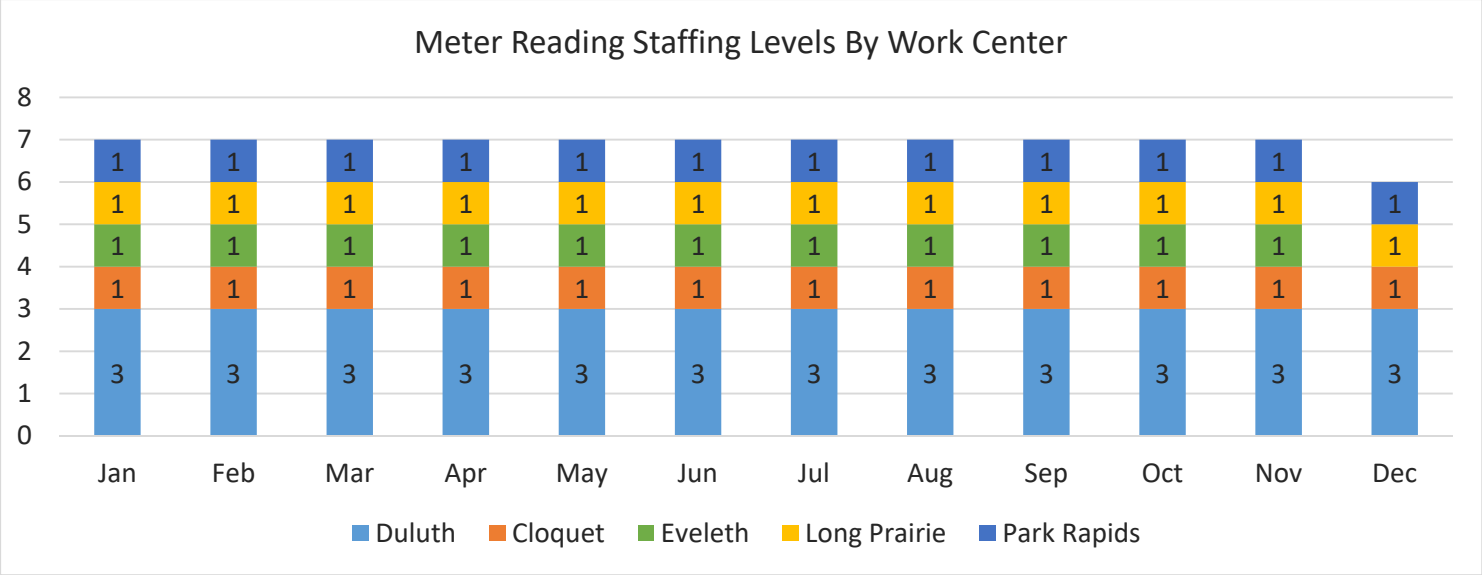
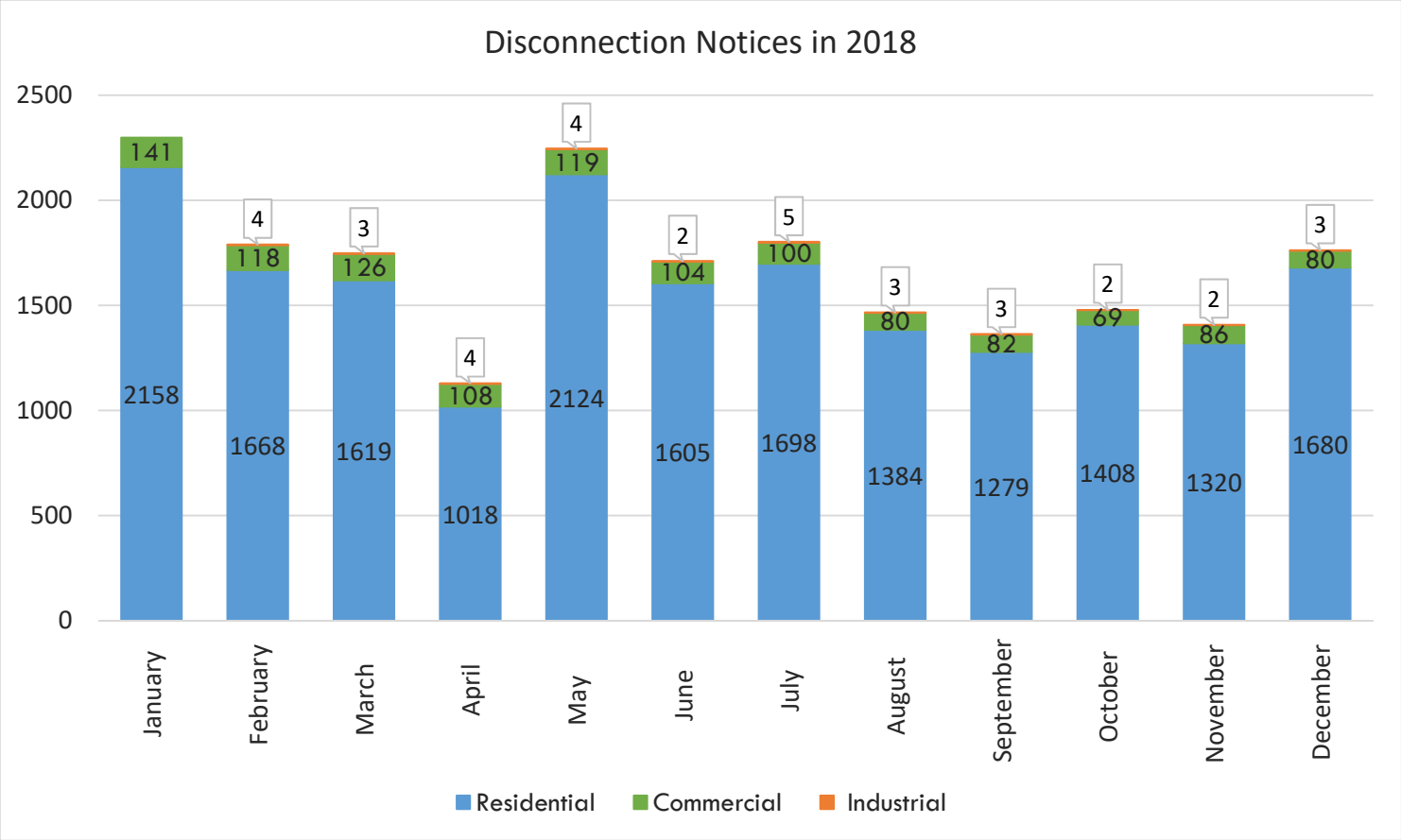


TABLE 7: METER-READING STAFFING LEVELS BY WORK CENTER

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;*



Total Disconnection Notices in 2018		
Residential	Commercial	Industrial
18,961	1,213	35

TABLE 8: DISCONNECTION NOTICES IN 2018

B. *The number of customers who sought cold weather rule protection under chapter 7820 and the number who were granted cold weather rule protection;*

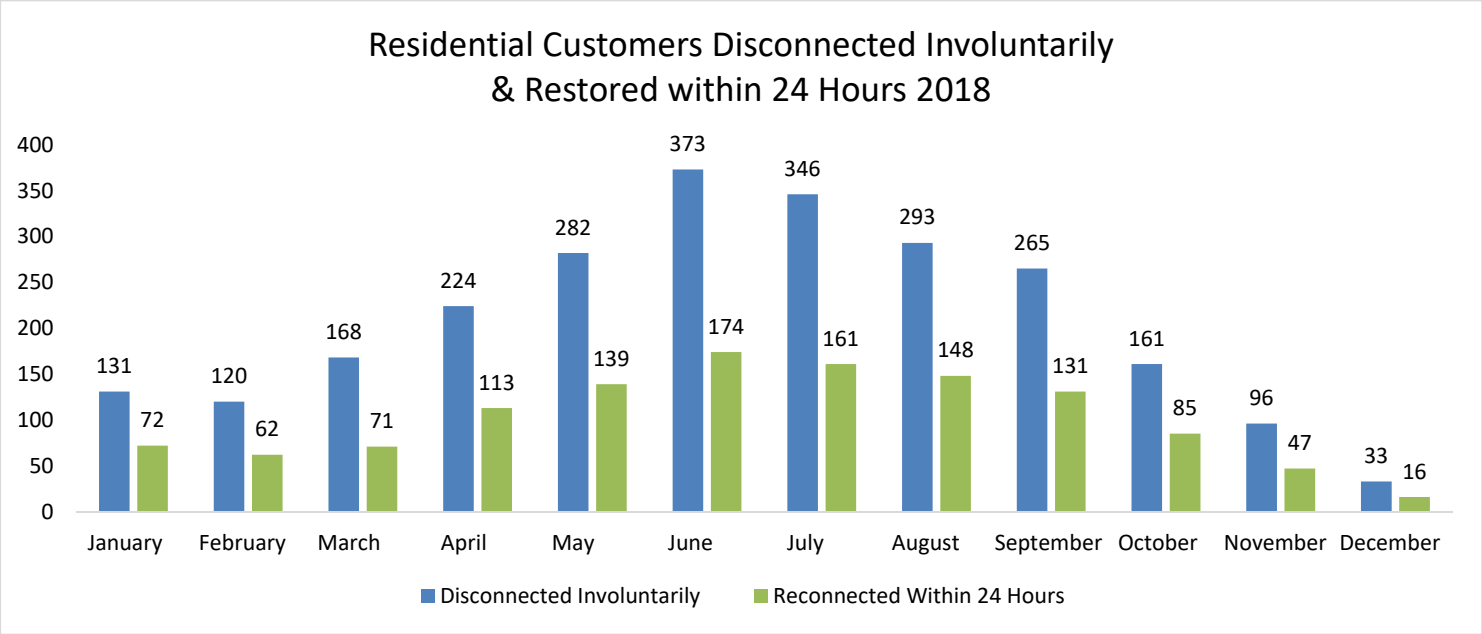
Total Residential Customers Who Sought CWR Protection	Total Residential Customers Granted CWR Protection
4,311	4,311

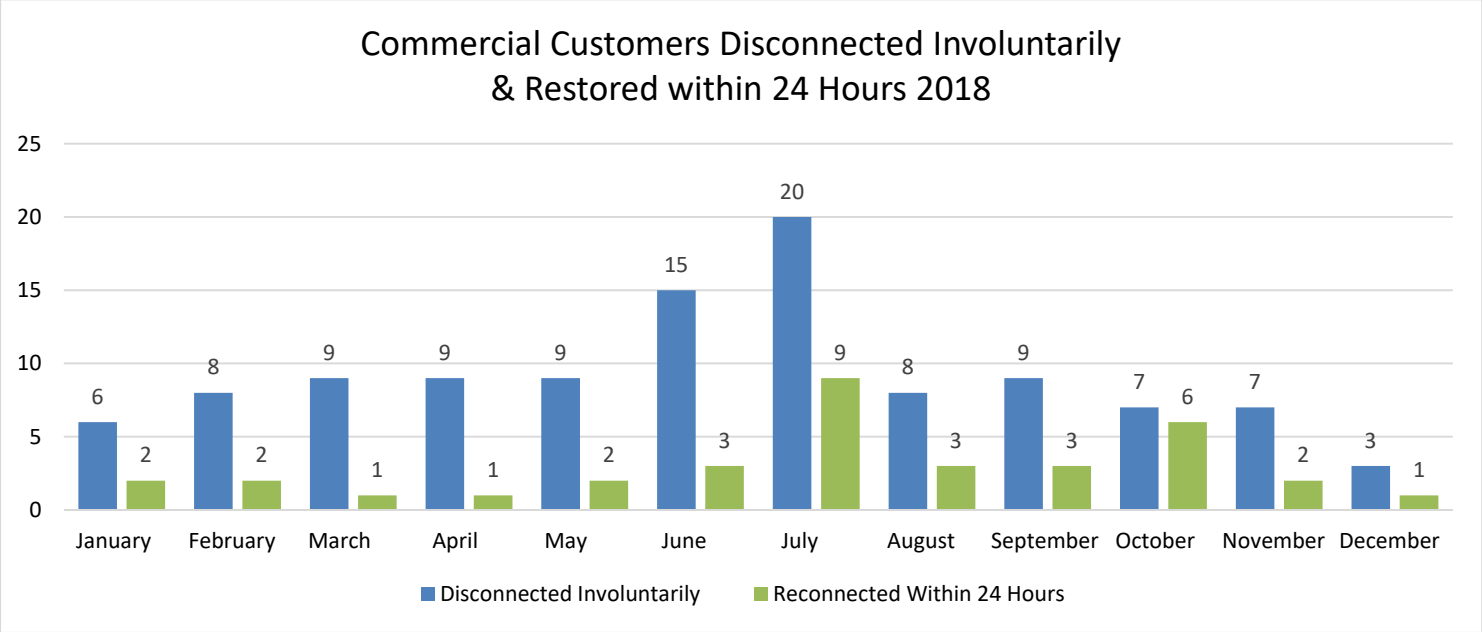
TABLE 9: CUSTOMERS WHO SOUGHT AND WERE GRANTED CWR PROTECTION 2018

Minnesota Power granted Cold Weather Rule protection to 100% of customers who requested such protection. Minnesota Power does not require income verification to receive CWR protection. With the exception of income verification, Minnesota Power adheres to the requirements of Minnesota Statute § 216B.096, Subd. 5(a) which states that during the CWR period, "a utility may not disconnect and must reconnect utility heating service of a customer whose household income is at or below 50 percent of the state median income if the customer enters into and makes reasonably timely payments under a mutually acceptable payment plan with the utility that is based on the financial resources and circumstances of the household; provided that, a utility may not require a customer to pay more than ten percent of the household income toward current and past utility bills for utility service." Minnesota Power works with the customer to get their suggestions regarding acceptable payment amounts and,

since income verification is not conducted, customers are essentially self-declaring what they feel are attainable payments within their income constraints.

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





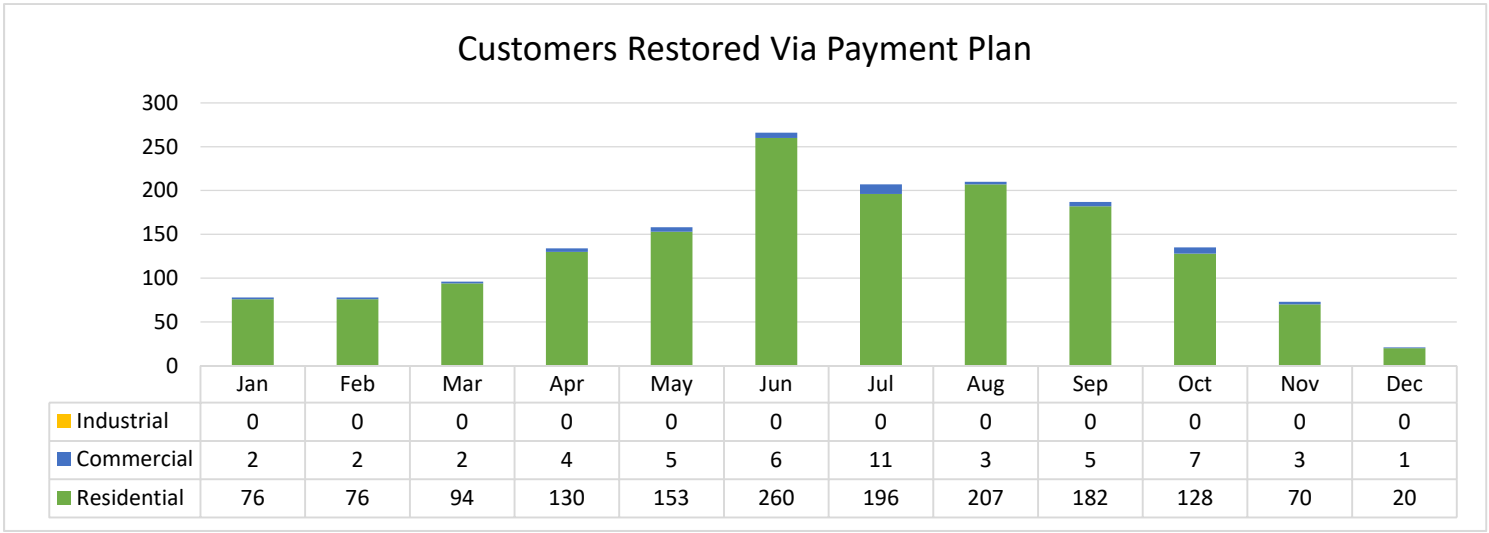
Total Customer Disconnected Involuntarily			Total Customers Restored within 24 Hours		
Residential	Commercial	Industrial	Residential	Commercial	Industrial

2,492	110	4	1,219	35	0

TABLE 10: CUSTOMERS DISCONNECTED INVOLUNTARILY AND RESTORED W/IN 24 HOURS 2018

Minnesota Power believes it is important to work with customers to avoid disconnection of service and, in the event that disconnection does occur, to work with customers on timely reconnection. Minnesota Power follows the disconnection rules and processes as outlined in Minn. Stat. §§ 216B.096, 216B.0976, and 216B.098, and Minn. R. 7820.1000 through 7820.1300 and 7820.2400 through 7820.3000. These procedures are described in the Electric Service Regulations of Minnesota Power, Minnesota Power Electric Rate Book, Section VI, most specifically on pages 3.4 and 3.16 through 3.21. Given the robust dialogue in its last SRSQ report, Minnesota Power proposed a scope of work for a compliance review and assessment of MP's payment agreements, disconnection, reconnection, and Cold Weather Rule and related service practices for residential customers. Minnesota Power worked collaboratively with Energy CENTS Coalition ("ECC") and the Office of the Attorney General—Residential Utilities and Antitrust Division ("OAG") to develop the scope of work. On January 14, 2019, Minnesota Power filed a joint letter of agreement with ECC and OAG, along with a scope of work. All parties mutually agreed upon the selection of Winthrop & Weinstine as the independent third party to conduct the review and assessment. At the conclusion of its review and analysis, anticipated completion timeframe of up to six months, Winthrop & Weinstine will produce and e-file a report describing the work it undertook, the information it obtained, and its analysis.

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



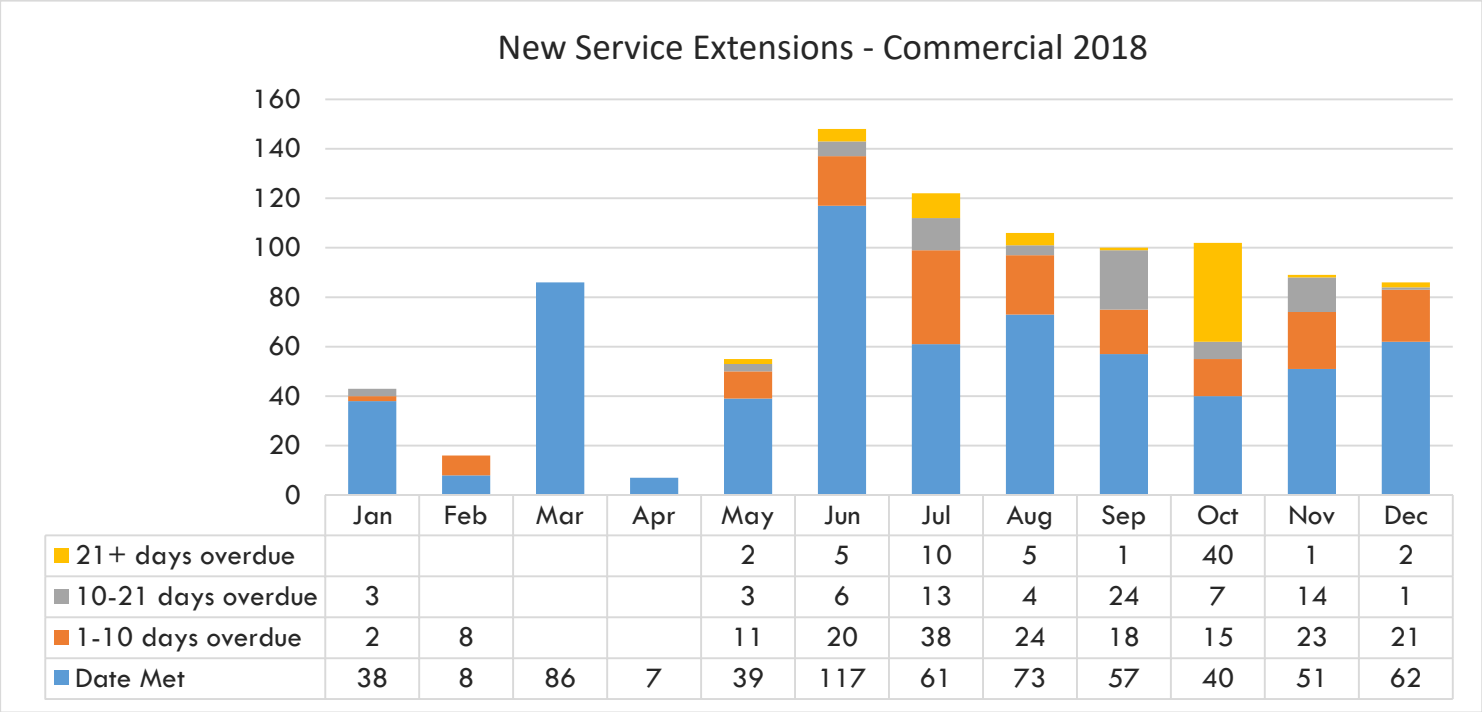
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Industrial	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	2	2	2	4	5	6	11	3	5	7	3	1
Residential	76	76	94	130	153	260	196	207	182	128	70	20

FIGURE 6: CUSTOMERS RESTORED VIA PAYMENT PLAN 2018

SERVICE EXTENSION REQUEST RESPONSE TIMES: 7826.1600

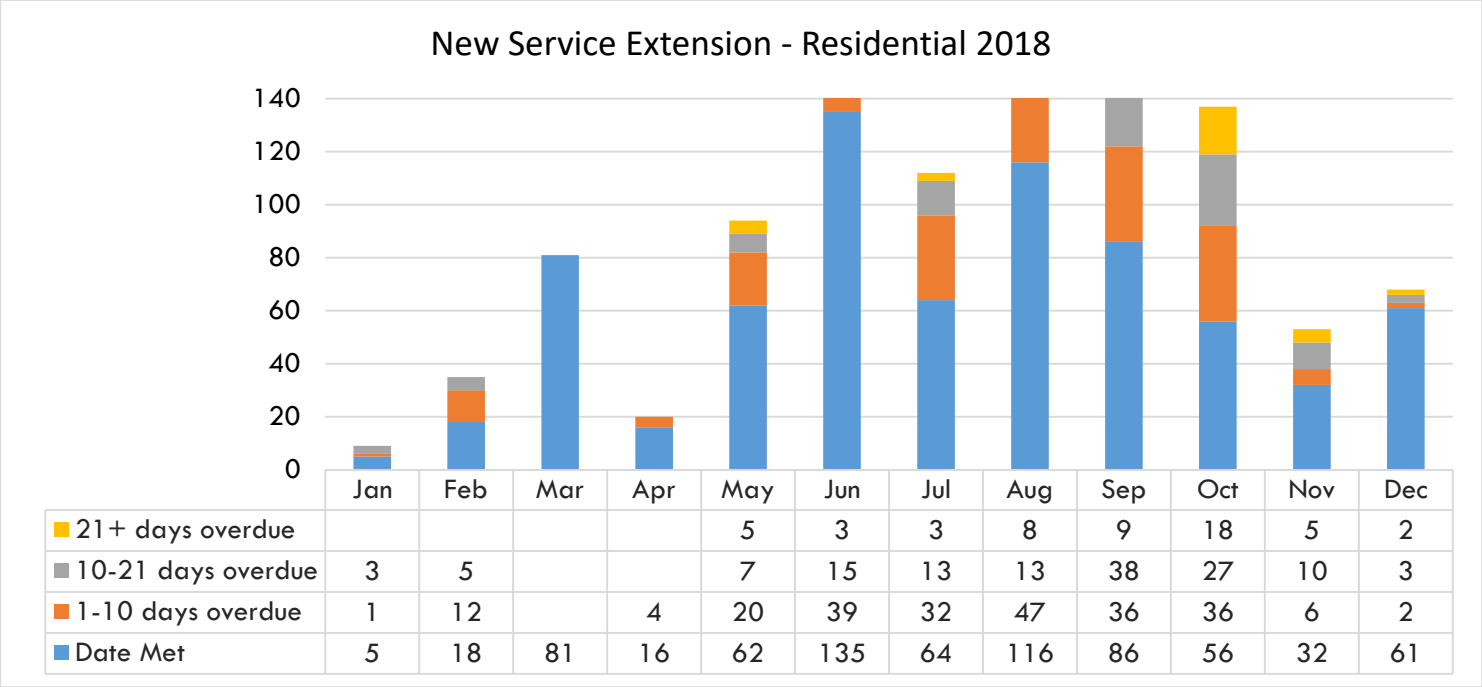
The annual service quality report must include a detailed report on service extension request response times, including, for each customer class and each calendar month:

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 ready for service.*



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21+ days overdue					2	5	10	5	1	40	1	2
10-21 days overdue	3				3	6	13	4	24	7	14	1
1-10 days overdue	2	8			11	20	38	24	18	15	23	21
Date Met	38	8	86	7	39	117	61	73	57	40	51	62

FIGURE 7: NEW SERVICE EXTENSIONS – COMMERCIAL 2018



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21+ days overdue					5	3	3	8	9	18	5	2
10-21 days overdue	3	5			7	15	13	13	38	27	10	3
1-10 days overdue	1	12		4	20	39	32	47	36	36	6	2
Date Met	5	18	81	16	62	135	64	116	86	56	32	61

FIGURE 8: NEW SERVICE EXTENSIONS – RESIDENTIAL 2018

There were only 4 new industrial extensions completed in 2018 and all but one fell into the "Date Met" category.

The following chart lists the number and percentage of locations 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 three largest, and most significant reasons, for a delay in meeting in-service date in 2018 were: MP delay due to workload (46.35%), customer not ready (18.59%), and the job redesigned (8.23%).

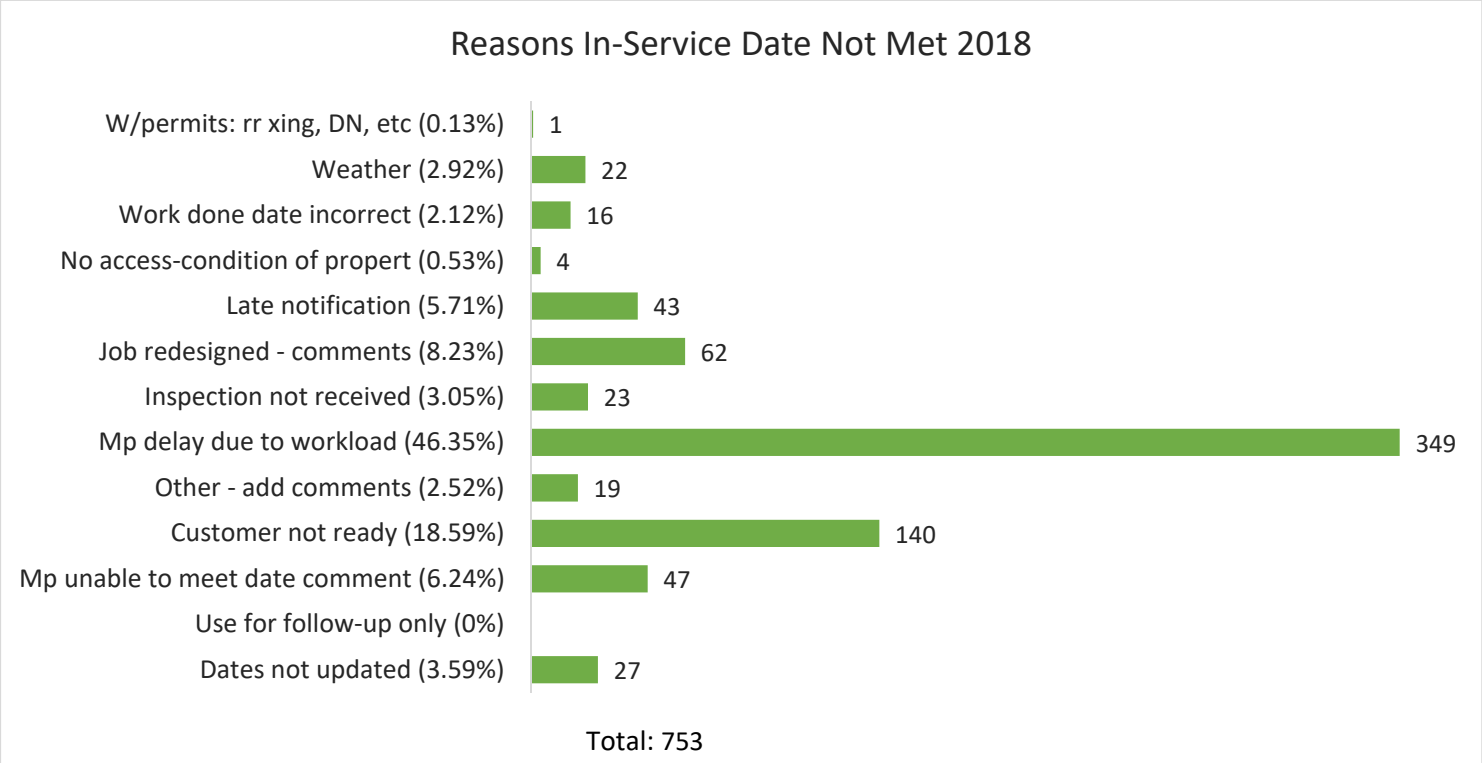
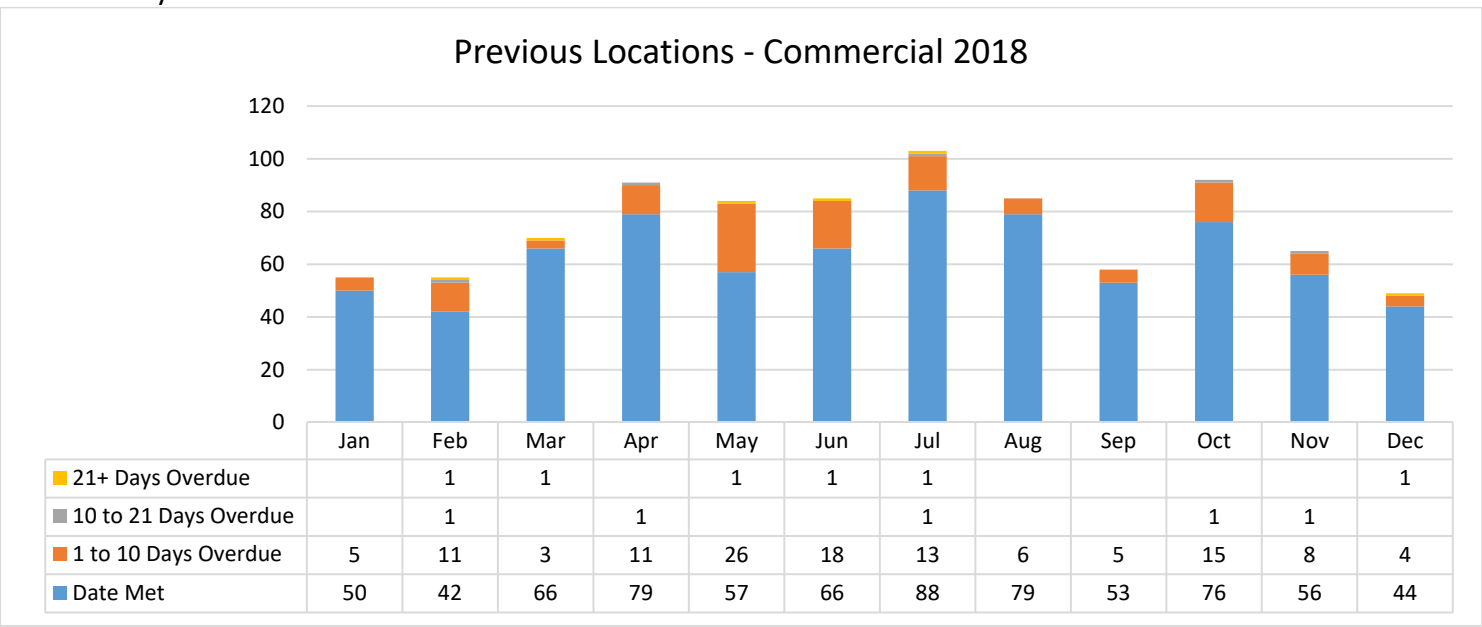


FIGURE 9: NEW SERVICE EXTENSIONS – REASONS DATES NOT MET 2018

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.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21+ Days Overdue		1	1		1	1	1					1
10 to 21 Days Overdue		1		1			1			1	1	
1 to 10 Days Overdue	5	11	3	11	26	18	13	6	5	15	8	4
Date Met	50	42	66	79	57	66	88	79	53	76	56	44

FIGURE 10: PREVIOUS LOCATIONS - COMMERCIAL 2018

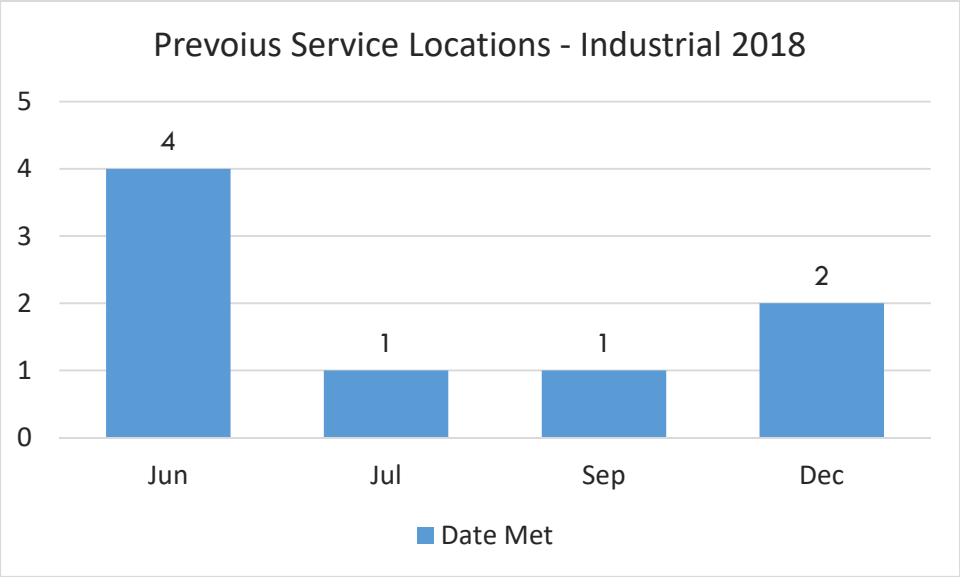
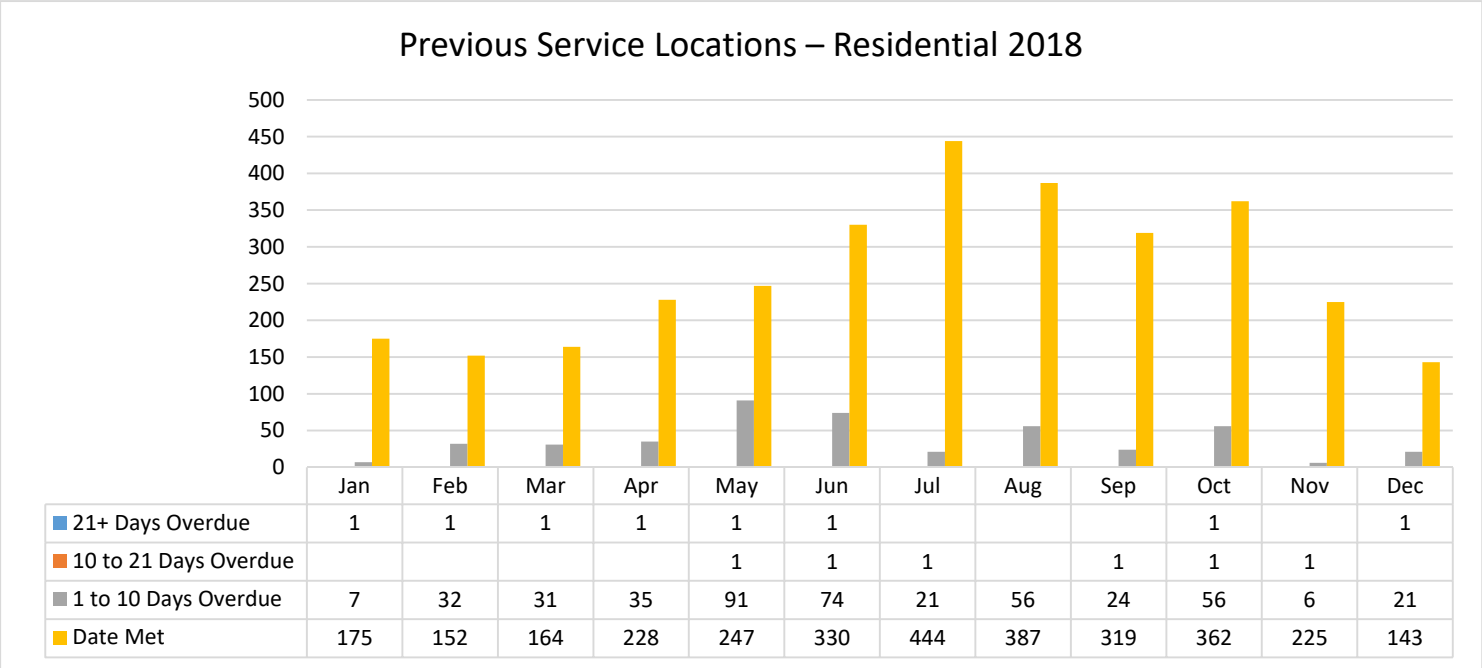


FIGURE 11: PREVIOUS SERVICE LOCATIONS – INDUSTRIAL 2018



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21+ Days Overdue	1	1	1	1	1	1				1		1
10 to 21 Days Overdue					1	1	1		1	1	1	
1 to 10 Days Overdue	7	32	31	35	91	74	21	56	24	56	6	21
Date Met	175	152	164	228	247	330	444	387	319	362	225	143

FIGURE 12: PREVIOUS SERVICE LOCATIONS – RESIDENTIAL 2018

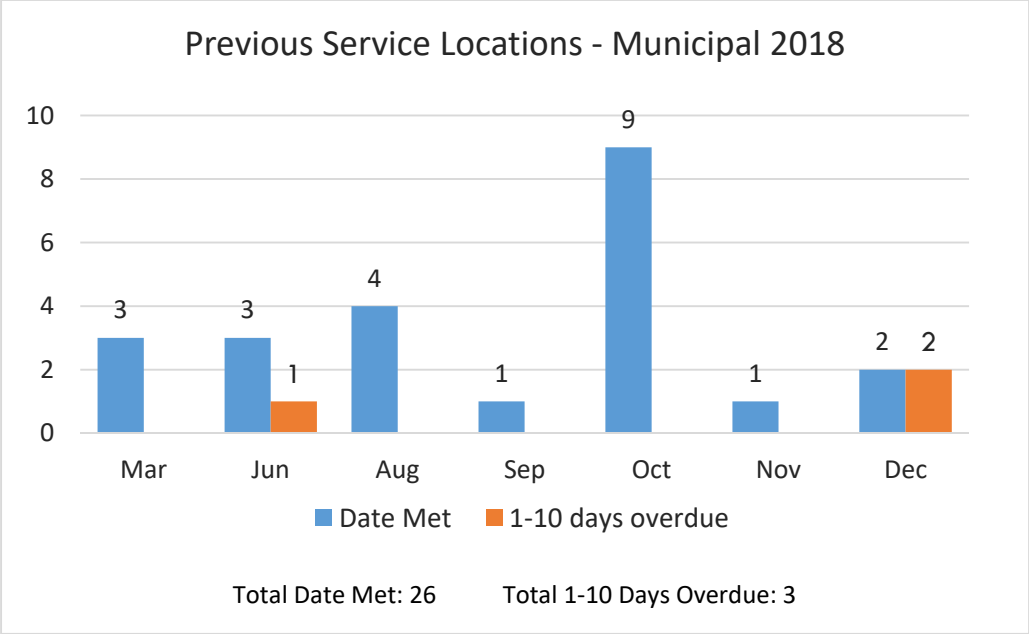


FIGURE 13: PREVIOUS SERVICE LOCATIONS – MUNICIPAL 2018

The following table lists the number and percentage 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 three largest, and most significant reasons for a delay in meeting in-service date in 2018 were: dates not updated for project (44.88 %), Minnesota Power delay due to workload (34.16 %), and work done date incorrect (7.76 %).

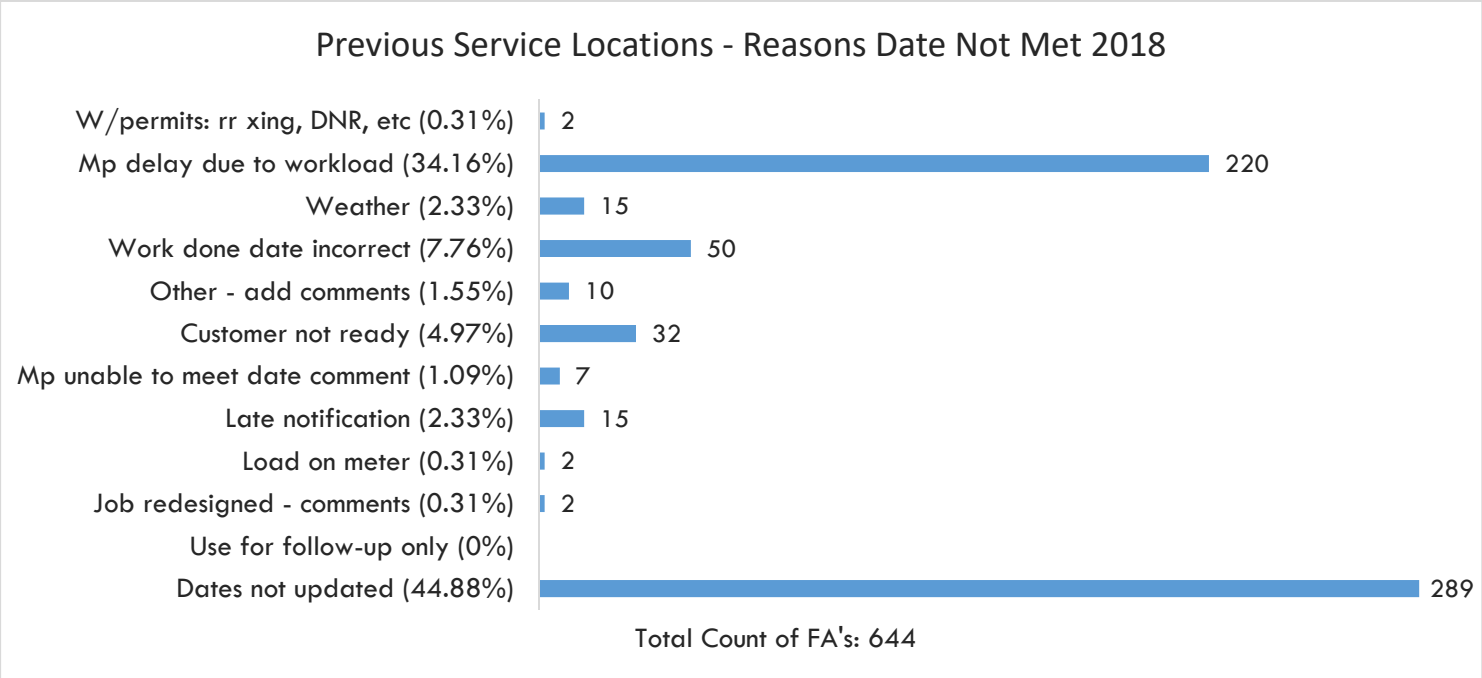


FIGURE 14: PREVIOUS SERVICE LOCATIONS – REASONS DATE NOT MET 2018

REPORTING CALL CENTER RESPONSE TIMES: 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.

All 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 in order 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.

Minnesota Power is able to use IVR data to report the number of service interruption calls; however, the IVR is unable to track a response time on an individual contact type. Calls that go to a Call Center representative are also tracked by type of contact. Like the IVR calls, Minnesota Power is able to report the number of service interruption calls; however, is unable to track a response time on an individual contact type.

In summary, Minnesota Power's response time percentage is shown as an aggregate of all calls received through the IVR and the Call Center, and the calls are not broken out by type of call because Minnesota Power is currently unable to separate response time by contact type.

With the progression of multiple customer touchpoints in the way of phone calls, the "My Account" online self-service tool, introduced in 2017, emails, IVR, etc., it is important to assess the effectiveness of all modes of communication on an ongoing basis as well as the metrics on used for channel decision-making. There will continue to be additional and varied ways of contacting and responding to customers, and for customers to reach out to the company to reconcile complaints, questions or disputes. As more self-service options become available to customers, the types of calls that the Call Center receives will likely become predominantly more complex and time-consuming. This will put pressure on the response time metrics established over 15 years ago. This will inevitably challenge traditional approaches and views regarding how response times are measured and what the appropriate success metrics might be going forward. Customer expectations and preferences regarding communication channels will ultimately need to be a point of consideration and review. As referenced in the prior SRSQ filing, this issue has surfaced in other dockets such as the Data Privacy Docket,[2] Grid Modernization,[3] and various stakeholder work group processes.

Response Time:
Minnesota Power answered 82 percent of calls in 2018 during business hours within 20 seconds, exceeding the annual goal of 80 percent, as defined in Minn. Rule 7826.1200. Minnesota Power met or exceeded the 80 percent goal threshold 7 out of 12 months of the year.

[2] Docket No. E, G-999/CI-12-1344

[3] Docket No. E999/CI-15-556

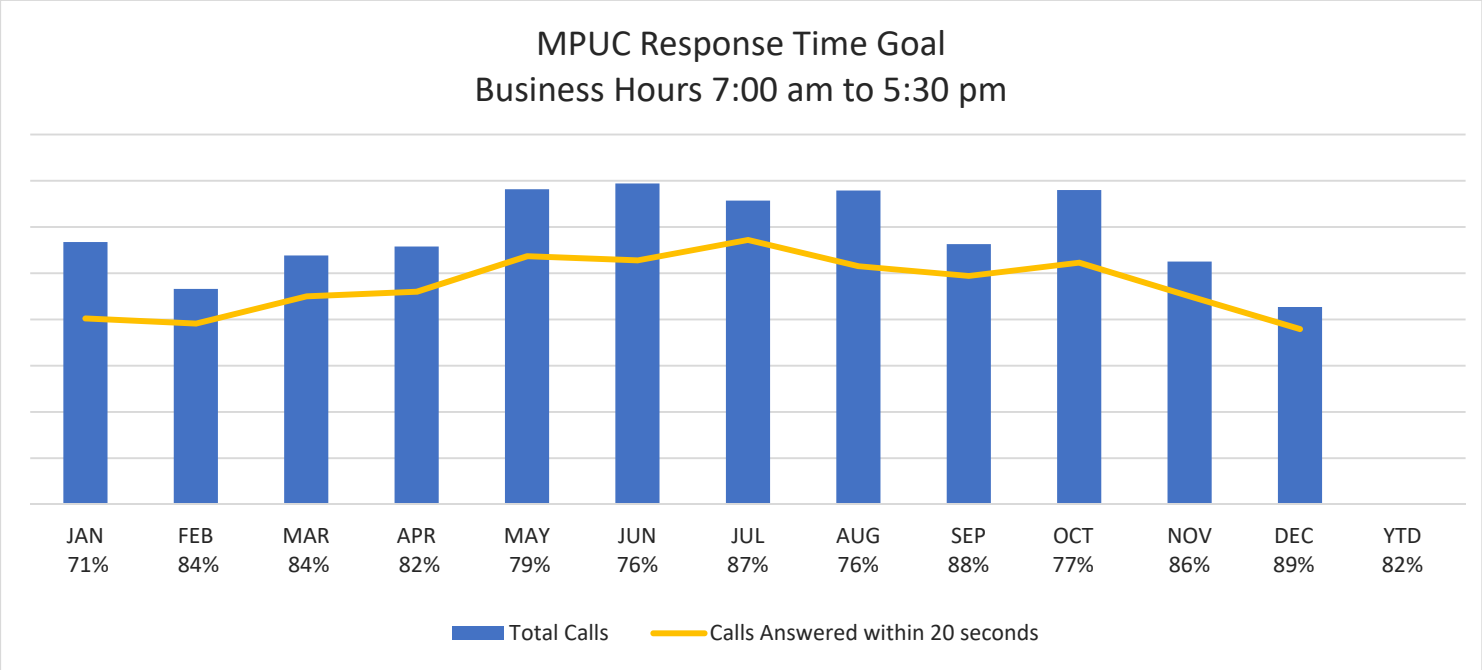
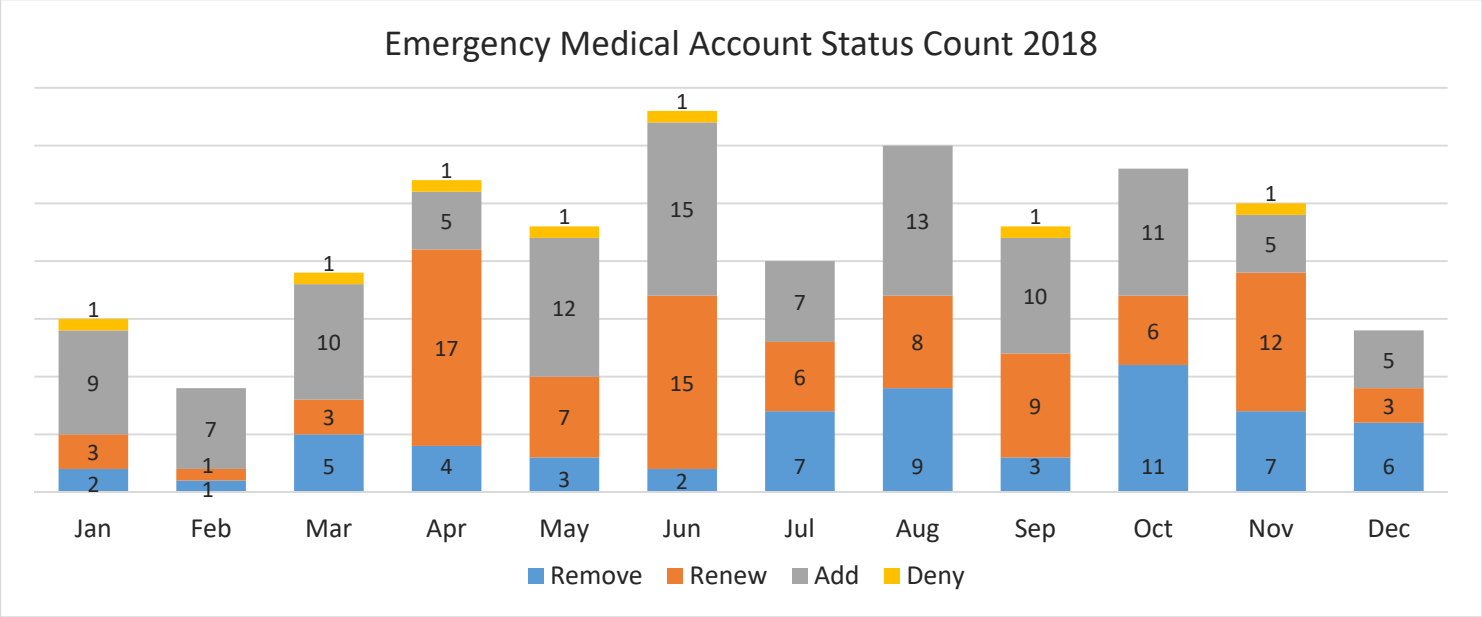


FIGURE 15: RESPONSE TIME – BUSINESS HOURS 2018

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.



Total Remove	Total Renew	Total Add	Total Deny
60	90	109	7

FIGURE 16: EMERGENCY MEDICAL ACCOUNT STATUS COUNT 2018

In 2018, Minnesota Power had 206 customers request emergency medical account status. 199 requests were granted after customers provided Minnesota Power with the required signed physician documentation indicating need. All documentation is on file and available upon request. Seven customers were refused emergency medical account status due to the following reasons:

- November 2018: Minnesota Power received a request that gave an account number for a patient's adult daughter. Customer representatives attempted to contact the account holder to obtain complete documentation. Representatives left two voicemails and noted interactions in the customer's account. The customer did not respond to the communications.
- September 2018: Minnesota Power received a request for Emergency Medical Account status that did not include specific life-sustaining equipment. Customer representatives attempted to contact the customer to discuss the need to obtain complete documentation. Representatives left a voicemail and noted interactions in the customer's account. The customer did not respond to the communications.

- June 2018: Minnesota Power received a request for Emergency Medical Account status that did not include specific life-sustaining equipment, only refrigerated medication that was non-life sustaining per customer.
- April 2018: It was determined that the patient listed on the request letter does not reside at residence per account holder.
- May 2018: Minnesota Power received a letter with no service address listed on the letter. Customer representatives spoke to the account holder and it was determined that the patient listed does not reside at the residence per account holder.
- March 2018: Minnesota Power received a request for Emergency Medical Account status that did not include specific life-sustaining equipment. Customer representatives contacted the customer on several occasions to discuss the need to obtain complete documentation.
- January 2018: Minnesota Power received a handwritten note from a customer requesting Emergency Medical Account status. Customer representatives attempted to contact the customer to discuss the need to obtain complete documentation. Representatives left a voicemail and noted interactions in the customer's account. The customer did not respond to the communications.

REPORTING CUSTOMER DEPOSITS: 7826.1900

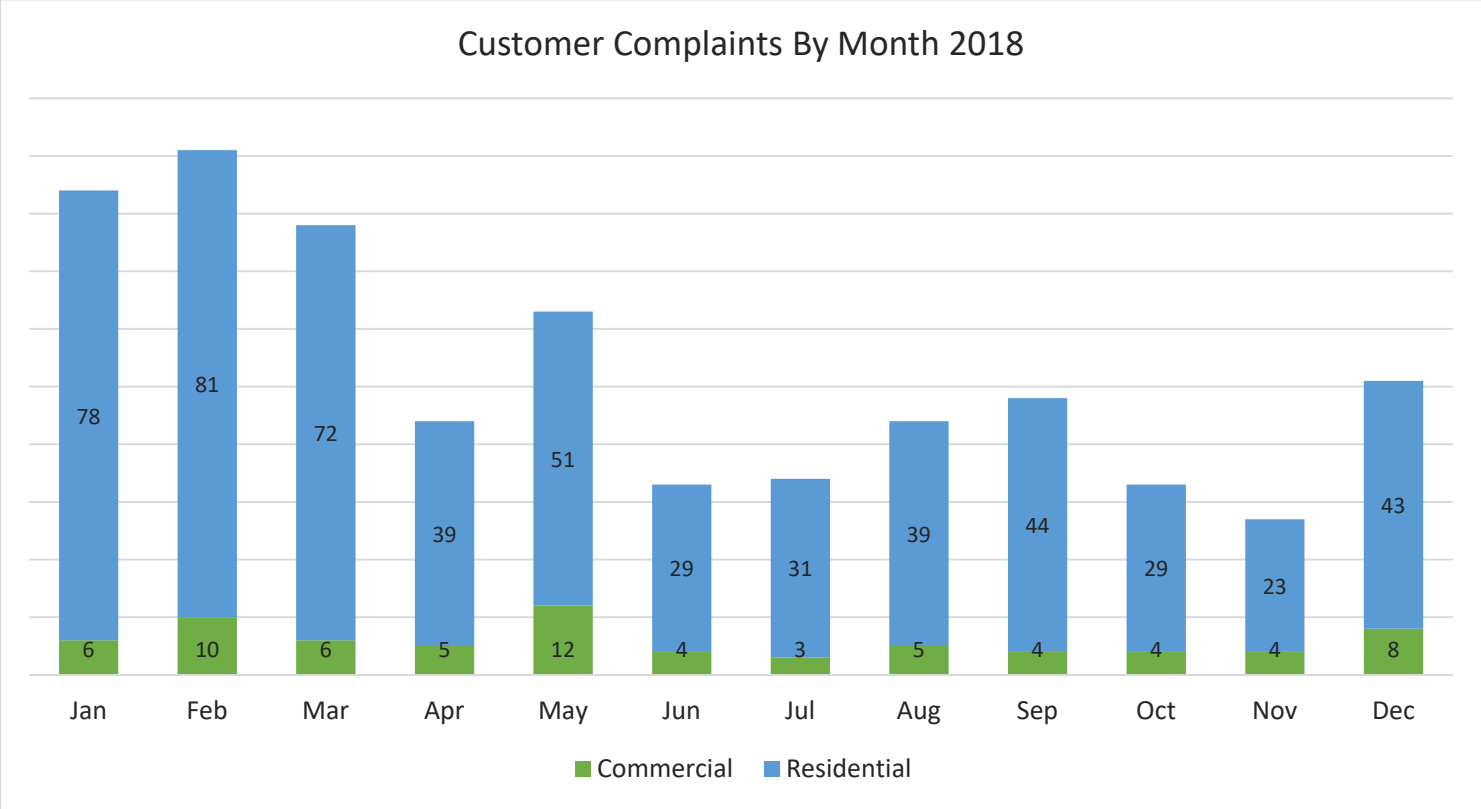
The annual service quality report must include the number of customers who were required to make a deposit as a condition of receiving service.

Minnesota Power refunded all deposits in 2014. Collection of deposits may be reconsidered in the future.

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:
(Any complaints for customer classes other than Commercial and Residential are handled individually and as such not recorded in Minnesota Power's Customer Information System.)

A. *The number of complaints received.*



Customer Class	Total	% of Total
Commercial	71	11.27%
Residential	559	88.73%
Total	**630**	**100.00%**

FIGURE 17: CUSTOMER COMPLAINTS BY MONTH 2018

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.*

Complaint Description	Customer Class	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	% of Total
Billing Error	Commercial										1			**1**	**0.16%**
Billing Error	Residential	2		1		2		1		1			2	**9**	**1.43%**
High Bill Complaint	Commercial	4	4	5		4	2	2	3	4	1	3	6	**38**	**6.03%**
High Bill Complaint	Residential	49	72	53	24	31	21	21	22	28	23	15	32	**391**	**62.06%**
Inadequate Service	Commercial		1		1		2							**4**	**0.63%**
Inadequate Service	Residential	7	2	1	4	4	2	3	5	2	1	3	1	**35**	**5.56%**
Incorrect Metering	Commercial	2	5	1	4	8		1	2		2	1	2	**28**	**4.44%**
Incorrect Metering	Residential	18	7	13	10	12	5	5	12	13	5	5	8	**113**	**17.94%**
Service Restoration	Commercial													**0**	**0.00%**
Service Restoration	Residential	1				1								**2**	**0.32%**
Wrongful Disconnection	Residential	1		4	1	1	1	1						**9**	**1.43%**
Total		**84**	**91**	**78**	**44**	**63**	**33**	**34**	**44**	**48**	**33**	**27**	**51**	**630**	**100.00%**

TABLE 11: RESIDENTIAL AND COMMERCIAL COMPLAINTS BY TYPE 2018

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

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	1	2	3		3		1	1	1	1		2	**15**	**14%**
Greater Than 10 Days	Residential	9	7	8	2	4	2	7	7	8	6	5	11	**76**	
Less Than 10 Days	Commercial	2	5	1	2	6	2	2	2	1		1		**24**	**23%**
Less Than 10 Days	Residential	14	15	16	8	12	9	6	9	13	8	5	7	**122**	
Same Day Resolution	Commercial	3	3	2	3	3	2		2	2	3	3	6	**32**	**62%**
Same Day Resolution	Residential	55	59	48	29	35	18	18	23	23	15	13	25	**361**	
Total		**84**	**91**	**78**	**44**	**63**	**33**	**34**	**44**	**48**	**33**	**27**	**51**	**630**	**100%**

TABLE 12: TIMEFRAME OF COMPLAINTS RESOLVED 2018

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.*

Resolution Reason	Commercial	Residential	Total	% Resolved Contacts
Compromise	25	159	184	29.21%
Customer Request	17	74	91	14.44%
No Control	29	323	352	55.87%
Refuse		3	3	0.48%
Total	**71**	**559**	**630**	**100.00%**

TABLE 13: RESIDENTIAL COMPLAINTS RESOLVED 2018

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

Minnesota Power had 7 complaints (7 Residential/0 Commercial) forwarded to the utility by the Commission's Consumers Affairs Office for further investigation and action in 2018.

Form No. 6102 Rev. 7/10

Subject: NIN-246 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: NIN-246

Date Out:	03-13-18	Date In:	03-13-18
Time Out:	1910	Time In:	2050

Duration: 100 MINUTES

Number of Customers Affected: 594

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: Downtown Duluth

Major Customers:

Cause: Pole fire burnt feeder switch and cable on riser.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT : HAT-321 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: HAT-321

Date Out:	04-15-18	Date In:	04-15-18
Time Out:	0840	Time In:	1005

Duration: 85 MINUTES

Number of Customers Affected: 1038

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: EVELETH

Major Customers: CITY OF EVELETH

Cause: UNKNOWN

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: COL-240 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: COL-240

Date Out:	04-21-18	Date In:	04-21-18
Time Out:	2006	Time In:	2111

Duration: 65 MINUTES

Number of Customers Affected: 3738

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: DULUTH- WOODLAND NEIGHBORHOOD

Major Customers: CITY OF DULUTH

Cause: BAD UNDERGROUND EQUIPMENT

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: GLL-1 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: GLL-1

Date Out:	04-24-18	Date In:	04-24-18
Time Out:	2121	Time In:	2258

Duration: 97 MINUTES

Number of Customers Affected: 1125

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: BRAINERD, EAST GULL LAKE

Major Customers:

Cause: BAX-531 LOCKED OUT DUE TO BAD INSULATOR ON A SWITCH.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: CLQ-406 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: CLQ-406

Date Out:	04-29-18	Date In:	04-29-18
Time Out:	1714	Time In:	2009

Duration: 175 MINUTES

Number of Customers Affected: 3241

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: CLOQUET

Major Customers:

Cause: CONDUCTOR FELL OFF INSULATOR AND FAULTED PHASE TO PHASE.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: MOT-1 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: MOT-1

Date Out:	04-30-18	Date In:	04-30-18
Time Out:	0452	Time In:	0631

Duration: 99 MINUTES

Number of Customers Affected: 565

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: MOTLEY

Major Customers:

Cause: DOB-503 LOCKED OUT CAUSE UNKNOWN, POTENTIAL STORM.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: COL-241 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: COL-241

Date Out:	04-12-18	Date In:	04-12-18
Time Out:	0125	Time In:	0225

Duration: 60 MINUTES

Number of Customers Affected: 1852

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: DULUTH- LAKESIDE NEIGHBORHOOD

Major Customers:

Cause: UNKNOWN

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: LGW-334 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: LGW-334

Date Out:	05-22-18	Date In:	05-22-18
Time Out:	0547	Time In:	0706

Duration: 79 MINUTES

Number of Customers Affected: 682

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: COLERAINE

Major Customers: CITY OF COLERAINE

Cause: UNKNOWN

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: LFL-529 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: LFL-529

Date Out:	05-29-18	Date In:	05-29-18
Time Out:	1649	Time In:	1752

Duration: 63 MINUTES

Number of Customers Affected: 1578

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: LITTLE FALLS

Major Customers:

Cause: UNKNOWN

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: STC-2 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: STC-2

Date Out:	05-29-18	Date In:	05-30-18
Time Out:	1934	Time In:	0022

Duration: 288 MINUTES

Number of Customers Affected: 514

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: ELY

Major Customers:

Cause: WEATHER ON PARENT FEEDER WNT-33

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: TWN-2 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: TWN-2

Date Out:	05-29-18	Date In:	05-29-18
Time Out:	1930	Time In:	2113

Duration: 103 MINUTES

Number of Customers Affected: 609

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: TOWER

Major Customers:

Cause: LOCKED OUT DUE TO WEATHER.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: SAN-452 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: SAN-452

Date Out:	06-17-2018	Date In:	06-17-2018
Time Out:	1439	Time In:	1639

Duration: 120 MINUTES

Number of Customers Affected: 1246

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: SANDSTONE, HINCKLEY

Major Customers:

Cause: BAD OVERHEAD EQUIPMENT

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: FIF-220 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: FIF-220

Date Out:	06-20-2018	Date In:	06-20-2018
Time Out:	1441	Time In:	1551

Duration: 70 MINUTES

Number of Customers Affected: 984

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: DULUTH

Major Customers: CITY OF DULUTH

Cause: 15TH SUB OUT OF SERVICE, BAD PRESSURE SENSOR RELAY.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: FIF-260 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: FIF-260

Date Out:	06-20-2018	Date In:	06-20-2018
Time Out:	1441	Time In:	1550

Duration: 69 MINUTES

Number of Customers Affected: 978

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: DULUTH

Major Customers: CITY OF DULUTH

Cause: 15TH SUB OUT OF SERVICE, BAD PRESSURE SENSOR RELAY.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: NIN-248 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: NIN-248

Date Out:	06-20-2018	Date In:	06-20-2018
Time Out:	1441	Time In:	1551

Duration: 70 MINUTES

Number of Customers Affected: 1914

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: DULUTH

Major Customers: CITY OF DULUTH

Cause: WAS TIED TO FIF-220. 15TH SUB OUT OF SERVICE, BAD PRESSURE SENSOR RELAY. :

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: BAB-1 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: BAB-1

Date Out:	06-29-2018	Date In:	06-29-2018
Time Out:	0745	Time In:	1042

Duration: 177 MINUTES

Number of Customers Affected: 778

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: BABBITT

Major Customers:

Cause: BBT-31 LOCKED OUT DUE TO WEATHER

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: GLL-1 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: GLL-1

Date Out:	06-30-2018	Date In:	06-30-2018
Time Out:	0107	Time In:	0435

Duration: 208 MINUTES

Number of Customers Affected: 1037

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: BRAINERD

Major Customers:

Cause: BAX-531 LOCKED OUT DUE TO WEATHER.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: STC-2 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: STC-2

Date Out:	07-04-2018	Date In:	07-04-2018
Time Out:	1143	Time In:	1249

Duration: 66 MINUTES

Number of Customers Affected: 514

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: ELY

Major Customers:

Cause: WNT-33L LOCKED OUT DUE TO WEATHER.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: SAN-452 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: SAN-452

Date Out:	08-07-2018	Date In:	08-07-2018
Time Out:	1127	Time In:	1409

Duration: 162 MINUTES

Number of Customers Affected: 1246

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: SANDSTONE

Major Customers:

Cause: LOCKED OUT DUE TO DISTRIBUTION RECLOSER FAILURE.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: INF-3 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: INF-3

Date Out:	08-27-2018	Date In:	08-27-2018
Time Out:	0303	Time In:	0503

Duration: 120 MINUTES

Number of Customers Affected: 1059

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: INTERNATIONAL FALLS

Major Customers:

Cause: WEATHER

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: TFW-243 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: TFW-243

Date Out:	08-15-2018	Date In:	08-15-2018
Time Out:	0601	Time In:	0742

Duration: 101 MINUTES

Number of Customers Affected: 2014

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: DULUTH

Major Customers:

Cause: BAD SUBSTATION SWITCH.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: BAR-6421 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: BAR-6421

Date Out:	08-17-2018	Date In:	08-17-2018
Time Out:	0234	Time In:	0740

Duration: 306 MINUTES

Number of Customers Affected: 940

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: BARNUM

Major Customers:

Cause: BAD UNDERGROUN CABLE

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: CLQ-409 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: CLQ-409

Date Out:	08-31-2018	Date In:	08-31-2018
Time Out:	2204	Time In:	2352

Duration: 108 MINUTES

Number of Customers Affected: 1925

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: CLOQUET

Major Customers:

Cause: WEATHER

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: GRY-201 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: GRY-201

Date Out:	09-15-2018	Date In:	09-15-2018
Time Out:	0212	Time In:	0332

Duration: 80 MINUTES

Number of Customers Affected: 1339

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: DULUTH

Major Customers:

Cause: TREE ON PRIMARY

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: MHR-451 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: MHR-451

Date Out:	09-20-2018	Date In:	09-20-2018
Time Out:	1809	Time In:	1933

Duration: 84 MINUTES

Number of Customers Affected: 547

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: CARLTON, CLOQUET

Major Customers:

Cause: WEATHER

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: TMS-412 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: TMS-412

Date Out:	09-20-2018	Date In:	09-20-2018
Time Out:	0609	Time In:	0756

Duration: 115 MINUTES

Number of Customers Affected: 576 CUSTOMERS

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: CARLTON

Major Customers: CITY OF CARLTON

Cause: BROKEN POLE FROM WEATHER.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: HYN-2 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: HYN-2

Date Out:	10-03-2018	Date In:	10-04-2018
Time Out:	2031	Time In:	0231

Duration: 360 MINUTES

Number of Customers Affected: 828

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: HOYT LAKES

Major Customers: CITY OF HOYT LAKES

Cause: TREE-WEATHER

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: FBG-269 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: FBG-269

Date Out:	10-05-2018	Date In:	10-05-2018
Time Out:	1127	Time In:	1253

Duration: 86 MINUTES

Number of Customers Affected: 748

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: DULUTH

Major Customers:

Cause: TFT-202 LOCKED OUT DUE TO A DIG IN.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: GRY-201 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: GRY-201

Date Out:	10-10-2018	Date In:	10-10-2018
Time Out:	1022	Time In:	1227

Duration: 125 MINUTES

Number of Customers Affected: 1339

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: DULUTH

Major Customers:

Cause: WEATHER

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: WRN-411 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: WRN-411

Date Out:	10-10-2018	Date In:	10-10-2018
Time Out:	0239	Time In:	0508

Duration: 149 MINUTES

Number of Customers Affected: 1240

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: WRENSHALL, CARLTON

Major Customers:

Cause: LOST POWER DUE TO FAILED 411F SWITCH.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: ESS-1 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: ESS-1

Date Out:	10-15-2018	Date In:	10-15-2018
Time Out:	1131	Time In:	1345

Duration: 134 MINUTES

Number of Customers Affected: 982

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: EVELETH

Major Customers:

Cause: WHEN TIED TOGETHER WITH ESS-2 THE REGULATORS BECAME UNSTABLE, CAUSING DAMAGE TO CONDUCTORS.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: INF-2 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: INF-2

Date Out:	10-22-2018	Date In:	10-22-2018
Time Out:	0745	Time In:	0924

Duration: 99 MINUTES

Number of Customers Affected: 1439

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: INTERNATIONAL FALLS

Major Customers: CITY OF INTERNATIONAL FALLS

Cause: MYLAR BALLOON IN LINES

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: TWN-2 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: TWN-2

Date Out:	12-16-2018	Date In:	12-16-2018
Time Out:	1108	Time In:	1215

Duration: 67 MINUTES

Number of Customers Affected: 609

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: TOWER

Major Customers:

Cause: UNKNOWN

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: BAR-6421 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: BAR-6421

Date Out:	12-27-2018	Date In:	12-27-2018
Time Out:	2104	Time In:	2219

Duration: 75 MINUTES

Number of Customers Affected: 940

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: BARNUM, MOOSE LAKE

Major Customers: CITY OF BARNUM

Cause: 59L LOCKED OUT FROM TREE FALLING ON PRIMARY FROM WEATHER.

Follow-Up:

Form No. 6102 Rev. 7/10

Subject: FEEDER LOCKOUT: DEN-6431 Outage Notice: Final Notice

Distribution System Status Outage Notification

Feeder/Bus #: DEN-6431

Date Out:	12-27-2018	Date In:	12-27-2018
Time Out:	2104	Time In:	2219

Duration: 75 MINUTES

Number of Customers Affected: 1234

For information about this alert, contact: Brian Schminski
218-355-2042
bschminski@mnpower.com

For follow-up information or questions, contact: Brian Schminski, OCC

Communities Affected: STURGEON LAKE, MOOSE LAKE

Major Customers:

Cause: 59L LOCKED OUT FROM TREE FALLING ON PRIMARY FROM WEATHER.

Follow-Up:

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