

**Annual Safety Reporting
in Accordance With
Minn. Administrative Rule 7826**
Safety, Reliability and Service Quality Standards Report

Contents

ANNUAL SAFETY REPORT: 7826.0400	4
RELIABILITY REPORTING REQUIREMENTS: 7826.0500	6
RELIABILITY STANDARDS: 7826.0600	26
REPORTING METER-READING PERFORMANCE: 7826.1400.....	27
REPORTING INVOLUNTARY DISCONNECTIONS: 7826.1500.....	33
REPORTING CALL CENTER RESPONSE TIMES: 7826.1200 & 7826.1700	44
REPORTING EMERGENCY MEDICAL ACCOUNT STATUS: 7826.1800	49
REPORTING CUSTOMER DEPOSITS: 7826.1900	51
REPORTING CUSTOMER COMPLAINTS: 7826.2000	52

Table of Figures:

Figure 1: MAJOR EVENT TOTALS BY YEAR.....	10
Figure 2: METER-READING STAFFING LEVELS BY WORK CENTER 2020.....	32
Figure 3: DISCONNECTION NOTICES 2020.....	33
Figure 4: CUSTOMERS WHO SOUGHT AND WERE GRANTED CWR PROTECTION 2020..	34
Figure 5: NEW SERVICE EXTENSIONS – COMMERCIAL 2020	38
Figure 6: NEW SERVICE EXTENSIONS – RESIDENTIAL 2020	39
Figure 7 NEW SERVICE EXTENSIONS – MUNICIPAL 2020	39
Figure 8 NEW SERVICE EXTENSIONS – REASONS DATES NOT MET 2020.....	40
Figure 9: PREVIOUS LOCATIONS - COMMERCIAL 2020	41
Figure 10: PREVIOUS SERVICE LOCATIONS – INDUSTRIAL 2020	41
Figure 11: PREVIOUS SERVICE LOCATIONS – RESIDENTIAL 2020	42
Figure 12: PREVIOUS SERVICE LOCATIONS – MUNICIPAL 2020	42
Figure 13: PREVIOUS SERVICE LOCATIONS – REASONS DATE NOT MET 2020	43
Figure 14: RESPONSE TIME – BUSINESS HOURS 2020	45
Figure 15: BUSINESS HOURS CALLS AND RESPONSE TIME 2020	46
Figure 16: RESPONSE TIME - AFTER HOURS 2020	46
Figure 17: AFTER HOURS CALLS & RESPONSE TIME 2020.....	47
Figure 18: CALLS BY SUBJECT MATTER - 2020	48
Figure 19: CUSTOMER COMPLAINTS BY MONTH 2020.....	52

Table of Charts:

Table 1: OSHA REPORTABLE INJURIES	4
Table 2: DAMAGE CLAIMS PAID 2020.....	5
Table 3: WORST PERFORMING FEEDERS USING MAJOR EVENT NORMALIZED DATA ...	20
Table 4: REPORTED INSTANCES OF ANSI VOLTAGE VIOLATIONS 2020.....	23
Table 5: EMPLOYEES BY WORK CENTER	24
Table 6: METER EQUIPMENT AND PERCENTAGE DEPLOYED	27
Table 7: RESIDENTIAL METER READS – UTILITY 2020	28
Table 8: COMMERCIAL METER READS – UTILITY 2020	28
Table 9: INDUSTRIAL METER READS – UTILITY 2020	29
Table 10: MUNICIPAL METER READS – UTILITY 2020	29
Table 11: LIGHTING METER READS - UTILITY 2020	30
Table 12: RESIDENTIAL METER READS – SELF-READ 2020	30
Table 13: COMMERCIAL METER READS – SELF-READ 2020	31
Table 14: METERS NOT READ 6-12 MONTHS 2020.....	31
Table 15: CUSTOMERS DISCONNECTED INVOLUNTARILY AND RESTORED W/IN 24 HOURS 2020	36
Table 16: CUSTOMERS RESTORED VIA PAYMENT PLAN 2020	36
Table 17: EMERGENCY MEDICAL ACCOUNT STATUS COUNT 2020	49
Table 18: RESIDENTIAL AND COMMERCIAL COMPLAINTS BY TYPE 2020	53
Table 19: TIMEFRAME OF COMPLAINTS RESOLVED 2020.....	54
Table 20: RESIDENTIAL COMPLAINTS RESOLVED 2020	54

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.*

TABLE 1: OSHA REPORTABLE INJURIES

Number of Cases

Deaths	Total number of cases with days away from work	Job transfer or restriction	Other recordable cases
0	5	11	13

Number of Days

Days of job transfer or restriction	Days away from work
762	102

Injury and Illness Types

Injuries	Skin disorders	Respiratory conditions	Poisonings	All other illnesses
29	0	0	0	0

- B. *A description of all incidents during the calendar year in which an injury requiring medical attention or property damage resulting in compensation occurred as a result of downed wires or other electrical system failures and all remedial action taken as a result of any injuries or property damage described.*

There were no incidents in 2020 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 Table 2 on Page 5.

TABLE 2: DAMAGE CLAIMS PAID 2020

<u>Date of Claim</u>	<u>Cause of Damage</u>	<u>Paid</u>
1/1/2020	Train Derailment	\$24,085.94
1/3/2020	Deck Board Damage	\$224.26
1/9/2020	Siding Damage	\$324.46
1/15/2020	Roof Damage	\$1,412.95
1/22/2020	Storm Damage Field Error	\$4,112.00
1/30/2020	Dig In	\$4,439.85
4/23/2020	Rental Vehicle Damage	\$612.72
4/27/2020	Vehicle Accident	\$1,616.49
5/13/2020	Power Surge	\$597.00
5/20/2020	Power Surge	\$2,414.69
6/07/2020	Lawnmower Damage	\$329.00
6/25/2020	Electrician's Invoice	\$125.00
8/28/2020	Fascia Damage	\$300.00
	Total Payments: \$40,594.36	

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 wind storms, ice storms, etc, are included in the reliability calculations. Since there were three excluded events in 2020, the Non-Major Event normalized values are different from the Major Event normalized values.

The utility's SAIDI for the calendar year by service area as a whole:

SAIDI (in minutes) 2020	179.43
--------------------------------	--------

SAIDI calculated from Major Event Excluded data:

SAIDI (in minutes) 2020	56.92
--------------------------------	-------

Major Event normalized using the IEEE 2.5 Beta method:

SAIDI (in minutes) 2020	122.51
--------------------------------	--------

Non-Major Event normalized:

SAIDI (in minutes) 2020	179.43
--------------------------------	--------

A. The utility's SAIFI for the calendar year by service area as a whole:

SAIFI (# of outages) 2020	1.42
----------------------------------	------

SAIFI calculated from Major Event Excluded data:

SAIFI (# of outages) 2020	0.20
----------------------------------	------

Major Event normalized using the IEEE 2.5 Beta method:

SAIFI (# of outages) 2020	1.22
----------------------------------	------

Non-Major Event normalized:

SAIFI (# of outages) 2020	1.42
----------------------------------	------

B. The utility's CAIDI for the calendar year by service area as a whole:

CAIDI (outage min/customer) 2020	126.13
---	--------

CAIDI calculated from Major Event Excluded data:

CAIDI (outage min/customer) 2020	284.60
---	--------

Major Event normalized using the IEEE 2.5 Beta method:

CAIDI (outage min/customer) 2020	100.50
---	--------

Non-Major Event normalized:

CAIDI (outage min/customer) 2020	126.13
---	--------

C. The utility's MAIFI for the calendar year by service area as a whole:

MAIFI (outage min/customer) 2020	4.90
---	------

MAIFI calculated from Major Event Excluded data:

MAIFI (outage min/customer) 2020	0.54
---	------

Major Event normalized using the IEEE 2.5 Beta method:

MAIFI (outage min/customer) 2020	4.36
---	------

Non-Major Event normalized:

MAIFI (outage min/customer) 2020	4.90
---	------

D. The utility's ASAI for the calendar year by service area as a whole:

ASAI (outage min/customer) 2020	99.96586187%
--	--------------

ASAI calculated from Major Event Excluded data:

ASAI (outage min/customer) 2020	0.01082953%
--	-------------

Major Event normalized using the IEEE 2.5 Beta method:

ASAI (outage min/customer) 2020	99.97669140%
--	--------------

Non-Major Event normalized:

ASAI (outage min/customer) 2020	99.96586187%
--	--------------

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

In 2020, there were three 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 an IEEE Major Event.

As storms occur, customers call into Minnesota Power representatives and/or the Interactive Voice Response (“IVR”) system to report outages. Those calls along with our Advanced Metering Infrastructure (“AMI”) meters reporting an outage 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. When sets of data are discovered that meet the criterion discussed above, that data is flagged and set aside. What remains is Minnesota Power’s Major Event Normalized Data.

Threshold for Major Event calculation description:

A Threshold for a major event (T_{med}) is computed once per year. First, data is assembled for the five most recent years of historical values of daily SAIDI. Any day with a SAIDI value of zero is discarded. Then, the natural log of each SAIDI value is computed and the average (alpha) and standard deviation (beta) of the natural logarithms is computed. The major event threshold can then be found by using this equation: $T_{med} = \exp(\alpha + 2.5 \cdot \beta)$. If any event in the next year has SAIDI greater than T_{med} , it qualifies as a major event. 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, three events were excluded in 2020.

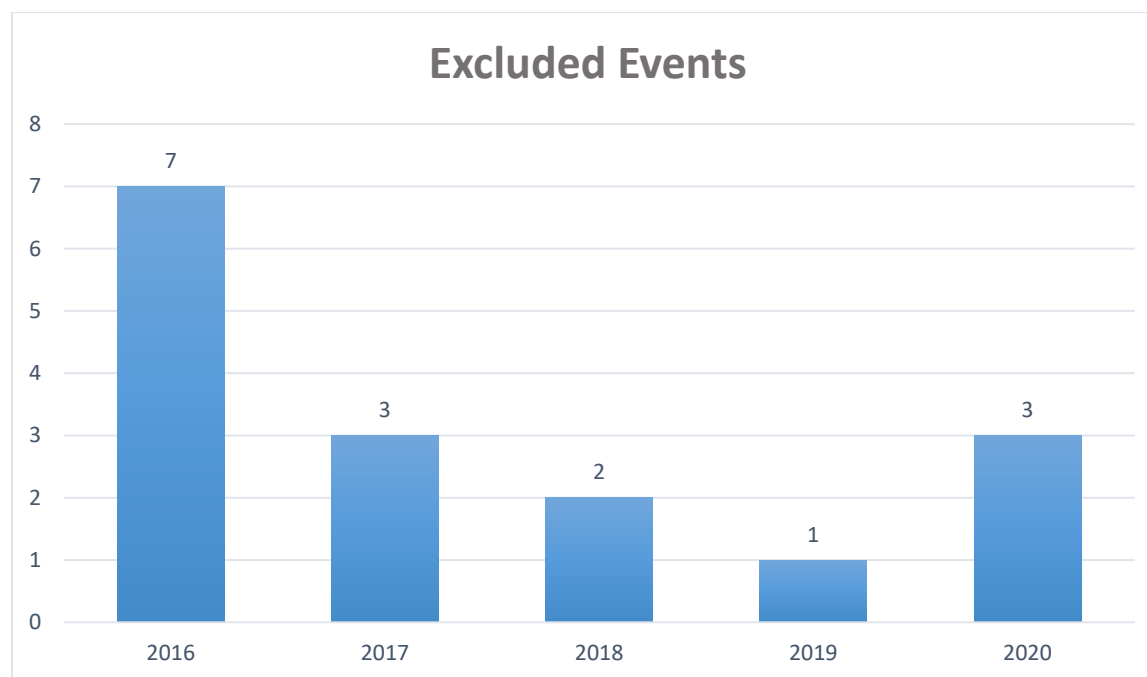


FIGURE 1: MAJOR EVENT TOTALS BY YEAR

- F. 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 Commission threshold for SAIFI in 2020. The majority of the outages throughout 2020 were attributed to weather, vegetation, 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 should increase the reliability of Minnesota Power's distribution assets going forward. In 2020, an inspection app was created for linemen to inspect and address

issues while out in the field. By inspecting lines on an ongoing basis, the Company hopes to find and address issues that will lead to better reliability performance in the future.

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:

- On January 4th, the Long Prairie substation was out of power due to a transmission line locked out affecting 2,700 customers. Crew switched around the substation causing some customers to see a 28 minute outage while others had a more robust switching plan for restoration taking 43 minutes to restore the rest of the customers. Overall this event contributed approximately 0.74 minutes to company SAIDI.
- On January 5th, Cloquet 409 locked out to an unknown cause. Crews were able to switch in customers as they investigated the outage. 1,763 customers were out for 53 minutes, 8 customers for 121 minutes, and the final 395 customers were out for 123 minutes. This event contributed 1.11 minutes to overall company SAIDI.
- On January 22nd, the LSPi Substation had an 11 minute outage due to a critical failure of a substation capacitor. This outage affected 5,800 customers and contributed approximately 0.45 minutes to company SAIDI.
- On February 6th, Haines 247 locked out due to failed underground cable. This caused 642 customers to be out of power for 63 mins, and 7 customers to be out for 69 minutes. This does not break 50,000 Customer Minutes of Interruption ("CMI") like most on the list, but this qualifies this for a PUC report. This event contributed approximately 0.30 minutes to company SAIDI.
- On February 14th, Maturi 330 locked out due to a tree falling into the lines. The tree did fall onto a tap and the tap fuse did not operate. This impacted 610 customers for 117 minutes across 1 parent feeder and 4 children. Overall this event contributed approximately 0.50 minutes to company SAIDI.
- On February 16th, a regulator failed causing a single phase of Walker Sub 1 Fdr 1 to be out of power for 125 mins affecting power for 415 customers. This event contributed approximately 0.36 minutes to overall company SAIDI.
- On February 19th, the switch above the Northwest Gull Lake sub opened to an unknown cause. This caused loss of power for 600 customers for 91 minutes. Overall this contributed approximately 0.38 minutes to company SAIDI.

- On February 22nd, an insulator broke causing the Tower Soudan sub to be without power for an average of 257 minutes affecting 950 customers. Crews did switch around to restore power appropriately and this event contributed approximately 1.72 minutes to company SAIDI.
- On February 28th, the Cloquet substation lost power due to a squirrel inside the substation. Due to the location of the fault, the substation equipment had to be tested before it could be reenergized. Crews worked to switch around using the substation. This caused the feeders to be out of power between 50 minutes and 74 minutes. This outage affected over 6,400 customers and contributed approximately 3.15 minutes to overall company SAIDI.
- On March 29th, a massive storm hit western and central service areas causing many outages from the recloser to the service level. This storm was full of wet heavy snow and high winds. This caused many poles to break and several lines to gallop. The winds and snow also caused trees to break and fall into the lines as well. With all these longer outages going on there were also several momentary outages on all feeders large and small. Overall, this event contributed over 3 million CMI or 21.10 SAIDI to the company.
- On April 20th, a tree fell through a section of feeder on Burnett 408. This caused a momentary on the feeder and a prolonged outage for 170 customers on 408 and another 200 customers on the Meadowlands feeder. Crews worked to fix the damage but customers were still out of power for 172 minutes for the Meadowlands customers and 185 minutes for the Burnett customers. Overall, this outage contributed approximately 0.46 minutes to company SAIDI.
- On April 26th, a raccoon caused a fault in the Burnett substation. This caused 326 customers to be out of power 209 minutes, 6 customers to be out 218 minutes, and the final 228 customers to be out 570 minutes. Crews worked to switch where they could but were having issues with a set of regulators, and the substation equipment needed to be tested as the transformer saw the fault. Overall, this event contributed approximately 1.40 minutes to company SAIDI.
- On May 2nd, Colbyville 240 had a tree fall through a tap with 80 customers on it. Crews were able to cut in an open point to restore 12 customers after just 14 minutes, while the remaining 69 customers would be out for 226 minutes while crews replaced the damaged equipment. This event contributed approximately 0.59 minutes to overall company SAIDI.
- On May 4th, a logging skidder tore down a section of 31 Line out of Babbitt-Winton. This caused a prolonged outage for the stepdown in Babbitt and Dunka River. Crews were able to restore power to Dunka River restoring 4 customers after 400 minutes, and Babbitt restoring 900 customers after 390 minutes. Overall, this event contributed approximately 2.51 minutes to company SAIDI.

- On May 14th, Canosia 413 locked out after a contractor dug into the primary cable. Crews were able to isolate the damage and restore 372 customers after 49 minutes, 417 customers after 60 minutes, 372 customers after 88 minutes. Overall, this outage contributed approximately 0.68 minutes to company SAIDI.
- On May 14th, Little Falls 525 locked out due to a failed insulator starting a pole fire. Crews were able to restore 1,936 customers after 114 minutes, 19 customers after 152 minutes, and the final 6 customers after 532 minutes. This outage contributed approximately 1.65 minutes to overall company SAIDI.
- On May 20th, a section of Colbyville 240 lost power after an incident that grounded the feeder. This affected 2,280 customers for 69 minutes while crews fixed the damage and restored the customers. Overall, this outage contributed approximately 1.10 to company SAIDI.
- On May 26th, the Haines Road substation locked out while crews were working on substation equipment replacement. This affected 7,900 customers for 19 minutes while crews identified the problem and restored power. Overall, this outage contributed approximately 1.05 minutes to company SAIDI.
- On May 29th, Colbyville 241 locked out from a tree falling into the lines, this affected 1,850 customers. Crews were able to restore 1,470 customers after 23 minutes, 322 customers after 170 minutes, and the last 9 customers out of power for 418 minutes. This event contributed approximately 0.68 minutes to overall company SAIDI.
- On June 9th, Birch Lake 509 locked out due to weather at 2 am, this affected Hackensack 1 and 2, and Ten Mile Lake 1 and 2. Crews were able to isolate damage and restore 600 customers after just 97 minutes, then after the damage was fixed the remaining 520 customers were restored. Overall, this outage contributed approximately 1.23 minutes to overall company SAIDI.
- On June 10th, the Hibbing substation locked out due to the weather, damaging substation equipment. This affected 6 parent feeders and 7 stepdown feeders. Just under 3,700 customers were out of power for varying times depending on feeder. Overall, this event contributed approximately 4.90 minutes to company SAIDI.
- On June 29th, a storm hit most of MP's service territory, affecting the western division the hardest. This hit dozens of feeders and affected thousands of people for varying times. There were single customer outages up to feeder lock outs. Some customers were affected by multiple outages, both momentary and prolonged. This event contributed approximately 3.27 minutes to overall company SAIDI.

- On July 5th, Sylvan 1 had a tree fall into the feeder causing it to lock out, affecting 480 customers for 111 minutes. Overall, this event contributed approximately 0.37 minutes to company SAIDI.
- On July 6th, Tower Soudan 2 locked out due to a lightning strike. This caused the 600 plus people to be out of power for 229 minutes while crews fixed the damage. This event contributed approximately 0.99 minutes to overall company SAIDI.
- On July 8th, Little Falls 526 locked out due to weather. This affected the Pierz-Genola 1&2, and Rich Prairie stepdown for 70 minutes while 526 was fixed. This outage affected about 1,000 people for the duration, and contributed approximately 0.49 minutes to overall company SAIDI.
- On July 9th, Minnesota Power territory was hit by a decent sized storm. This caused a lot of momentary outages, and sustained outages in Western and Central divisions. The storm affected about 7,700 people for various lengths. Overall, this event contributed 7.57 minutes to overall company SAIDI.
- On July 10th, some residual weather caused the Harts Press F to open up on Long Prairie 535. Crews isolated the damage and were able to restore 82 customers after 61 minutes, with the remaining 659 customers after 149 minutes. This outage affected the Lake Charlotte and Harts Press stepdown as well. Overall, this event contributed approximately 0.79 minutes to company SAIDI.
- On July 11th, Lind Greenway 334 had a mid-feed device open up to an unknown cause, this affected over 1,000 customers for 200 minutes. This also affected Coleraine, Overpass, and Highway 169 stepdown. Approximately, this event contributed 1.43 minutes to company SAIDI.
- On July 13th, a strong wind caused a mid-feed device to open up on Ten Mile Lake 2. This caused 210 people to be out of power for 483 minutes while crews worked to fix the damage to the feeder. Overall, this event contributed approximately 0.71 minutes to company SAIDI.
- On July 15th, Pioneer Road 270 had a mid-feed device open up due to a car accident. Crews had quite a bit of damage to fix and were able to restore customers after 410 minutes. This event contributed approximately 0.47 minutes to overall company SAIDI.
- On July 17th, another weather cell hit Western division. This caused a handful of momentary outages and a couple of major feeder lockouts. The main two outages were the Birch Lake 516 feeder and Long Lake 542 feeder. Overall, this event affected 7,500 people and contributed approximately 3.16 minutes to company SAIDI.
- On July 21st, Birch Lake 516 locked out due to a failed arrester. This caused Backus 1 to be out of power for 131 minutes while crews fixed the damage in the

middle of the night. Overall, this event contributed approximately 0.64 minutes to company SAIDI.

- On July 25th, a tree fell into the Colbyville 244 and 245 feeders, and due to construction projects, 241 and 242 needed to be alternately fed as well. The tree was tangled in the lines off the road and was not visible easily. The tree changed the sag in the lines which also delayed the restoration process. This event affected 7,100 customers with various times per feeder. Overall, this contributed approximately 11.15 minutes to company SAIDI and therefore is excluded.
- On August 6th, International Falls 3 and 4 opened by relay due to failed substation equipment. This caused almost 1,100 customers to be out of power for 68 minutes and almost 1,300 customers to be out 74 minutes while crews switched around the feeders. Overall, this event contributed approximately 1.17 minutes to company SAIDI.
- On August 7th, a smaller weather system crossed the middle of the state only affecting a handful of feeders with small outages, but a couple of note. Canosia 413 locked out due to the weather felling a tree into the lines, and Nevis 1 locking out due to the weather. Overall, this storm contributed approximately 1.85 minutes to company SAIDI.
- On August 8th, weather again cause another outage. Akeley 544 locked out due to weather, this also affected Nevis 1 and Dorset 1. Overall, this event 650 people to be out of power for 115 minutes. This event contributed approximately 0.52 minutes to company SAIDI.
- On August 9th, Denham 6431 locked out due to failed substation equipment. This outage affected 1,254 customers for an average of 108 minutes while crews worked to bypass the damaged equipment. Overall, this event contributed approximately 0.95 minutes to company SAIDI.
- On August 13th, Denham 6431 locked out again due to failed substation equipment. A fire occurred inside the substation and, being that this substation is radial, there are no switching options to restore the customers. So 1,254 customers were out of power for 404 minutes while the fire was dealt with and equipment was fixed. This event contributed approximately 3.54 minutes to overall company SAIDI.
- On August 14th to the 15th, a massive storm hit Minnesota Power Service Territory. It caused several feeder lock outs, momentary outages, trees on lines, and lightning strike damage. Roughly 21,000 people were affected either by prolonged or momentary outages. This event contributed approximately 24.53 minutes to overall company SAIDI and therefore is storm excluded.
- On August 21st, Sandstone 452 and 59 Line lost power due to a vehicle breaking a pole causing lines to sag and then a semi snagging sagged line breaking several

poles. 59 Line was out for 20 minutes while crews switched to isolate the damage. Sandstone 452 had 278 customers out for 63 minutes while crews isolated the damage, and the remaining 970 customers minus the customers that broke the pole initially were out of power for 161 minutes. Overall, this event contributed approximately 1.60 minutes to company SAIDI.

- On August 21st, Canosia 413 locked out due to failed underground cable. Crews were able to isolate the damage restoring 515 customers after 49 minutes, 145 customers after 167 minutes, 236 customers after 77 minutes, 272 customers' after 80 minutes. This event contributed approximately 0.67 minutes to overall company SAIDI.
- On August 30th, Akeley 1 locked out due to a tree falling through the lines. This tree was removed and 47 customers were restored after 270 minutes, 161 customers after 348 mins, and due to the stepdown substation equipment having an issue 132 customers were out 810 minutes. Overall, this event contributed approximately 1.45 minutes to company SAIDI.
- On September 2nd, Wrenshall 411 locked out due to a tree falling into the lines from weather. Local fire department crews removed the tree before MP crews were onsite. This outage also affected the Wrenshall Riverside Stepdown, all customers were restored after 80 minutes. This event contributed approximately 0.84 minutes to overall company SAIDI.
- On September 11th, Haines Road 229 locked out due to an unknown cause. While crews were trouble shooting trying to find the source of the outages they were able to restore 54 customers after 38 minutes, 376 customers after 55 minutes, 332 customers after 85 minutes and the final 47 customers after 280 minutes. Overall, this event contributed approximately 0.47 minutes to company SAIDI.
- On September 12th, 32 Line out of Tower and Winton locked out due to a large tree from outside our clearing zone falling into the feeder breaking a cross arm off road. All customers were out the 68 minutes it took to get crews onsite and switching around the fault. Overall, this event contributed approximately 0.45 minutes to company SAIDI.
- On September 26th, Pequot Lakes 531 locked out due to a tree falling in to the lines due to winds. This also affected seven stepdown feeders from Nisswa to Round Lake. Overall this affected over 2,300 customers for 124 minutes while crews switched around the fault. This event contributed approximately 2.05 minutes to company SAIDI.
- On September 27th, the Little Falls North stepdown had a recloser open up due to a squirrel, causing an outage at the transformer level. The fault was strong enough to operate the mid feeder recloser, which during operation failed and caused a

prolonged outage for 400 customers for an average of 146 minutes. Overall, this event contributed approximately 0.41 minutes to company SAIDI.

- On September 29th, Haines Road 229 locked out due to a failed insulator. While crews were diagnosing the issue they were able to restore 429 customers after 34 minutes, 47 customers after 65 minutes, 324 customers after 152 minutes, and the final 9 customers after 156 minutes. This event contributed approximately 0.50 minutes to overall company SAIDI.
- On October 8th, Scanlon H.E. 420 and Thompson H.E. 412 locked out when a vehicle struck a double circuit pole. Scanlon was able to be restored after just 79 minutes, while the Thomson feeder had customers out for an average of 84 minutes. This outage affected just over 1,500 customers and overall contributed approximately 0.86 minutes to company SAIDI.
- On October 24th, a tree fell through Virginia 30 Line causing the feeder to lock out. Due to an issue in the Laskin substation, the Aurora stepdown feeders were also fed from the Virginia 30 Line Source and were affected as well as the Giants Ridge stepdown. The total number of customers affected was 1,500, for an average of 804 minutes. The tree had fallen in the swamp and was only accessible by a special piece of equipment. Overall, this outage contributed approximately 8.54 minutes to company SAIDI.
- On October 30th, a failure in some substation equipment caused Thompson H.E. and Scanlon H.E. Feeders to be out of power for 53 and 70 minutes respectively. Crews were able to switch to restore the customers. This outage contributed approximately 0.67 minutes to overall company SAIDI.
- On November 15th, a snow storm hit Minnesota Power's Central area causing several momentary outages, and several prolonged outages. Many of the outages were attributed to wet, thick snow and the wind associated with the storm. Overall, this event contributed approximately 3.25 minutes to company SAIDI.
- On November 17th, Lake Superior Paper, Inc. 280 was opened up at the Freemont Street 77 to repair a downed conductor. This caused 35 customers to be out power for 7 minutes, 885 customers to be out 93 minutes, 24 customers out 94 minutes, and the last 63 customers were out 207 minutes. Overall, this event contributed approximately 0.69 minutes to company SAIDI.
- On November 19th, a section of 30 Line out of Virginia was moved to be sourced from Nashwauk 319. This means the Giants Ridge stepdown was out of power during the transition. All customers were out 210 minutes while the transition took place. This event contributed approximately 0.42 minutes to overall company SAIDI.
- On November 22nd, there was a fire in the Deerwood stepdown substation off Riverton 506. This caused an outage at the Deerwood substation, which serves

over 1,000 customers. This fire caused damage that had to be fixed before the substation could be reenergized. All customers were out of power for 451 minutes. This event overall contributed approximately 3.22 minutes to company SAIDI.

- On November 23rd, Hinckley West 462 locked out due to some bad underground cable and due to some issues with fusing on the feeder, identification of the fault took longer than usual. Crews were able to restore 151 customers after 165 minutes, 110 customers after 196 minutes, with the final 60 customers after 351 minutes. Overall, this contributed approximately 0.49 minutes to company SAIDI.
- On November 25th, Cloquet 409 locked out due to a downed conductor. Crews were able to isolate the fault after just 26 minutes and restore power to 1,604 customers, Cloquet Big Lake 6301 was restored at this time. The remaining 581 customers were restored after 97 minutes. This event contributed approximately 0.75 minutes to overall company SAIDI.
- On December 2nd, the Aurora stepdown feeders were transferred to a new source. This caused the Aurora 1 customers to be out 6 minutes and the Aurora 2 customers to be out 70 minutes. Overall, this event contributed approximately 0.38 minutes to company SAIDI.
- On December 5th, the Bigfork stepdown was out of power due to a Planned Great River Energy outage. All customers were out of power for 177 minutes. This event contributed approximately 0.35 minutes to overall company SAIDI.
- On December 11th, Pepin Lake 514 locked out due to failed cable in the substation. This affected the Flensburg, Swanville, and Long Lake stepdowns. Crews were able to restore power to 811 customers after 92 minutes and the remaining 305 customers after 96 minutes. This event overall contributed approximately 0.79 minutes to company SAIDI.
- On December 16th, Colbyville 244 locked out due to a wire falling as crews worked. This caused 1,565 customers to be out of power for 26 minutes, and 678 customers for 81 minutes. Overall, this event contributed approximately 0.70 minutes to company SAIDI.
- On December 23rd, Lake Superior Paper, Inc. locked out due to high winds blowing over a 3 phase transformer bank pole, which in turn pulled several poles over. Crews were able to restore 30 customers after 74 minutes, 914 customers after 123 minutes and then the final 167 customers after 249 minutes. This event contributed approximately 1.13 minutes to overall company SAIDI.
- On December 23rd, South Pine River stepdown had a pole fire that locked the stepdown out. This caused 142 customers to be out of power 43 minutes and 747 customers out 74 minutes. Overall, this contributed approximately 0.48 minutes to company SAIDI.

- On December 28th, Blanchard 511 had a jumper broken on a set of regulators causing one phase to be out of power on a section of 511. To safely repair the broken wire, crews had to open up the Royalton 77, causing the Royalton stepdown to be out of power for 45 minutes. Of the customers fed off 511 directly, there were 420 customers out of power for 45 minutes, and 225 customers were out of power for 174 minutes. This event contributed approximately 0.65 minutes to company SAIDI.

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. For past SRSQ reports, Minnesota Power has responded as one work center. After speaking with Commission Staff, the Company will report 3 working centers (Central, Northern, and Western) 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:

TABLE 3: WORST PERFORMING FEEDERS USING MAJOR EVENT NORMALIZED DATA

Central

Criteria	Circuit/Work Center	# of Customers	SAIDI	SAIFI	CAIDI
High Feeder SAIDI (Urban)	15 th Ave. W. 233	74	361.23	6.72	53.78
High Customer Outage Minutes (Urban)	Cloquet 409	1942	294.62	4.58	64.28
High Feeder SAIDI (Rural)	Burnett 408	372	856.88	4.04	212.22
High Customer Outage Minutes (Rural)	Denham 6431	1254	610.83	4.37	139.65

15th Ave W 233

- On August 14th a Mylar balloon got caught up in the feeder wires causing the feeder to lock out. This feeder was feeding another feeder due to maintenance and was feeding 1,692 customers for a brief period. Overall this event contributed approximately 0.49 minutes to company SAIDI.

Cloquet 409

- On July 9th, Minnesota Power territory was hit by a decent sized storm. This caused a lot of momentary outages, and sustained outages in our Western and Central divisions. The storm affected about 7700 people for various lengths. Overall this event contributed 7.57 minutes to overall company SAIDI.

Burnett 408

- On April 26th, a raccoon caused a fault in the Burnett substation. This caused 326 customers to be out of power 209 minutes, 6 customers to be out 218 minutes, and the final 228 customers to be out 570 minutes. Crews worked to switch where they could but were having issues with a set of regulators, and the substation equipment needed to be tested as the transformer saw the fault. Overall this event contributed approximately 1.40 minutes to company SAIDI.

Denham 6431

- On August 13th, Denham 6431 locked out again to failed substation equipment. A fire occurred inside the substation and being that this substation is radial there are no switching options to restore the customers. So 1254 customers were out of power for 404 minutes while the fire was dealt with and equipment was fixed. This event contributed approximately 3.54 minutes to overall company SAIDI.

Northern

Criteria	Circuit/Work Center	# of Customers	SAIDI	SAIFI	CAIDI
High Feeder SAIDI (Urban)	Aurora 2	724	879.29	2.04	430.43
High Customer Outage Minutes (Urban)	Aurora 2	724	879.29	2.04	430.43
High Feeder SAIDI (Rural)	Giants Ridge 1	288	1031.28	2.17	475.24
High Customer Outage Minutes (Rural)	Giants Ridge 1	288	1031.28	2.17	475.24

To accurately reflect the categories of Feeder SAIDI and Customer Minutes Interrupted, the results may not identify four unique feeders, as is the case of the Northern work center for 2020.

Aurora 2

- On October 24th, a tree fell through Virginia 30 Line causing the feeder to lock out. Due to an issue in Laskin substation the Aurora step down feeders were also fed from the Virginia 30 Line Source and were affected as well as the Giants Ridge stepdown. The total number of customers affected was 1,500, for an average of 804 minutes. The tree had fallen in the swamp and was only accessible by a special piece of equipment. Overall, this outage contributed approximately 8.54 minutes to company SAIDI.

Giants Ridge 1

- On October 24th, a tree fell through Virginia 30 Line causing the feeder to lock out. Due to an issue in Laskin substation the Aurora step down feeders were also fed from the Virginia 30 Line Source and were affected as well as the Giants ridge stepdown. The total number of customers affected was 1500, for an average of 804 minutes. The tree had fallen in the swamp and was only accessible by a special piece of equipment. Overall this outage contributed approximately 8.54 minutes to company SAIDI.

Western

Criteria	Circuit/Work Center	# of Customers	SAIDI	SAIFI	CAIDI
High Feeder SAIDI (Urban)	Long Lake 542	3	1023.33	7.00	146.19
High Customer Outage Minutes (Urban)	Akeley 1	400	600.15	1.28	469.78
High Feeder SAIDI (Rural)	Ten Mile Lake 2	374	1,035.62	5.73	180.74
High Customer Outage Minutes (Rural)	Backus 1	698	659.35	4.39	150.30

Long Lake 542

- On July 17th, another weather cell hit our Western division. This caused a handful of momentary outages and a couple of major feeder lockouts. The main two outages were the Birch Lake 516 feeder and Long Lake 542 feeder. Overall, this event affected 7,500 people and contributed approximately 3.16 minutes to company SAIDI

Akeley 1

- On August 30th, Akeley 1 locked out due to a tree falling through the lines. This tree was removed and 47 customers were restored after 270 minutes, 161 customers after 348 mins, and due to the stepdown substation equipment having an issue that last 132 customers were out 810 minutes. Overall this event contributed approximately 1.45 minutes to company SAIDI.

Ten Mile Lake 2

- On July 13th, a strong wind caused a mid-feed device to open up on Ten Mile Lake 2. This caused 210 people to be out of power for 483 minutes while crews worked to fix the damage to the feeder. Overall this event contributed approximately 0.71 minutes to company SAIDI.

Backus 1

- On July 17th, another weather cell hit our Western division. This caused a handful of momentary outages and a couple of major feeder lockouts. The main two outages were the Birch lake 516 feeder and Long Lake 542 feeder. Overall this

event affected 7500 people and contributed approximately 3.16 minutes to company SAIDI.

- 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 23 reported instances of ANSI voltage violations in 2020.

TABLE 4: REPORTED INSTANCES OF ANSI VOLTAGE VIOLATIONS 2020

Account Number	Cause	Voltage
1400045126	Underground Equipment	101 201 246
4550118927	Load	112 111 223
9320011134	Underground Equipment	113 131 244
1530008126	Vegetation	119 124 243
1040098377	Overhead Equipment	120 108 12
1040098377	Overhead Equipment	121 57 64
90191704	Overhead Equipment	122 122 109
1550118946	Overhead Equipment	122 122 214
6950032463	Underground Equipment	122 58 180
1080062633	Overhead Equipment	124 3 127
90010207	Overhead Equipment	129 129 258
3560069738	Overhead Equipment	13 123 120
640041211	Underground Equipment	13 123 121
7890095725	Overhead Equipment	150 85 242
5740163249	Underground Equipment	180 50 240
5740163249	Underground Equipment	180 50 240
9010147190	Overhead Equipment	24 120 113
3140069483	Underground Equipment	57 123 180
5926051658	Underground Equipment	58 121 181
6500071181	Overhead Equipment	6 120 120
9760200904	Underground Equipment	78 123 190
4590146684	Overhead Equipment	86 154 240
430095575	Overhead Equipment	90 160 240

- J. *Data on staffing levels at each work center, including the number of full-time equivalent positions held by field employees responsible for responding to trouble and for the operation and maintenance of distribution lines.*

Prior to this 2020 filing, Minnesota Power reported as one work center and only provided the numbers for Line Operations Field Workers and Contractors that worked on the Distribution System. Shown below are updated numbers that also include support for field workers and engineering support for construction, maintenance and storm response.

The Line Operations Field Workers include outdoor field support that provide construction, maintenance, and trouble response on the distribution system. This group includes Lineworkers, Substation technicians, Relay technicians, and Communication Infrastructure technicians.

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

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

Contractors are seasonal at-hire individuals that perform line construction and maintenance, vegetation management and ground line inspections on the system. Most of these contractors are hired over the spring, summer, and fall months to help with the peak working conditions once the snow has melted. These employees work across Minnesota Power's entire service territory and cannot be grouped into individual work centers.

TABLE 5: EMPLOYEES BY WORK CENTER

2020 Support	Central	Northern	Western
Line Operations Field Workers	Line – 45 Sub - 9	Line – 22 Sub - 8	Line – 26 Sub - 5
Line Operations Support	OPS – 9.5 Line – 9 SysOps – 18 Veg – 3 Fleet – 8 Sub - 1	OPS – 8 Line – 1 Fleet – 3 Sub - 1	OPS – 8 Line – 2 Fleet - 3
Engineering Support	Trans – 6 Dist – 17 Meter - 13 GIS – 8 Sub - 13	Dist – 6 Meter - 1 GIS - 1	Trans – 1 Dist – 7 Meter - 4 GIS - 1
Contractors	19.23 – Line 1 – Groundline Roughly 50 - Vegetation		

Also of note is that, although staffing levels are being reported by work center, employees continue to respond to trouble and perform duties in all work centers as the need arises. The Central work center houses most of these types of employees and the numbers appear to favor the Central work center for this reason.

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

This year presented a multitude of factors that affect the system processes and influenced customer expectations and outcomes. 2020 saw pandemic impacts from increased arrears to a record number of customer service requests as many Minnesotans “worked from home” at their vacation properties through the summer months and remodeled or updated their electrical facilities. Other impacts included crew separation and transition to remote work for many of our field support staff that necessitated new processes to avoid direct customer contact. In evaluating the Company’s reliability performance during the 2020 calendar year, it is important to consider these factors.

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.

Consistent with pages 22-23 of Section III. 5-Year Rolling Average Metric & IEEE Benchmarking, Minnesota Power proposes the following weather-excluded reliability indices options as targets not to exceed in 2021:

Company:

SAIDI	128.6
SAIFI	1.13
CAIDI	114.20

Central, Northern, and Western Work Centers:

SAIDI	116.0
SAIFI	1.24
CAIDI	90.4

These targets follow the Commission’s guidance in its February 17, 2021 Order comments on Docket No, E-015/M-20-404.

REPORTING METER-READING PERFORMANCE: 7826.1400

TABLE 6: METER EQUIPMENT AND PERCENTAGE DEPLOYED

Equipment	Percent in Use ¹	Description
Mechanical Meters	< 1%	Traditional electro-mechanical meter that records kWh usage.
AMR – Mechanical Hybrid	15.15%	Traditional Electro-mechanical meters that are retro-fitted with a one-way electronic automatic meter reading (AMR) module capable of reporting multiple quantities including kWh, kW, and outage count.
AMR – Solid State	0.59%	Modern Solid State electronic meters integrated with a one-way AMR module or retrofitted with an external AMR unit. Capable of reporting multiple quantities including kWh, kVARh, kW, and outage count.
AMI – Solid State	84.09%	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.

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 2020, Minnesota Power read an average of 98.59% of residential meters, 99.56% of commercial meters, 99.77% of industrial, 99.66% municipal pumping, and 100% lighting meters.

¹ As of 1/1/2020

TABLE 7: RESIDENTIAL METER READS – UTILITY 2020

Month	Co. Reads	Est	Total	% Read
Jan-20	129,221	476	129,697	99.63%
Feb-20	117,751	648	118,399	99.45%
Mar-20	144,759	642	145,401	99.56%
Apr-20	121,338	217	121,555	99.82%
May-20	146,385	666	147,051	99.55%
Jun-20	122,709	633	123,342	99.49%
Jul-20	143,089	1,611	144,700	98.89%
Aug-20	132,118	1,480	133,598	98.89%
Sep-20	120,581	606	121,187	99.50%
Oct-20	142,714	2,860	145,574	98.04%
Nov-20	113,616	11,203	124,819	91.02%
Dec-20	138,593	1,073	139,666	99.23%
Average	131,073	1,843	132,916	98.59%

In 2020, Minnesota Power read an average of 99.56% of commercial meters.

TABLE 8: COMMERCIAL METER READS – UTILITY 2020

Month	Co. Reads	Est	Total	% Read
Jan-20	20,952	11	20,963	99.95%
Feb-20	19,523	67	19,590	99.66%
Mar-20	22,768	7	22,775	99.97%
Apr-20	19,889	17	19,906	99.91%
May-20	22,946	39	22,985	99.83%
Jun-20	19,964	46	20,010	99.77%
Jul-20	22,755	18	22,773	99.92%
Aug-20	21,605	58	21,663	99.73%
Sep-20	19,931	7	19,938	99.96%
Oct-20	23,246	21	23,267	99.91%
Nov-20	19,580	793	20,373	96.11%
Dec-20	22,752	6	22,758	99.97%
Average	20,972	76	21,047	99.56%

In 2020, Minnesota Power read an average of 99.77% of industrial meters.

TABLE 9: INDUSTRIAL METER READS – UTILITY 2020

Month	Co. Reads	Est	Total	% Read
Jan-20	391	0	391	100.00%
Feb-20	383	1	384	99.74%
Mar-20	403	0	403	100.00%
Apr-20	385	0	385	100.00%
May-20	403	0	403	100.00%
Jun-20	389	2	391	99.49%
Jul-20	399	0	399	100.00%
Aug-20	392	2	394	99.49%
Sep-20	392	1	393	99.75%
Oct-20	402	1	403	99.75%
Nov-20	390	4	394	99.98%
Dec-20	402	0	402	100.00%
Average	394	1	395	99.77%

In 2020, Minnesota Power read an average of 99.66% of municipal meters.

TABLE 10: MUNICIPAL METER READS – UTILITY 2020

Month	Co. Reads	Est	Total	% Read
Jan-20	272	0	272	100.00%
Feb-20	267	0	267	100.00%
Mar-20	274	1	275	99.64%
Apr-20	269	1	270	99.63%
May-20	272	1	273	99.63%
Jun-20	263	1	264	99.62%
Jul-20	270	1	271	99.63%
Aug-20	266	1	267	99.63%
Sep-20	263	0	263	100.00%
Oct-20	272	0	272	100.00%
Nov-20	263	5	268	98.13%
Dec-20	279	0	279	100.00%
2020 Avg	269	1	270	99.66%

In 2020, Minnesota Power read an average of 100.00% of lighting meters.

TABLE 11: LIGHTING METER READS - UTILITY 2020

Month	Co. Reads	Est	Total	% Read
Jan-20	359	0	359	100.00%
Feb-20	345	0	345	100.00%
Mar-20	386	0	386	100.00%
Apr-20	349	0	349	100.00%
May-20	387	0	387	100.00%
Jun-20	343	0	343	100.00%
Jul-20	389	0	389	100.00%
Aug-20	368	0	368	100.00%
Sep-20	343	0	343	100.00%
Oct-20	390	0	390	100.00%
Nov-20	351	0	351	100.00%
Dec-20	390	0	390	100.00%
2020 Avg	367	0	367	100.00%

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

Residential customer reads averaged 0.04% of the system total in 2020, of those Minnesota Power received an average of 97.98% of reads.

TABLE 12: RESIDENTIAL METER READS – SELF-READ 2020

Month	Cust Reads	Est	Total	% Read
Jan-20	61	1	62	98.39%
Feb-20	51	2	53	96.23%
Mar-20	71	2	73	97.26%
Apr-20	55	1	56	98.21%
May-20	72	1	73	98.63%
Jun-20	51	1	52	98.08%
Jul-20	74	1	75	98.67%
Aug-20	63	1	64	98.44%
Sep-20	53	1	54	98.15%
Oct-20	75	1	76	98.68%
Nov-20	53	2	55	96.36%
Dec-20	71	1	72	98.61%
2020 Ave	63	1	64	97.98%

Industrial customer reads averaged 0.01% of the system total in 2020, of those Minnesota Power received an average of 99.24% of reads.

TABLE 13: COMMERCIAL METER READS – SELF-READ 2020

Month	Cust Reads	Est	Total	% Read
Jan-20	12	0	12	100.00%
Feb-20	11	0	11	100.00%
Mar-20	13	0	13	100.00%
Apr-20	13	0	13	100.00%
May-20	13	0	13	100.00%
Jun-20	12	0	12	100.00%
Jul-20	11	0	11	100.00%
Aug-20	12	0	12	100.00%
Sep-20	12	0	12	100.00%
Oct-20	13	0	13	100.00%
Nov-20	10	1	11	90.91%
Dec-20	13	0	13	100.00%
2020 Avg	12	0	12	99.24%

- 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.*

TABLE 14: METERS NOT READ 6-12 MONTHS 2020

Months Estimated	Company Read Service Points	% of Total	Not Read Reason	Customer Read Service Points	% of Total
6 Months	106	0.069%	No Access/AMR	0	0.000%
7 Months	16	0.010%	No Access/AMR	0	0.000%
8 Months	2	0.001%	No Access/AMR	0	0.000%
9 Months	5	0.003%	No Access/AMR	0	0.000%
10 Months	1	0.001%	No Access/AMR	0	0.000%
11 Months	0	0.000%	No Access/AMR	0	0.000%
12 Months	2	0.001%	No Access/AMR	0	0.000%
12+ Months	0	0.000%	No Access/AMR	0	0.000%
Totals	132			0	

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*

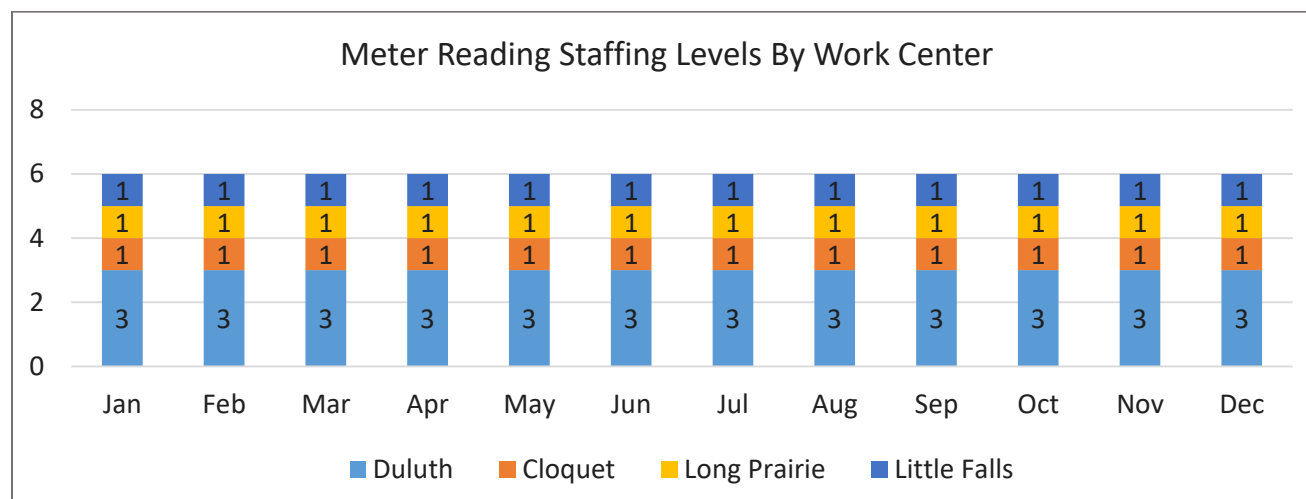


FIGURE 2: METER-READING STAFFING LEVELS BY WORK CENTER 2020

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;*

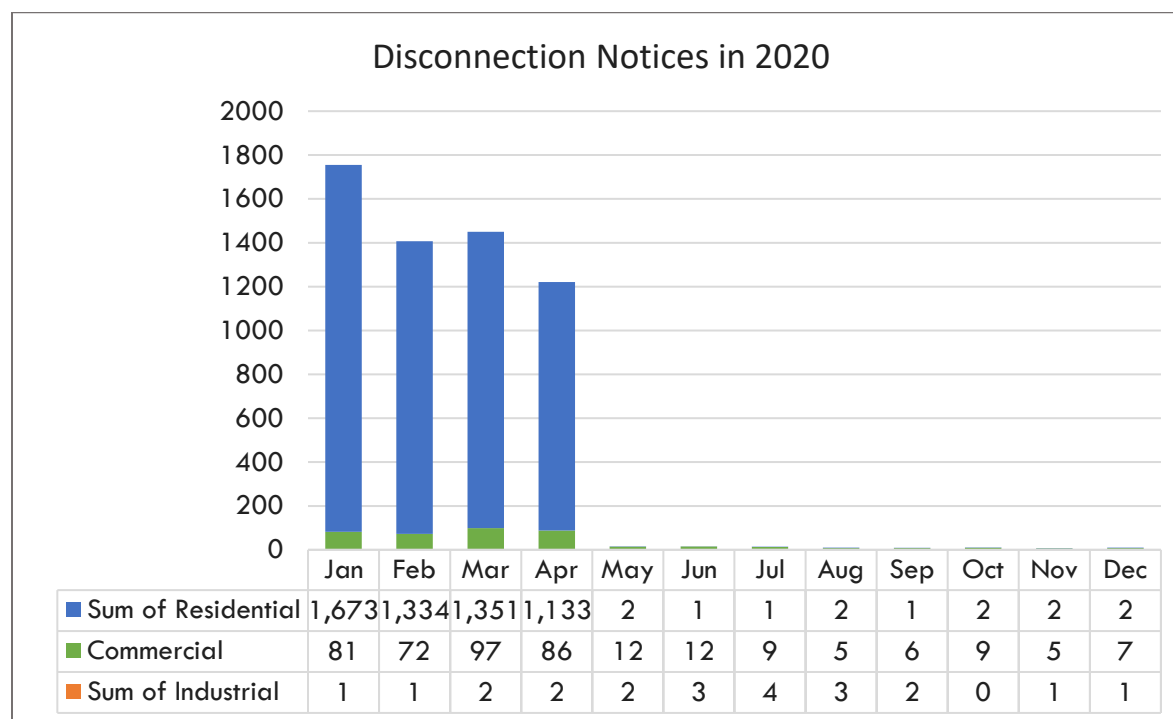


FIGURE 3: DISCONNECTION NOTICES 2020

Total Disconnection Notices in 2020		
Residential	Commercial	Industrial
5,502	401	22

Due to the peacetime emergency and related residential customer protections,² disconnection notices for residential customers ceased in May 2020 to recognize the stay on residential disconnections for non-payment. The nominal notices observed in the table

² Docket No. E,G999/CI-20-375 In the Matter of an Inquiry into Actions by Electric and Natural Gas Utilities in Light of the COVID-19 Pandemic Emergency.

after April 2020 for residential customers generally represent residential lighting service agreements and do not pertain to primary electric services accounts.

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

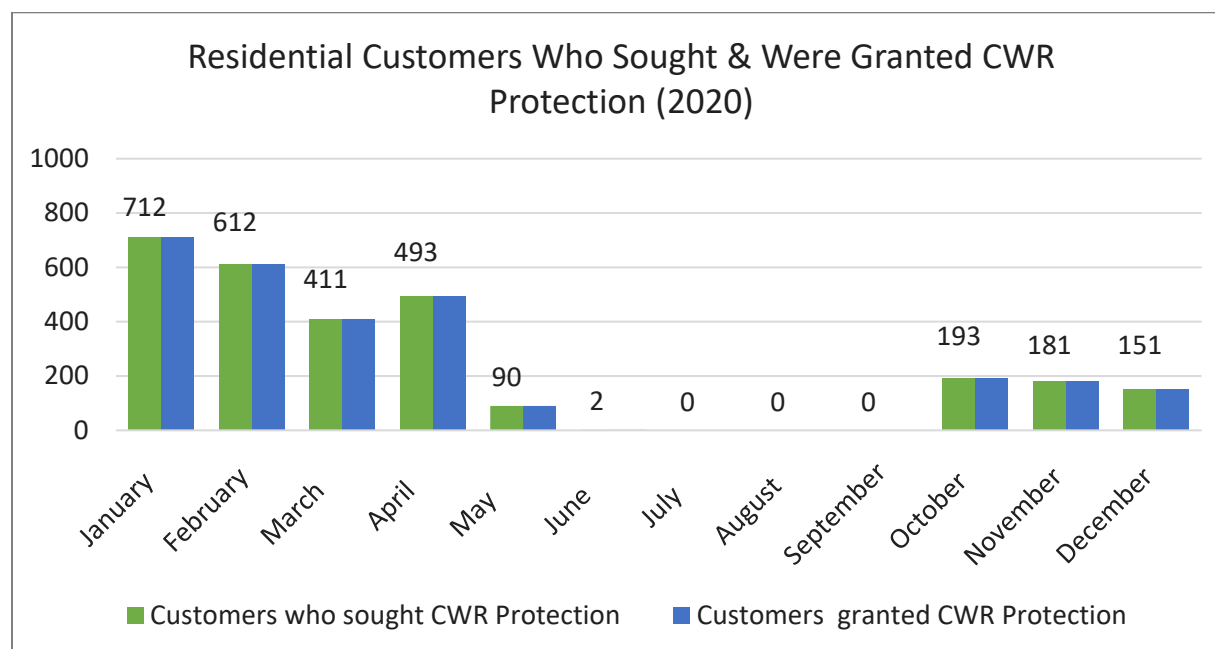


FIGURE 4: CUSTOMERS WHO SOUGHT AND WERE GRANTED CWR PROTECTION 2020

Total Residential Customers Who Sought CWR Protection	Total Residential Customers Granted CWR Protection
2,845	2,845

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

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

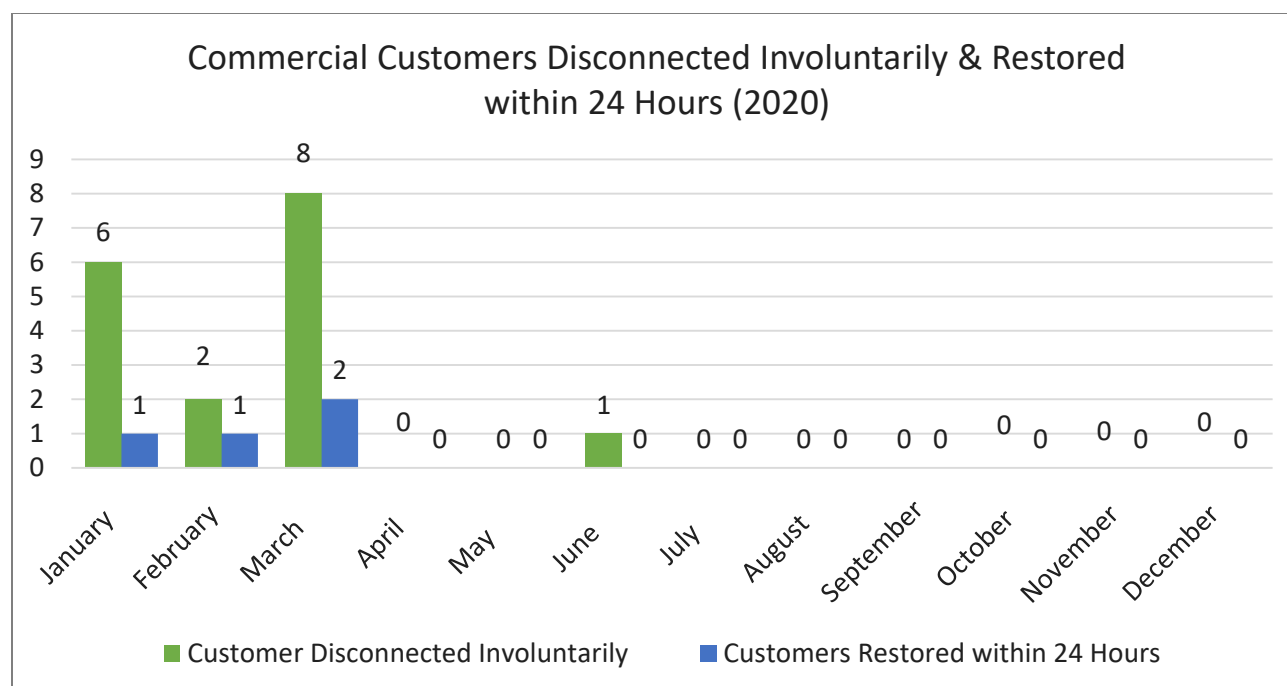
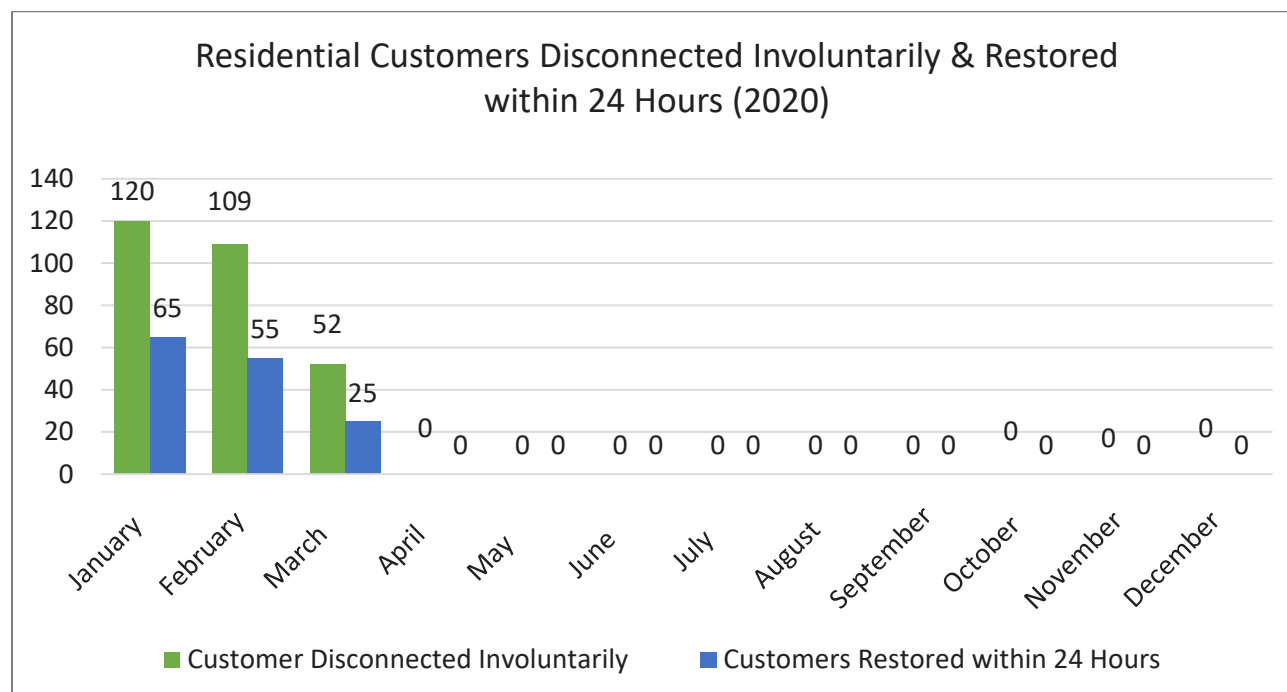


TABLE 15: CUSTOMERS DISCONNECTED INVOLUNTARILY AND RESTORED W/IN 24 HOURS 2020

Total Customer Disconnected Involuntarily			Total Customers Restored within 24 Hours		
Residential	Commercial	Industrial	Residential	Commercial	Industrial
281	17	0	145	4	0

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

TABLE 16: CUSTOMERS RESTORED VIA PAYMENT PLAN 2020

Month	Residential	Commercial	Industrial
Jan	80	2	0
Feb	75	3	0
Mar	37	5	0
Apr	1	1	0
May	0	0	0
Jun	1	0	0
Jul	0	1	0
Aug	0	0	0
Sep	0	0	0
Oct	0	0	0
Nov	0	0	0
Dec	0	0	0

In March 2020, Minnesota Power voluntarily took several proactive measures to provide protections and enhance safety during the peacetime emergency, following the issuance of the Governor's Emergency Executive Order.³ These actions included immediate suspension of disconnections for residential customers facing financial hardship in relation to the coronavirus pandemic; voluntary extension of Minnesota's Cold Weather Rule through May 31, 2020; encouraging customers to reach out regarding payment plans and options that reflect their unique financial resources and circumstances; and suspension of all non-emergency customer site visits. On March 30, 2020, these protective measures were expanded to include waiving late payment charges for residential and small business (general service) customers; suspending disconnections for small business (general service) customers facing financial hardship in relation to the coronavirus pandemic; and waiving reconnection fees during normal business hours for residential and small business (general service) customers previously disconnected for non-payment. In its August 13, 2020 Order under Docket No. E,G-999/CI-20-375, the Commission formally ordered suspension of disconnections for residential customers; suspension of negative reporting to credit agencies for residential customers; and waiving reconnection, service deposits, late fees, interest, and penalties for residential customers. Per the Commission's August 13, 2020 Order, these protections are to remain in effect for the duration of the peacetime emergency with 60 days' notice before resuming these activities. In its March 8, 2021 Order, the Commission indicated that "utilities that have filed a transition plan may resume collection activity and service disconnections upon the earlier of an Executive Secretary finding of transition plan completeness or 90 days following the end of the peacetime emergency." On March 25, 2021, the Commission issued a Notice of Issue and Procedure acknowledging that utilities will file transition plans on or before April 1, 2021, and that the Commission will take up the issue at its April 15, 2021 hearing.⁴

³ On March 13, 2020, Governor Tim Walz signed Emergency Executive Order 20-01, Declaring a Peacetime Emergency and Coordinating Minnesota's Strategy to Protect Minnesotans from COVID-19, as most recently extended through April 14, 2021 in Emergency Executive Order 21-12, https://mn.gov/governor/assets/EO%2021-12_tcm1055-472035.pdf.

⁴ Docket No. E,G999/CI-20-375 In the Matter of an Inquiry into Actions by Electric and Natural Gas Utilities in Light of the COVID-19 Pandemic Emergency

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.*

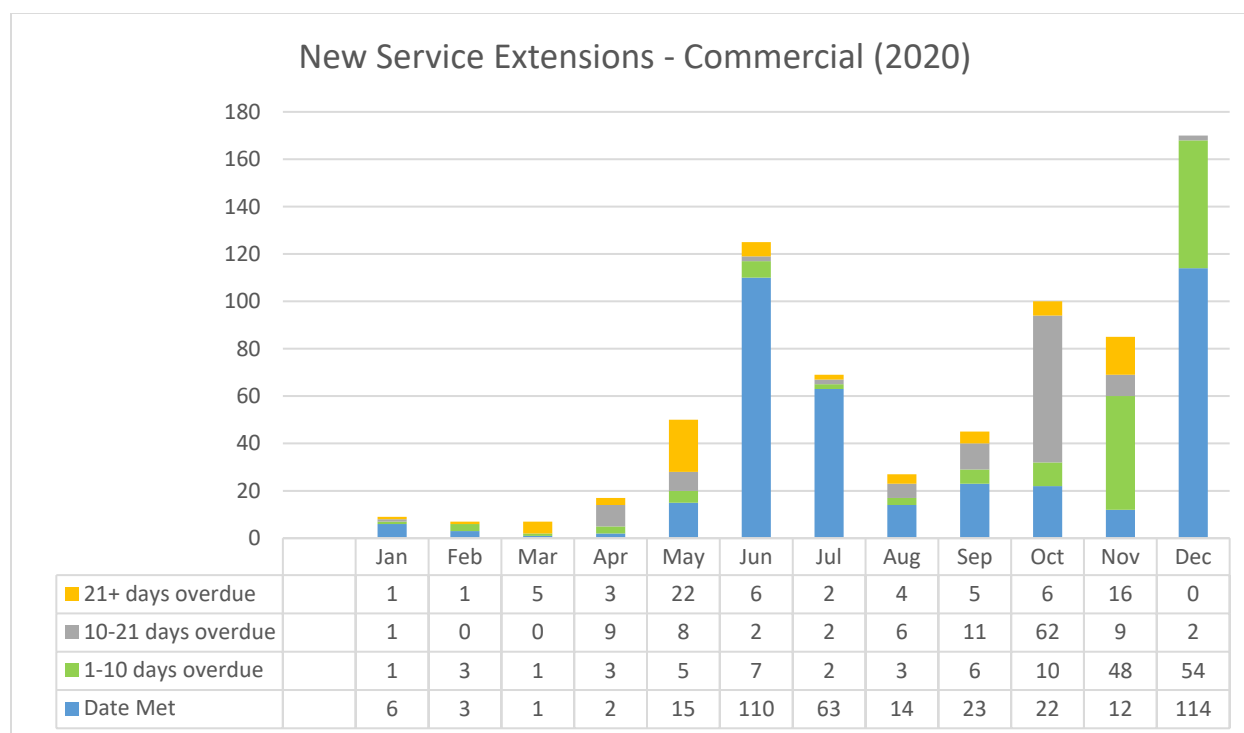


FIGURE 5: NEW SERVICE EXTENSIONS – COMMERCIAL 2020

New Service Extensions - Residential (2020)

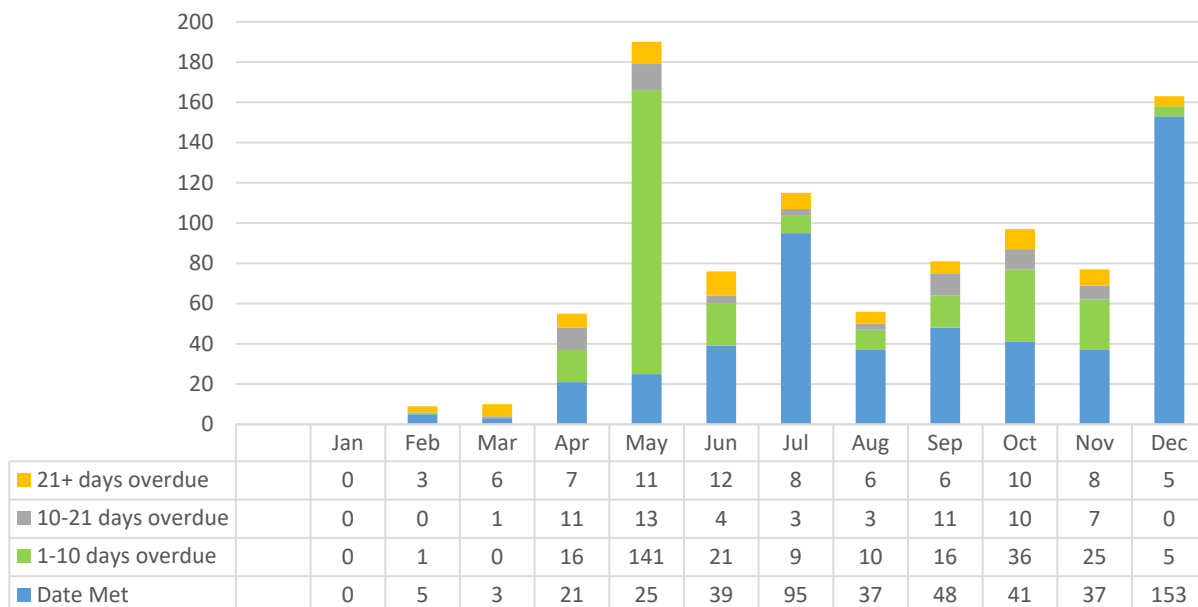


FIGURE 6: NEW SERVICE EXTENSIONS – RESIDENTIAL 2020

New Service Extensions – Municipal 2020

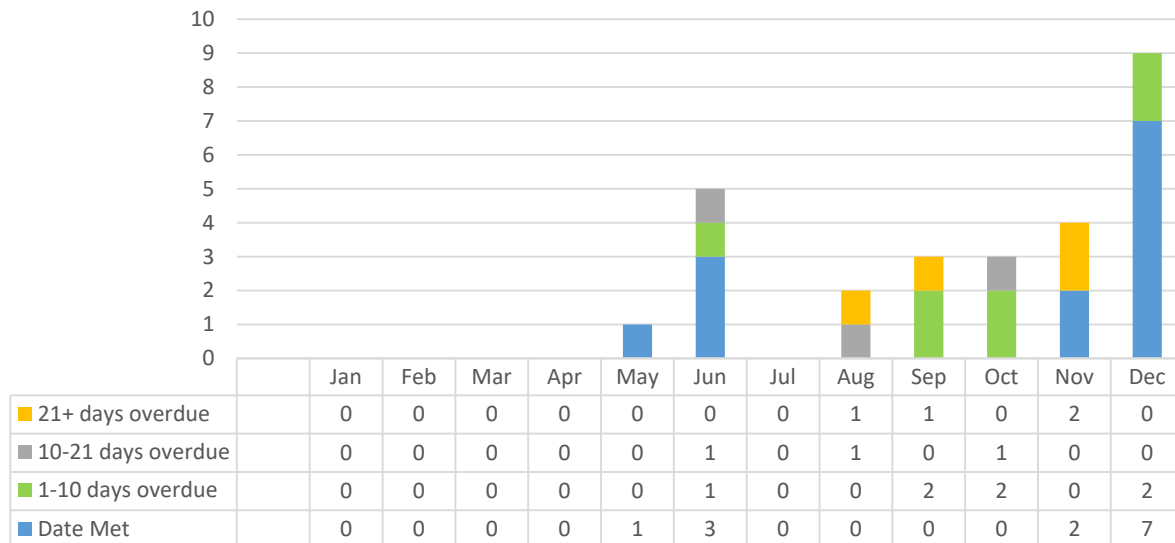


FIGURE 7 NEW SERVICE EXTENSIONS – MUNICIPAL 2020

There were only 3 new industrial extensions completed in 2020 and all fell into the “1-10 Days Overdue” category.

The following figure lists show 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 2020 were: Dates Not Updated (24.49%), MP Delay Due to Workload (16.40%), and Customer Not Ready (5%).

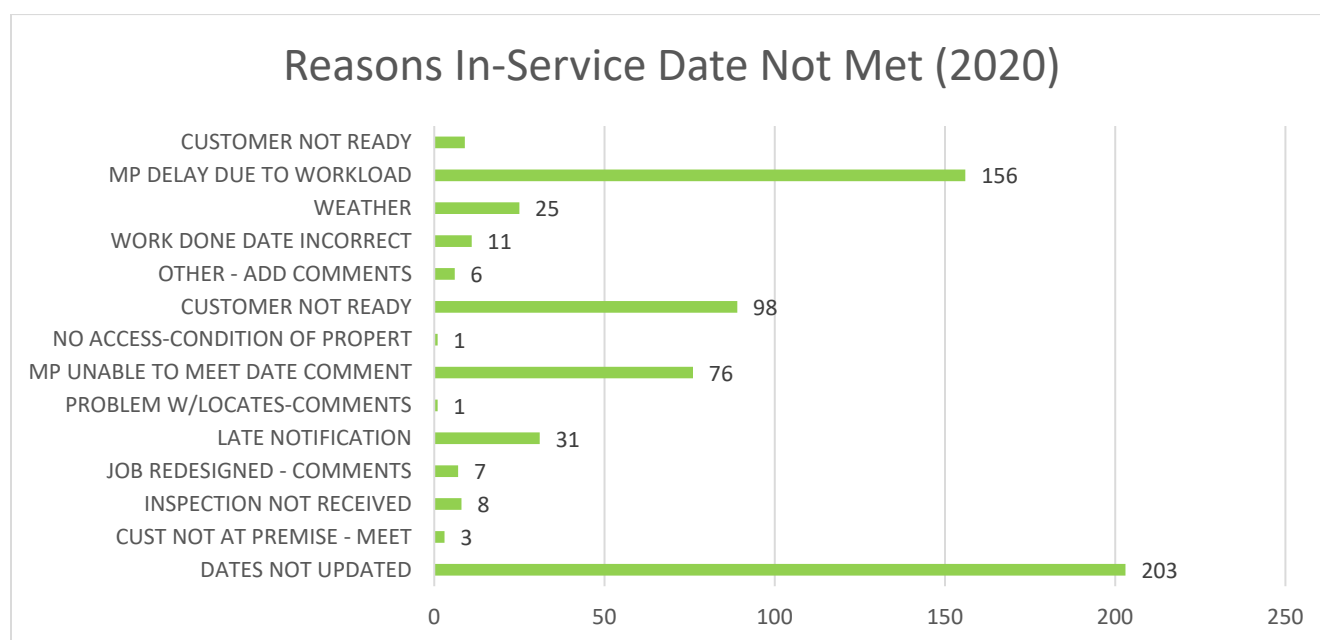


FIGURE 8 NEW SERVICE EXTENSIONS – REASONS DATES NOT MET 2020

Figures 9-12 shows the number of customers by class 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.

Previous Service Locations - Commercial (2020)

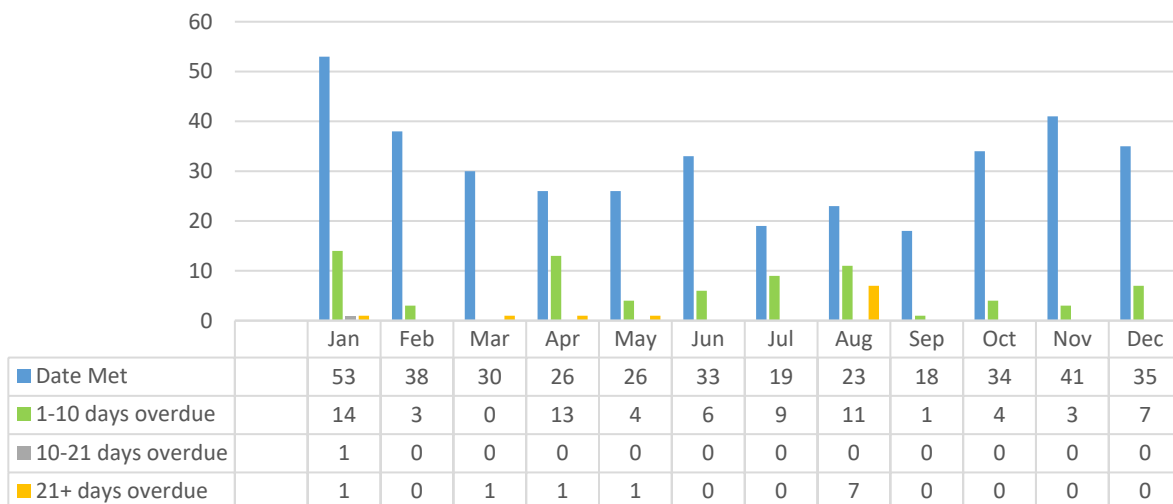


FIGURE 9: PREVIOUS LOCATIONS - COMMERCIAL 2020

Previous Service Locations - Industrial (2020)

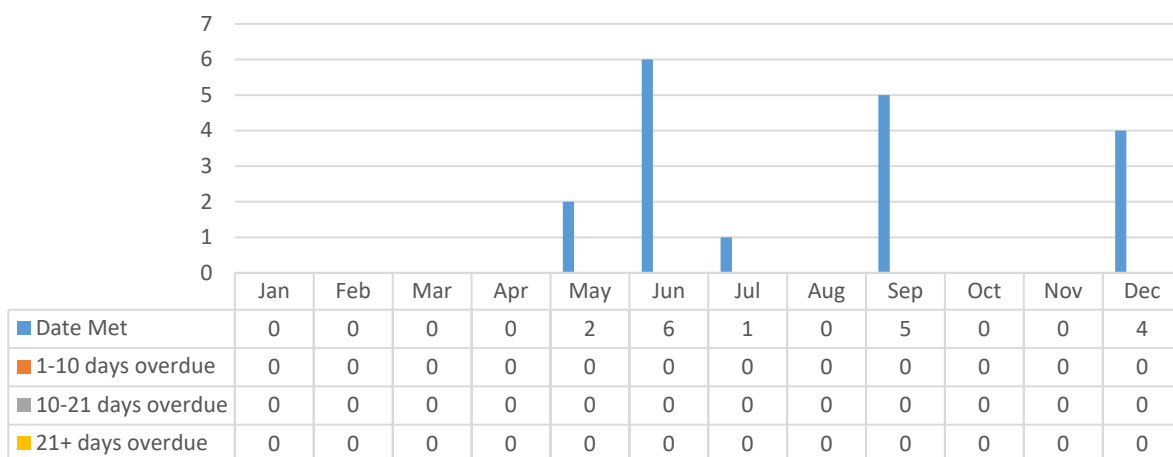


FIGURE 10: PREVIOUS SERVICE LOCATIONS – INDUSTRIAL 2020

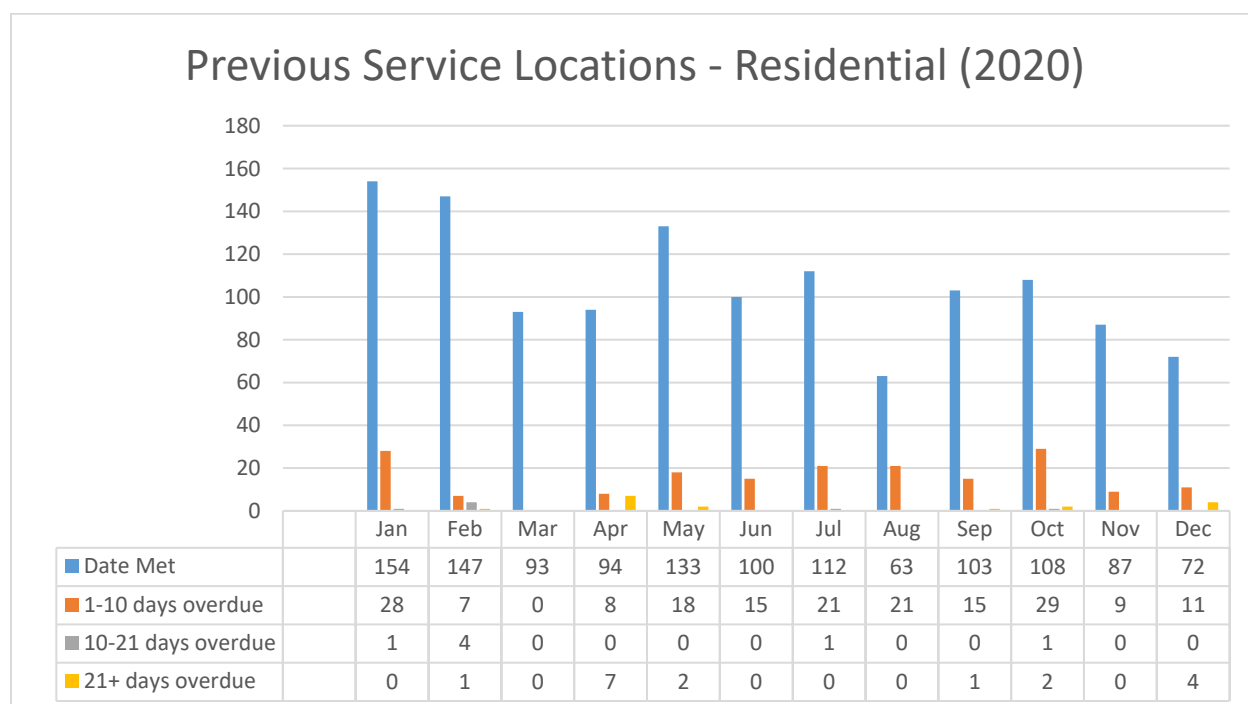


FIGURE 11: PREVIOUS SERVICE LOCATIONS – RESIDENTIAL 2020

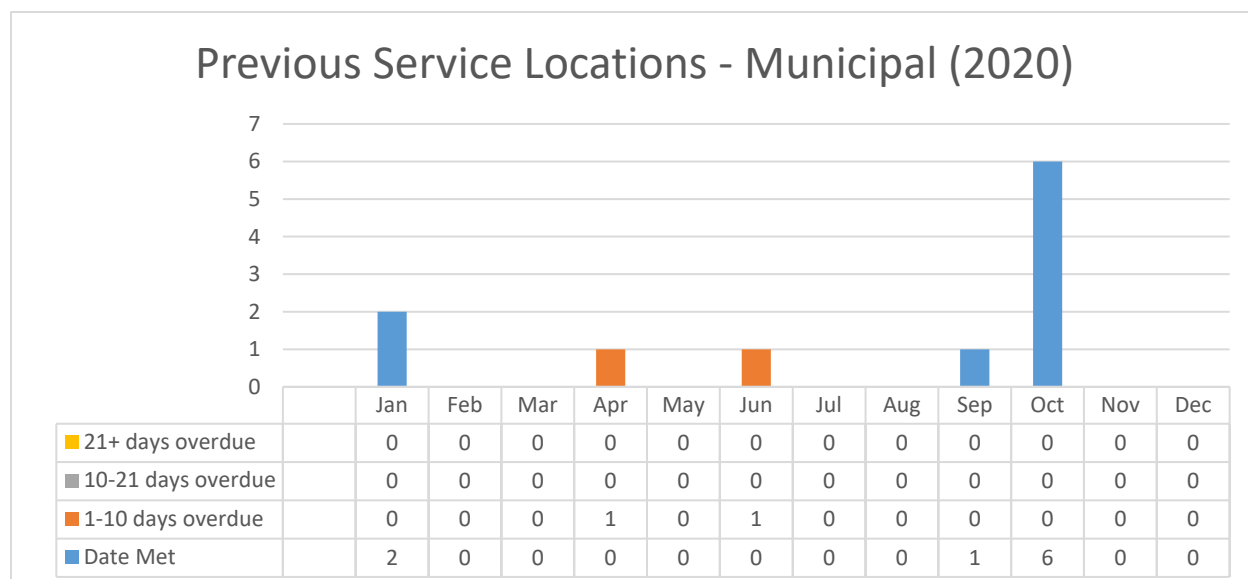


FIGURE 12: PREVIOUS SERVICE LOCATIONS – MUNICIPAL 2020

The following figure 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 2020 were:

- Dates Not Updated for Project: 83.45% (This significant portion of the delays stems from customers being energized, and the meter being installed the next day. Going forward, the Company will be reporting on when customers are connected to better represent delay statistics.)
- Minnesota Power delay due to workload: 4.48%
- Customer Not Ready: 2.76%

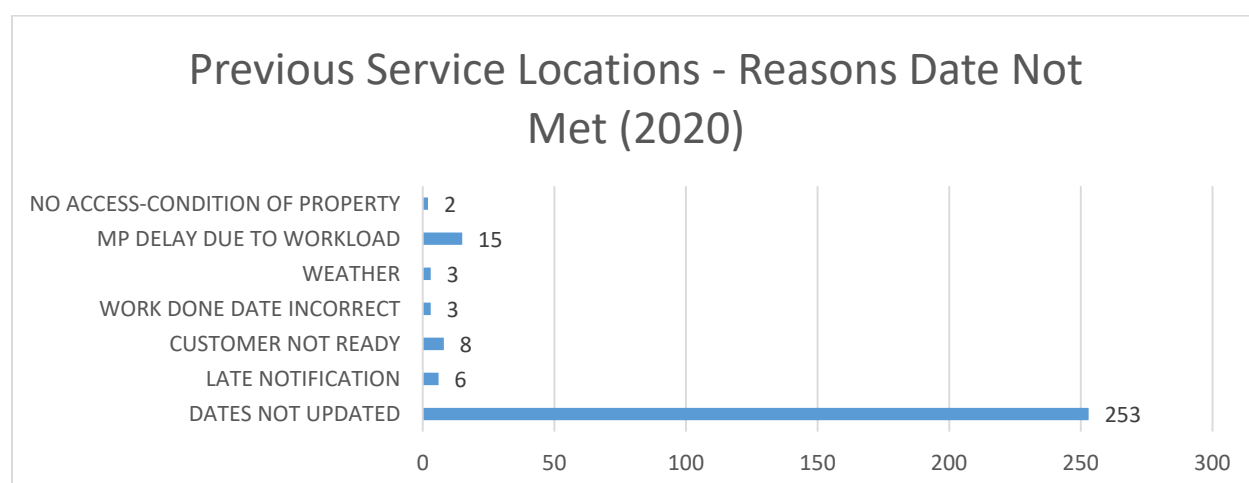


FIGURE 13: PREVIOUS SERVICE LOCATIONS – REASONS DATE NOT MET 2020

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.

Response Time:

Consistent with prior SRSQ reporting, Minnesota Power defines business hours as 7:00 am to 5:30 pm, Monday through Friday, excluding holidays. Beginning with this report, Minnesota Power has adjusted its response time calculation methodology to include all calls offered as opposed to only all calls answered. As the Company understands it, this is more consistent with how other utilities report this metric. Minnesota Power answered 81 percent of calls offered in 2020 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 9 out of 12 months of the year. Notably, due to the COVID-19 pandemic, Minnesota Power transitioned nearly all Customer Care and Support Representatives in the Call Center to a remote work environment beginning in March 2020. As essential workers, these employees were given the option to work from the office and only one chose to do so. As of the date of this filing, the Company's work-from-home policy was extended through at least May 31, 2021, as vaccine distribution continues across the nation.

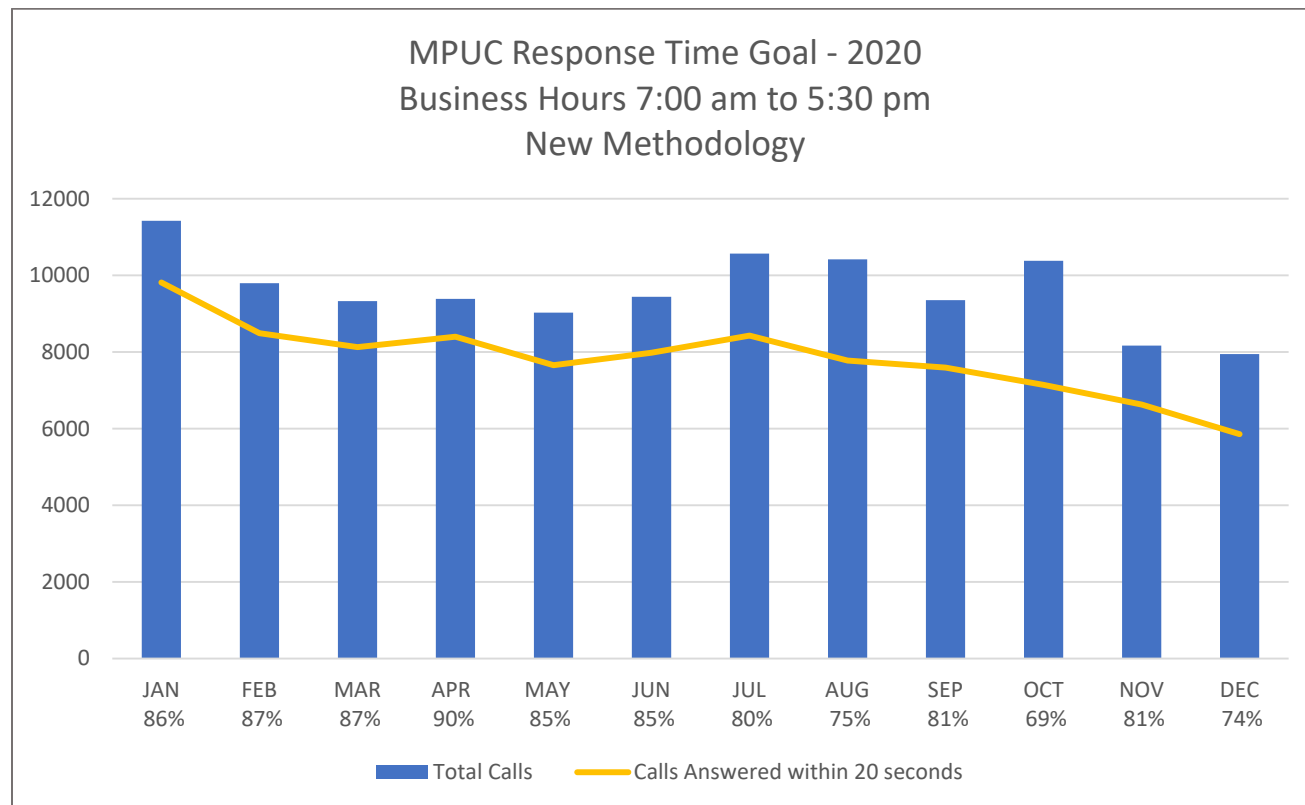


FIGURE 14: RESPONSE TIME – BUSINESS HOURS 2020

Business Hours 7:00 a.m. - 5:30 p.m.

Month 2020	Response Time	Total Calls Offered	Calls Answered within 20 seconds
JAN	86%	11,426	9,817
FEB	87%	9,798	8,491
MAR	87%	9,328	8,127
APR	90%	9,387	8,402
MAY	85%	9,028	7,656
JUN	85%	9,443	7,984
JUL	80%	10,569	8,429
AUG	75%	10,419	7,778
SEP	81%	9,356	7,595
OCT	69%	10,383	7,142
NOV	81%	8,168	6,628
DEC	74%	7,946	5,855

YTD 81% 115,251 93,904

FIGURE 15: BUSINESS HOURS CALLS AND RESPONSE TIME 2020

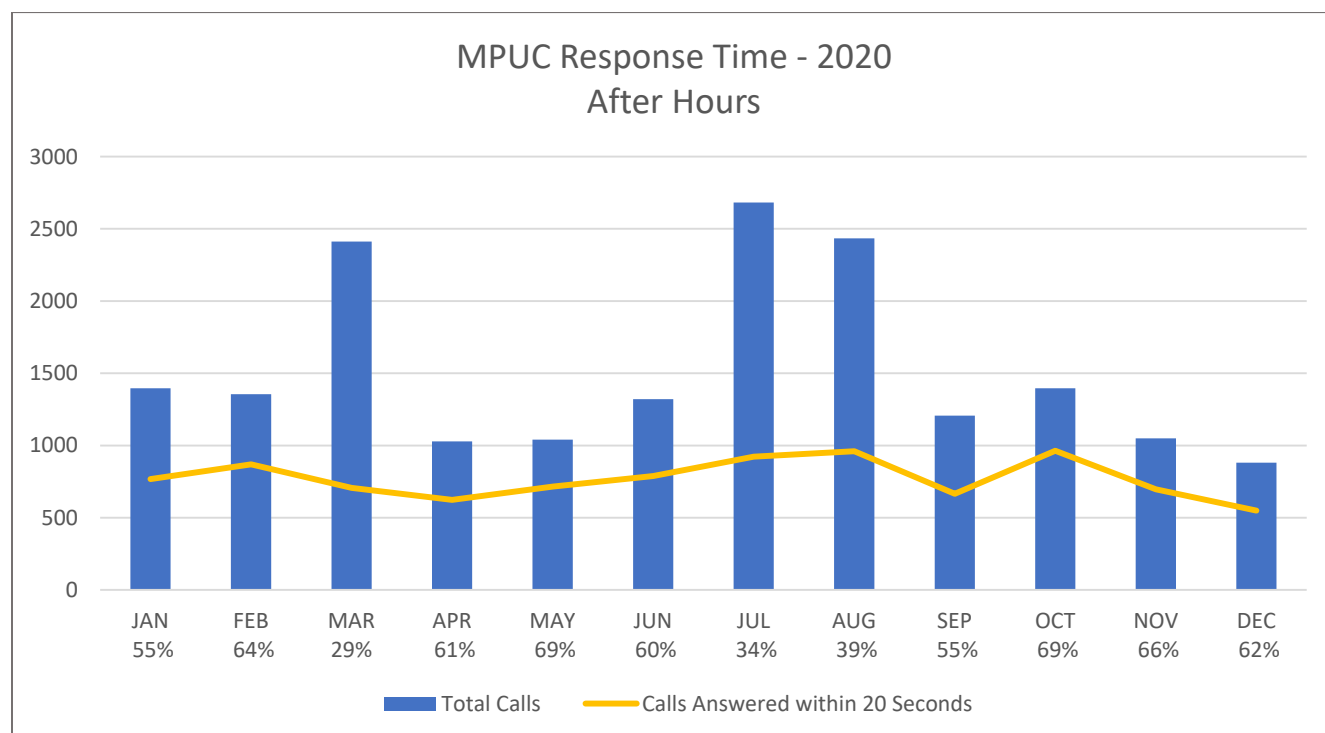


FIGURE 16: RESPONSE TIME - AFTER HOURS 2020

After Hours 5:30 p.m. - 7:00 a.m. & Weekends

Month 2020	Response Time	Total Calls Offered	Calls Answered within 20 seconds
JAN	55%	1,396	767
FEB	64%	1,355	869
MAR	29%	2,412	706
APR	61%	1,028	623
MAY	69%	1,041	715
JUN	60%	1,321	789
JUL	34%	2,682	922
AUG	39%	2,434	960
SEP	55%	1,207	666
OCT	69%	1,396	963
NOV	66%	1,049	697
DEC	62%	881	549
YTD	51%	18,202	9,226

FIGURE 17: AFTER HOURS CALLS & RESPONSE TIME 2020

Figure 18 shown below provides a breakdown of calls received in 2020 by subject matter category. This breakdown is based on the wrap codes that are used by representatives when closing and documenting a call. Calls may cover a range of topics, so the primary subject matter is determined subjectively by each representative. Please note that the total number of calls and the number of wrap codes do not reconcile, as multiple representatives may handle a single call and each would choose a wrap code according to their role in addressing the customer inquiry. The Phone Transfer and Not Specified categories generally relate to calls where a representative with primarily operator responsibilities transferred the call or the caller requested to be transferred.

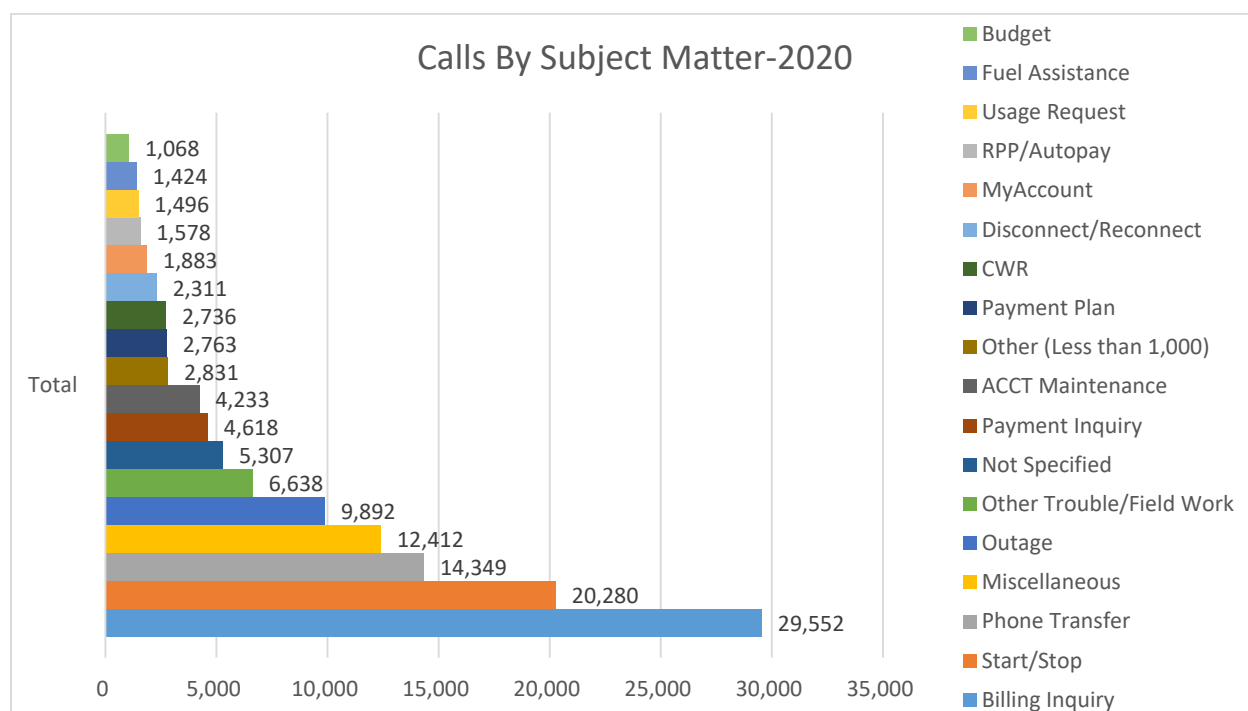


FIGURE 18: CALLS BY SUBJECT MATTER - 2020

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.

TABLE 17: EMERGENCY MEDICAL ACCOUNT STATUS COUNT 2020

DATE	REQUESTED	GRANTED	RENEWED	DENIED
Jan	3	2	1	0
Feb	6	3	2	1
Mar	4	1	3	0
Apr	7	3	3	1
May	5	0	5	0
Jun	7	1	6	0
Jul	6	0	6	0
Aug	10	2	8	0
Sep	8	0	8	0
Oct	8	3	5	0
Nov	5	0	5	0
Dec	7	0	7	0
Totals:	76	15	59	2

In 2020, Minnesota Power had 76 customers request emergency medical account status. 74 requests were granted after customers provided Minnesota Power with the required signed physician documentation indicating need. In total with the above-referenced requests and renewals, there were 160 customers noted in the system with medical account status designation. A total of 47 were removed due to non-renewal, deceased customer, customer request, or closed account. All documentation is on file and available upon request. Two customers were refused emergency medical account status due to the following reasons:

- Incomplete letter
- Letter never received

When customers contact Minnesota Power indicating they have medical/life sustaining equipment, they are advised that to be eligible to participate in the program they should

have their physician or medical supply company send the Company a signed letter identifying there is a medically necessary need and the duration prescribed. The letter is to be mailed or faxed to Minnesota Power's office (mailing/faxing information listed on mnpower.com). When the signed form is received, it is directed to a Customer Care and Support Representative ("CCSR") who updates the account with emergency medical account status and the form is then filed. This certification must be renewed annually. Approximately 30 days prior to a certificate expiring a CCSR sends a letter to the customer. If Minnesota Power does not receive a response, the Company attempts to reach the customer via phone. If a new letter is received, the account is updated for another year. If not, the medical account status is removed from the account. Due to the peacetime emergency and challenges customers may have faced in obtaining a letter from a physician or medical supply company, Minnesota Power put a stay on removing customers from this status on the basis of renewal starting in May, 2020. Further, due to customer data privacy, Minnesota Power will no longer ask for specific details about the life support equipment. A letter indicating medical necessity from a physician or medical supply company will be the most granular level of detail the Company requests as part of this process. Outreach efforts regarding medical account status continue, as described in the Company's January 18, 2021 Compliance Filing.

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.*

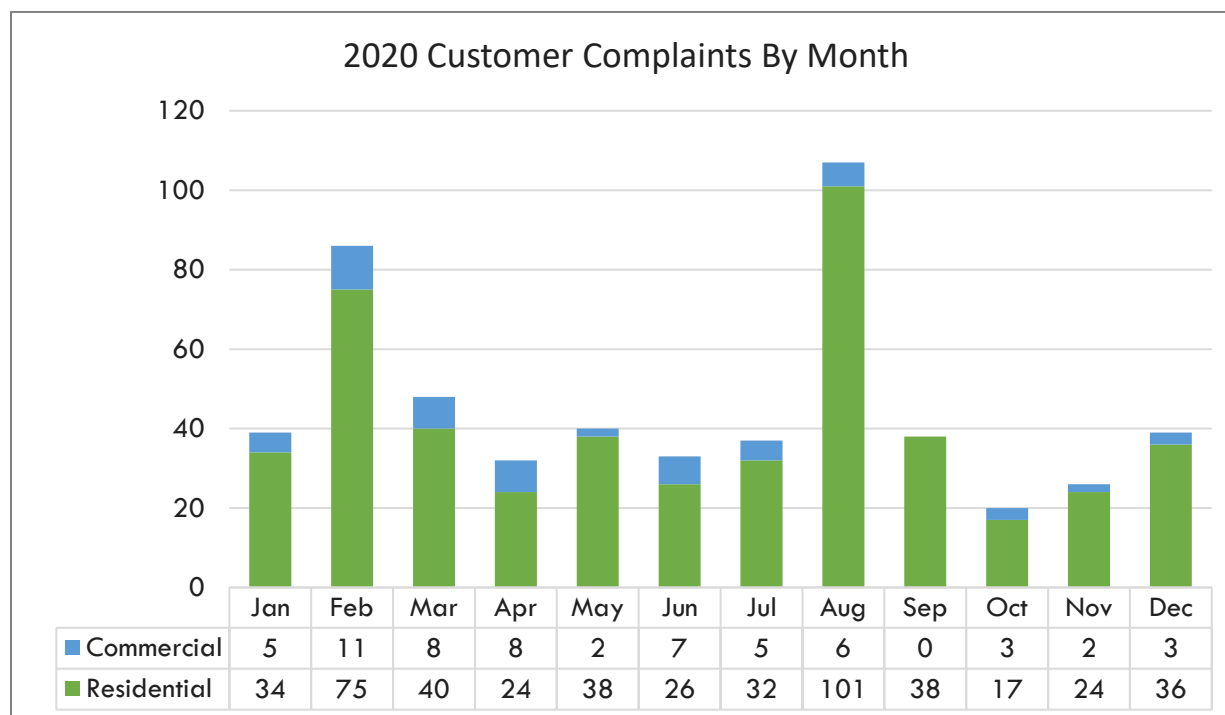


FIGURE 19: CUSTOMER COMPLAINTS BY MONTH 2020

Customer Class	Total	% of Total
Commercial	60	11.01%
Residential	485	88.99%
Total	545	100.00%

- 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.*

TABLE 18: RESIDENTIAL AND COMMERCIAL COMPLAINTS BY TYPE 2020

Complaint Description	Customer Class	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	% of Total
Billing Error	Commercial	1	2						1		1			5	0.92%
Billing Error	Residential		3		1	4	1	1	3	2	2		1	18	3.30%
High Bill Complaint	Commercial	3	7	5	5	2	6	4	3		2	2	1	40	7.34%
High Bill Complaint	Residential	29	54	33	21	25	16	22	91	33	14	20	31	389	71.38%
Inadequate Service	Commercial			1										1	0.18%
Inadequate Service	Residential		6		1	4	7	2	2	1		1	1	25	4.59%
Incorrect Metering	Commercial	1	2	2	3		1	1	2				2	14	2.57%
Incorrect Metering	Residential	5	7	7	1	5	2	6	5	2	1	3	3	47	8.62%
Service Restoration	Residential		3					1						4	0.73%
Wrongful Disconnection	Residential		2											2	0.37%
Total		39	86	48	32	40	33	37	107	38	20	26	39	545	100.00%

Regarding Order Point 16 of the 2020 SRSQ Order, Commission Staff, including the Consumer Affairs Office, convened a work group meeting on Monday, March, 1, 2021 with the Department of Commerce, Xcel Energy, Minnesota Power, and Otter Tail Power to review and discuss current complaint categories used in annual Safety, Reliability, and Service Quality reports. Minnesota Rule 7826.2000 was reviewed along with the current categories used by each of the utilities and the Consumer Affairs Office. The group agreed to work together to further refine definitions for existing categories to allow for greater specificity and seek consistency, where possible. As part of this review, additional categories may be considered based on emerging topics of interest. Quarterly meetings will continue in 2021 with the objective of establishing a recommendation for use with the next calendar year (2022) to align with SRSQ reporting cycles.

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

TABLE 19: TIMEFRAME OF COMPLAINTS RESOLVED 2020

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				1			1		5	12%
Greater Than 10 Days	Residential	6	7	5	1	3	8	4	13	3	1	5	2	58	
Less Than 10 Days	Commercial	4	6	4	3	1	6	3	1		1		1	30	36%
Less Than 10 Days	Residential	12	15	22	9	14	9	12	27	11	8	9	20	168	
Same Day Resolution	Commercial	1	5	3	3	1	1	2	4		2	1	2	25	52%
Same Day Resolution	Residential	16	53	13	14	21	9	16	61	24	8	10	14	259	
Total		39	86	48	32	40	33	37	107	38	20	26	39	545	100%

- 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.*

TABLE 20: RESIDENTIAL COMPLAINTS RESOLVED 2020

Resolution Reason	Commercial	Residential	Total	% Resolved Contacts
Compromise	18	96	114	20.92%
Customer Request	10	107	117	21.47%
No Control	32	279	311	57.06%
Refuse	0	3	3	0.55%
Total	60	485	545	100.00%

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

Minnesota Power had 30 complaints forwarded to the utility by the Commission's Consumers Affairs Office for further investigation and action in 2020.