



Orange & Rockland

**Service Reliability Filing
For 2022 System Performance**

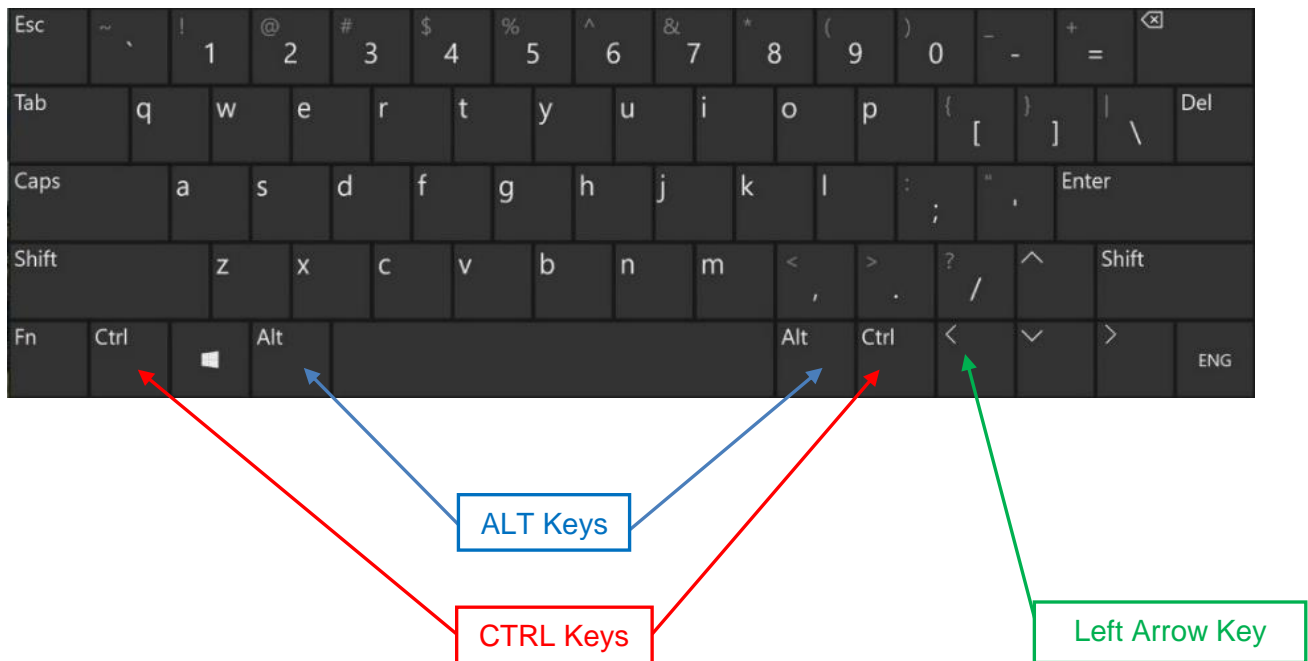
(Case 23-E-0119)

March 31, 2023

Navigating Within This Document

This document contains several hyperlinks to other locations within the document that are relevant to the narrative of the section containing the hyperlink. To jump to the other location, depress the <CTRL> key and left mouse click simultaneously while the cursor is hovering over the hyperlink (depicted in [blue and underlined](#)). The Table of Contents also contains hyperlinks to the sections and pages listed that can be accessed using the same methodology described above.

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Executive Summary

This document constitutes Orange and Rockland Utilities, Inc.'s ("O&R", or "the Company") Service Reliability Filing for its 2022 electric system performance. The Company outperformed its reliability targets for 2022, as established by the New York Public Service Commission ("NYPSC" or the "Commission"). The Company's overall 2022 System Average Interruption Frequency Index ("SAIFI") performance of 0.93 was 22.5% better than the established target of 1.20. The Company's 2022 Customer Average Interruption Duration Index ("CAIDI") performance of 105.4 minutes was 5% better than the established target of 111 minutes – translating to an overall reduction in the average length of outages experienced by our customers. During 2022, the Company experienced two excludable weather events, one affected two divisions and the second affected a single division.

Weather played a significant role in the performance of the transmission and distribution ("T&D") system in 2022. While the Company's 2022 SAIFI was better than the established target, it reached its lowest level in five years, driven primarily by record low rainfall occurring across the service territory, as will be discussed later in this report. (See [Figure 2.12 – 20-Year SAIFI Trend](#)).

After three years of improvement, CAIDI rose to its highest level in four years. While still well within the established target, the 105.4-minute CAIDI performance was O&R's fifth highest level in 20 years (see [Figure 2.13 – 20-Year CAIDI Trend](#)). It represented an 11.5-minute increase with respect to the Company's 2021 level.

The Company's System Average Interruption Duration Index ("SAIDI") returned to a downward direction after trending up in 2021 and having a historic three-year downward trend from 2018 to 2020. The system improvements that resulted in a reduction of approximately 13 minutes from the metric since 2018 still demonstrated an overall improvement of 1.6 minutes in the same year from the reliability of the Company's electric delivery system (see [Figure 2.14 – 20-Year SAIDI Trend](#)). Although New York State does not officially recognize SAIDI as a key performance metric target or goal, the index is widely accepted throughout the electric utility industry as a key indicator of the overall performance of a utility's electric delivery system. The Company continues to use it as an internal indicator of its reliability. The Company will continue to implement its portfolio of reliability programs and specific projects targeted to maintain and improve reliability performance.

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Acronyms and Abbreviations

| Acronym | Definition |
|-----------|--|
| AAAC | All aluminum alloy conductor |
| AAC | All aluminum conductor |
| ACS | Aerial Cable System |
| ACSR | Aluminum conductor, steel reinforced |
| ALT | Alternate key |
| ADMS | Advanced Distribution Management System |
| ANSI | American National Standards Institute |
| CAIDI | Customer average interruption duration index |
| CR | County Road |
| CT | Current transformer |
| Cu | Copper |
| DA | Distribution automation |
| DC | Direct current |
| DCC | Distribution Control Center |
| DLRO | Digital low resistance ohmmeter |
| DPW | Department of Public Works |
| DSCADA | Distribution supervisory control and data acquisition |
| EHV | Extra high voltage |
| EIMS | Electric Information Management System |
| EPR | Ethylene propylene rubber |
| GOAB | Ground or Group Operated Air Break |
| HMWPE | High molecular weight polyethylene |
| HP | Horsepower |
| IR | Infrared |
| LATE | Lightning, animal, tree, equipment failure |
| LTC | Load tap changer |
| MAD | Minimum approach distance |
| MAIFI | Momentary average interruption frequency index |
| MOAB | Motor Operated Air Break |
| MVA | Motor vehicle accident (outages causes) or mega-volt ampere (transformer sizing) |
| MW | Megawatt |
| NY or NYS | New York State |
| NYISO | New York Independent System Operator |
| NYPSC | New York Public Service Commission |
| OCB | Oil circuit breaker |
| OH | Overhead |

| Acronym | Definition |
|----------------|--|
| OMS | Outage Management System |
| PQ | Power quality |
| RFI | Radio frequency interference |
| ROW | Right of way |
| RT | Route |
| SAIFI | System average interruption frequency index |
| SAIDI | System average interruption duration index |
| SCADA | Supervisory control and data acquisition |
| SIS | Substation Information System |
| TBWP | Triple braided weatherproof conductor |
| TIMS | Transmission inspection and maintenance system |
| TLM | Transmission line maintenance |
| TRES | Trim evaluation and report system |
| TTR | Transformer turns ratio |
| UG | Underground |
| URD | Underground residential distribution |
| US | United States |
| VM | Vegetation management |
| kV | kilovolt |
| WMS | Work management system |
| WO | Work order |
| WPC | Worst performing circuit |
| XLPE | Cross-linked polyethylene |

1. OVERVIEW

1.1. Geographic Territory

O&R's service territory in New York is comprised of three distinct geographic areas. For reliability reporting purposes, the Company apportions these areas into three separate operating divisions: Eastern Division, Central Division and Western Division. The Eastern Division includes all of Rockland County. The Central Division encompasses the southwestern portion of Orange County, while the Western Division encompasses the northwestern portion of Orange County, as well as a section of southern Sullivan County. Individual towns served within each of the operating divisions are listed in the table on the following page.



| | Square Miles | (% of State) | (% of Company) |
|----------------|---------------------|---------------------|-----------------------|
| Eastern | 195 | 17.86 | 15.01 |
| Central | 376 | 34.43 | 28.95 |
| Western | 521 | 47.71 | 40.11 |
| Total | 1,092 | 100 | 84.06 |

| Major Tax Districts (By Division and County) | | | |
|---|-----------------------------|-----------------------------|-------------------------------|
| Eastern (Rockland) | Central (Orange) | Western (Orange) | Western (Sullivan) |
| Clarkstown | Blooming Grove | Crawford | Forestburgh |
| Haverstraw | Chester | Deerpark | Lumberland |
| Orangetown | Goshen | Greenville | Mamakating |
| Ramapo | Highlands | Middletown | |
| Stony Point | Monroe | Minisink | |
| | Tuxedo | Mount Hope | |
| | Warwick | Port Jervis | |
| | | Walkill | |
| | | Wawayanda | |

1.2. Customers Served

Shown below are the 2022 customers served totals for both residential and commercial/industrial (“C&I”) rate codes all with corresponding percentages,¹ as of December 31, 2022.

| | Residential | | | Commercial & Industrial | | | All Customers | | |
|-------------------------|--------------------|-------------------|---------------------|------------------------------------|-------------------|------------------|----------------------|-------------------|---------------------|
| | Customers | % of State | % of Company | Customers | % of State | % of Comp | Customers | % of State | % of Company |
| Eastern Division | 105,124 | 44.6% | 34.0% | 14,461 | 6.1% | 4.7% | 119,585 | 50.7% | 38.7% |
| Central Division | 52,691 | 22.3% | 17.0% | 7,986 | 3.4% | 2.6% | 60,677 | 25.7% | 19.6% |
| Western Division | 49,069 | 20.8% | 15.9% | 6,607 | 2.8% | 2.1% | 55,676 | 23.6% | 18.0% |
| Total New York | 206,884 | 87.7% | 66.9% | 29,054 | 12.3% | 9.4% | 235,938 | 100.0% | 76.3% |

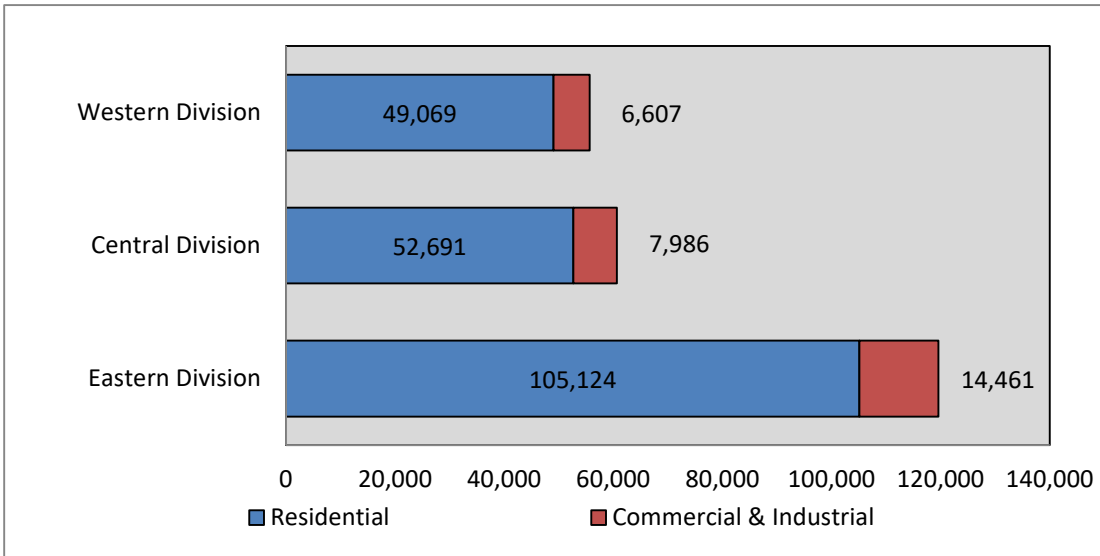
Total Company 271,679

37,394

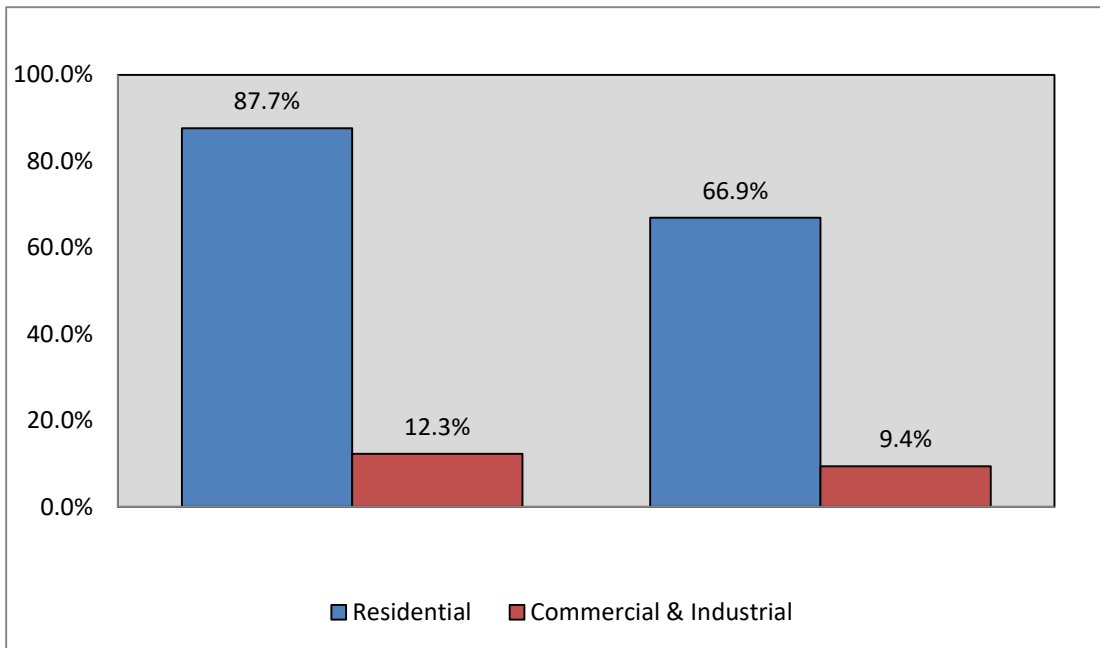
309,073

¹ “% of State” refers solely to O&R; “% of Company” refers to the entire O&R System (i.e., O&R and its New Jersey utility subsidiary, Rockland Electric Company).

Customers Served (No.)



Customers Served (%)



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1.3. Field Personnel 10-Year Staffing Levels

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|-------------------------------------|-------|------------------|-------|-------|-----------------|-------|-------|-------|-------|-------|
| <u>Electric Operations</u> | | | | | | | | | | |
| 31 Mgr. & Staff | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 33 Eastern Line Ops | 66 | 63 | 70 | 51 | 65 | 62 | 68 | 68 | 66 | 74 |
| 34 Central Line Ops | 27 | 26 | 27 | 27 | 27 | 23 | 24 | 21 | 20 | 21 |
| 35 Western Line Ops | 27 | 26 | 27 | 23 | 20 | 20 | 20 | 20 | 21 | 20 |
| 38 Joint Use Facilities | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 51 Trouble Shooters – East | 0 | 0 | 0 | 9 | 10 | 10 | 10 | 9 | 6 | 6 |
| 62 Trans Dist. Maint. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 EHV Line Ops | 9 | 10 | 10 | 9 | 9 | 9 | 8 | 8 | 9 | 7 |
| 76 Eastern Underground | 24 | 29 | 21 | 26 | 25 | 27 | 24 | 24 | 24 | 24 |
| 77 Central Underground | 14 | 10 | 16 | 16 | 16 | 12 | 15 | 15 | 16 | 16 |
| 79 Operations Flagperson | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 9 | 11 |
| 80 Trouble Shooters – North | 0 | 0 | 0 | 8 | 8 | 7 | 8 | 8 | 8 | 7 |
| Total Electric Operations | 167 | 165 ² | 172 | 170 | 181 | 171 | 183 | 179 | 180 | 187 |
| Contractor Linemen | 37 | 44 | 40 | 45 | 43 ³ | 36 | 38 | 35 | 35 | 32 |
| <u>Substation Operations</u> | | | | | | | | | | |
| 93 Eastern | 19 | 20 | 17 | 19 | 20 | 19 | 20 | 18 | 18 | 18 |
| 94 Central & West | 12 | 12 | 11 | 12 | 11 | 12 | 12 | 13 | 13 | 12 |
| 96 Relay | 15 | 14 | 11 | 8 | 13 | 12 | 14 | 14 | 13 | 15 |
| Total Substation Ops | 46 | 46 | 39 | 39 | 44 | 43 | 46 | 45 | 44 | 44 |
| <u>Tree Contractors</u> | | | | | | | | | | |
| Distribution Crews/Workers | 24/81 | 35/80 | 33/90 | 35/76 | 23/45 | 25/52 | 23/46 | 26/52 | 28/58 | 20/40 |
| Capital Projects Crews/Workers | 3/10 | 6/20 | 8/29 | 10/25 | 8/18 | 10/22 | 10/22 | 08/16 | 08/16 | 08/16 |
| Transmission Crews/Workers | 10/52 | 5/25 | 2/7 | 7/68 | 6/45 | 5/30 | 4/18 | 4/24 | 4/24 | 4/24 |

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² Joint Use Facilities, Troubleshooters – East and Troubleshooters – North not included in staffing level table prior to 2017. The addition changes East, Central and West Line Operations and Total Electric Operations staffing reported for 2014, 2015 and 2016.

³ The Company's contractor line force was reduced significantly after September when most were released to respond to hurricane damage in Puerto Rico and the Virgin Islands.

1.4. Definitions – General

| | |
|--|---|
| Customers Served | These customers include residential and C&I customers within O&R's electric service territory. Excluded from these are all Street Lighting customers (Municipal Street Lighting, Traffic Lights, all Dusk to Dawn Lighting), and all sales to other utilities. |
| Interruption (Sustained) | An interruption is the loss of service for five minutes or more to one or more customers. |
| Momentary Interruption | The brief loss of power delivery caused by the opening and closing operation of an interrupting device, in most cases to clear a fault. These interruptions are typically 15 to 30 seconds in duration and may occur multiple times while clearing a fault on a distribution circuit. Multiple operations for a single event are counted only once. Momentary Interruptions that result in a sustained interruption are not included. |
| Customers Affected | Represents the total number of customers affected as a result of an interruption. |
| Customer - Hours of Interruption | Represents the total customer hours of interruption, which is calculated by multiplying the total customers affected during an interruption by the duration (i.e., hours) of the interruption. Hours of interruption are subject to rounding differences. |
| O/H Distribution (O/H Dist) | Represents interruptions caused by incidents occurring on the overhead distribution system. |
| U/G Distribution (U/G Dist) | Represents interruptions caused by incidents occurring on the underground distribution system. |
| Transmission/Substation (Trans/Sub) | Represents interruptions caused by incidents occurring on the transmission system or in a substation. |
| Storm | A period of adverse weather during which the interruptions affect either (a) at least ten percent of the customers served an operating area; (b) results in customers being without electric service for a duration of at least 24 hours; or (c) both. |

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1.5. Definitions – Cause of Outages

Interruptions are classified by the cause of the interruption and include the following ten categories:

| | |
|-----------------------------|---|
| Animal Contact | Interruptions caused by an animal, such as a squirrel, bird, snake or raccoon, coming in contact with electrical equipment. |
| Customers Equipment | Interruptions resulting from the failure of customer-owned equipment. |
| Equipment Failure | Interruptions caused by the breakdown or failure of Company owned equipment. |
| Lightning | Interruptions caused by lightning. |
| Non-Company Accident | Interruptions caused by an event outside of the control of the Company, such as a motor vehicle accident or an act of vandalism. |
| Overload | Interruptions caused when the electrical load on a utility device or conductor exceeds its rated capacity. |
| Pre-Arranged | Interruptions caused by actions deliberately taken by the utility with advance notice to the customer(s) affected such as scheduled pre-arranged outages for voltage conversions. |
| Tree Contact | Interruptions caused by a tree or tree limb coming in contact with the electrical equipment. |
| Unknown/Other | Interruptions for which no cause can be found, or for which none of the other classifications are appropriate. |
| Work Error | Interruptions caused by Company or Company contract personnel, such as Company hired tree trimmers. |

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1.6. Definitions - Reliability Indices

Frequency (SAIFI)⁴ Represents the number of times an average customer is affected by an interruption. It is calculated by dividing the total customers affected by the customers served within a specific territory.

Restoration (CAIDI)⁵ Represents the time in minutes (hours) it takes to restore electric service to an average customer that is affected by an interruption. It is calculated by dividing the customer minutes (hours) of interruption by the customers affected.

Duration (SAIDI)⁶ Represents the time in minutes (hours) that an average customer is without electric service over a specific period of time. It is calculated by dividing the customer minutes (hours) of interruption over a specified period of time by the customers served over the same period of time. For that same defined period of time, this performance ratio can be calculated by the formula $SAIFI * CAIDI$.

Momentary Interruption Frequency (MAIFI_e)⁷ Represents the number of times an average customer is affected by a momentary interruption. It is calculated as the result of the total customers affected by all momentary interruptions by the customers served within a specific territory. In this document, a momentary interruption is the number of events where a customer is momentarily interrupted by substation breaker operation.

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⁴ SAIFI is the System Average Interruption Frequency Index.

⁵ CAIDI is the Customer Average Interruption Duration Index.

⁶ SAIDI is the System Average Interruption Duration Index.

⁷ MAIFI_e is the Momentary Average Interruption Frequency Index, for an Event.

2. 2022 CORPORATE PERFORMANCE

2.1. Summary of Performance

The Company's 2022 New York SAIFI performance of 0.93 outperformed the previous five-year average of 1.05. Much of the SAIFI performance for the year was driven by small individual outages throughout the system. The improved overall performance is due to system improvements in 2021 and 2022.

The Company's 2022 CAIDI performance of 105.4 minutes was the fourth highest in the past 20 years. O&R's 2022 CAIDI represents a regression over the previous five-year average of 101.4 minutes and within the Commission's goal of 111 minutes.

The Company experienced two weather events which qualified for exclusion from the reliability indices in 2022. One affected a single operating division and the other affected both the Central and Western Divisions.

| Comparison of Tree Contact Outages on High Wind Days (40+ mph) in 2021 and 2022 | | | |
|--|----------------------------|--|--|
| Vs. | | | |
| 20-Year Daily Tree Outage Averages | | | |
| | 20-Year Average | 2021 High Wind Days | 2022 High Wind Days |
| Number of tree interruptions per day | 2.45 | 12.7 | 13.2 |
| Number of days wind gusts exceeded 40 mph | 12.6 | 17 | 17 |
| Number of customers affected by tree contact per interruption | 88.5 | 91.0 | 74.2 |
| No. customers affected per day by tree contacts | 217 | 1154 | 981 |

Note: All factors above exclude major storm data

Table 1

The challenges faced by the Company during excludable weather events, notwithstanding the challenges on non-excludable days, were significantly less in 2022 than 2021 with only two events. This was driven in part by the lowest rainfall across the service territory in 2022. At approximately 23", the total rainfall was the lowest rainfall the O&R service territory has experienced for the last 22 years. The month of December was the wettest with 4.29", and the driest was July with 0.09".

High winds also played a greater role in tree contact and tree contact outages as substantiated by the increased number of tree interruptions per day when peak wind gusts exceeded 40 mph (see Table 1 above). The accelerated vegetation growth from record rainfall in 2021, coupled with the

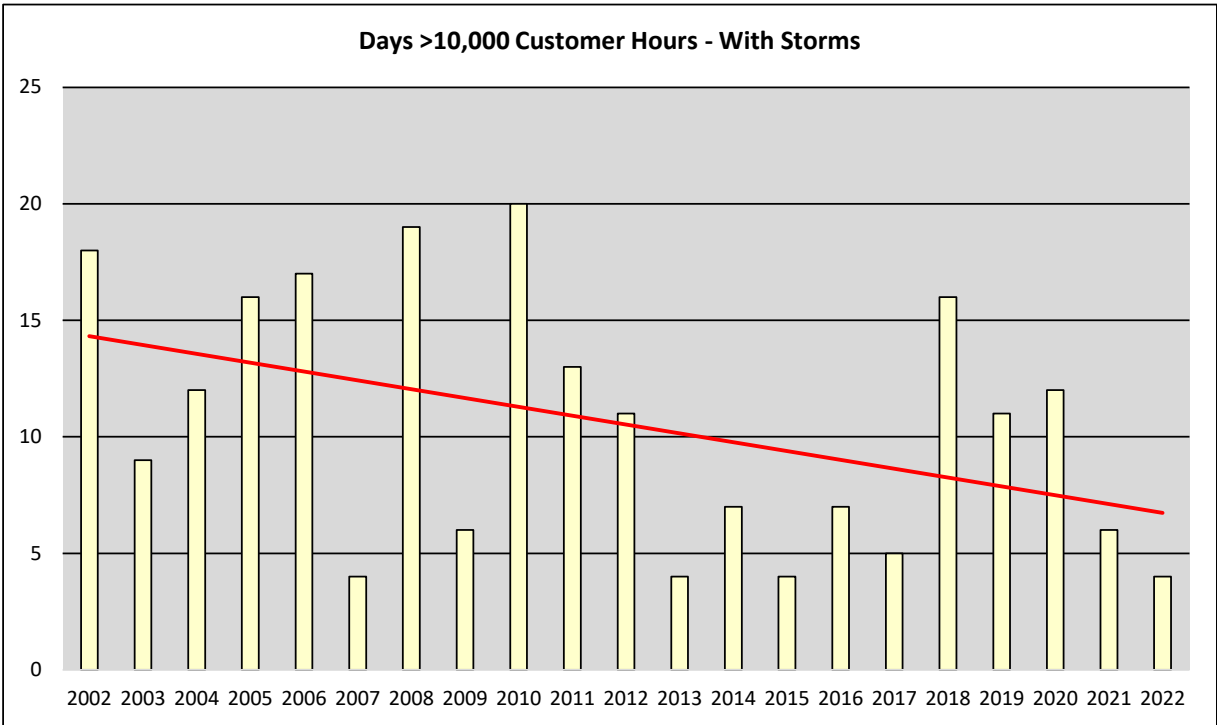
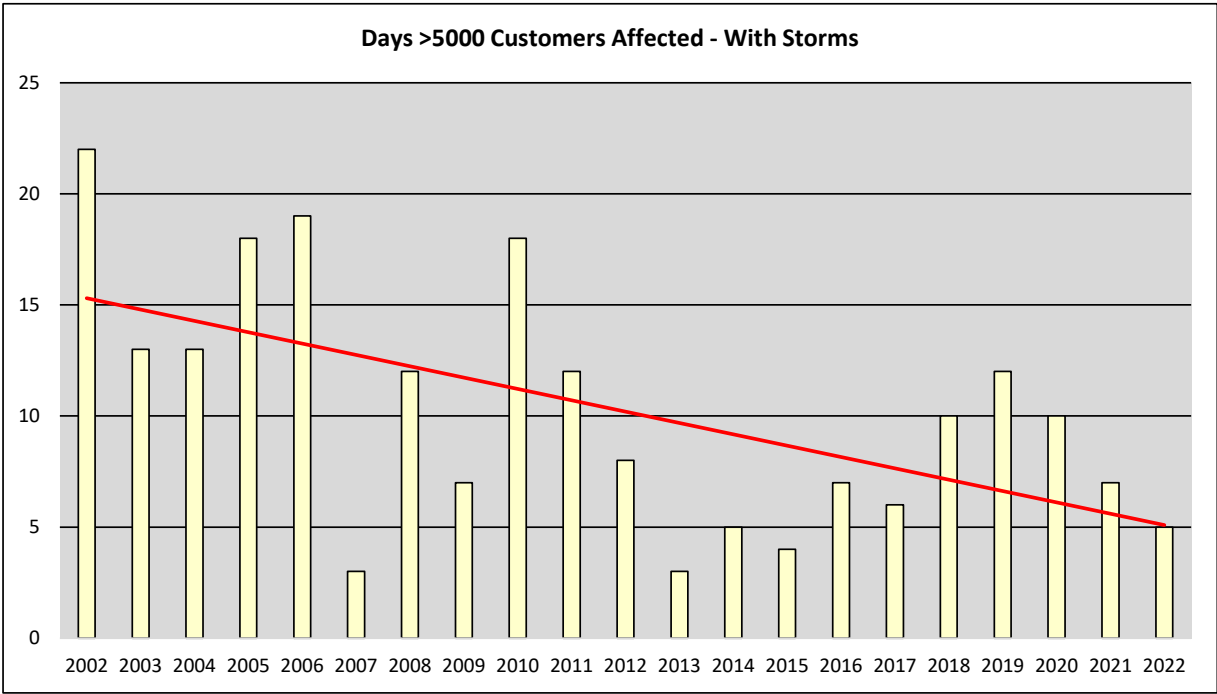
high winds, increased the number of tree contacts with conductors as trees swayed in and out of clearance zones. This most likely contributed to the increased number of tree interruptions per day in 2022. As compared to 2021, the number of customers affected by tree contact per interruption and the number of customers affected by tree contact both declined in 2022.

Customer voltage, flickering lights and frequent outage complaints (often associated with protection device trip and reclose activity on the distribution system) were up almost 12% from 2021 levels, bringing them back in line with historical performance. Trip and reclose activity was similar to 2021 volume and was in line with historical performance.

The Company's overall 2022 year-end reliability performance was consistent with its previous five-year performance – a good indicator that reliability initiatives continue to have a positive impact on the Company's reliability performance. As shown in the graphs below, both the days with greater than 5,000 customers affected and the days with greater than 10,000 customer-hours of interruption have been trending downward since 2001, even when excludable weather events data is included. These trends reflect the success of the Company's distribution automation program and ongoing storm hardening investments.

There were five days in 2022 when greater than 5,000 customers were affected by an interruption, down from seven days in 2021. The elevated numbers of customers affected on those days were the result of two excludable weather events, three non-excludable weather events, of which one was a high wind day in February with high winds of 30 mph and gusts of 43 mph, and the others were tree related events with high customer counts.

There were four days in 2022 with greater than 10,000 customer-hours of interruption for the day, two events occurred during excludable weather events, one during a non-excludable weather event on February 18 which was a high wind day, and another as the result of a tree contact, equipment failure, and lighting on the same day with large customer counts.



The improvement in SAIFI from 2021 to 2022 (from 1.144 to 0.931) is a result of a decrease of 48,313 customers affected year-over-year. While the majority of the interruption categories saw a decrease in the number of customers affected as compared to 2021, only tree contact outages

demonstrated a significant enough change year-over-year to warrant a more detailed review of outages in those categories.

Tree contact outages accounted for 38% of all customers affected in 2022, matching 2021 performance. The number of customers affected by a tree contact outage fell below 100,000 and 2021 returning to levels of 2020.

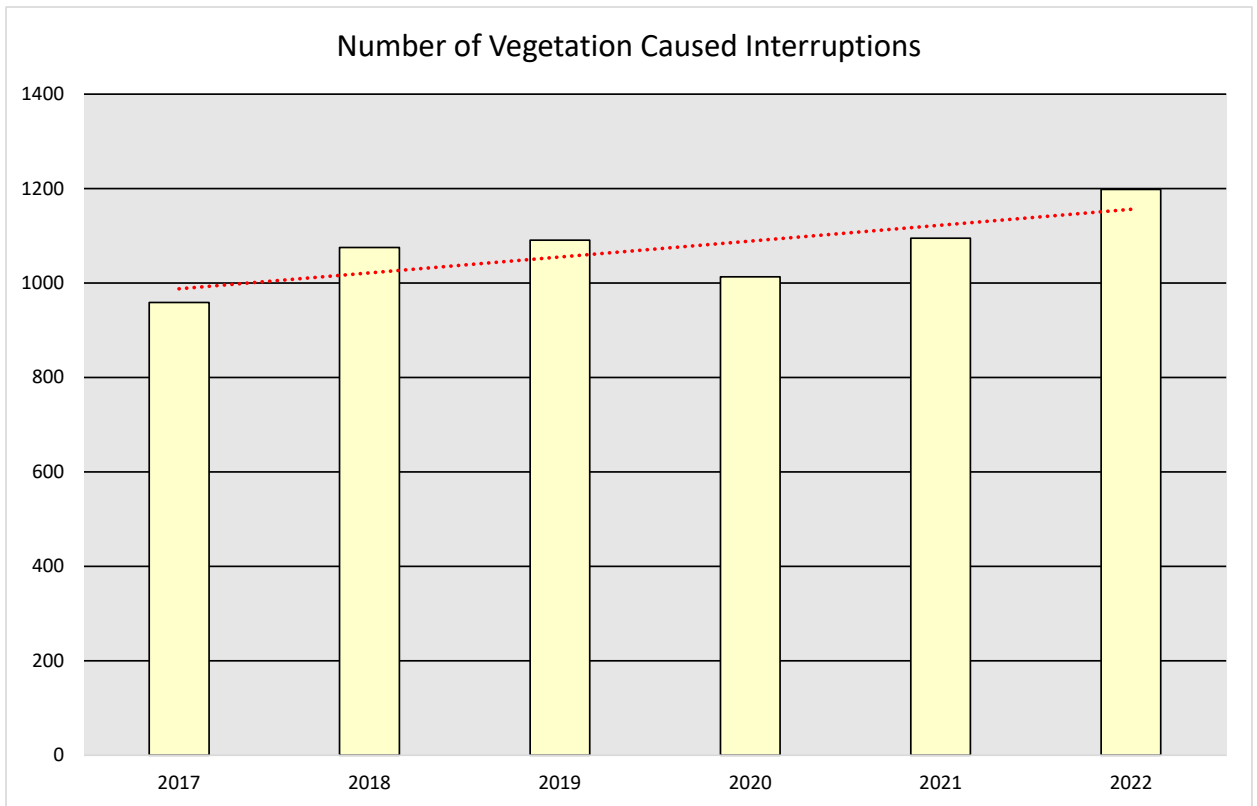


Figure 2.1 – Vegetation Caused Outages – 2017 - 2022

The increase in 2022 CAIDI as compared to the Company's 2021 performance (from 93.9 to 105.4) can be attributed to several large outage days throughout the distribution system. Overall, the total number of customer-hours of interruption is consistent with historical norms.

There were 72 days when greater than 1,000 customers were affected for the day (excluding weather events data) as compared to 2021 when there were 80. The number of customers affected per interruption in 2022 was 54, well below the previous five-year average of 66.

In 2022, both the number of customers affected, and the number of customer hours of interruption improved from 2021 levels. Inclement weather did not play a major role in the performance of the electric distribution system as compared to 2021, with 2022 having the lowest rainfall in 20 years in

O&R's service territory. The number of inclement weather days⁸ in 2022 fell 44% from the 2021 level (101 to 180), well below the 20-year average of 132 days. Historically, the number of interruptions/inclement days and the number of customers affected/interruptions (which would drive customer-hours as well) on inclement weather days increase above the 20-year averages. Because blue sky days exceeded the 20-year average in 2022, both categories showed an improvement.

At 11, the number of high-volume days (defined as being days when greater than 24 interruptions occur, one of the interruptions qualify for exclusion from the Company's reportable metrics) is the second lowest level in the last five years. The number of customers affected on high volume days were 31,260 or about 14% of all customers affected during the year. This was slightly above the 20-year average by 17% but was consistent with historical norms. There were 69 days during which the maximum sustained winds exceeded 30 mph in 2022 which is also consistent with historical norms.

The performance ratios for all three Divisions and the total O&R service territory are shown in [Table 2-1](#). A five-year history and five-year average are tabulated according to the standard reporting that was initiated by the NYPSC in 1989. The standards set by the Commission for each index are also listed for each of the Divisions that reflect the 2005 revised standard levels, and those overall Company standards that were maintained by the Commission in Case 21-E-0074.

The SAIFI, CAIDI and SAIDI trends by Division are shown graphically in [Figures 2-1, 2-2](#) and [2-3](#), respectively. Further discussion of these trends is included in each Division's summary of performance.

[Figures 2-4, 2-5](#), and [2-6](#) show the annual performance trends, from 2017 through 2022, for the Company's three Divisions. [Figure 2-4](#) shows the number of interruptions that occur annually due to all causes, excluding major storms. [Figure 2-5](#) represents the annual number of customers affected. [Figure 2-6](#) shows the annual customer hours of interruption. Detailed analyses of these trends are provided in the individual Division's performance summaries.

[Figure 2-7](#) shows a summary, by cause, for the number of interruptions, customers affected, and the customer-hours of interruption experienced in 2022. The two major causes of interruptions are equipment failure and tree contacts, similar to the previous five years. Tree contacts slightly rose from 2021 numbers and were at the highest level since the Company began keeping records. In 2022, these two categories combined accounted for 59% of all interruptions, 62% of customers affected and 68% of all customer hours of interruption, all in line with historical norms.

⁸ For purposes of this report, inclement weather days are defined as those days in which traceable precipitation is observed and recorded by the US Geological Survey National Water Information System rain gauge on the Mahwah River in Suffern, NY

Partial power and single customer interruptions accounted for 23% of all interruptions in 2022, equaling 2021 when they accounted for the same 23% of all outages. The majority of these interruptions (75%) were the result of a tree contact or equipment failure. Of the 4,027 total interruptions reported throughout 2022, 241 were partial power conditions resulting from an equipment failure or a tree contact (as compared to 325 in 2020 and 289 in 2021). Likewise, 458 out of the 4,027 interruptions for the year involved a single customer interruption resulting from a tree contact or an equipment failure.

[Table 2-2](#) shows a summary of the equipment failures in 2022 as compared to the previous five years, for the Company's entire New York State service territory (excluding major storms). In 2022, for interruptions caused by equipment failure, overhead equipment was responsible for 71% of the interruptions (slightly down from 72% in 2021), 79% of the customers affected (up from 76% in 2021), and 56% of the customer-hours of interruption (down from the 70% in 2021).

The number of equipment failures occurring in 2022 declined by 4% as compared to 2021. Failure rates for the majority of hardware components used on the T&D system were within expected levels in 2022. The Company continues to monitor the performance of all equipment to identify trends in any single system component and take mitigating actions, as necessary.

[Figures 2-8, 2-9](#) and [2-10](#) show the annual performance trending by major cause, from 2017 through 2022, excluding major storms, for the Company's entire service territory. As was the case in previous years, [Figure 2-8](#) (total number of interruptions), indicates that interruptions caused by equipment failure and tree contact dominate throughout the entire six-year time frame represented. The performance trends relating to equipment failure and tree contact remain consistent throughout each Operating Division as well.

[Table 2-3](#) demonstrates the effects of removing non-excludable major outage statistics from these indices for 2022 and the prior five years. A major outage is defined as one event affecting more than 5,000 customers. In 2022, there were no non-excludable major events.

In 2022, MAIFI_e was 7.30 for New York customers, based on 237,413 customers served, and a total of 1,723,386 momentary interruptions experienced by customers. This represented a 6% increase in the number of momentary interruptions as compared to 2021. Currently, the Company calculates MAIFI_e based on operations from the substation breaker that supply the circuit.

O&R's grid modernization and distribution automation efforts reduces the number of outages experienced by the typical customer and will continue to play a role in the Company's overall performance that is projected to continue to improve prospectively. The success of these programs can be seen in the downward trend in SAIFI ([Figure 2.12](#)), as well as the downward trend in the number of customers affected per interruption ([Figure 2.16](#)) over time. With both measures

decreasing from 2021 to 2022, this continues with the overall downward trend that remains consistent with expectations. Conversely, CAIDI has risen steadily over the same time period. This mixed performance can be attributed, in part, to the inverse relationship between SAIFI and CAIDI over the past 20 years and is also consistent with expectations and with previous years' performance.

With fewer customers being affected per interruption and distribution automation averting interruptions for large blocks of customers, there are fewer opportunities to gain the CAIDI benefit of restoring those large blocks of customers quickly had they experienced an interruption. As a result, over time, CAIDI has been trending upward concurrently with the decrease in SAIFI and customers affected per interruption. This trend can be seen in [Figure 2.13](#).

2.2. Worst Performing Circuit Selection

O&R applies its own methodology, instead of that proposed by the NYPSC, for selecting each Division's Worst Performing Circuits. The methodology and the circuit priority-rating list for each Division is outlined in detail and are included in [Appendix A](#).

O&R has used its own methodology for many years to direct the Company's service reliability improvement programs and to establish priorities. The Company maintains that this methodology is a superior indicator of poor performance for its system, and it identifies areas where corrective measures will have the greatest impact on customer service reliability.

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2.3. List of New York Figures and Tables

2022 Company Performance

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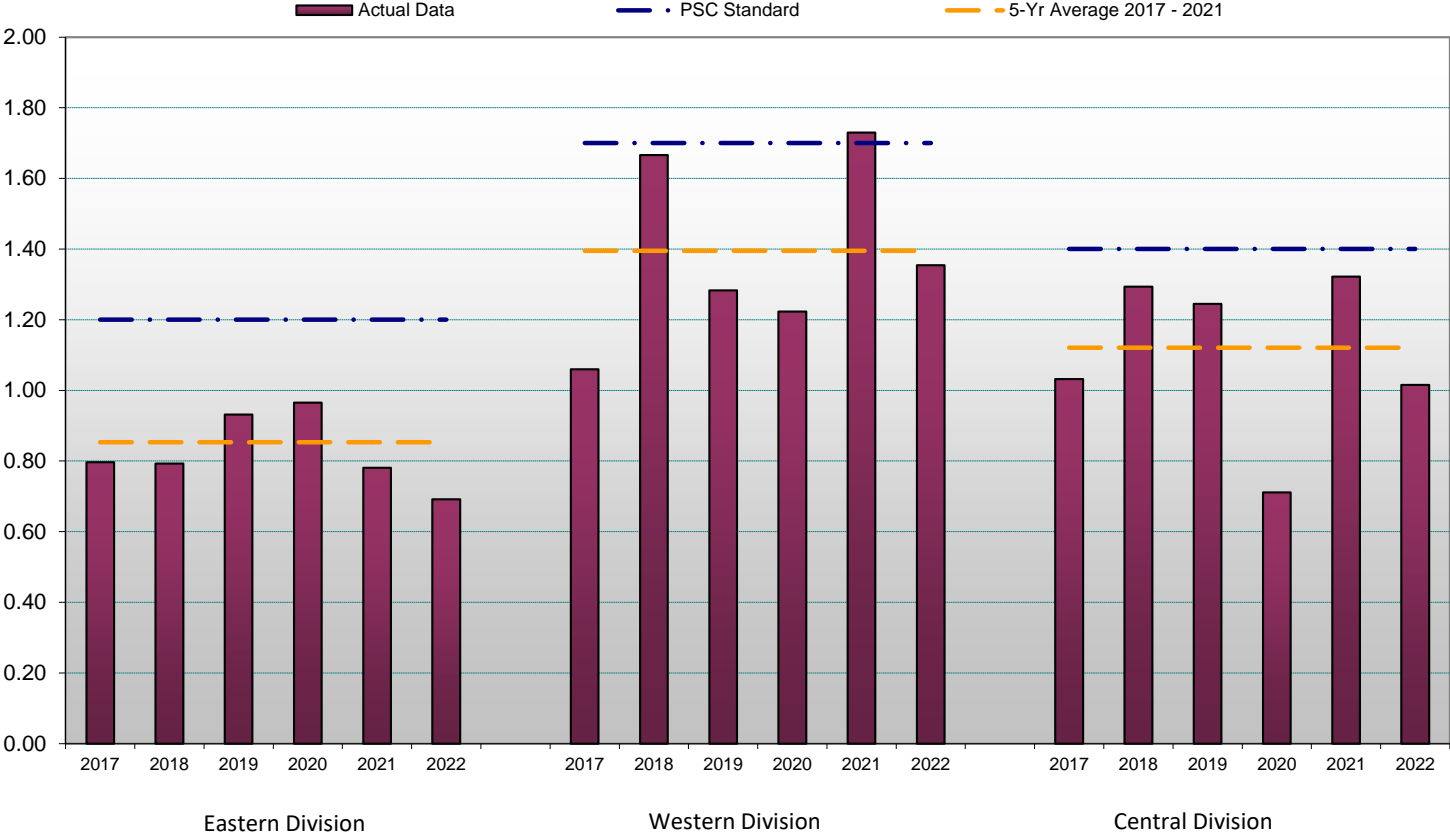
TABLE 2.1 - ELECTRIC PERFORMANCE RATIOS 2017 THROUGH 2022

| Electric Performance Ratios 2017 - 2022 | | | | | |
|--|---------------------------------|---|--|--|------|
| Division | Year | SAIFI - Frequency (Cust Aff / Cust Srvd) | CAIDI - Restoration (Cust - Hrs / Cust Aff) | SAIDI - Duration (Cust - Hrs / Cust Srvd) | |
| Eastern | 2017 | 0.80 | 1.46 | 1.16 | |
| | 2018 | 0.79 | 1.92 | 1.52 | |
| | 2019 | 0.93 | 1.71 | 1.59 | |
| | 2020 | 0.96 | 1.55 | 1.50 | |
| | 2021 | 0.78 | 1.50 | 1.17 | |
| | 5-Yr Average 2017 - 2021 | | 0.85 | 1.63 | 1.39 |
| | Standard | | 1.20 | 1.50 | |
| | 2022 | 0.69 | 1.49 | 1.03 | |
| Western | 2017 | 1.06 | 1.63 | 1.73 | |
| | 2018 | 1.67 | 1.69 | 2.82 | |
| | 2019 | 1.28 | 1.73 | 2.22 | |
| | 2020 | 1.22 | 1.64 | 2.00 | |
| | 2021 | 1.73 | 1.67 | 2.89 | |
| | 5-Yr Average 2017 - 2021 | | 1.40 | 1.68 | 2.34 |
| | Standard | | 1.70 | 2.00 | |
| | 2022 | 1.35 | 1.92 | 2.60 | |
| Central | 2017 | 1.03 | 2.06 | 2.13 | |
| | 2018 | 1.29 | 1.72 | 2.23 | |
| | 2019 | 1.24 | 1.78 | 2.22 | |
| | 2020 | 0.71 | 2.03 | 1.45 | |
| | 2021 | 1.32 | 1.52 | 2.00 | |
| | 5-Yr Average 2017 - 2021 | | 1.12 | 1.79 | 2.00 |
| | Standard | | 1.40 | 1.75 | |
| | 2022 | 1.02 | 1.91 | 1.94 | |
| Company | 2017 | 0.92 | 1.68 | 1.54 | |
| | 2018 | 1.13 | 1.78 | 2.01 | |
| | 2019 | 1.09 | 1.74 | 1.90 | |
| | 2020 | 0.96 | 1.67 | 1.60 | |
| | 2021 | 1.14 | 1.57 | 1.79 | |
| | 5-Yr Average 2017 - 2021 | | 1.05 | 1.69 | 1.77 |
| | Standard | | 1.20 | 1.85 | |
| | 2022 | 0.93 | 1.76 | 1.64 | |

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Figure 2.1 - Frequency - SAIFI

Orange and Rockland Utilities Frequency - SAIFI

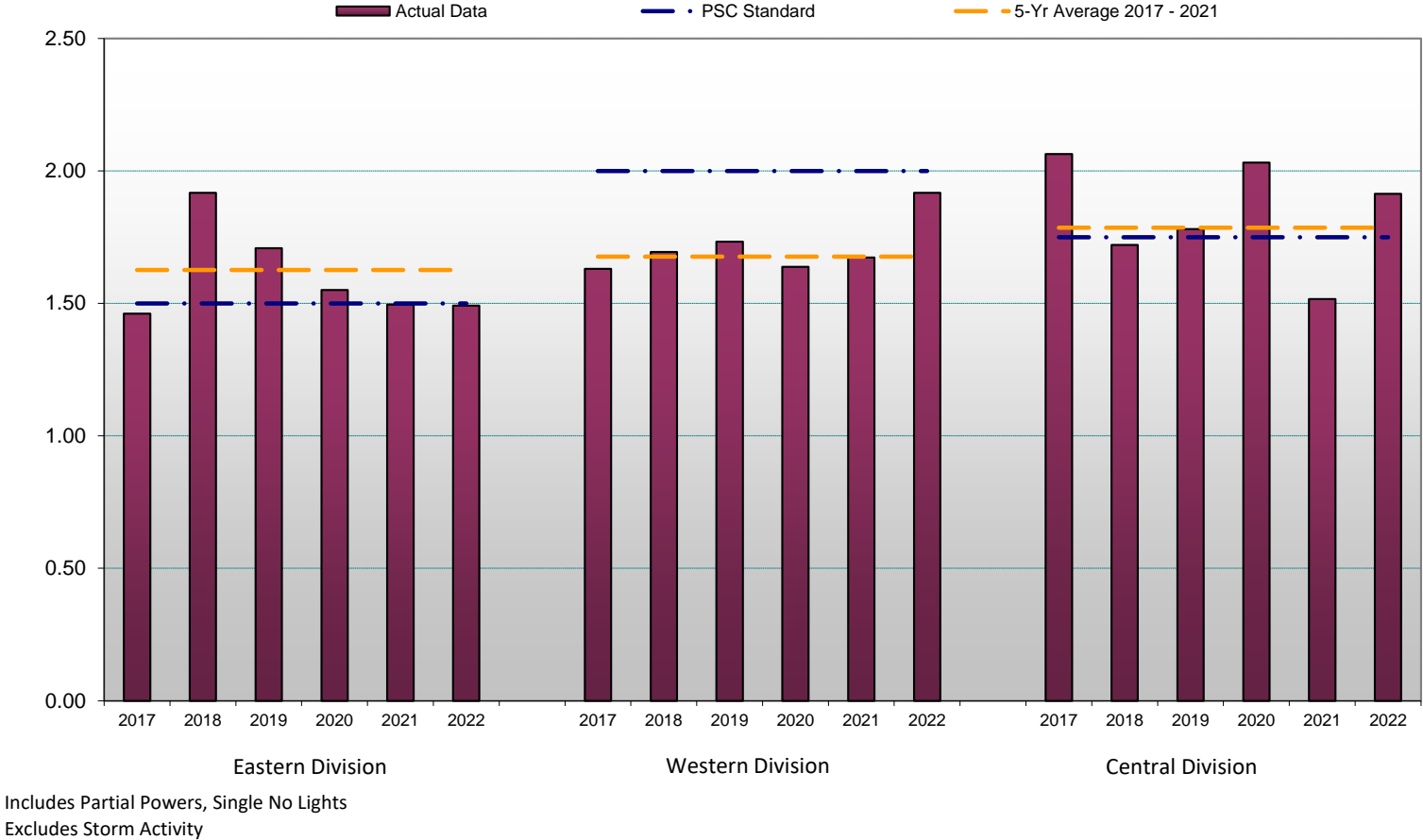


Includes Partial Powers, Single No Lights
Excludes Storm Activity

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Figure 2.2 - Restoration - CAIDI

Orange and Rockland Utilities Restoration - CAIDI



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Figure 2.3 - Duration - SAIDI

Orange and Rockland Utilities Duration - SAIDI

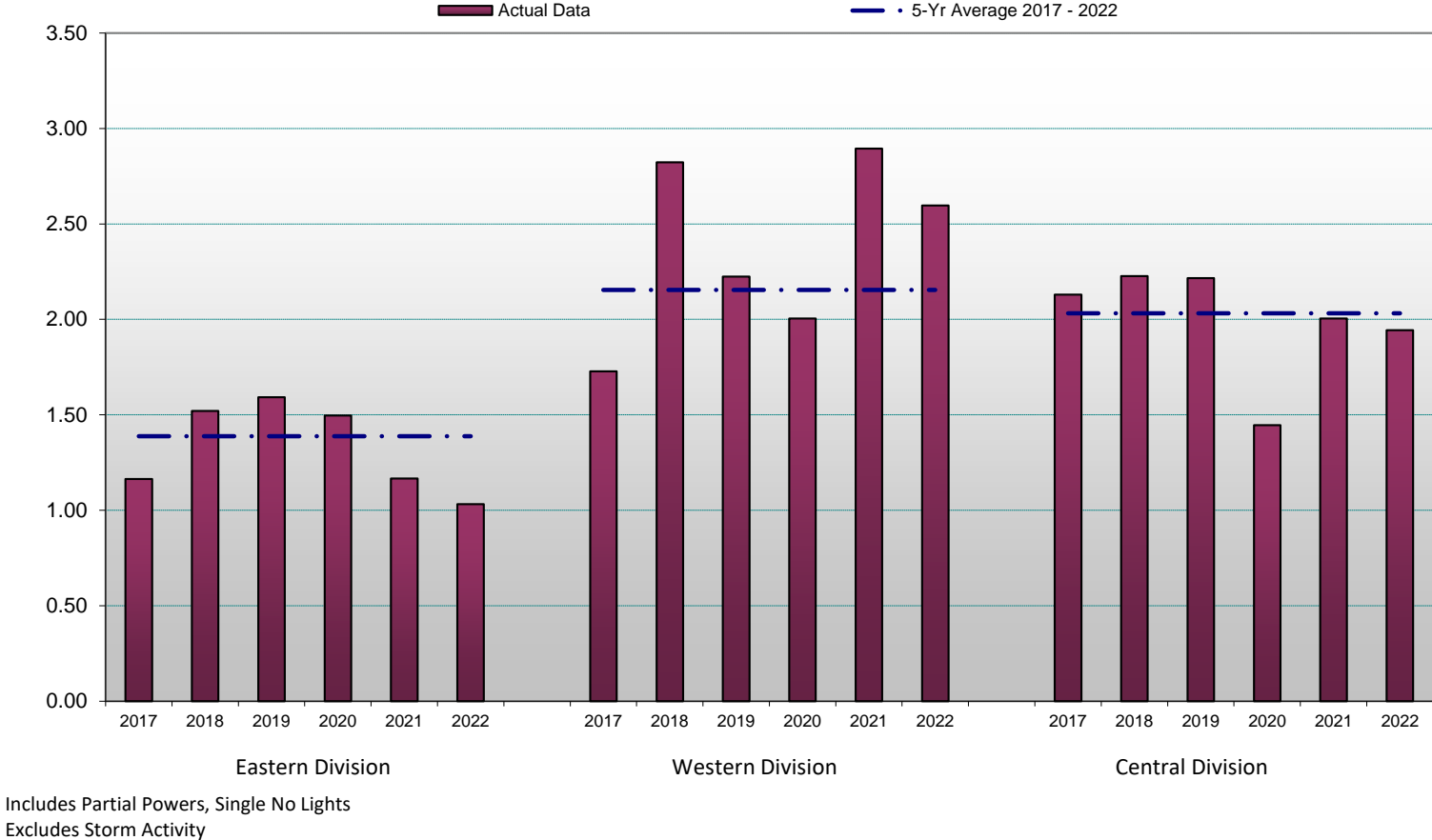
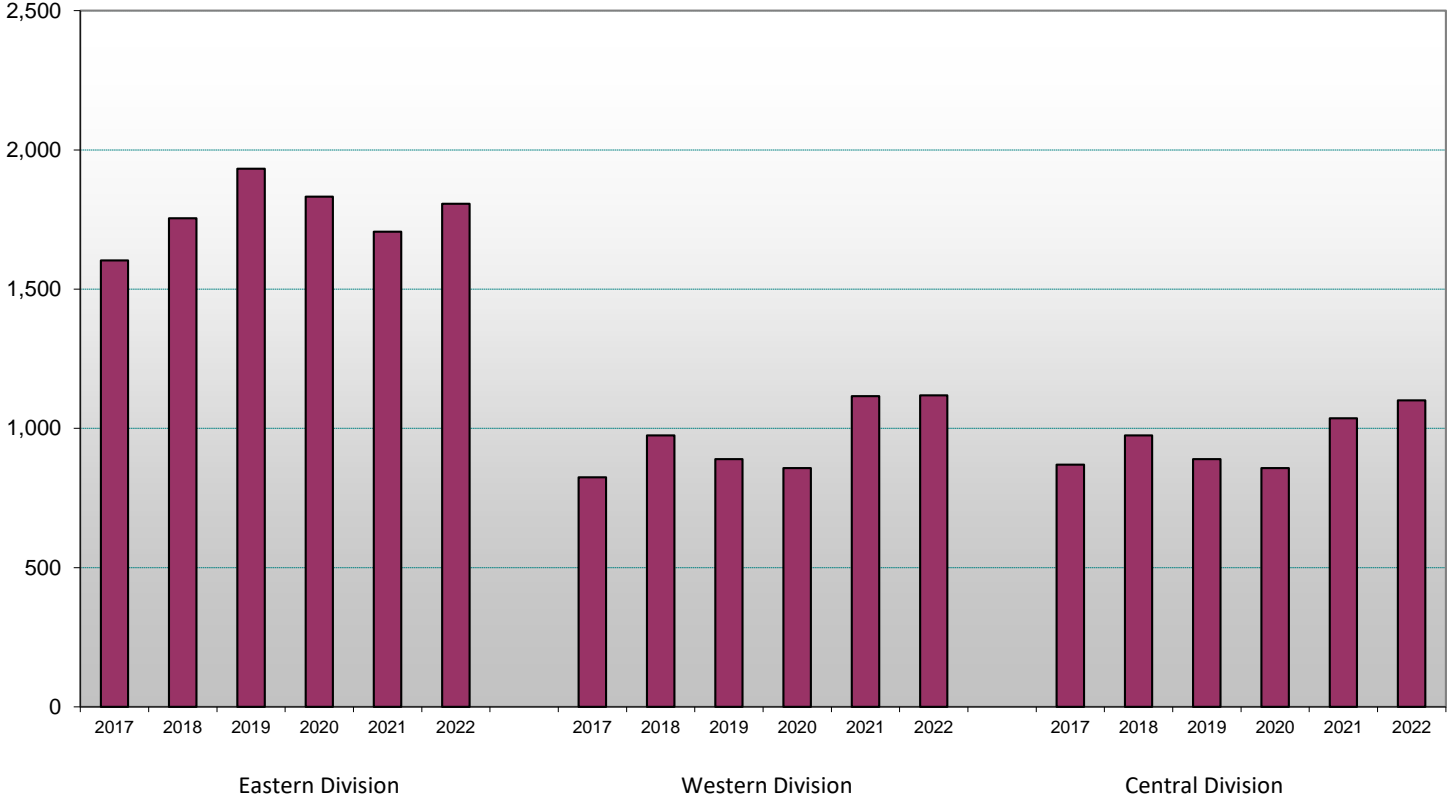


Figure 2.4 - Interruptions

Orange and Rockland Utilities Interruptions

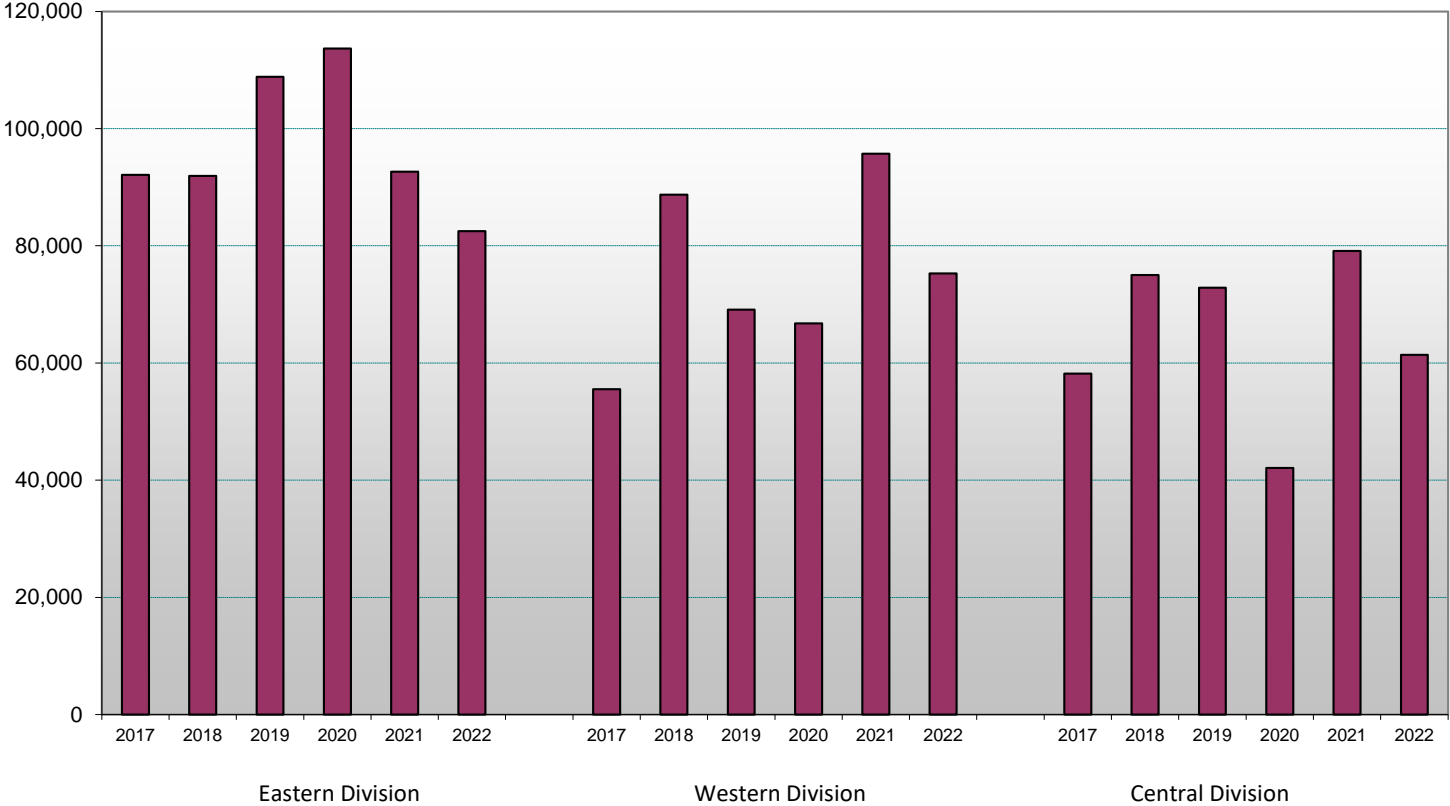


Includes Partial Powers, Single No Lights
Excludes Storm Activity

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Figure 2.5 - Customers Affected

Orange and Rockland Utilities Customers Affected

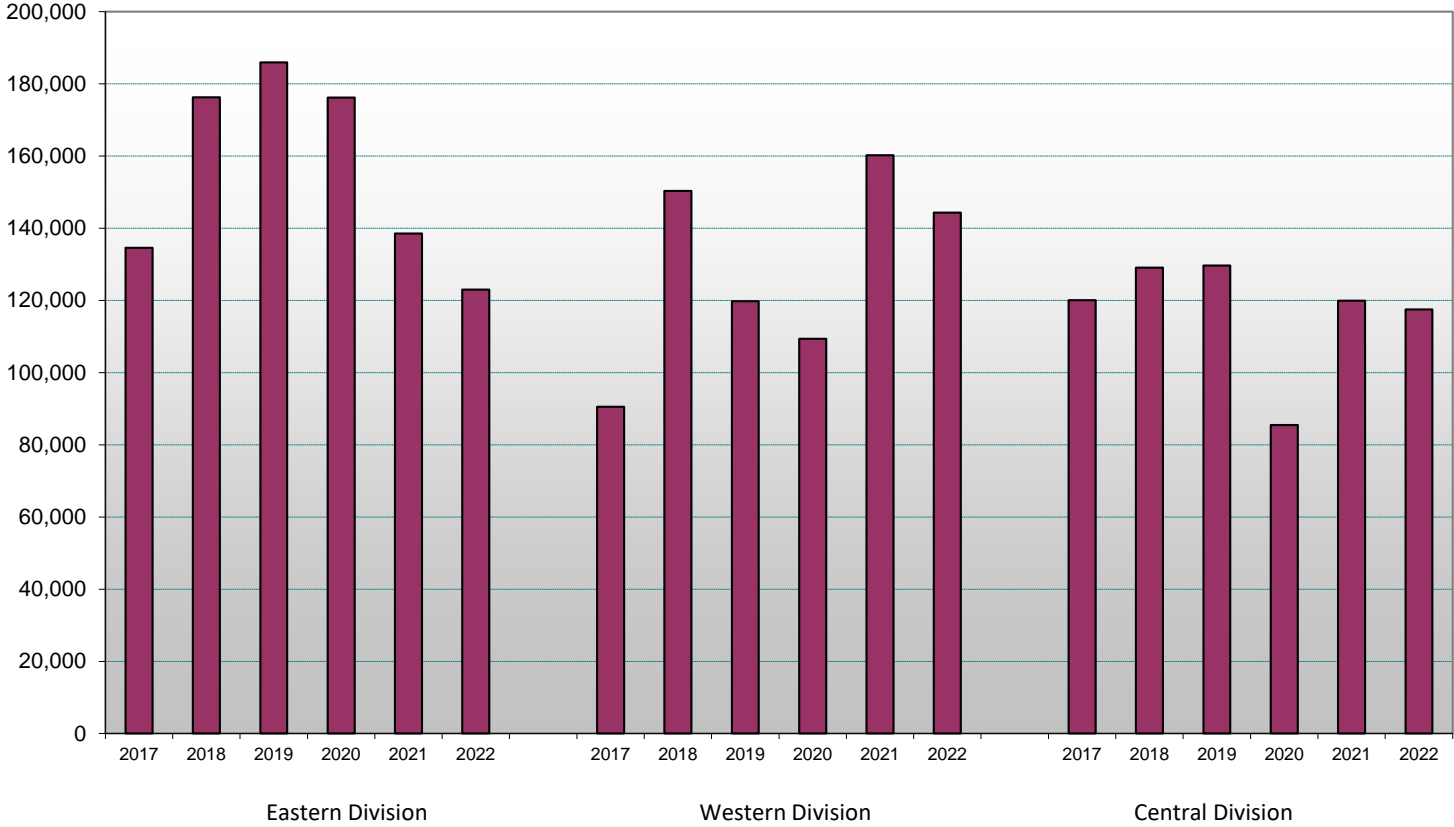


Includes Partial Powers, Single No Lights
Excludes Storm Activity

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Figure 2.6 - Customer-Hours of Interruption

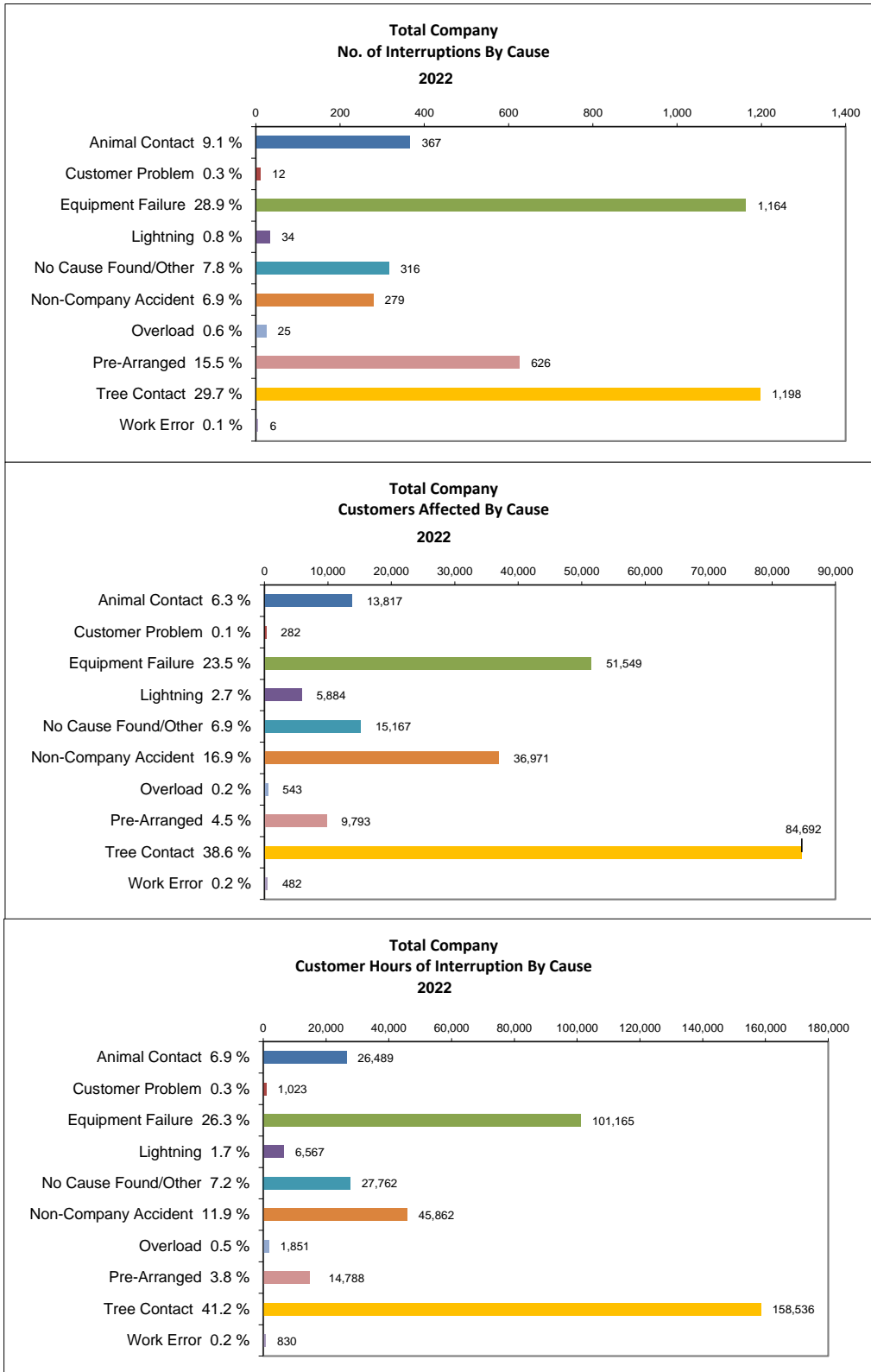
Orange and Rockland Utilities Customer-Hours of Interruption



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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Figure 2.7 - Outage Statistics by Cause



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TABLE 2.2 – 5-YEAR NEW YORK EQUIPMENT FAILURES BY TYPE AND FAILURE CODE

| | | Number of Interruptions By Year | | | | | | |
|--------------------|---------------------------------|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | 2017 | 2018 | 2019 | 2020 | 2021 | 5-Yr Ave | 2022 |
| Outage Type | Equipment | | | | | | | |
| Overhead | Arrester | 21 | 18 | 8 | 14 | 15 | 15 | 10 |
| | Capacitor | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Connector/Splice - Pri | 57 | 65 | 64 | 74 | 65 | 65 | 72 |
| | Connector/Splice - Sec | 225 | 340 | 278 | 207 | 215 | 253 | 227 |
| | Disconnect | 0 | 5 | 0 | 0 | 3 | 2 | 0 |
| | Elbow | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | Electric Meter | 10 | 7 | 8 | 11 | 9 | 9 | 13 |
| | Fuse/Cutout/Eld | 65 | 56 | 69 | 40 | 35 | 53 | 50 |
| | GOAB | 0 | 2 | 3 | 2 | 0 | 1 | 2 |
| | Hardware/Pole | 63 | 75 | 47 | 56 | 60 | 60 | 78 |
| | Insulator | 6 | 3 | 4 | 3 | 2 | 4 | 3 |
| | Not Coded | 10 | 12 | 0 | 0 | 0 | 4 | 0 |
| | O/H Step Transf | 2 | 11 | 6 | 5 | 15 | 8 | 6 |
| | O/H Transformer | 157 | 177 | 161 | 157 | 164 | 163 | 179 |
| | Recloser | 0 | 5 | 1 | 2 | 1 | 2 | 0 |
| | Regulator | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Riser Pole Cutout | 9 | 20 | 5 | 22 | 24 | 16 | 22 |
| | Splice/Junction - Sec | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| Wire/Cable - Pri | 82 | 62 | 66 | 130 | 122 | 92 | 62 | |
| Wire/Cable - Sec | 84 | 103 | 92 | 138 | 136 | 111 | 100 | |
| | Total - OH | 792 | 962 | 813 | 862 | 868 | 859 | 825 |
| Trans/Substa | Brkr/Kyle/Switch | 7 | 4 | 15 | 13 | 1 | 8 | 3 |
| | Buss | 0 | 5 | 0 | 0 | 0 | 1 | 0 |
| | Cable | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| | Hardware/Pole/Tower | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | Insulator | 0 | 0 | 4 | 0 | 8 | 2 | 0 |
| | Not Coded | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| | Regulator | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | Transformer | 0 | 1 | 0 | 1 | 3 | 1 | 2 |
| | Total - Trans/Substation | 7 | 11 | 19 | 15 | 14 | 13 | 7 |
| Underground | Arrester | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| | Boxpad/Silo/Vault | 2 | 3 | 0 | 1 | 3 | 2 | 1 |
| | Bushing | 0 | 2 | 0 | 1 | 0 | 1 | 1 |
| | Connector/Splice - Pri | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Connector/Splice - Sec | 1 | 15 | 0 | 0 | 0 | 3 | 0 |
| | Elbow | 6 | 9 | 8 | 5 | 7 | 7 | 7 |
| | Fuse/Cutout/Eld | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Hardware/Pole | 0 | 5 | 0 | 4 | 2 | 2 | 5 |
| | Not Coded | 3 | 3 | 0 | 0 | 0 | 1 | 0 |
| | O/H Transformer | 0 | 3 | 1 | 0 | 0 | 1 | 0 |
| | Padmount Transf | 74 | 88 | 117 | 127 | 112 | 104 | 111 |
| | Splice/Junction - Pri | 1 | 5 | 7 | 3 | 2 | 4 | 1 |
| | Splice/Junction - Sec | 31 | 34 | 36 | 20 | 40 | 32 | 20 |
| | Stress Cone | 12 | 3 | 8 | 11 | 7 | 8 | 6 |
| | Submersible Transf | 0 | 2 | 0 | 0 | 0 | 0 | 1 |
| | Switch | 1 | 5 | 0 | 0 | 2 | 2 | 0 |
| Wire/Cable - Pri | 81 | 54 | 66 | 68 | 89 | 72 | 97 | |
| Wire/Cable - Sec | 46 | 83 | 61 | 35 | 67 | 58 | 82 | |
| | Total - UG | 258 | 316 | 305 | 276 | 331 | 297 | 332 |
| | Total - Year | 1,057 | 1,289 | 1,137 | 1,153 | 1,213 | 1,170 | 1,164 |

Note: Figures in red denote that the value exceeds the 5-year average

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TABLE 2.2 – 5-YEAR NEW YORK EQUIPMENT FAILURES BY TYPE AND FAILURE CODE (CONT.)

| Outage Type | Equipment | Customers Affected By Year | | | | | | |
|---------------------------------|------------------------|----------------------------|---------------|---------------|---------------|---------------|---------------|--------|
| | | 2017 | 2018 | 2019 | 2020 | 2021 | 5-Yr Ave | 2022 |
| Overhead | Arrester | 364 | 540 | 632 | 3,421 | 379 | 1,067 | 1,527 |
| | Capacitor | 0 | 35 | 0 | 0 | 0 | 7 | 0 |
| | Connector/Splice - Pri | 1,253 | 2,192 | 10,965 | 2,470 | 3,457 | 4,067 | 3,425 |
| | Connector/Splice - Sec | 511 | 671 | 546 | 451 | 503 | 536 | 664 |
| | Disconnect | 0 | 6,270 | 0 | 0 | 2,142 | 1,682 | 0 |
| | Elbow | 0 | 0 | 0 | 4 | 0 | 1 | 0 |
| | Electric Meter | 11 | 11 | 8 | 12 | 10 | 10 | 29 |
| | Fuse/Cutout/Eld | 1,804 | 1,837 | 3,389 | 4,223 | 962 | 2,443 | 2,076 |
| | GOAB | 0 | 2,747 | 3,095 | 453 | 0 | 1,259 | 1,402 |
| | Hardware/Pole | 9,846 | 11,600 | 9,326 | 13,619 | 7,291 | 10,336 | 11,528 |
| | Insulator | 255 | 48 | 1,887 | 83 | 246 | 504 | 1,284 |
| | Not Coded | 308 | 2,641 | 0 | 0 | 0 | 590 | 0 |
| | O/H Step Transf | 326 | 984 | 835 | 788 | 1,221 | 831 | 239 |
| | O/H Transformer | 6,045 | 3,932 | 2,070 | 1,709 | 6,465 | 4,044 | 5,396 |
| | Recloser | 0 | 4,916 | 1,231 | 252 | 847 | 1,449 | 0 |
| | Regulator | 482 | 0 | 45 | 0 | 0 | 105 | 146 |
| | Riser Pole Cutout | 266 | 765 | 89 | 413 | 655 | 438 | 287 |
| | Splice/Junction - Sec | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| | Wire/Cable - Pri | 17,290 | 21,681 | 19,189 | 35,329 | 31,325 | 24,963 | 11,895 |
| Wire/Cable - Sec | 310 | 1,278 | 632 | 604 | 894 | 744 | 1,498 | |
| Total - OH | 39,071 | 62,148 | 53,939 | 63,831 | 56,399 | 55,078 | 41,396 | |
| Trans/Substa | Brkr/Kyle/Switch | 3,593 | 4,318 | 18,812 | 5,965 | 573 | 6,652 | 1,384 |
| | Buss | 0 | 6,778 | 0 | 0 | 0 | 1,356 | 0 |
| | Cable | 0 | 0 | 0 | 0 | 326 | 65 | 0 |
| | Hardware/Pole/Tower | 0 | 0 | 0 | 0 | 0 | 0 | 304 |
| | Insulator | 0 | 0 | 1,931 | 0 | 8,492 | 2,085 | 0 |
| | Not Coded | 0 | 1,263 | 0 | 0 | 305 | 314 | 0 |
| | Regulator | 0 | 0 | 0 | 301 | 0 | 60 | 0 |
| | Transformer | 0 | 1,146 | 0 | 699 | 419 | 453 | 1,354 |
| Total - Trans/Substation | 3,593 | 13,505 | 20,743 | 6,965 | 10,115 | 10,984 | 3,042 | |
| Underground | Arrester | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| | Boxpad/Silo/Vault | 208 | 4 | 0 | 3 | 84 | 60 | 22 |
| | Bushing | 0 | 71 | 0 | 19 | 0 | 18 | 6 |
| | Connector/Splice - Pri | 0 | 4 | 0 | 0 | 0 | 1 | 0 |
| | Connector/Splice - Sec | 1 | 44 | 0 | 0 | 0 | 9 | 0 |
| | Elbow | 393 | 1,661 | 405 | 387 | 450 | 659 | 203 |
| | Fuse/Cutout/Eld | 0 | 54 | 0 | 0 | 0 | 11 | 0 |
| | Hardware/Pole | 0 | 57 | 0 | 152 | 186 | 79 | 208 |
| | Not Coded | 14 | 65 | 0 | 0 | 0 | 16 | 0 |
| | O/H Transformer | 0 | 19 | 9 | 0 | 0 | 6 | 0 |
| | Padmount Transf | 1,004 | 961 | 1,667 | 1,797 | 1,975 | 1,481 | 1,187 |
| | Splice/Junction - Pri | 1 | 131 | 378 | 119 | 40 | 134 | 43 |
| | Splice/Junction - Sec | 82 | 57 | 105 | 37 | 164 | 89 | 29 |
| | Stress Cone | 127 | 39 | 79 | 59 | 535 | 168 | 210 |
| | Submersible Transf | 0 | 10 | 0 | 0 | 0 | 2 | 1 |
| | Switch | 27 | 192 | 0 | 0 | 11 | 46 | 0 |
| | Wire/Cable - Pri | 3,208 | 1,743 | 1,995 | 2,422 | 3,873 | 2,648 | 6,002 |
| Wire/Cable - Sec | 69 | 238 | 204 | 1,943 | 205 | 532 | 154 | |
| Total - UG | 5,134 | 5,350 | 4,843 | 6,939 | 7,523 | 5,958 | 8,065 | |
| Total - Year | 47,798 | 81,003 | 79,525 | 77,735 | 74,037 | 72,020 | 52,503 | |

Note: Figures in red denote that the value exceeds the 5-year average

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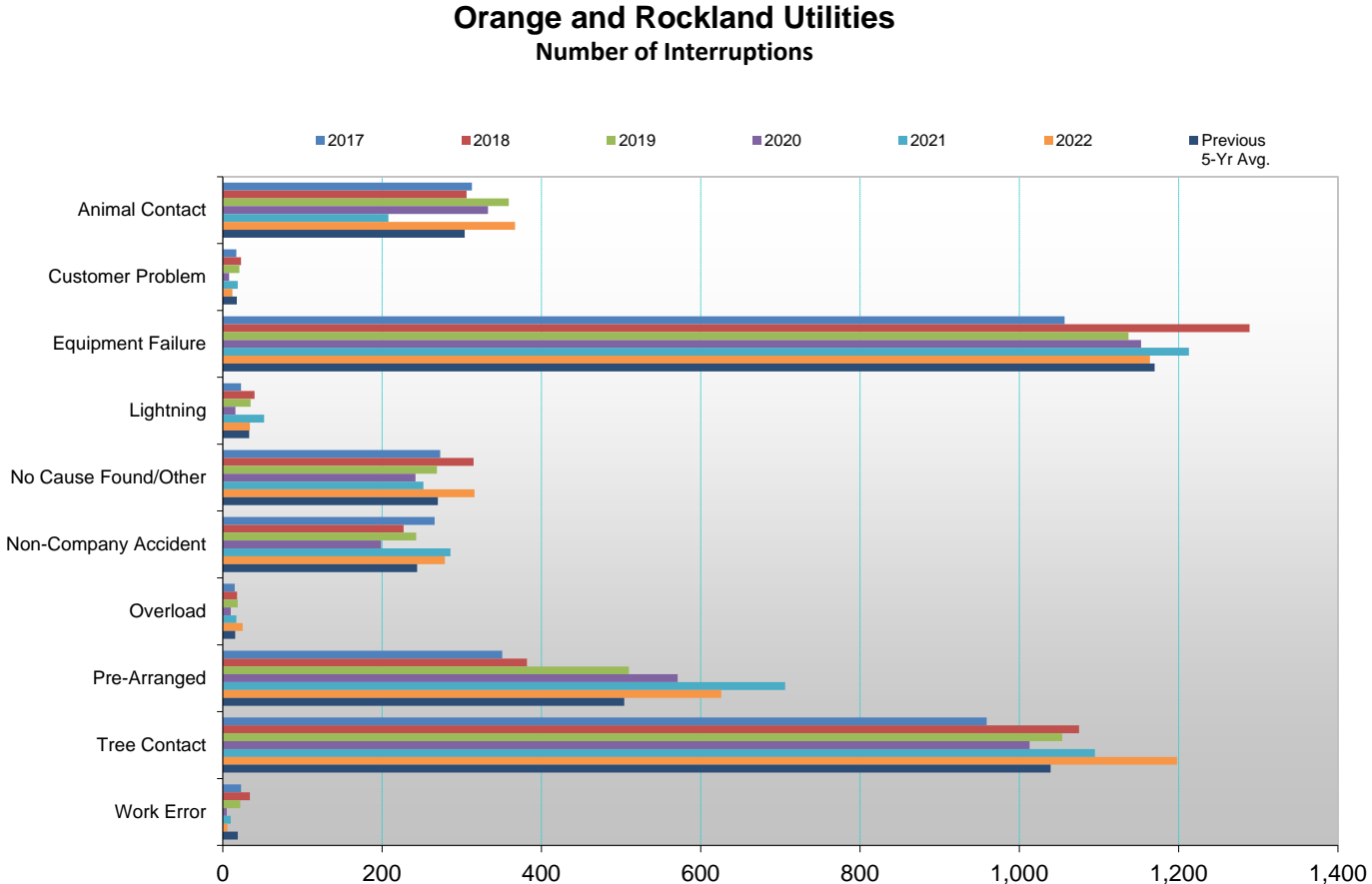
TABLE 2.2 – 5-YEAR NEW YORK EQUIPMENT FAILURES BY TYPE AND FAILURE CODE (CONT.)

| Outage Type | Equipment | Total Minutes of Interruption By Year | | | | | | |
|---------------------|---------------------------------|---------------------------------------|------------------|------------------|------------------|------------------|------------------|----------------|
| | | 2017 | 2018 | 2019 | 2020 | 2021 | 5-Yr Ave | 2022 |
| Overhead | Arrester | 32,425 | 104,179 | 54,898 | 407,821 | 70,458 | 133,956 | 106,784 |
| | Capacitor | 0 | 1,400 | 0 | 0 | 0 | 280 | 0 |
| | Connector/Splice - Pri | 149,734 | 265,982 | 844,490 | 208,961 | 200,562 | 333,946 | 330,709 |
| | Connector/Splice - Sec | 88,641 | 142,187 | 112,645 | 96,337 | 83,779 | 104,718 | 103,499 |
| | Disconnect | 0 | 207,966 | 0 | 0 | 23,933 | 46,380 | 0 |
| | Elbow | 0 | 0 | 0 | 1,684 | 0 | 337 | 0 |
| | Electric Meter | 2,245 | 1,958 | 2,769 | 4,624 | 2,104 | 2,740 | 4,556 |
| | Fuse/Cutout/Eld | 168,490 | 150,491 | 217,152 | 183,614 | 138,504 | 171,650 | 110,927 |
| | GOAB | 0 | 95,683 | 225,011 | 18,574 | 0 | 67,854 | 20,954 |
| | Hardware/Pole | 866,992 | 1,372,189 | 399,841 | 851,293 | 577,951 | 813,653 | 709,613 |
| | Insulator | 26,753 | 7,125 | 200,985 | 8,655 | 22,485 | 53,201 | 74,524 |
| | Not Coded | 14,707 | 30,117 | 0 | 0 | 0 | 8,965 | 0 |
| | O/H Step Transf | 14,293 | 267,959 | 241,697 | 75,145 | 290,710 | 177,961 | 83,198 |
| | O/H Transformer | 431,396 | 576,195 | 390,994 | 317,594 | 1,092,465 | 561,729 | 381,096 |
| | Recloser | 0 | 264,080 | 17,234 | 16,627 | 11,633 | 61,915 | 0 |
| | Regulator | 2,410 | 0 | 7,200 | 0 | 0 | 1,922 | 1,314 |
| | Riser Pole Cutout | 28,733 | 186,564 | 25,097 | 117,152 | 34,686 | 78,446 | 36,097 |
| | Splice/Junction - Sec | 0 | 0 | 0 | 0 | 531 | 106 | 0 |
| | Wire/Cable - Pri | 1,347,172 | 1,989,480 | 2,038,045 | 2,781,064 | 2,200,178 | 2,071,188 | 1,377,331 |
| | Wire/Cable - Sec | 43,132 | 252,443 | 127,609 | 81,626 | 90,188 | 119,000 | 75,607 |
| Total - OH | 3,217,123 | 5,915,998 | 4,905,667 | 5,170,771 | 4,840,167 | 4,809,945 | 3,416,209 | |
| Trans/Substa | Brkr/Kyle/Switch | 154,511 | 424,777 | 2,372,437 | 343,560 | 4,584 | 659,974 | 111,651 |
| | Buss | 0 | 339,554 | 0 | 0 | 0 | 67,911 | 0 |
| | Cable | 0 | 0 | 0 | 0 | 20,375 | 4,075 | 0 |
| | Hardware/Pole/Tower | 0 | 0 | 0 | 0 | 0 | 0 | 3,521 |
| | Insulator | 0 | 0 | 145,637 | 0 | 154,422 | 60,012 | 0 |
| | Not Coded | 0 | 144,812 | 0 | 0 | 49,410 | 38,844 | 0 |
| | Regulator | 0 | 0 | 0 | 38,227 | 0 | 7,645 | 0 |
| | Transformer | 0 | 101,994 | 0 | 67,977 | 19,705 | 37,935 | 512,849 |
| | Total - Trans/Substation | 154,511 | 1,011,137 | 2,518,074 | 449,764 | 248,496 | 876,396 | 628,021 |
| Underground | Arrester | 0 | 0 | 298 | 452 | 0 | 150 | 0 |
| | Boxpad/Silo/Vault | 8,034 | 433 | 0 | 2,027 | 20,980 | 6,295 | 2,618 |
| | Bushing | 0 | 16,754 | 0 | 4,719 | 0 | 4,295 | 2,688 |
| | Connector/Splice - Pri | 0 | 348 | 0 | 0 | 0 | 70 | 0 |
| | Connector/Splice - Sec | 337 | 24,234 | 0 | 0 | 0 | 4,914 | 0 |
| | Elbow | 97,268 | 375,608 | 103,607 | 158,568 | 161,875 | 179,385 | 50,165 |
| | Fuse/Cutout/Eld | 0 | 13,122 | 0 | 0 | 0 | 2,624 | 0 |
| | Hardware/Pole | 0 | 10,581 | 0 | 61,962 | 35,298 | 21,568 | 38,016 |
| | Not Coded | 5,314 | 23,413 | 0 | 0 | 0 | 5,745 | 0 |
| | O/H Transformer | 0 | 2,262 | 891 | 0 | 0 | 631 | 0 |
| | Padmount Transf | 175,235 | 277,832 | 369,612 | 384,225 | 258,310 | 293,043 | 352,605 |
| | Splice/Junction - Pri | 124 | 53,027 | 75,344 | 61,671 | 19,020 | 41,837 | 17,243 |
| | Splice/Junction - Sec | 27,234 | 28,066 | 30,387 | 10,420 | 37,895 | 26,800 | 8,555 |
| | Stress Cone | 34,998 | 2,778 | 28,121 | 12,959 | 113,515 | 38,474 | 37,689 |
| | Submersible Transf | 0 | 7,005 | 0 | 0 | 0 | 1,401 | 226 |
| | Switch | 11,475 | 48,300 | 0 | 0 | 2,579 | 12,471 | 0 |
| | Wire/Cable - Pri | 790,697 | 658,079 | 684,352 | 777,337 | 1,124,413 | 806,976 | 1,459,416 |
| | Wire/Cable - Sec | 42,251 | 118,659 | 90,724 | 93,137 | 81,779 | 85,310 | 56,462 |
| Total - UG | 1,192,967 | 1,660,501 | 1,383,336 | 1,567,477 | 1,855,664 | 1,531,989 | 2,025,683 | |
| Total - Year | 4,564,601 | 8,587,636 | 8,807,077 | 7,188,012 | 6,944,327 | 7,218,330 | 6,069,913 | |

Note: Figures in red denote that the value exceeds the 5-year average

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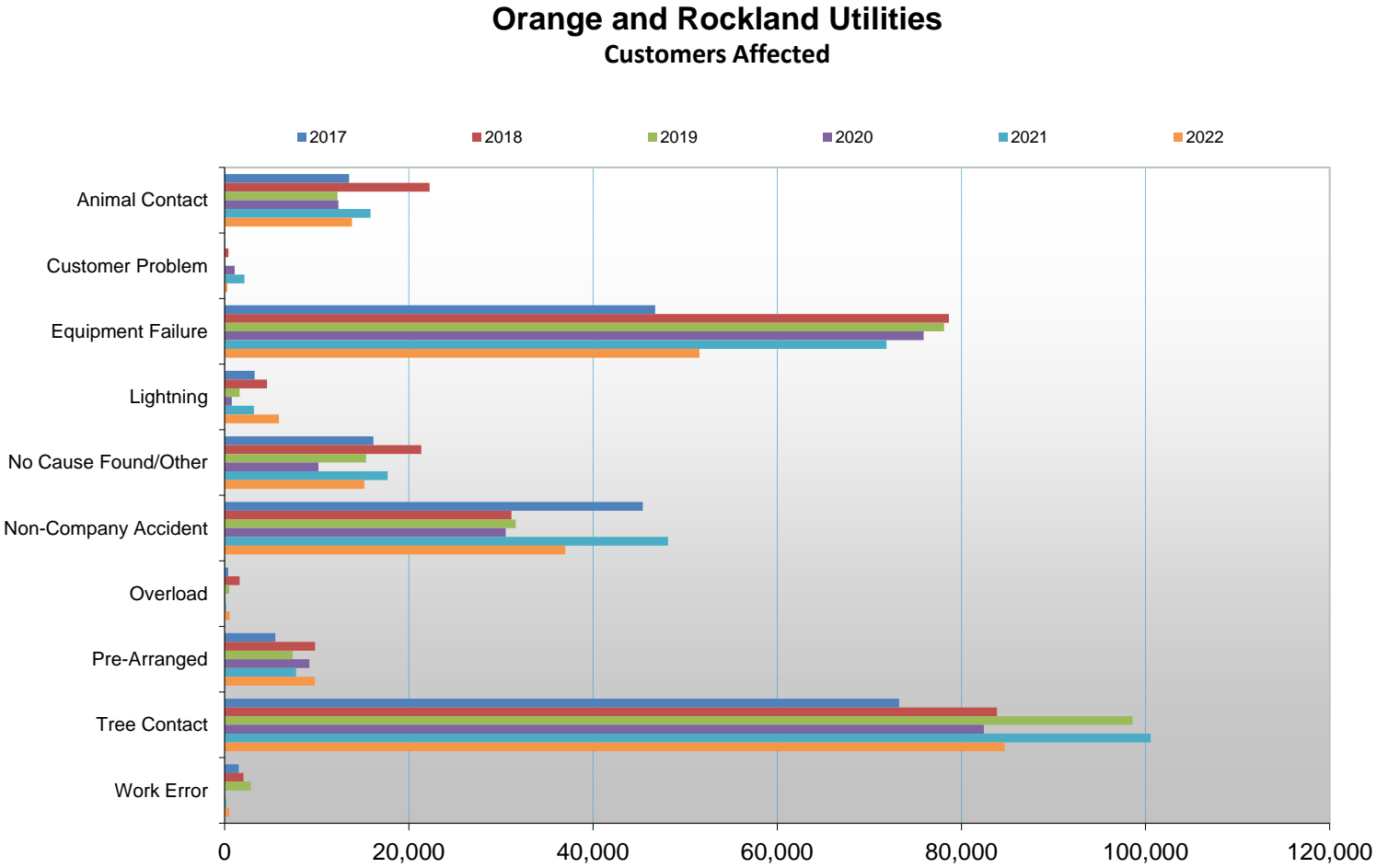
Figure 2.8 - 5-Year Comparison – Number of Interruptions by Cause



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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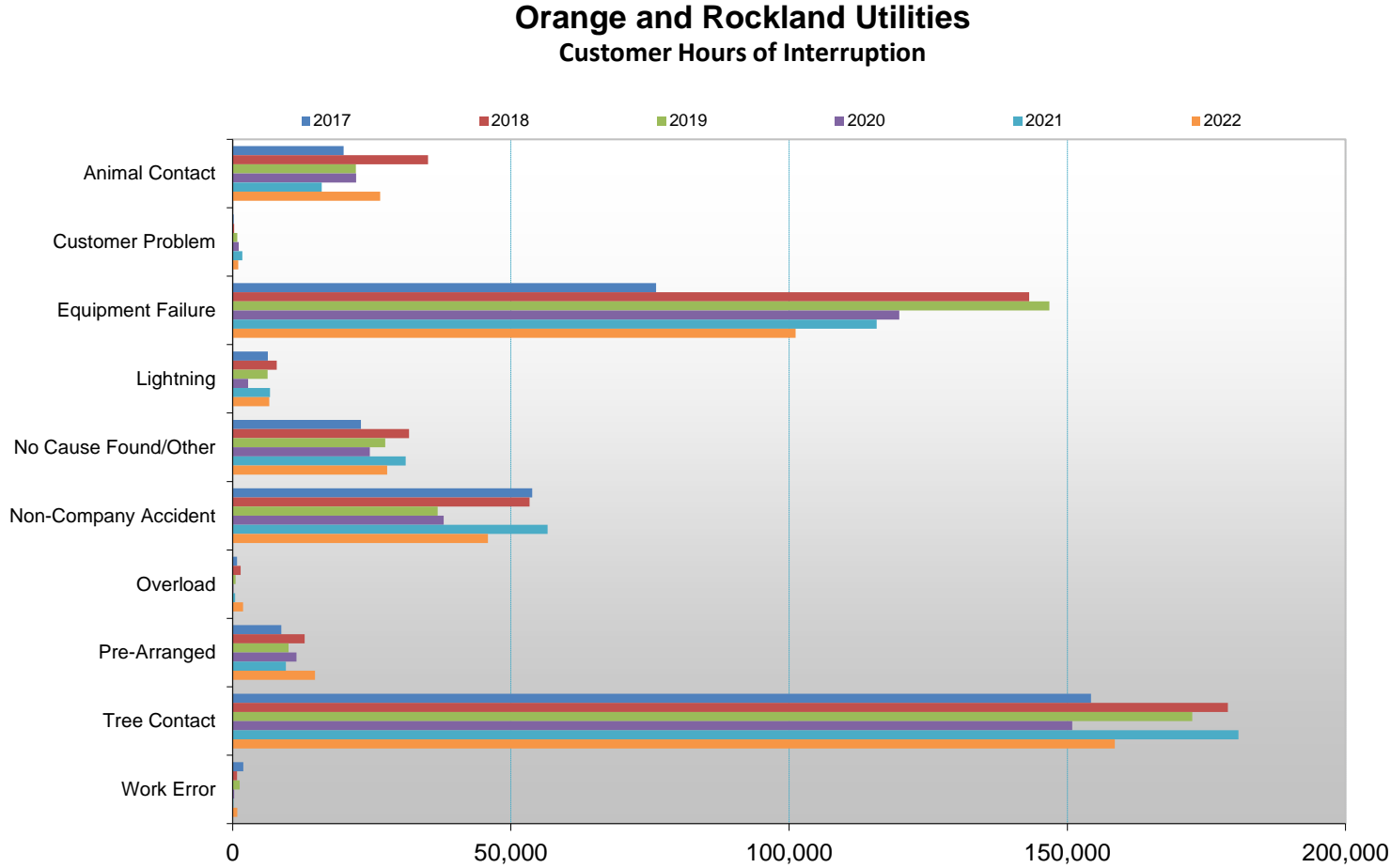
Figure 2.9 - 5-Year Comparison – Customers Affected by Cause



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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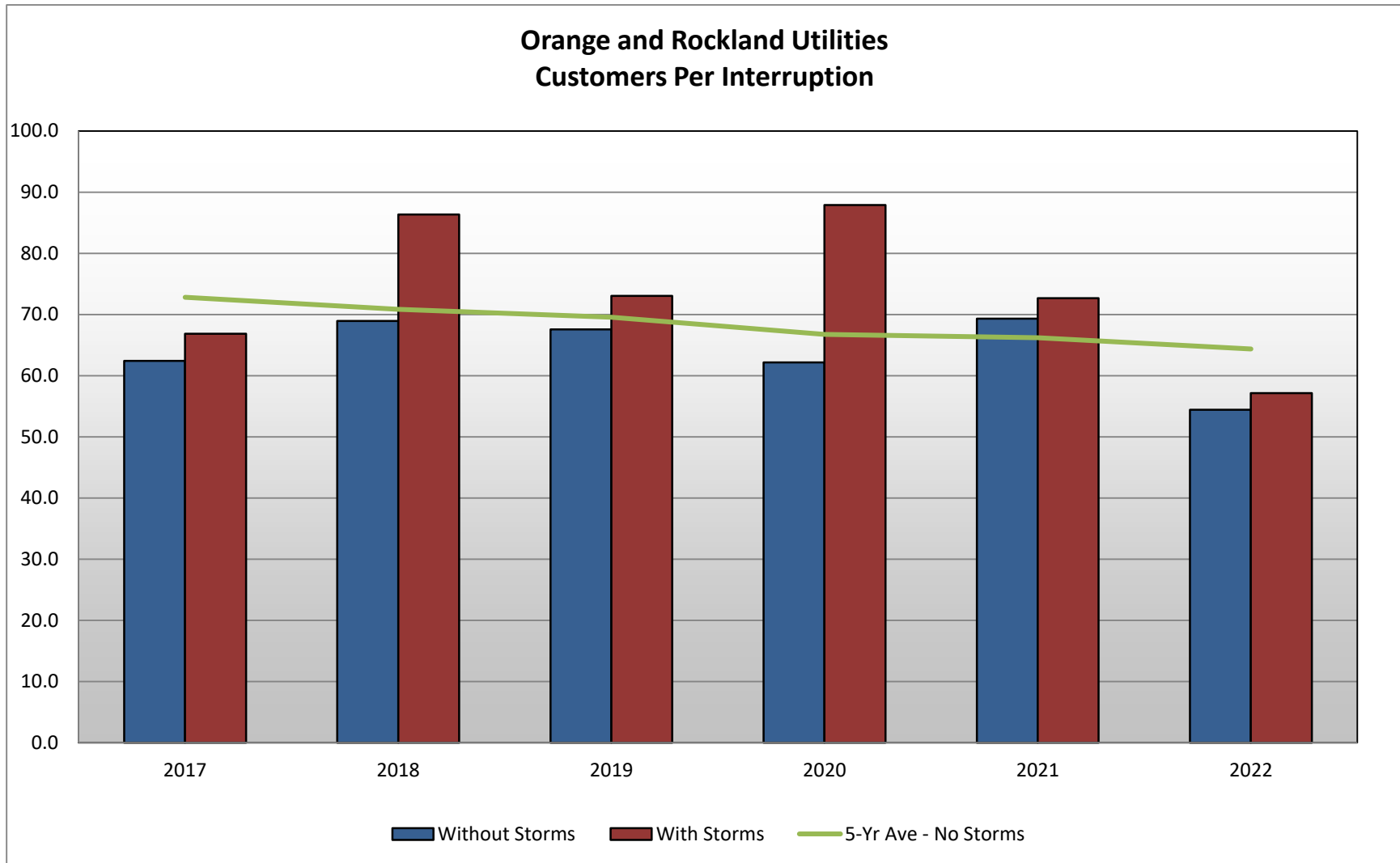
Figure 2.10 - 5-Year Comparison - Customer Hours of Interruption by Major Cause



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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Figure 2.11 - 5-Year Comparison - Customers per Interruption (With/Without Storm)



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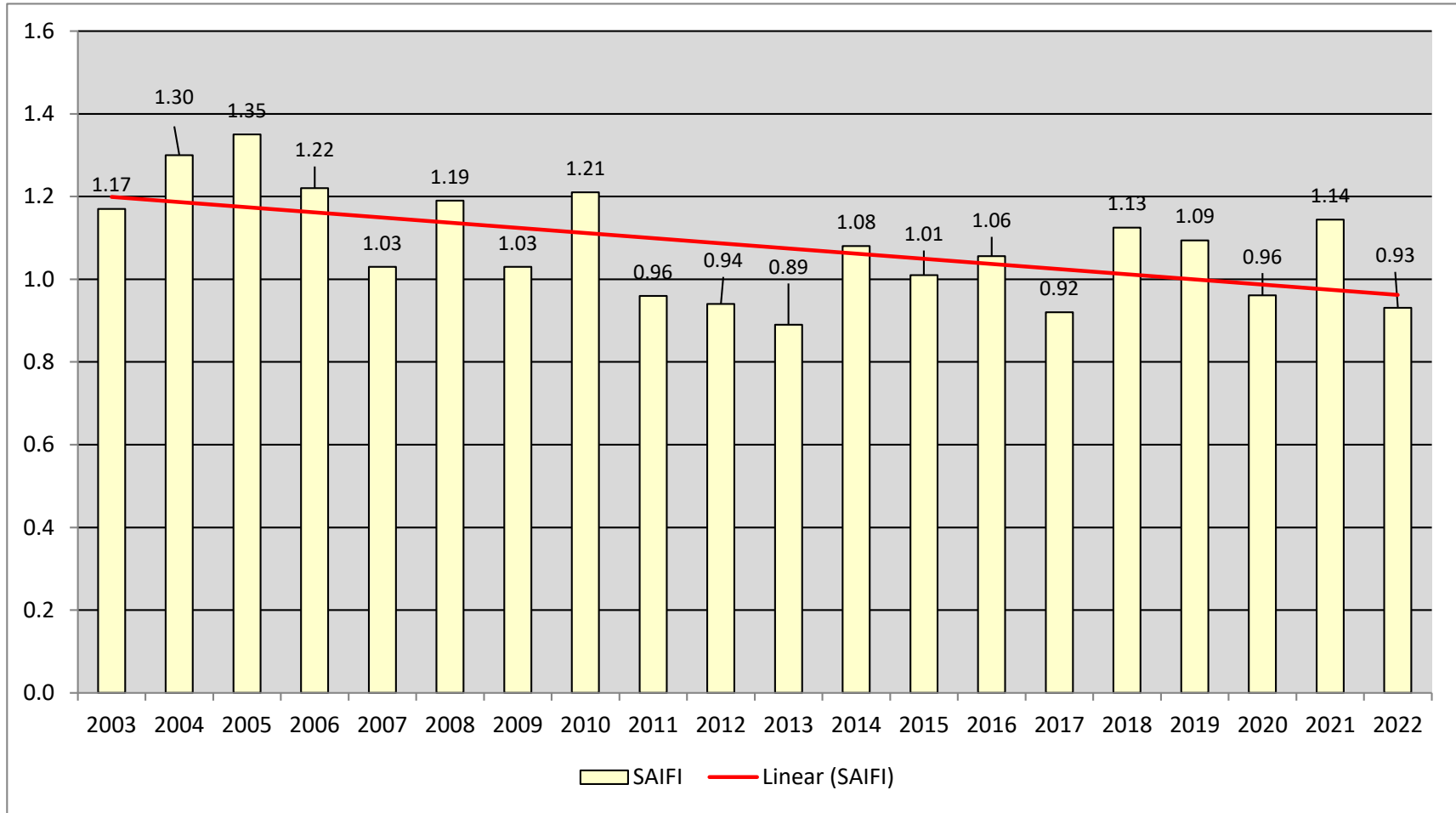
TABLE 2.3 - 5-Yr COMPARISON – LARGE OUTAGE IMPACT ON SAIFI, CAIDI & SAIDI

Company Without Storms
Effect of Interruptions Affecting 5,000 or more Customers

| YEAR | CUSTOMERS SERVED (CS) | # OF INTERRUPTIONS | CUSTOMERS AFFECTED (CA) | CUSTOMER MINUTES OF INTERRUPTION (CM) | FREQUENCY (CA/CS) | RESTORATION (CM/CA) | DURATION (CM/CS) |
|---|-----------------------|--------------------|-------------------------|---------------------------------------|-------------------|---------------------|------------------|
| WITHOUT STORMS | | | | | | | |
| 2017 | 224,402 | 3,297 | 205,774 | 20,707,829 | 0.92 | 1.68 | 1.54 |
| 2018 | 227,222 | 3,705 | 255,641 | 27,341,380 | 1.13 | 1.78 | 2.01 |
| 2019 | 229,181 | 3,712 | 250,784 | 26,127,693 | 1.09 | 1.74 | 1.90 |
| 2020 | 231,512 | 3,546 | 222,505 | 22,264,954 | 0.96 | 1.67 | 1.60 |
| 2021 | <u>233,903</u> | <u>3,858</u> | <u>267,493</u> | <u>25,121,815</u> | <u>1.14</u> | <u>1.57</u> | <u>1.79</u> |
| 5-Yr Average | 229,244 | 3,624 | 240,439 | 24,312,734 | 1.05 | 1.69 | 1.77 |
| 2022 | 235,319 | 4,027 | 219,180 | 23,092,388 | 0.93 | 1.76 | 1.64 |
| WITHOUT STORMS - OUTAGES AFFECTING > 5000 CUSTOMERS | | | | | | | |
| YEAR | SERVED | INTERR's | CUST AFF | CUST MIN | | | |
| 2017 | 224,402 | 2 | 10,998 | 893,520 | | | |
| 2018 | 227,222 | 1 | 6,403 | 357,472 | | | |
| 2019 | 229,181 | 1 | 5,753 | 3,884 | | | |
| 2020 | 231,512 | - | - | - | | | |
| 2021 | <u>233,903</u> | <u>1</u> | <u>8,492</u> | <u>154,422</u> | | | |
| 5-Yr Average | 229,244 | 1.00 | 6,329 | 281,860 | | | |
| 2022 | 235,319 | - | - | - | | | |
| WITHOUT STORMS AND WITHOUT THOSE OUTAGES AFFECTING > 5000 CUSTOMERS | | | | | | | |
| YEAR | SERVED | INTERR's | CUST AFF | CUST MIN | | | |
| 2017 | 224,402 | 3,295 | 194,776 | 19,814,309 | 0.87 | 1.70 | 1.47 |
| 2018 | 227,222 | 3,704 | 249,238 | 26,983,908 | 1.10 | 1.80 | 1.98 |
| 2019 | 229,181 | 3,711 | 245,031 | 26,123,809 | 1.07 | 1.78 | 1.90 |
| 2020 | 231,512 | 3,546 | 222,505 | 22,264,954 | 0.96 | 1.67 | 1.60 |
| 2021 | <u>233,903</u> | <u>3,857</u> | <u>259,001</u> | <u>24,967,393</u> | <u>1.11</u> | <u>1.61</u> | <u>1.78</u> |
| 5-Yr Average | 229,244 | 3,623 | 234,110 | 24,030,875 | 1.02 | 1.71 | 1.75 |
| 2022 | 235,319 | 4,027 | 219,180 | 23,092,388 | 0.93 | 1.76 | 1.64 |

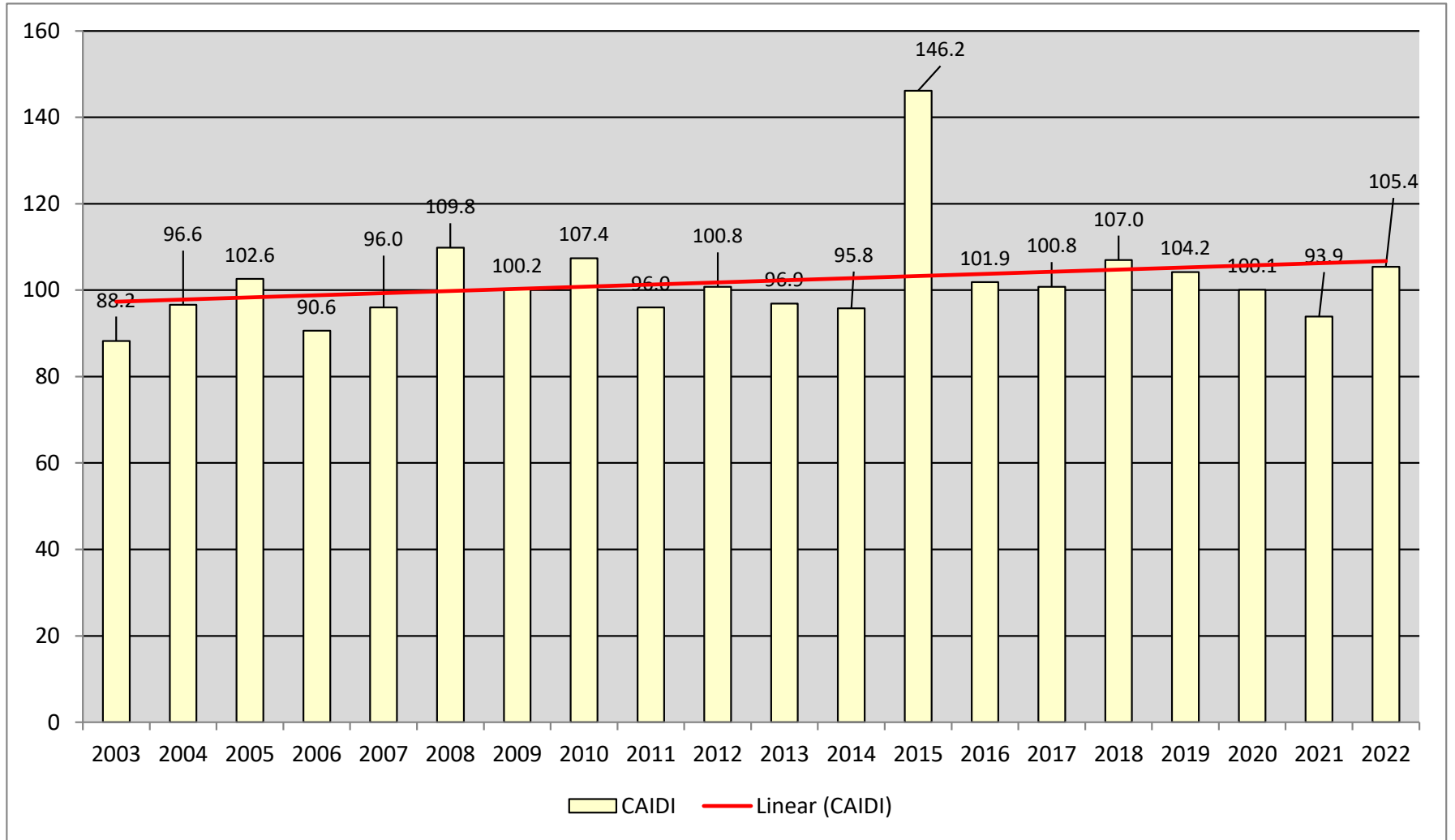
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Figure 2.12 – 20-Year SAIFI Trend



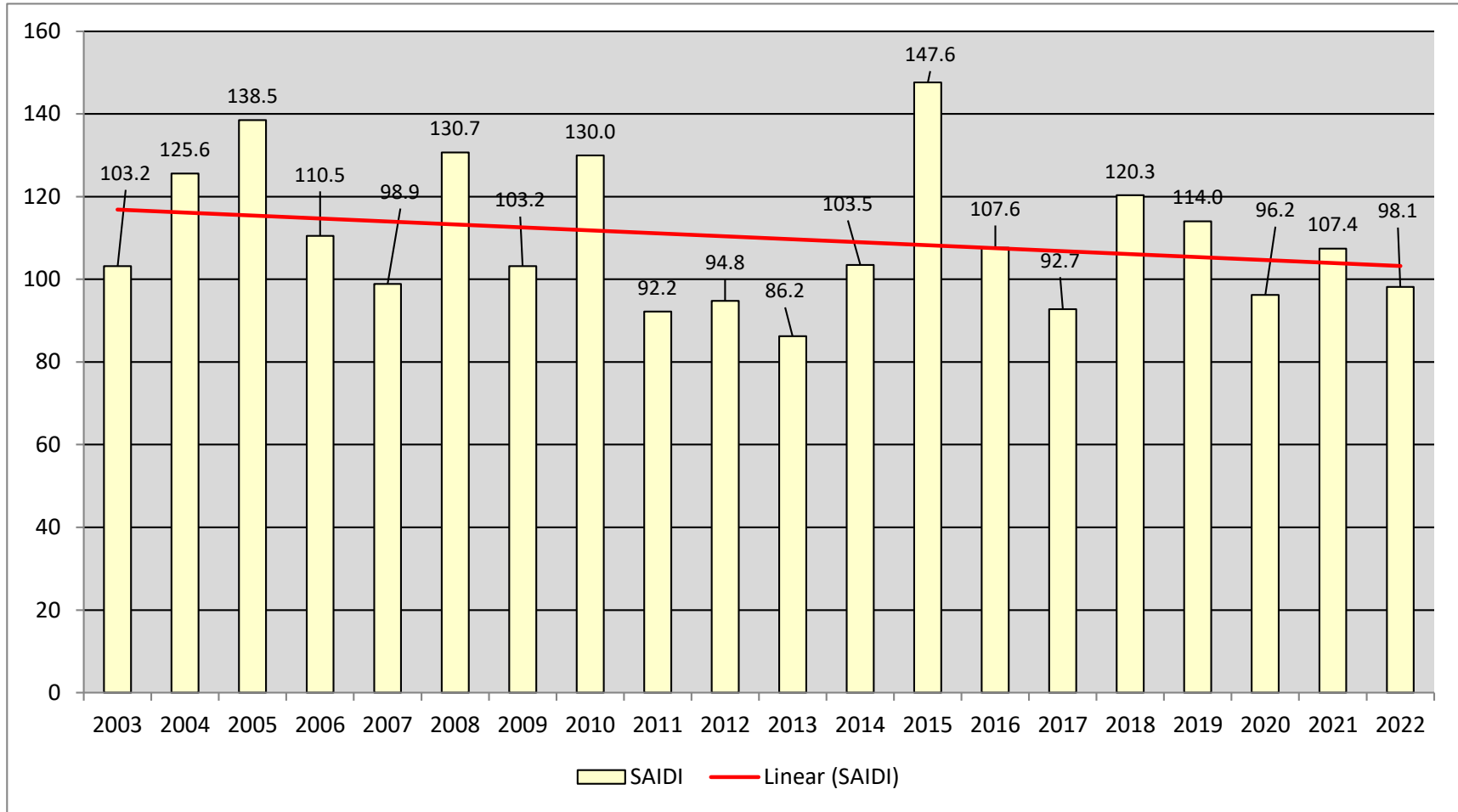
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Figure 2.13 – 20-Year CAIDI Trend



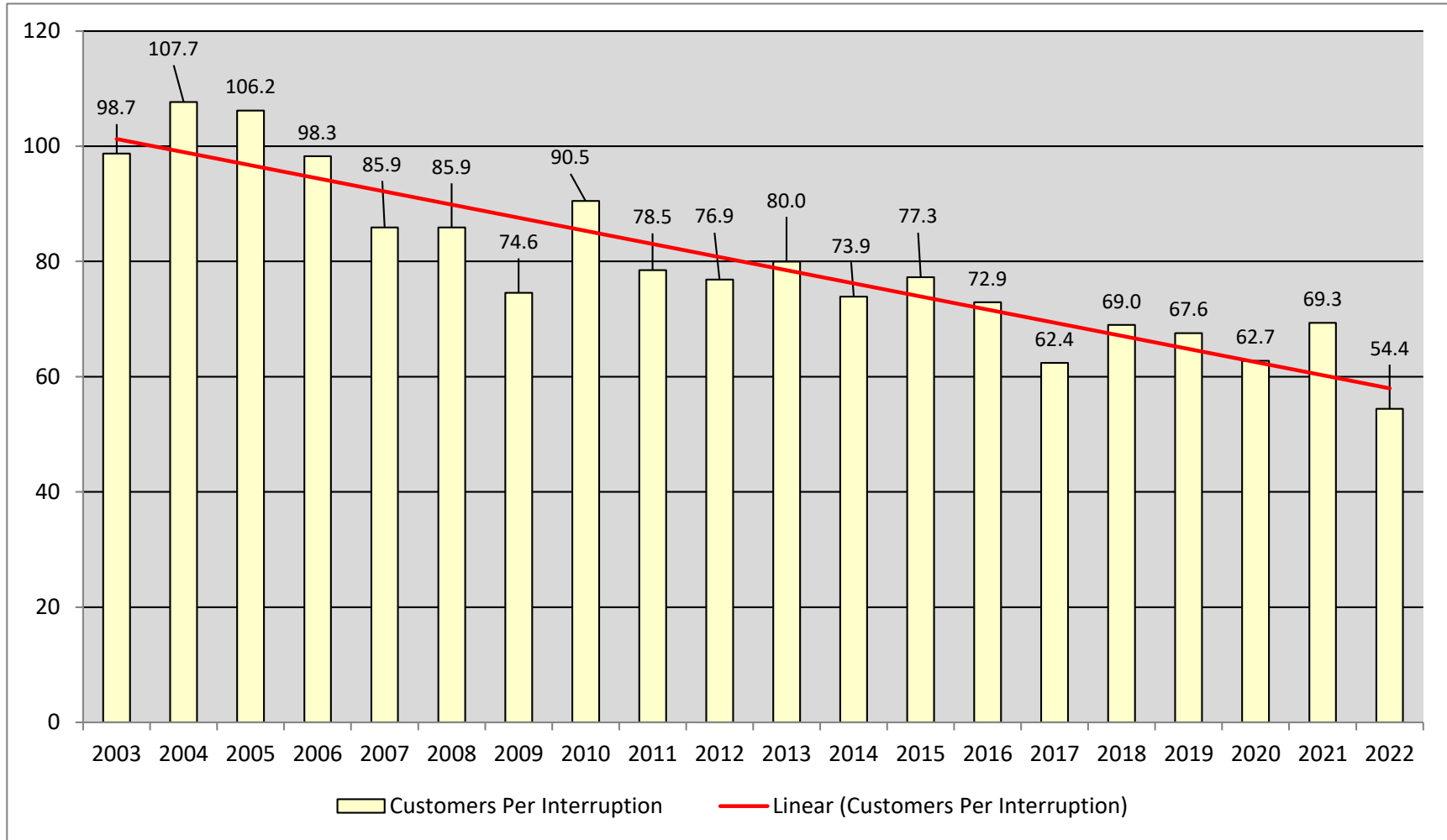
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Figure 2.14 – 20-Year SAIDI Trend



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Figure 2.15 – 20-Year Customers per Interruption Trend



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3. EASTERN DIVISION

3.1. 2022 Divisional Performance

In 2022, the year-end frequency for the Eastern Division was 0.69 customers affected per customer served. This performance was better than the Division's 2021 performance of 0.78, the previous five-year average of 0.85, and the NYPSC standard of 1.20. The 82,493 customers affected during the year was the lowest total since 2015 when 73,420 customers were affected. The year-end restoration of 1.49 customer hours of interruption per customer-affected was slightly better than the Division's 1.50 performance in 2021 and the divisional standard of 1.50, as well as the previous five-year average of 1.63. The performance of these indices on a monthly basis, from 2017 through 2022, is shown in [Table 3-1](#).

[Figures 3-1, 3-2, and 3-3](#), show performance trends, on a rolling 12-month basis, from 2017 through 2022. The rolling 12-monthly number of interruptions that had an upward trend between 2015 and 2019, took a downward turn in 2020 and 2021, then took a slight upward turn in 2022 but was still lower than 2020. Excludable days during the year did not have any impact on 2022 Eastern Division numbers because there were two excludable days as a result of weather events of which none affected the Eastern Division. This result was in contrast to 2021's six excludable days, and the lowest in the past 11 years since records have been kept.

The rolling 12-month average number of customers affected was the lowest since 2015 after the previous two years of increasing numbers and was lower than the previous five-year high that was reached at the end of 2016 by almost 31,000 customers. Likewise, in December 2022, the customer hours of interruption were lower than the previous 12-month low established in August 2017. A review of the daily outage data shows that in 2022, the customer hours of interruption have been trending down from January to December.

[Figure 3-4](#) shows a summary, by cause, for the number of interruptions, customers affected, and the customer hours of interruption experienced in 2022. The two major causes of interruptions were equipment failures and tree contacts, consistent with historical norms. The reporting of partial power and single customer interruptions greatly contributes to the number of interruptions for these two cause codes. Of the 413 interruptions in the tree contact category, 118 (28%) were attributable to partial power or single customer conditions. Of the 622 interruptions in the equipment failure category, 231 (37%) were attributable to partial power or single customer conditions. Both of these results were down from 2021 results and were consistent with the historical performance of Eastern Division.

A graphic representation, by major cause, is depicted in [Figures 3-5, 3-6, and 3-7](#), which show the annual contribution to the number of interruptions, customers affected, and customer hours of interruption, respectively, from 2017 through 2022. The number of interruptions improved in four cause categories: customer problem, lighting, non-Company accident and pre-arranged in 2022, as

compared to 2021. Customers affected improved in four of ten categories and of the remaining six, no cause found was the largest underperformer which increased by 73%.

Although the number of tree contact outages and equipment failures were up from 2021 levels, tree contact had the second highest improvement on the number of customers affected of 22% in 2022, behind non-Company accidents which improved by 36%. Also, it had the second highest customer-minutes of interruption behind equipment failures which both showed an improvement of 4% and 30% respectively for 2022 in the Eastern Division.

As shown in [Table 3.2](#), the number of customer-minutes of interruption improved for the fourth year in a row, in all three, number of equipment failures, customers affected and the minutes of interruption fell below their respective five-year averages. The customer minutes of interruption for equipment failures improved by 30%. OH transformer failures were significantly improved over historical norms, as well.

In 2022, there were no major outages in the Eastern Division that affected more than 5,000 customers. [Table 3-3](#) shows the Eastern Division history from 2017 through 2022. The Company storm statistics and analysis table is shown in [Appendix E](#). In 2022, there were no events that met the major storm criteria for the Eastern Division.

There are 102 circuits serving the Eastern Division. [Appendix A](#), details the circuit priority ratings for all of O&R's distribution circuits. Only circuits that serve at least 40% of the Company's New York customers, with respect to its total number of customers served, were included in the worst performing circuit analysis for this report.

All of the circuits are also listed in [Appendix D](#), first in the order of decreasing frequency and then by decreasing restoration. Of the 102 circuits, 23 were not considered for this evaluation because the number of customers served did not exceed 100, or the number of interruptions did not exceed three. Of the 102 circuits, 80 (78%) met the frequency standard, and 42 (41%) met the restoration standard. The 2022 SAIFI greatly improved from the 2021 SAIFI of 67 (66%) that met the frequency standard. The 2022 CAIDI performance also improved over the 2021's CAIDI performance when 56 (55%) met the restoration standard.

For the Eastern Division, MAIFI_e in 2022 was 6.75 based upon 119,894 customers served and a total of 807,198 momentary interruptions experienced by customers. This was higher than 2021 performance. The increase brings MAIFI_e performance well below the three-year average of 10.10 in the Eastern Division. Currently, the Company calculates MAIFI_e based on operations from the substation breaker that supply the circuit.

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2022 Performance

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Worst Performing Circuit Statistics by Cause (No. of Int., Custs. Affected, Cust.-Hrs of Int.)

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TABLE 3.1 - 5-YEAR COMPARISON – FREQUENCY AND RESTORATION BY MONTH

EASTERN DIVISION - NYS - ALL OUTAGES - WITHOUT STORMS

calculations for calendar year reliability goals

FREQUENCY - CUSTOMERS AFFECTED / CUSTOMERS SERVED

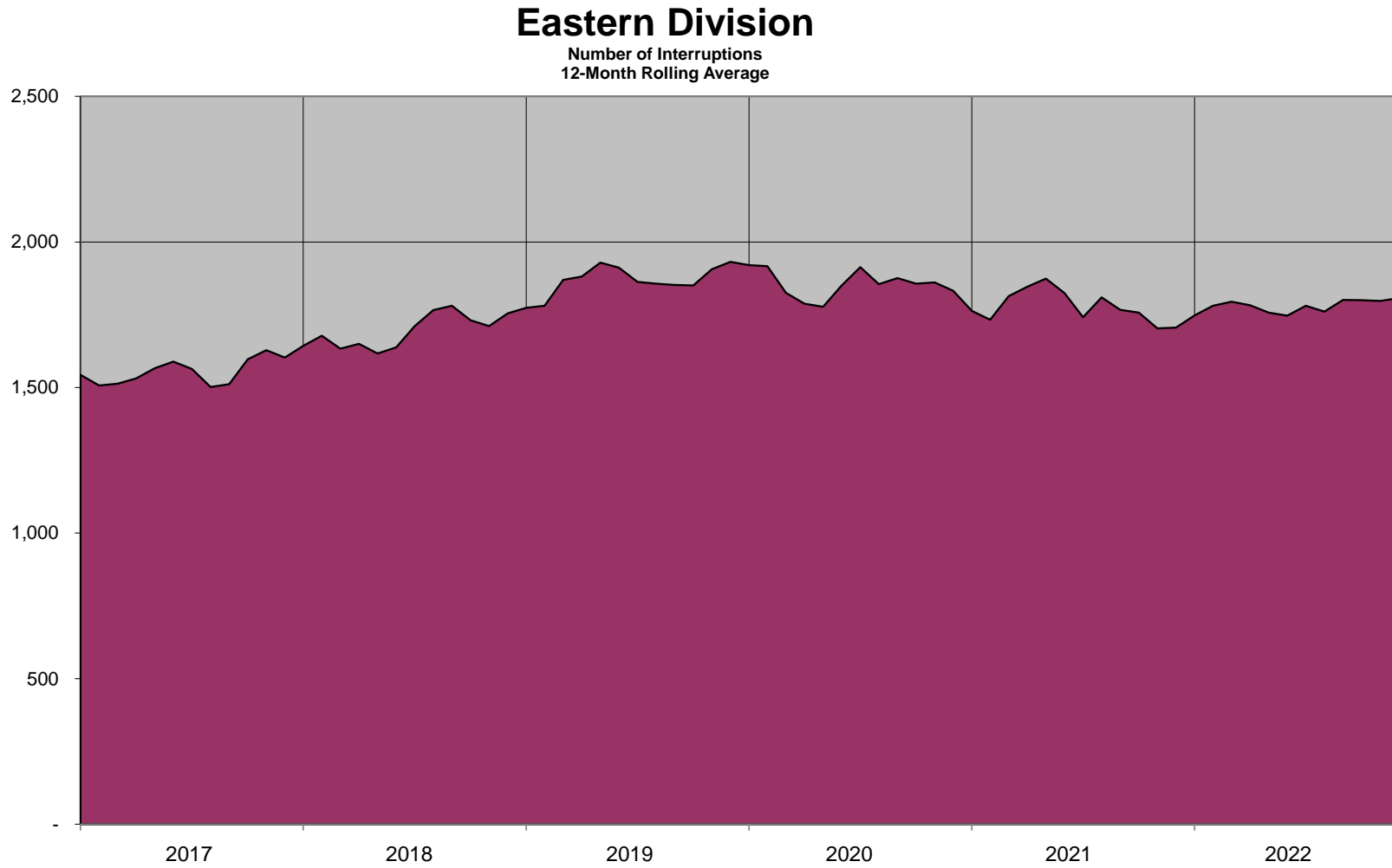
| MONTH | 2017 | 2018 | 2019 | 2020 | 2021 | 5 YR AVG | 2022 | 2022 |
|--------|------|------|------|------|------|-------------|-------------------|-----------------|
| | | | | | | | ACTUAL Monthly | ACTUAL Y-T-D |
| JAN | 0.02 | 0.05 | 0.07 | 0.05 | 0.03 | 0.05 | 0.06 | 0.06 |
| FEB | 0.04 | 0.05 | 0.05 | 0.11 | 0.03 | 0.06 | 0.03 | 0.09 |
| MAR | 0.08 | 0.02 | 0.08 | 0.13 | 0.08 | 0.08 | 0.06 | 0.15 |
| APR | 0.03 | 0.06 | 0.07 | 0.21 | 0.05 | 0.08 | 0.03 | 0.18 |
| MAY | 0.07 | 0.09 | 0.08 | 0.32 | 0.12 | 0.13 | 0.06 | 0.24 |
| JUN | 0.12 | 0.10 | 0.08 | 0.45 | 0.06 | 0.16 | 0.09 | 0.33 |
| JLY | 0.07 | 0.12 | 0.08 | 0.57 | 0.11 | 0.19 | 0.09 | 0.42 |
| AUG | 0.05 | 0.09 | 0.06 | 0.64 | 0.09 | 0.19 | 0.06 | 0.48 |
| SEP | 0.07 | 0.04 | 0.04 | 0.74 | 0.09 | 0.19 | 0.05 | 0.53 |
| OCT | 0.09 | 0.06 | 0.08 | 0.82 | 0.06 | 0.22 | 0.04 | 0.57 |
| NOV | 0.12 | 0.04 | 0.16 | 0.91 | 0.05 | 0.26 | 0.06 | 0.63 |
| DEC | 0.03 | 0.07 | 0.08 | 0.96 | 0.03 | 0.24 | 0.06 | 0.69 |
| YR END | 0.80 | 0.79 | 0.93 | 0.96 | 0.78 | 0.85 | | 0.69 |

RESTORATION - MINUTES OF INTERR / CUST AFFECTED

| MONTH | 2017 | 2018 | 2019 | 2020 | 2021 | 5 YR AVG | 2022 | 2022 |
|-------------|--------|--------|--------|--------|--------|-------------|-------------------|-----------------|
| | | | | | | | ACTUAL Monthly | ACTUAL Y-T-D |
| JAN | 95.90 | 94.87 | 83.48 | 109.00 | 160.46 | 108.74 | 85.06 | 85.06 |
| FEB | 73.24 | 119.82 | 117.65 | 71.35 | 111.74 | 98.76 | 132.71 | 102.18 |
| MAR | 106.31 | 126.28 | 102.81 | 133.07 | 72.64 | 108.22 | 85.40 | 95.23 |
| APR | 73.95 | 106.63 | 101.26 | 68.50 | 104.26 | 90.92 | 76.73 | 92.24 |
| MAY | 89.09 | 94.81 | 77.83 | 63.60 | 69.93 | 79.05 | 89.24 | 91.44 |
| JUN | 69.77 | 97.83 | 111.39 | 137.46 | 104.35 | 104.16 | 104.51 | 95.04 |
| JLY | 79.08 | 118.55 | 132.74 | 108.73 | 86.53 | 105.13 | 76.65 | 91.19 |
| AUG | 90.47 | 160.32 | 106.50 | 81.21 | 92.87 | 106.27 | 76.18 | 89.22 |
| SEP | 72.40 | 139.02 | 94.86 | 86.17 | 78.60 | 94.21 | 90.31 | 89.33 |
| OCT | 129.51 | 139.15 | 76.35 | 75.33 | 99.73 | 104.01 | 88.38 | 89.27 |
| NOV | 81.79 | 99.96 | 105.29 | 102.72 | 81.17 | 94.19 | 96.74 | 89.98 |
| DEC | 85.98 | 88.71 | 114.69 | 67.64 | 100.71 | 91.55 | 84.01 | 89.48 |
| YR END(Min) | 87.68 | 115.07 | 102.53 | 93.02 | 89.71 | 97.60 | | 89.48 |
| YR END(Hr) | 1.46 | 1.92 | 1.71 | 1.55 | 1.50 | 1.63 | | 1.49 |

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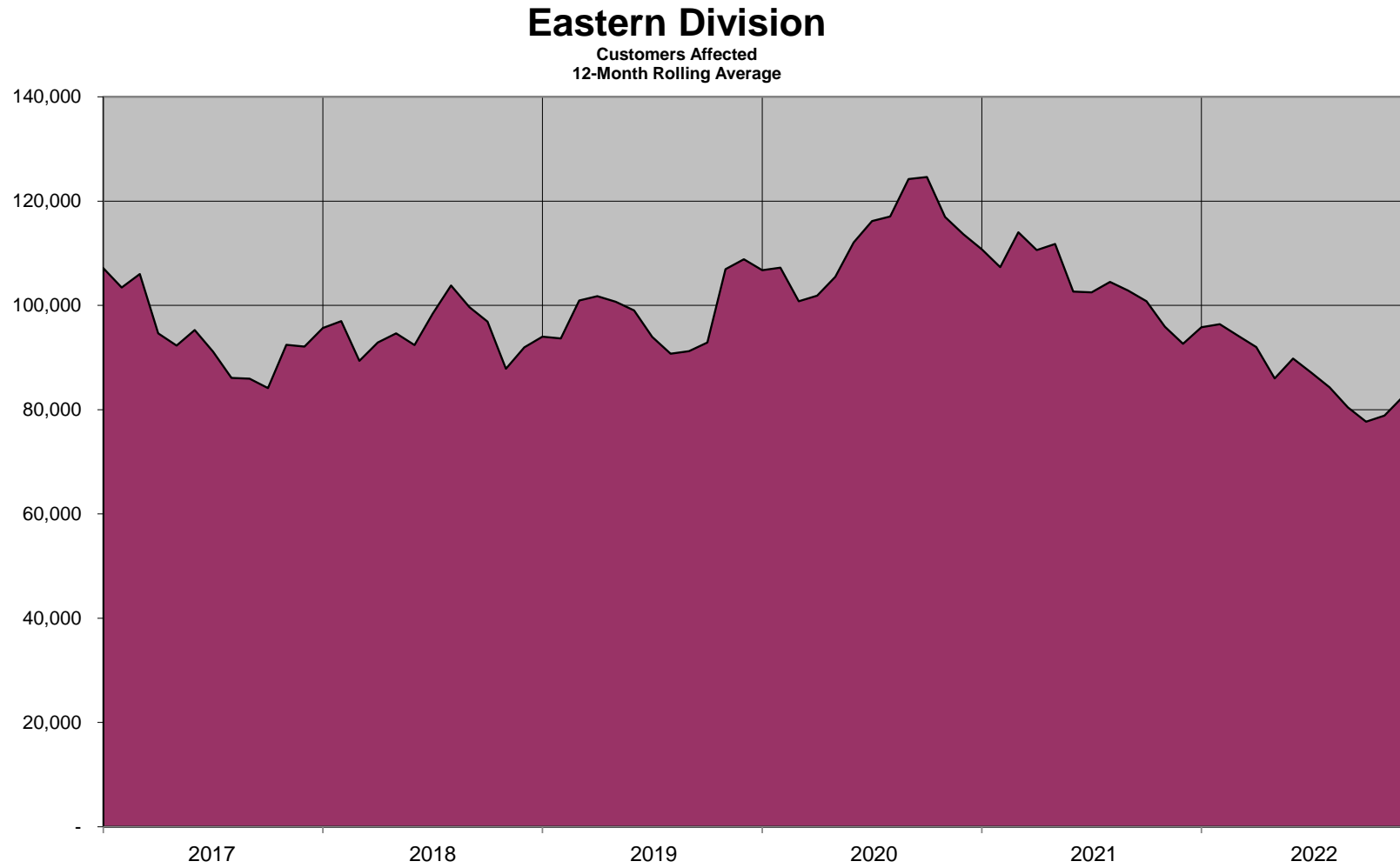
FIGURE 3.1 - 12-MONTH ROLLING AVERAGE – NUMBER OF INTERRUPTIONS



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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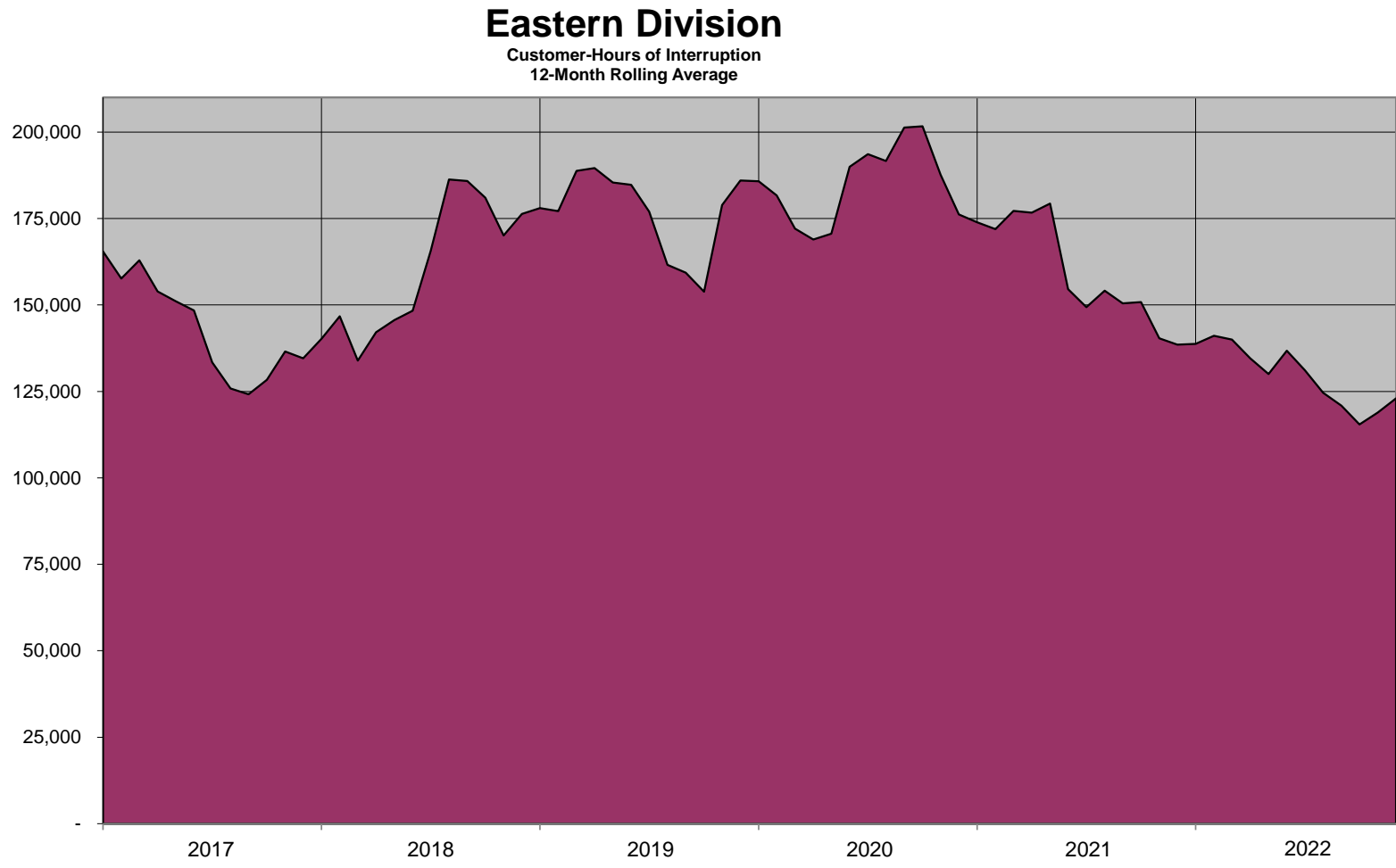
FIGURE 3.2 - 12-MONTH ROLLING – CUSTOMERS AFFECTED



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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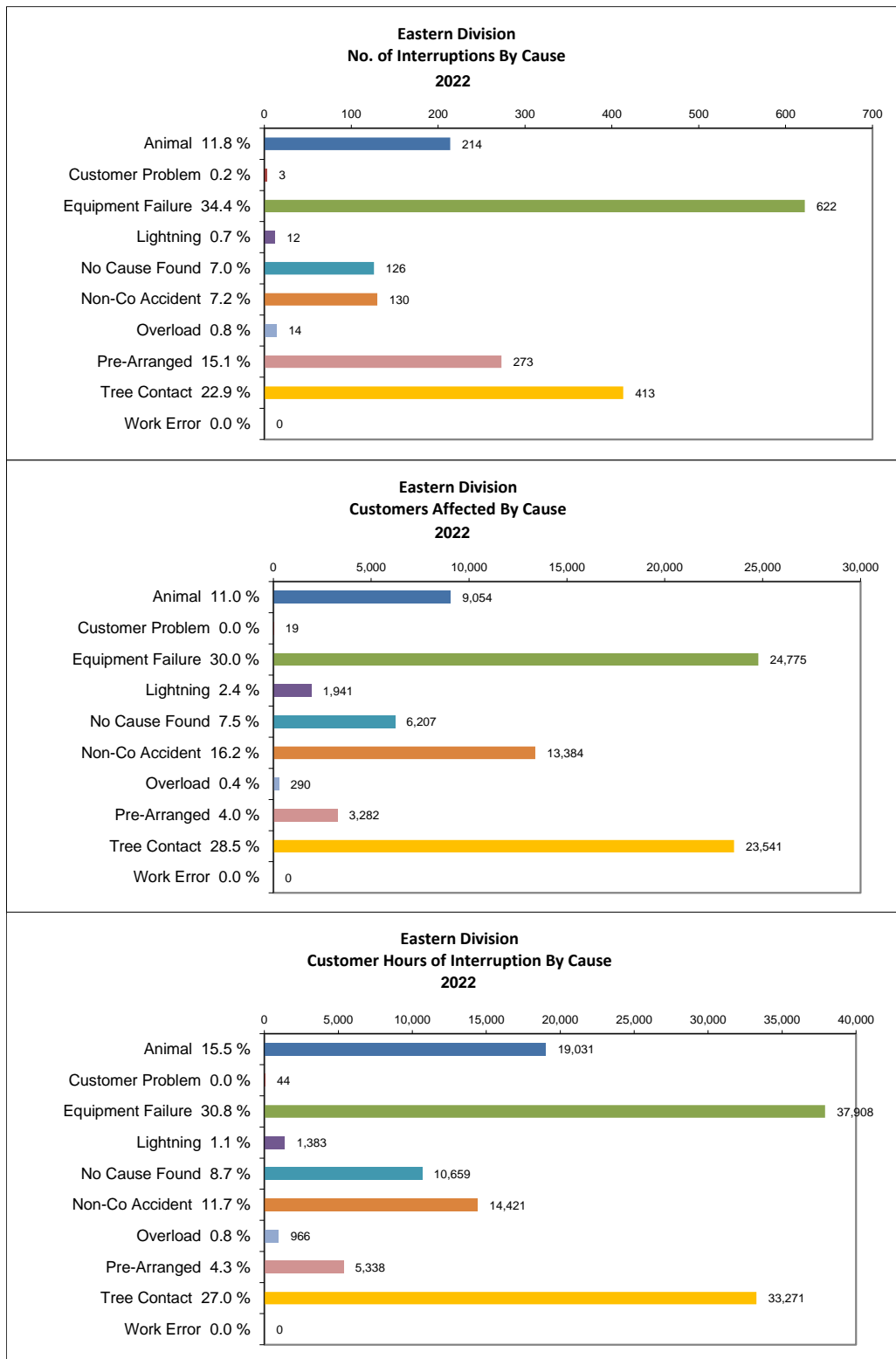
FIGURE 3.3 - 12-MONTH ROLLING AVERAGE – CUSTOMER-HOURS OF INTERRUPTIONS



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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FIGURE 3.4 - OUTAGE STATISTICS BY CAUSE



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TABLE 3.2 - EQUIPMENT FAILURES – BY TYPE AND EQUIPMENT FAILURE CODE

| | | Number of Interruptions By Year | | | | | | |
|--------------|------------------------|---------------------------------|------|------|------|------|----------|------|
| | | 2017 | 2018 | 2019 | 2020 | 2021 | 5 Yr Ave | 2022 |
| Outage Type | Equipment | | | | | | | |
| | Arrester | 4 | 7 | 4 | 5 | 7 | 5 | 4 |
| | Connector/Splice - Pri | 51 | 52 | 43 | 56 | 43 | 49 | 48 |
| | Connector/Splice - Sec | 148 | 199 | 194 | 144 | 134 | 164 | 146 |
| | Disconnect | 0 | 3 | 0 | 0 | 1 | 1 | 0 |
| | Electric Meter | 2 | 6 | 6 | 7 | 7 | 6 | 7 |
| | Fuse/Cutout/Eld | 22 | 20 | 29 | 23 | 20 | 23 | 22 |
| | GOAB | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| | Hardware/Pole | 25 | 35 | 22 | 29 | 14 | 25 | 35 |
| | Insulator | 5 | 1 | 0 | 1 | 2 | 2 | 2 |
| Overhead | Not Coded | 10 | 11 | 0 | 0 | 0 | 4 | 0 |
| | O/H Step Transf | 0 | 3 | 2 | 2 | 6 | 3 | 2 |
| | O/H Transformer | 65 | 79 | 76 | 81 | 70 | 74 | 64 |
| | Recloser | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| | Regulator | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Riser Pole Cutout | 7 | 10 | 2 | 8 | 4 | 6 | 11 |
| | Splice/Junction - Sec | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| | Wire/Cable - Pri | 17 | 31 | 23 | 52 | 35 | 32 | 23 |
| | Wire/Cable - Sec | 38 | 49 | 53 | 70 | 81 | 58 | 65 |
| | Total - OH | 395 | 507 | 457 | 479 | 426 | 453 | 431 |
| | Brkr/Kyle/Switch | 3 | 1 | 10 | 7 | 1 | 4 | 0 |
| Trans/Substa | Transformer | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Total - Trans/Substa | 3 | 2 | 10 | 7 | 1 | 5 | 0 |
| | Arrester | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | Boxpad/Silo/Vault | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| | Bushing | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| | Connector/Splice - Pri | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Connector/Splice - Sec | 0 | 9 | 0 | 0 | 0 | 2 | 0 |
| | Elbow | 3 | 5 | 5 | 3 | 4 | 4 | 3 |
| | Fuse/Cutout/Eld | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Hardware/Pole | 0 | 5 | 0 | 3 | 1 | 2 | 5 |
| | Not Coded | 2 | 2 | 0 | 0 | 0 | 1 | 0 |
| Underground | O/H Transformer | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Padmount Transf | 43 | 49 | 82 | 91 | 50 | 63 | 51 |
| | Splice/Junction - Pri | 0 | 4 | 5 | 2 | 0 | 2 | 0 |
| | Splice/Junction - Sec | 25 | 23 | 29 | 10 | 24 | 22 | 14 |
| | Stress Cone | 7 | 2 | 5 | 6 | 6 | 5 | 5 |
| | Submersible Transf | 0 | 2 | 0 | 0 | 0 | 0 | 1 |
| | Switch | 1 | 4 | 0 | 0 | 1 | 1 | 0 |
| | Wire/Cable - Pri | 55 | 34 | 43 | 45 | 53 | 46 | 57 |
| | Wire/Cable - Sec | 32 | 44 | 42 | 25 | 50 | 39 | 55 |
| | Total - UG | 169 | 188 | 211 | 187 | 190 | 189 | 191 |
| | Total - Year | 567 | 697 | 678 | 673 | 617 | 646 | 622 |

Note: Figures in red denote that the value exceeds the five-year average

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TABLE 3.2 - EQUIPMENT FAILURES – BY TYPE AND EQUIPMENT FAILURE CODE (CONT.)

| | | Customers Affected By Year | | | | | | |
|------------------|------------------------|----------------------------|--------|--------|--------|--------|----------|--------|
| | | 2017 | 2018 | 2019 | 2020 | 2021 | 5 Yr Ave | 2022 |
| Outage Type | Equipment | | | | | | | |
| Overhead | Arrester | 187 | 252 | 267 | 2,340 | 59 | 621 | 261 |
| | Connector/Splice - Pri | 1,099 | 1,553 | 2,054 | 1,690 | 554 | 1,390 | 2,086 |
| | Connector/Splice - Sec | 408 | 494 | 434 | 349 | 370 | 411 | 362 |
| | Disconnect | 0 | 4,063 | 0 | 0 | 6 | 814 | 0 |
| | Electric Meter | 2 | 10 | 6 | 8 | 8 | 7 | 23 |
| | Fuse/Cutout/Eld | 1,029 | 1,172 | 957 | 1,564 | 493 | 1,043 | 1,238 |
| | GOAB | 0 | 0 | 1,726 | 0 | 0 | 345 | 1,402 |
| | Hardware/Pole | 6,079 | 4,351 | 1,873 | 7,823 | 1,592 | 4,344 | 6,765 |
| | Insulator | 251 | 18 | 0 | 44 | 246 | 112 | 1,087 |
| | Not Coded | 308 | 2,546 | 0 | 0 | 0 | 571 | 0 |
| | O/H Step Transf | 0 | 166 | 36 | 71 | 814 | 217 | 4 |
| | O/H Transformer | 3,073 | 1,882 | 1,312 | 984 | 3,797 | 2,210 | 3,002 |
| | Recloser | 0 | 16 | 1,231 | 251 | 847 | 469 | 0 |
| | Regulator | 482 | 0 | 0 | 0 | 0 | 96 | 0 |
| | Riser Pole Cutout | 203 | 114 | 66 | 261 | 37 | 136 | 179 |
| | Splice/Junction - Sec | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| | Wire/Cable - Pri | 2,659 | 15,553 | 6,005 | 15,092 | 10,003 | 9,862 | 4,406 |
| Wire/Cable - Sec | 188 | 1,125 | 378 | 293 | 700 | 537 | 1,423 | |
| Total - OH | | 15,968 | 33,315 | 16,345 | 30,770 | 19,527 | 23,185 | 22,238 |
| Trans/Substa | Brkr/Kyle/Switch | 2,879 | 1,158 | 11,801 | 2,417 | 573 | 3,766 | 0 |
| | Transformer | 0 | 1,146 | 0 | 0 | 0 | 229 | 0 |
| | Total - Trans/Substa | 2,879 | 2,304 | 11,801 | 2,417 | 573 | 3,995 | 0 |
| Underground | Arrester | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | Boxpad/Silo/Vault | 13 | 0 | 0 | 3 | 3 | 4 | 0 |
| | Bushing | 0 | 71 | 0 | 0 | 0 | 14 | 0 |
| | Connector/Splice - Pri | 0 | 4 | 0 | 0 | 0 | 1 | 0 |
| | Connector/Splice - Sec | 0 | 11 | 0 | 0 | 0 | 2 | 0 |
| | Elbow | 163 | 234 | 97 | 83 | 394 | 194 | 42 |
| | Fuse/Cutout/Eld | 0 | 54 | 0 | 0 | 0 | 11 | 0 |
| | Hardware/Pole | 0 | 57 | 0 | 4 | 25 | 17 | 208 |
| | Not Coded | 13 | 63 | 0 | 0 | 0 | 15 | 0 |
| | O/H Transformer | 0 | 4 | 0 | 0 | 0 | 1 | 0 |
| | Padmount Transf | 820 | 485 | 807 | 1,324 | 527 | 793 | 624 |
| | Splice/Junction - Pri | 0 | 81 | 340 | 10 | 0 | 86 | 0 |
| | Splice/Junction - Sec | 53 | 30 | 39 | 20 | 51 | 39 | 23 |
| | Stress Cone | 119 | 2 | 18 | 6 | 534 | 136 | 204 |
| | Submersible Transf | 0 | 10 | 0 | 0 | 0 | 2 | 1 |
| | Switch | 27 | 178 | 0 | 0 | 2 | 41 | 0 |
| | Wire/Cable - Pri | 2,300 | 951 | 1,236 | 1,617 | 2,386 | 1,698 | 1,547 |
| Wire/Cable - Sec | 45 | 103 | 107 | 1,870 | 98 | 445 | 117 | |
| Total - UG | | 3,553 | 2,338 | 2,644 | 4,938 | 4,020 | 3,499 | 2,766 |
| Total - Year | | 22,400 | 37,957 | 30,790 | 38,125 | 24,120 | 30,678 | 25,004 |

Note: Figures in red denote that the value exceeds the five-year average

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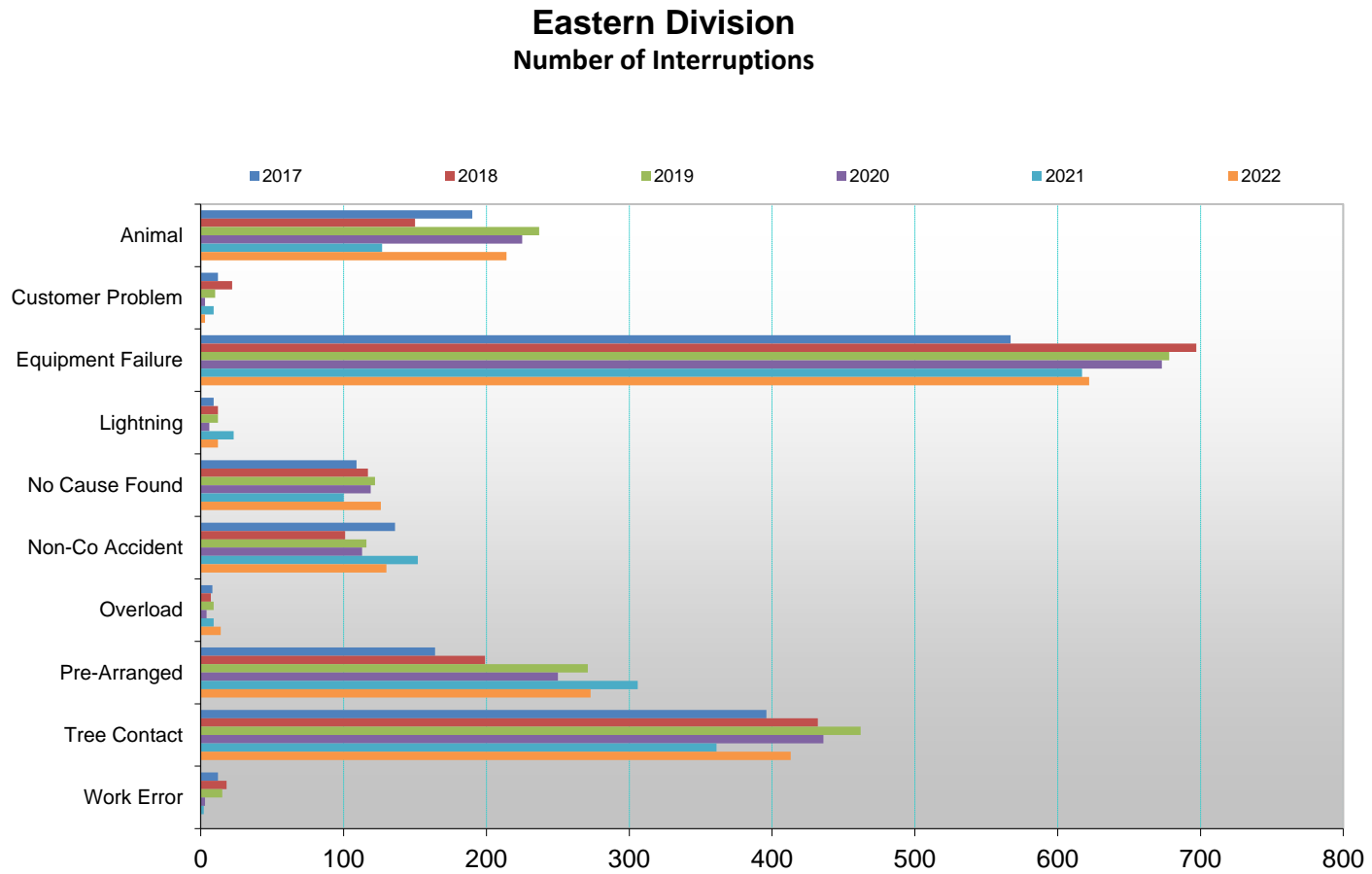
TABLE 3.2 - EQUIPMENT FAILURES – BY TYPE AND EQUIPMENT FAILURE CODE (CONT.)

| Equipment | Total Minutes of Interruption By Year | | | | | | |
|------------------------|---------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 5 Yr Ave | 2022 |
| Arrester | 11,979 | 71,697 | 25,644 | 262,884 | 6,113 | 75,663 | 38,300 |
| Connector/Splice - Pri | 136,664 | 199,496 | 218,735 | 164,649 | 73,339 | 158,577 | 186,031 |
| Connector/Splice - Sec | 66,089 | 110,030 | 96,668 | 77,320 | 64,922 | 83,006 | 60,878 |
| Disconnect | 0 | 158,391 | 0 | 0 | 1,620 | 32,002 | 0 |
| Electric Meter | 561 | 1,665 | 2,115 | 3,348 | 1,725 | 1,883 | 2,880 |
| Fuse/Cutout/Eld | 66,917 | 59,078 | 104,686 | 102,911 | 43,141 | 75,347 | 58,828 |
| GOAB | 0 | 0 | 86,028 | 0 | 0 | 17,206 | 20,954 |
| Hardware/Pole | 466,013 | 228,460 | 73,269 | 333,024 | 140,850 | 248,323 | 341,770 |
| Insulator | 25,717 | 1,962 | 0 | 7,040 | 22,485 | 11,441 | 60,956 |
| Not Coded | 14,707 | 27,172 | 0 | 0 | 0 | 8,376 | 0 |
| O/H Step Transf | 0 | 75,862 | 4,587 | 13,588 | 170,080 | 52,823 | 1,052 |
| O/H Transformer | 193,445 | 232,941 | 190,314 | 188,580 | 656,967 | 292,449 | 169,931 |
| Recloser | 0 | 3,962 | 17,234 | 16,566 | 11,633 | 9,879 | 0 |
| Regulator | 2,410 | 0 | 0 | 0 | 0 | 482 | 0 |
| Riser Pole Cutout | 13,692 | 19,678 | 11,487 | 101,001 | 5,355 | 30,243 | 20,294 |
| Splice/Junction - Sec | 0 | 0 | 0 | 0 | 292 | 58 | 0 |
| Wire/Cable - Pri | 156,649 | 1,562,222 | 488,286 | 1,112,058 | 882,837 | 840,410 | 299,901 |
| Wire/Cable - Sec | 26,498 | 201,142 | 83,511 | 51,771 | 54,985 | 83,581 | 62,442 |
| Total - OH | 1,181,341 | 2,953,758 | 1,402,564 | 2,434,740 | 2,136,344 | 2,021,749 | 1,324,217 |
| Brkr/Kyle/Switch | 144,284 | 56,179 | 1,425,944 | 232,561 | 4,584 | 372,710 | 0 |
| Transformer | 0 | 101,994 | 0 | 0 | 0 | 20,399 | 0 |
| Total - Trans/Substa | 144,284 | 158,173 | 1,425,944 | 232,561 | 4,584 | 393,109 | 0 |
| Arrester | 0 | 0 | 0 | 452 | 0 | 90 | 0 |
| Boxpad/Silo/Vault | 4,108 | 0 | 0 | 2,027 | 1,413 | 1,510 | 0 |
| Bushing | 0 | 16,754 | 0 | 0 | 0 | 3,351 | 0 |
| Connector/Splice - Pri | 0 | 348 | 0 | 0 | 0 | 70 | 0 |
| Connector/Splice - Sec | 0 | 4,647 | 0 | 0 | 0 | 929 | 0 |
| Elbow | 29,675 | 59,701 | 21,156 | 23,789 | 144,928 | 55,850 | 21,228 |
| Fuse/Cutout/Eld | 0 | 13,122 | 0 | 0 | 0 | 2,624 | 0 |
| Hardware/Pole | 0 | 10,581 | 0 | 1,874 | 4,225 | 3,336 | 38,016 |
| Not Coded | 4,959 | 21,619 | 0 | 0 | 0 | 5,316 | 0 |
| O/H Transformer | 0 | 464 | 0 | 0 | 0 | 93 | 0 |
| Padmount Transf | 133,584 | 185,014 | 215,826 | 217,925 | 110,919 | 172,654 | 205,774 |
| Splice/Junction - Pri | 0 | 39,927 | 70,714 | 2,278 | 0 | 22,584 | 0 |
| Splice/Junction - Sec | 19,742 | 17,719 | 18,071 | 7,492 | 10,816 | 14,768 | 5,917 |
| Stress Cone | 33,014 | 1,113 | 5,391 | 1,972 | 112,293 | 30,757 | 35,055 |
| Submersible Transf | 0 | 7,005 | 0 | 0 | 0 | 1,401 | 226 |
| Switch | 11,475 | 46,284 | 0 | 0 | 1,355 | 11,823 | 0 |
| Wire/Cable - Pri | 520,630 | 417,677 | 451,030 | 547,737 | 682,341 | 523,883 | 601,528 |
| Wire/Cable - Sec | 25,672 | 57,134 | 46,134 | 82,493 | 42,183 | 50,723 | 42,535 |
| Total - UG | 782,859 | 899,109 | 828,322 | 888,039 | 1,110,473 | 901,760 | 950,279 |
| Total - Year | 2,108,484 | 4,011,040 | 3,656,830 | 3,555,340 | 3,251,401 | 3,316,619 | 2,274,496 |

Note: Figures in red denote that the value exceeds the five-year average

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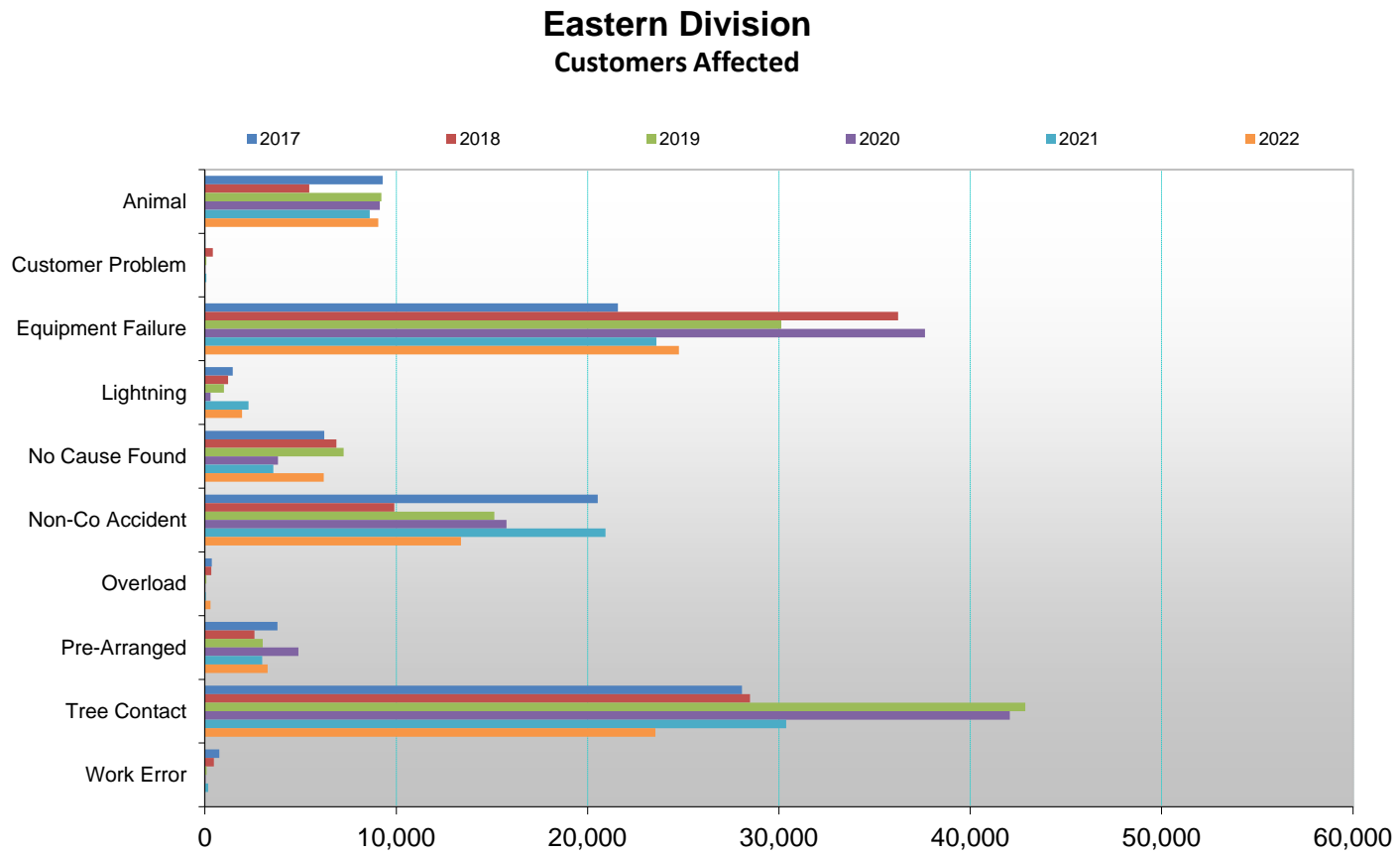
FIGURE 3.5 - 5-YEAR COMPARISON – NUMBER OF INTERRUPTIONS BY MAJOR CAUSE



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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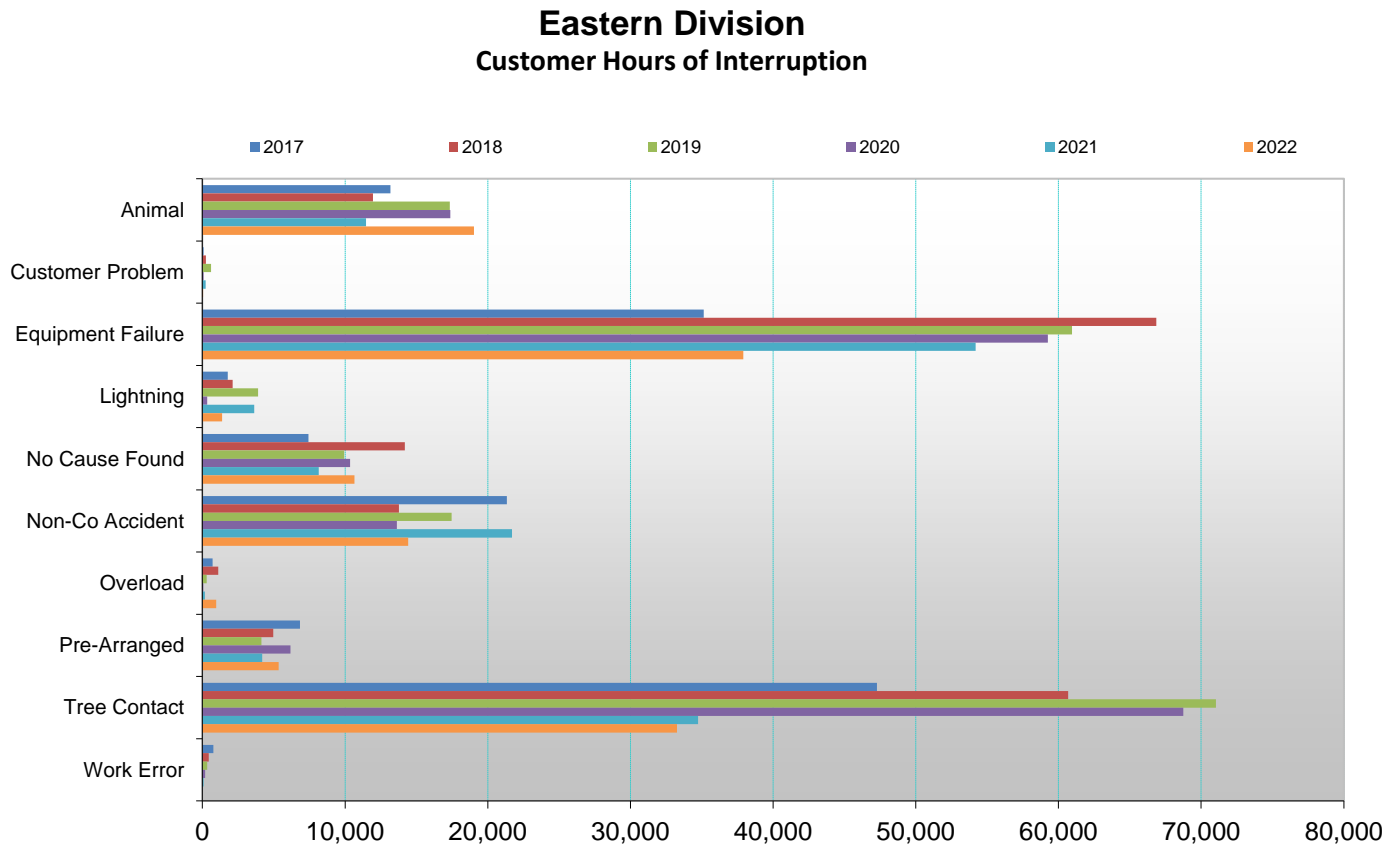
FIGURE 3.6 - 5-YEAR COMPARISON – CUSTOMERS AFFECTED BY MAJOR CAUSE



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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FIGURE 3.7 - 5-Year Comparison – Customer-Hours of Interruption by Major Cause



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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TABLE 3.3 - 5-YR COMPARISON – LARGE OUTAGE (>5,000 CUSTOMERS) IMPACT ON SAIFI, CAIDI & SAIDI

**Eastern Division Without Storms
Effect of Interruptions Affecting 5,000 or more Customers**

| YEAR | CUSTOMERS SERVED (CS) | # OF INTERRUPTIONS | CUSTOMERS AFFECTED (CA) | CUSTOMER MINUTES OF INTERRUPTION (CM) | FREQUENCY (CA/CS) | RESTORATION (CM/CA) | DURATION (CM/CS) |
|---|-----------------------|--------------------|-------------------------|---------------------------------------|-------------------|---------------------|------------------|
| WITHOUT STORMS | | | | | | | |
| 2017 | 115,655 | 1,603 | 92,084 | 8,074,079 | 0.80 | 1.46 | 1.16 |
| 2018 | 116,005 | 1,755 | 91,937 | 10,578,814 | 0.79 | 1.92 | 1.52 |
| 2019 | 116,797 | 1,932 | 108,835 | 11,158,495 | 0.93 | 1.71 | 1.59 |
| 2020 | 117,766 | 1,832 | 113,644 | 10,571,507 | 0.96 | 1.55 | 1.50 |
| 2021 | <u>118,722</u> | <u>1,706</u> | <u>92,661</u> | <u>8,312,171</u> | <u>0.78</u> | <u>1.50</u> | <u>1.17</u> |
| 5-Yr Average | 116,989 | 1,766 | 99,832 | 9,739,013 | 0.85 | 1.63 | 1.39 |
| 2022 | 119,257 | 1,807 | 82,493 | 7,381,210 | 0.69 | 1.49 | 1.03 |
| WITHOUT STORMS - OUTAGES AFFECTING > 5000 CUSTOMERS | | | | | | | |
| YEAR | SERVED | INTERR's | CUST AFF | CUST MIN | | | |
| 2017 | 115,655 | 2 | 10,998 | 893,520 | | | |
| 2018 | 116,005 | - | - | - | | | |
| 2019 | 116,797 | - | - | - | | | |
| 2020 | 117,766 | - | - | - | | | |
| 2021 | <u>118,722</u> | <u>-</u> | <u>-</u> | <u>-</u> | | | |
| 5-Yr Average | 116,989 | 0.40 | 2,200 | 178,704 | | | |
| 2022 | 119,257 | - | - | - | | | |
| WITHOUT STORMS AND WITHOUT THOSE OUTAGES AFFECTING > 5000 CUSTOMERS | | | | | | | |
| 2017 | 115,655 | 1,601 | 81,086 | 7,180,559 | 0.70 | 1.48 | 1.03 |
| 2018 | 116,005 | 1,755 | 91,937 | 10,578,814 | 0.79 | 1.92 | 1.52 |
| 2019 | 116,797 | 1,932 | 108,835 | 11,158,495 | 0.93 | 1.71 | 1.59 |
| 2020 | 117,766 | 1,832 | 113,644 | 10,571,507 | 0.96 | 1.55 | 1.50 |
| 2021 | <u>118,722</u> | <u>1,706</u> | <u>92,661</u> | <u>8,312,171</u> | <u>0.78</u> | <u>1.50</u> | <u>1.17</u> |
| 5-Yr Average | 116,989 | 1,765 | 97,633 | 9,560,309 | 0.83 | 1.63 | 1.36 |
| 2022 | 119,257 | 1,807 | 82,493 | 7,381,210 | 0.69 | 1.49 | 1.03 |

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3.3. Eastern Division Worst Performing Circuits

3.3.1. Circuit 17-2-13

Circuit 17-2-13 is ranked first in the Eastern Division per 2022 priority circuit rating results. The circuit originates from the Hillburn Substation in Rockland County, New York and serves a total of 2,529 customers in New York.

In 2022, there were 14 interruptions, which affected 5,519 customers and resulted in 3,608 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 17-2-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 17-2-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Equipment Failure | 5 | 35.7 | 3,952 | 71.6 | 1,889.8 | 52.4 |
| Lightning - Present | 1 | 7.1 | 66 | 1.2 | 178.2 | 4.9 |
| No Cause Found | 4 | 28.6 | 1,403 | 25.4 | 1,232.4 | 34.2 |
| Non-Co Acc - Other | 1 | 7.1 | 14 | 0.3 | 17.0 | 0.5 |
| Tree Contact (In Trim Zone) | 2 | 14.3 | 19 | 0.3 | 52.7 | 1.5 |
| Vine Contact | 1 | 7.1 | 65 | 1.2 | 238.3 | 6.6 |
| Total | 14 | | 5,519 | | 3,608.5 | |

In 2022, two of the 17 incidents accounted for 2,750 (76%) of the 3,608 total customer-hours of interruption for the year. The two incidents were the result of equipment failure and no cause was found. Removing these two events would drop this circuit off the worst performing circuit list. Given that these two events had such a significant impact to the circuit's reliability performance, 2022 should be considered an anomaly.

The largest event occurred on January 18, 2022, on Orange Ave, Suffern NY. The outage was the result of equipment failure due to a failed transformer bank. The transformer bank was burning, and the circuit was de-energized for safety. The event accounted for 1,603 (44%) of the total 3,608 customer-hours of interruption.

The second largest event occurred on November 3, 2022, on 4th Street, Hilburn NY. The outage was the result of a circuit lockout where no cause was found. The distribution automation on the circuit operated and restored customers. The event accounted for 1,146 (32%) of the total 3,608 customer-hours of interruption.

The remaining 12 interruptions were the result of four equipment failures, one lightning-present, three no cause found, one non-Company accident - other, two tree contact (in trim zone) and one

vine contact. These 12 events accounted for 859 (24%) of the 3,608 total customer-hours of interruption.

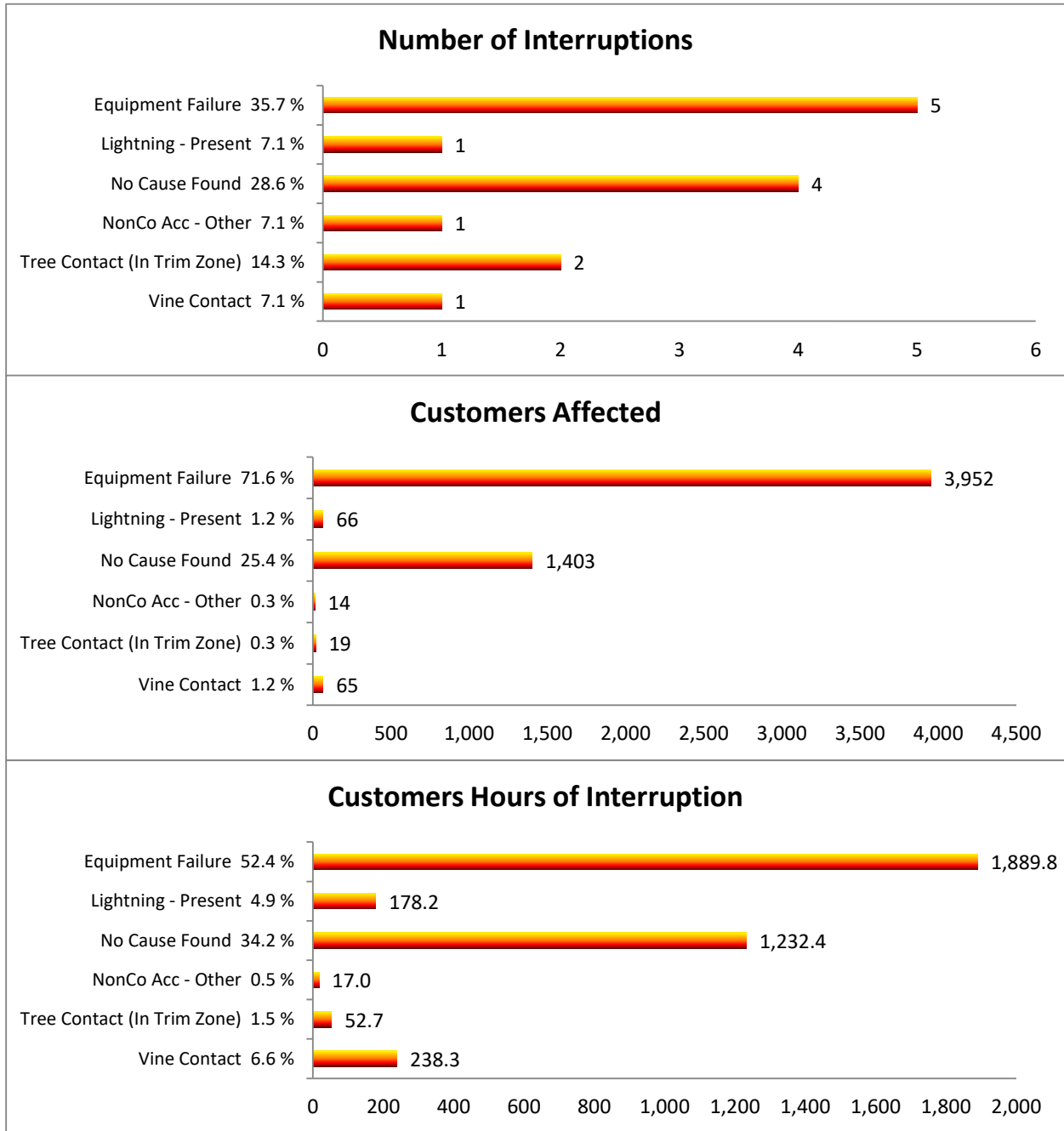
In 2021, the Company installed seven MOABs on the circuit. In 2022, the Company installed three additional MOABs. The Company expects that these enhancements will result in an improvement to the circuit's performance in 2023 by allowing for quicker fault isolation and restoration.

17-2-13 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|--------------------------|-------------------------|
| | Count | Rank Division | Rank Company |
| Customers | 2,529 | 3 | 10 |
| Critical Customers | 11 | 15 | 37 |
| Circuit Miles | 20 | 30 | 112 |
| Customers/Mile | 126.5 | 20 | 30 |
| Connected kVA | 47,724 | 1 | 1 |

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CIRCUIT 17-2-13 ONE-YEAR PERFORMANCE



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3.3.2. Circuit 54-7-13

Circuit 54-7-13 is ranked second in the Eastern Division per 2022 priority circuit rating results. The circuit originates from the Orangeburg Substation in Rockland County, New York and serves a total of 1,404 customers in New York.

In 2022, there were 16 interruptions, which affected 3,227 customers and resulted in 4,219 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 54-7-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 54-7-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 1 | 6.3 | 3 | 0.1 | 6.3 | 0.2 |
| Equipment Failure | 6 | 37.5 | 1,424 | 44.1 | 1,423.7 | 33.7 |
| Lightning - Present | 1 | 6.3 | 41 | 1.3 | 87.5 | 2.1 |
| Non-Co Acc – Motor-Veh | 2 | 12.5 | 750 | 23.2 | 480.5 | 11.4 |
| Non-Co Acc - Other | 1 | 6.3 | 16 | 0.5 | 16.0 | 0.4 |
| Pre-Arr - Company | 2 | 12.5 | 15 | 0.46 | 15.5 | 0.37 |
| Tree Contact (In Trim Zone) | 1 | 6.25 | 71 | 2.2 | 133.7 | 3.17 |
| Tree Contact (Out of Trim Zone) | 2 | 12.5 | 907 | 28.11 | 2,055.9 | 48.73 |
| Total | 16 | | 3,227 | | 4219.1 | |

In 2022, three of the 16 incidents accounted for 3,438 (93%) of the 4,219 total customer-hours of interruption for the year. These three incidents were due to tree contact, equipment failure and non-Company accident – motor vehicle, which accounted for 6,114 (63%) of the 9,651 total customer-hours of interruption for the year. Removing these three events would drop this circuit off the worst performing circuit list. Given that these three events had such a significant impact to the circuit’s reliability performance, 2022 should be considered an anomaly.

The largest event occurred on March 12, 2022, on Washington Ave, Tappan, NY. The outage was the result of a large tree falling and snapping the cutout pole. Restoration time was significantly longer as the Company was simultaneously responding to a wind event. The event accounted for 2,322 (55%) of the total 4,219 customer-hours of interruption.

The second largest event occurred on November 25, 2022, on Western Highway, Tappan NY. The outage was the result of equipment failure. The top (54-7-13) and bottom (54-8-13) circuits burned down to the ground. The event accounted for 1,116 (26%) of the total 4,219 customer-hours of interruption.

The third largest event occurred on February 21, 2022, on Western Highway, Tappan NY. The outage was the result of a motor vehicle accident involving a utility pole. The event accounted for 472 (7%) of the total 4,219 customer-hours of interruption.

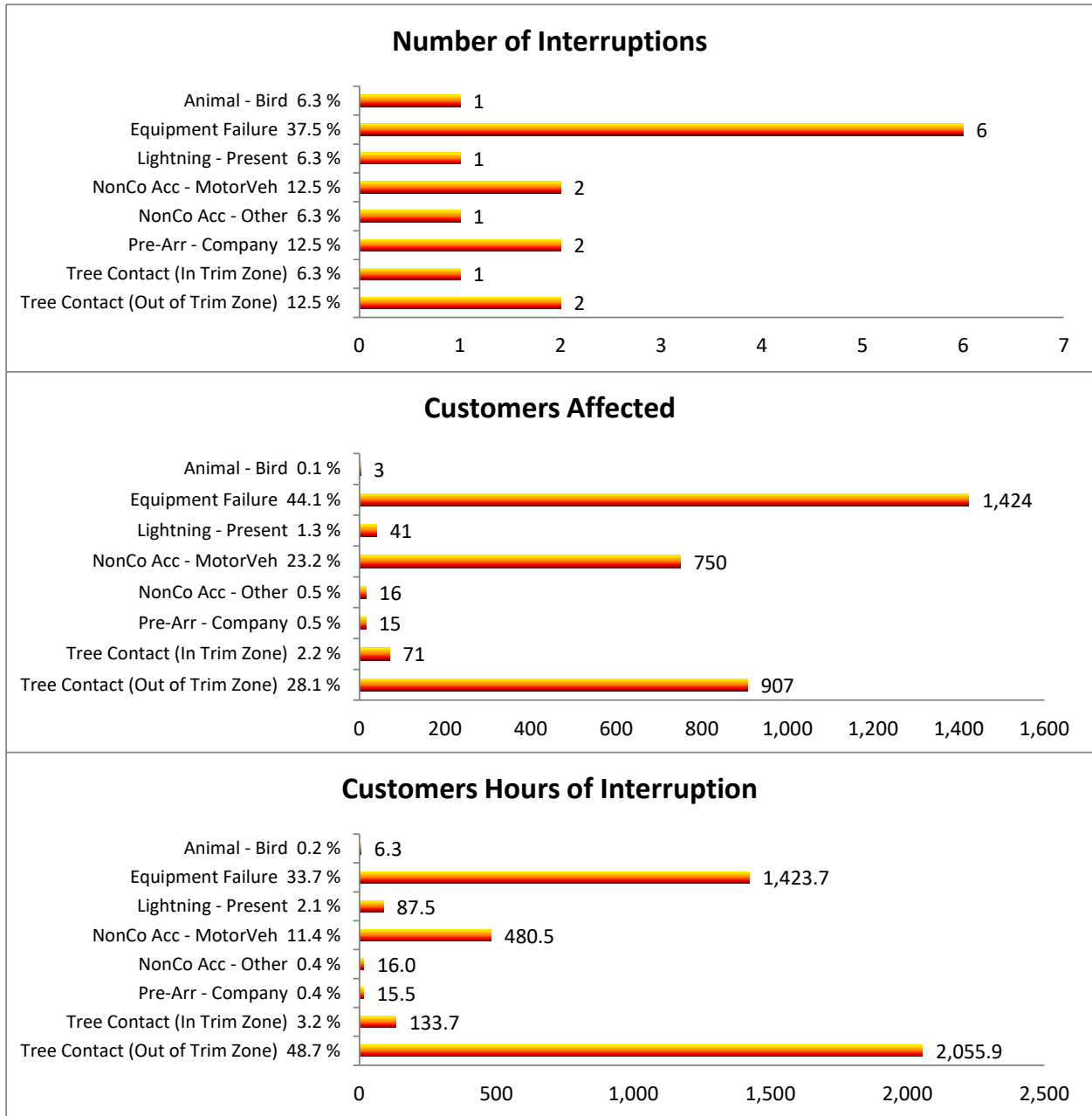
The remaining thirteen interruptions were the result of one animal contact – bird, five equipment failures, one lightning-present, one non-Company accident – motor vehicle, one non-Company accident – other, two pre-arranged Company, one tree contact (in trim zone) and one tree contact (out trim zone). These thirteen events accounted for 309 (7%) of the 4,219 total customer-hours of interruption.

54-7-13 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|--------------------------|-------------------------|
| | Count | Rank Division | Rank Company |
| Customers | 1,404 | 33 | 82 |
| Critical Customers | 11 | 15 | 37 |
| Circuit Miles | 18 | 41 | 133 |
| Customers/Mile | 79.4 | 40 | 78 |
| Connected kVA | 23,502 | 20 | 54 |

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CIRCUIT 54-7-13 ONE-YEAR PERFORMANCE



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3.3.3. Circuit 44-1-13

Circuit 44-1-13 is ranked third in the Eastern Division per 2022 priority circuit rating results. The circuit originates from the Monsey Substation in Rockland County, New York and serves a total of 1,339 customers in New York.

In 2022, there were seven interruptions, which affected 1,315 customers and resulted in 3,479 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 44-1-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 44-1-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 2 | 28.6 | 813 | 61.8 | 2,645.3 | 76.0 |
| Equipment Failure | 4 | 57.1 | 496 | 37.7 | 826.2 | 23.8 |
| Pre-Arr - Company | 1 | 14.3 | 6 | 0.5 | 7.5 | 0.2 |
| Total | 7 | | 1,315 | | 3,479.0 | |

In 2022, one incident accounted for 76% of all customers affected and 62% of all customer-hours of interruption. This one incident was the result of animal contact with the primary conductor which accounted for 2,637 (63%) of the 3,479 total customer-hours of interruption for the year.

Removing this single event would drop this circuit off the worst performing circuit list. Given that this single event had such a significant impact to the circuit’s reliability performance, 2022 should be considered an anomaly.

The largest event occurred on Sunday June 26, 2022, on Robert-Pitt Drive, Monsey NY. The outage was the result of animal contact with the primary conductor. The event accounted for 2,637 (76%) of the total 3,479 customer-hours of interruption.

The remaining six interruptions were the result of one animal contact – squirrel, four equipment failures and one pre-arranged Company. These six events accounted for 842 (24%) of the 3,479 total customer-hours of interruption.

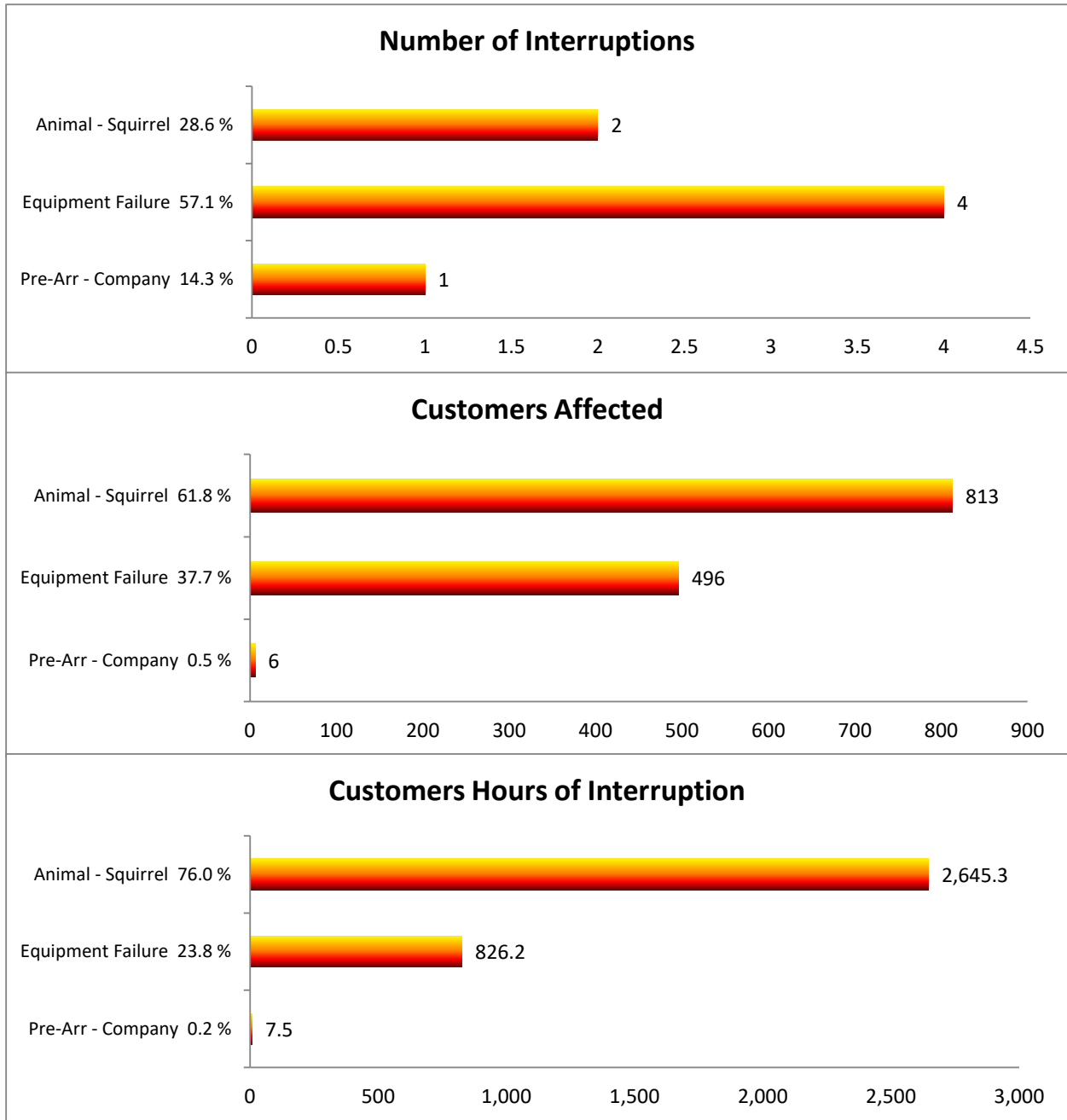
The Company installed four MOABs (two are tie MOABs) on the circuit, a sectionalizing and tie recloser on the circuit. The Company expects that these enhancements will result in an improvement to the circuit’s performance allowing for quicker fault isolation and restoration.

44-1-13 At A Glance

| Circuit Stats | | | |
|--------------------|--------|------------------|-----------------|
| | Count | Rank Division | Rank Company |
| Customers | 1,339 | 39 | 90 |
| Critical Customers | 0 | 103 | 281 |
| Circuit Miles | 40 | 3 | 35 |
| Customers/Mile | 33.4 | 94 | 224 |
| Connected kVA | 14,285 | 71 | 182 |

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CIRCUIT 44-1-13 ONE-YEAR PERFORMANCE



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3.3.4. Circuit 45-3-13

Circuit 45-3-13 is ranked fourth in the Eastern Division per 2022 priority circuit rating results. The circuit originates from the New Hempstead Substation in Rockland County, New York and serves a total of 1,362 customers in New York.

In 2022, there were 20 interruptions, which affected 2,454 customers and resulted in 2,880 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 45-3-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 45-3-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 6 | 30.0 | 372 | 15.2 | 901.8 | 31.3 |
| Equipment Failure | 7 | 35.0 | 221 | 9.0 | 336.6 | 11.7 |
| No Cause Found | 1 | 5.0 | 95 | 3.9 | 180.5 | 6.3 |
| Non-Co Acc – Motor Veh | 3 | 15.0 | 1,387 | 56.5 | 1,251.7 | 43.5 |
| Pre-Arr - Company | 2 | 10.0 | 350 | 14.3 | 78.3 | 2.7 |
| Tree Contact (In Trim Zone) | 1 | 5.0 | 29 | 1.2 | 131.5 | 4.6 |
| Total | 20 | | 2,454 | | 2,880.3 | |

In 2022, three incidents accounted for 71% of all customers affected and 65% of all customer-hours of interruption. These three incidents were non-company accident – Motor Vehicle, and two animal contacts which accounted for 2,050 (71%) of the 2,880 total customer-hours of interruption for the year.

The largest event occurred on May 18, 2022, on Demarest Ave, New City NY. The outage was the result of a dump truck vehicle accident involving a utility pole. The pole was broken, and the transformer bank was on fire. The circuit was de-energized for safety. The event accounted for 1,378 (48%) of the total 2,880 customer-hours of interruption.

The second largest event occurred on August 21, 2022, on Tucker Ave, New City NY. The outage was the result of animal contact – squirrel beyond a fused cutout. The event accounted for 354 (12%) of the total 2,880 customer-hours of interruption.

The third largest event occurred on August 28, 2022, on Tucker Ave, New City NY. The outage was the result of animal contact – squirrel beyond a fused cutout. The event accounted for 316 (11%) of the total 2,880 customer-hours of interruption.

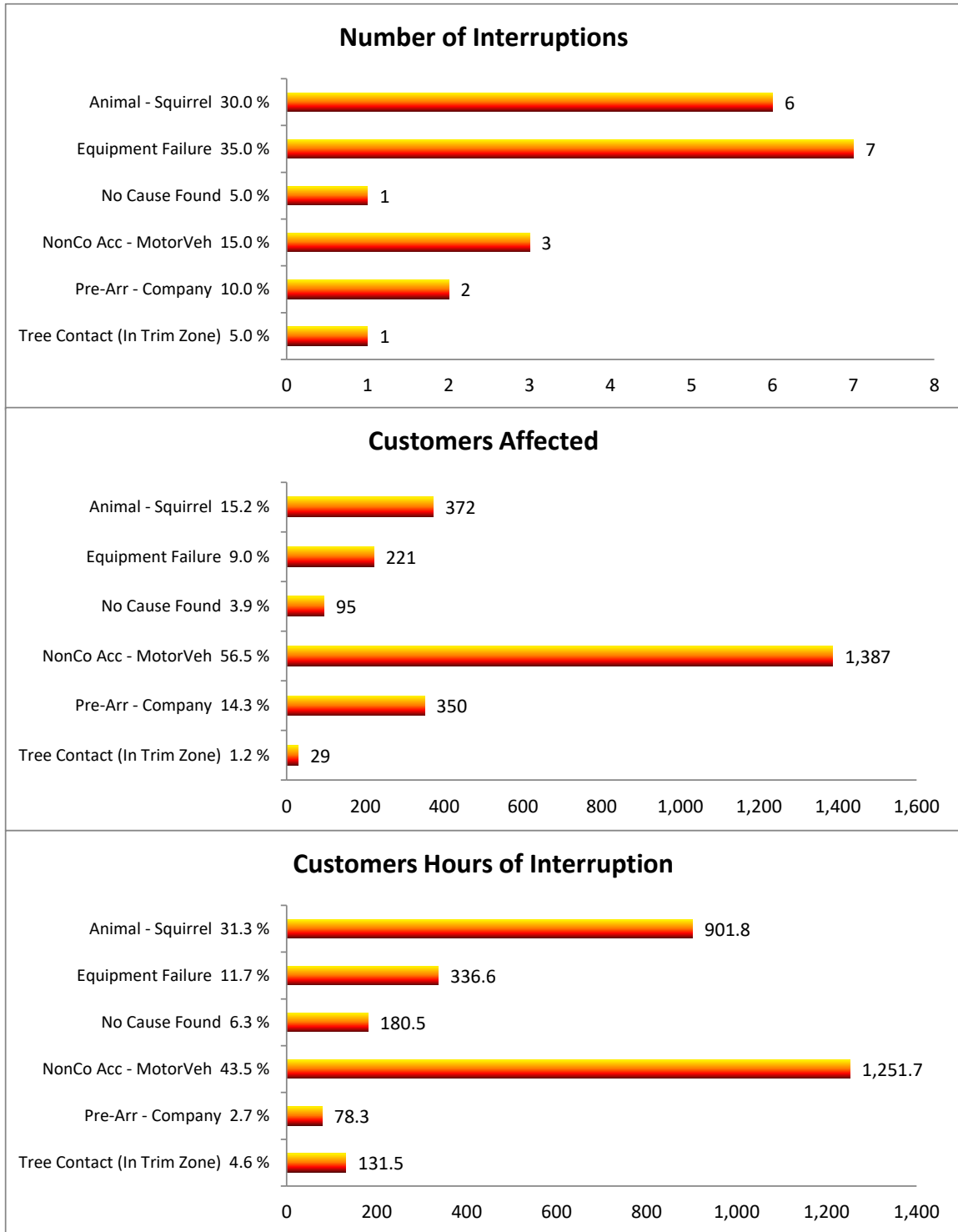
The remaining seventeen interruptions were the result of four animal contact – squirrel, seven equipment failures, one no cause found, three non-Company accident – motor vehicle, two pre-arranged Company and one tree contact (in trim zone). These seventeen events accounted for 832 (29%) of the 2,880 total customer-hours of interruption.

45-3-13 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|--------------------------|-------------------------|
| | Count | Rank Division | Rank Company |
| Customers | 1,362 | 35 | 85 |
| Critical Customers | 10 | 19 | 45 |
| Circuit Miles | 15 | 46 | 161 |
| Customers/Mile | 91.6 | 33 | 62 |
| Connected kVA | 27,795 | 13 | 31 |

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CIRCUIT 45-3-13 ONE-YEAR PERFORMANCE



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3.3.5. Circuit 19-10-13

Circuit 19-10-13 is ranked fifth in the Eastern Division per 2022 priority circuit rating results. The circuit originates from the Burns Substation in Rockland County, New York and serves a total of 3,471 customers in New York.

In 2022, there were 27 interruptions, which affected 1,657 customers and resulted in 2,111 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 19-10-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 19-10-13 | | | | | | |
|---|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 1 | 3.7 | 23 | 1.4 | 44.1 | 2.1 |
| Animal - Squirrel | 1 | 3.7 | 74 | 4.5 | 208.4 | 9.9 |
| Equipment Failure | 9 | 33.3 | 1,295 | 78.2 | 1,158.0 | 54.9 |
| No Cause Found | 1 | 3.7 | 86 | 5.2 | 256.6 | 12.2 |
| Non-Co Acc - MotorVeh | 1 | 3.7 | 15 | 0.9 | 86.3 | 4.1 |
| Non-Co Acc - Other | 1 | 3.7 | 10 | 0.6 | 27.7 | 1.3 |
| Pre-Arr - Company | 10 | 37.0 | 63 | 3.8 | 33.3 | 1.6 |
| Tree Contact (In Trim Zone) | 3 | 11.1 | 91 | 5.5 | 297.0 | 14.1 |
| Total | 27 | | 1,657 | | 2,111.3 | |

In 2022, four incidents accounted for 57% of all customers affected and 81% of all customer-hours of interruption. These four incidents were two equipment failures, one no cause found and one animal contact which accounted for 1,196 (57%) of the 2,111 total customer-hours of interruption for the year.

The largest event occurred on September 17, 2022, on Union Road, Spring Valley NY. The outage was the result of equipment failure due to an underground primary fault. The event accounted for 425 (20%) of the total 2,111 customer-hours of interruption.

The second largest event occurred on August 11, 2022, on Youmans Drive, Spring Valley NY. The outage was the result of equipment failure where the circuit was de-energized for safety. The event accounted for 306 (15%) of the total 2,111 customer-hours of interruption.

The third largest event occurred on August 6, 2022, on Charles Lane, Spring Valley NY. The outage was the result of a blown fuse in which no cause was found. The event accounted for 256 (12%) of the total 2,111 customer-hours of interruption.

The fourth largest event occurred on June 22, 2022, on Columbus Ave, Spring Valley NY. The outage was the result of animal contact – squirrel beyond a fused cutout. The event accounted for 208 (10%) of the total 2,111 customer-hours of interruption.

The remaining twenty-three interruptions were the result of animal contact – bird, seven equipment failures, one non-Company accident – motor vehicle, one non-Company accident – other, 10 prearranged – Company, three tree contact (in trim zone). These twelve events accounted for 915 (43%) of the 2,111 total customer-hours of interruption.

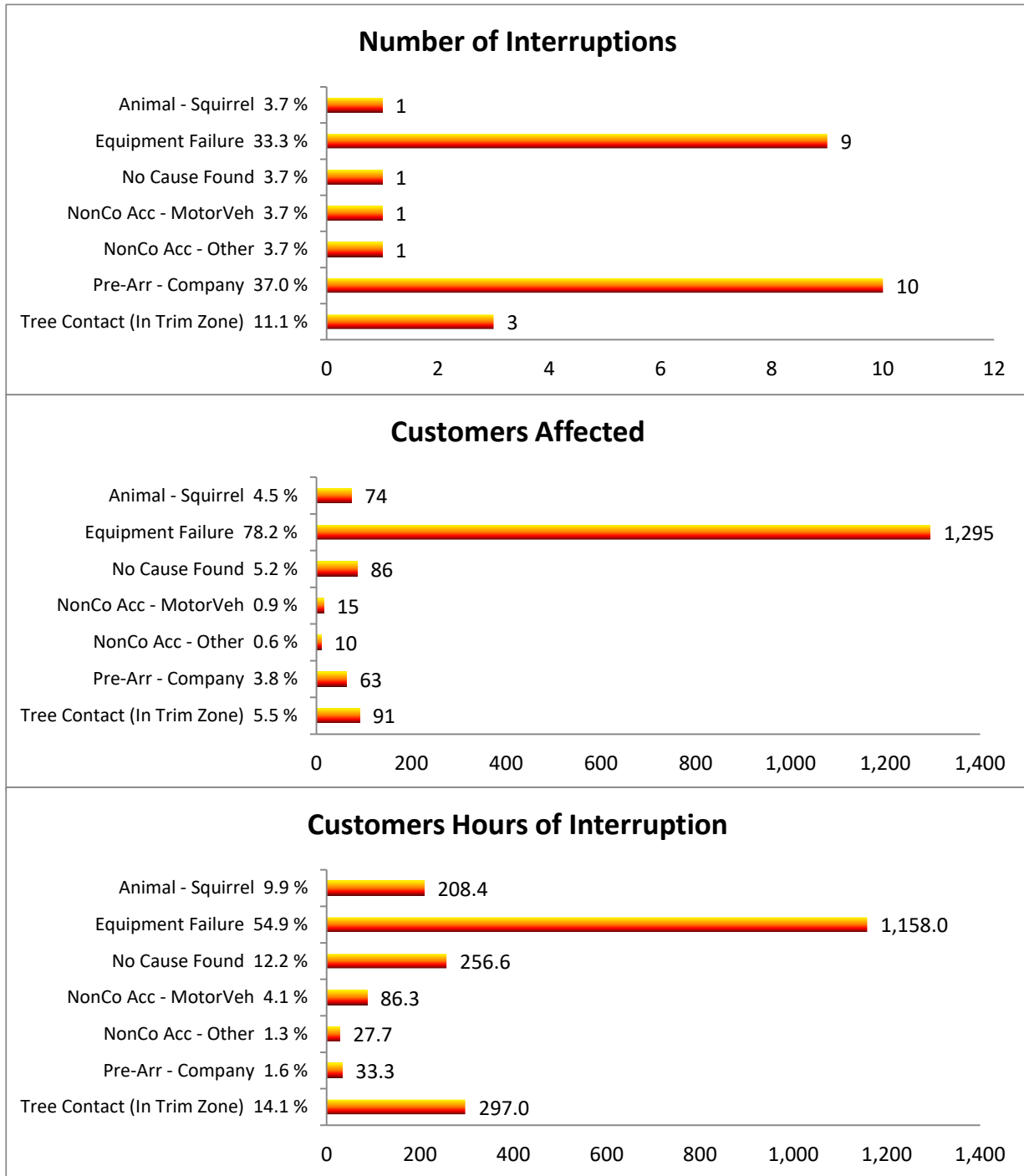
The Company installed seven MOABs (two are Tie MOABs), a sectionalizing and tie recloser on the circuit. The MOABs and reclosers will enhance the circuit by assisting with faster fault isolation and customer restoration, as well as providing enhanced reliability in cases of major storm events.

19-10-13 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|--------------------------|-------------------------|
| | Count | Rank Division | Rank Company |
| Customers | 3,471 | 1 | 2 |
| Critical Customers | 18 | 4 | 7 |
| Circuit Miles | 17 | 42 | 137 |
| Customers/Mile | 204 | 6 | 7 |
| Connected kVA | 29,327 | 9 | 23 |

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CIRCUIT 19-10-13 ONE-YEAR PERFORMANCE



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4. CENTRAL DIVISION

4.1. 2022 Divisional Performance

In 2022, the year-end SAIFI for the Central Division was 1.02 customers affected per customer served, below the NYPSC standard of 1.20. The 61,392 customers affected in 2022 was 22% lower than the 2021 levels, 17% above the previous five-year average, which put the numbers closer in line with the Central Division past performance. The year-end CAIDI for the Central Division was 1.91 customer hours of interruption per customer affected, above the divisional standard of 1.75 hours and the five-year average of 1.82 hours. This is the second highest CAIDI performance for the Central Division in the last five years.

[Figures 4-1](#), [4-2](#), and [4-3](#), show performance trends on a rolling 12-month basis, from 2017 through 2022. In 2022, the rolling number of interruptions continued increasing from previous years and it ended at their highest levels in over six years. The rolling customers affected declined over the 2021 level highs and rolling customer-hours of interruption continue to increase to higher levels than 2021.

[Figure 4-4](#) shows a summary by cause of the interruptions experienced in 2022. Tree contact was the leading cause in number of interruptions, customers affected and customer hours of interruption, followed by equipment failure in all three: number of interruptions, customers affected and customer hours of interruptions.

A summary of the Central Division equipment failures for 2022 is shown in [Table 4-2](#). Overall, the number of failures decreased from the previous year but was higher than the five-year average. With a slight decrease in the number of interruptions, the Company's performance continues within historical norms. The number of customers affected decreased to a three-year low and was also below the five-year average, as to the customer hours of interruption, increased from the previous year of 2021 but was below the trailing five-year average.

In terms of number of interruptions, tree contact interruptions in the Central Division increased 14% from 2021 levels and the highest level in the last six years. Of the 341 interruptions in the tree contact category, 80 (23%) were attributable to partial power/single service customer conditions.

[Table 4-3](#) shows the Central Division interruption history from 2017 through 2022, the outages affecting more than 5,000 customers, and the impact on the Division's performance statistics if these events were removed. For the third year in a row, there were no events impacting more than 5,000 customers in this Division in 2022.

A graphic representation, by cause, is depicted in [Figures 4-5](#), [4-6](#), and [4-7](#), which shows the annual contribution of each cause to the number of interruptions, customers affected, and customer hours of interruption, respectively, from 2017 through 2022.

There were 57 circuits serving the Central Division in 2022. [Appendix A](#) details the circuit priority ratings for these and all of O&R's distribution circuits. Only circuits that serve at least 40% of the Company's New York customers, with respect to its total number of customers served, were considered for evaluation in the worst performing circuit analysis for this report.

All of the circuits that serve Central Division customers are also listed in [Appendix D](#), first in the order of decreasing frequency and then by decreasing restoration. Out of the total 54 circuits, 11 circuits were not considered for this evaluation because the number of customers served did not exceed 100 or the number of interruptions did not exceed three. Of the 54 circuits, 36 (66%) met the frequency standard, and 30 (55%) met the restoration standard. These results are a marked performance decrease in SAIFI from 2021 when 67% met the frequency standard and a slight increase in CAIDI from 2021 when 53% met the restoration standard.

The 2022 Company and Central Division storm statistics and analysis table is shown in [Appendix E](#). There was one major storm events that resulted in interruptions that met criteria for exclusion from reliability reporting in the Central Division.

For the Central Division, MAIFI_e was 8.09, based on 61,328 Central Division New York customers served, and a total of 491,033 momentary interruptions experienced by customers. This represents an 11% increase from the 2021 performance of 7.26. Currently the Company calculates MAIFI_e based on operations from the substation breaker that supply the circuit.

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TABLE 4.1 - 5-YEAR COMPARISON – FREQUENCY AND RESTORATION BY MONTH

CENTRAL DIVISION - NYS - ALL OUTAGES - WITHOUT STORMS

calculations for calendar year reliability goals

FREQUENCY - CUSTOMERS AFFECTED / CUSTOMERS SERVED

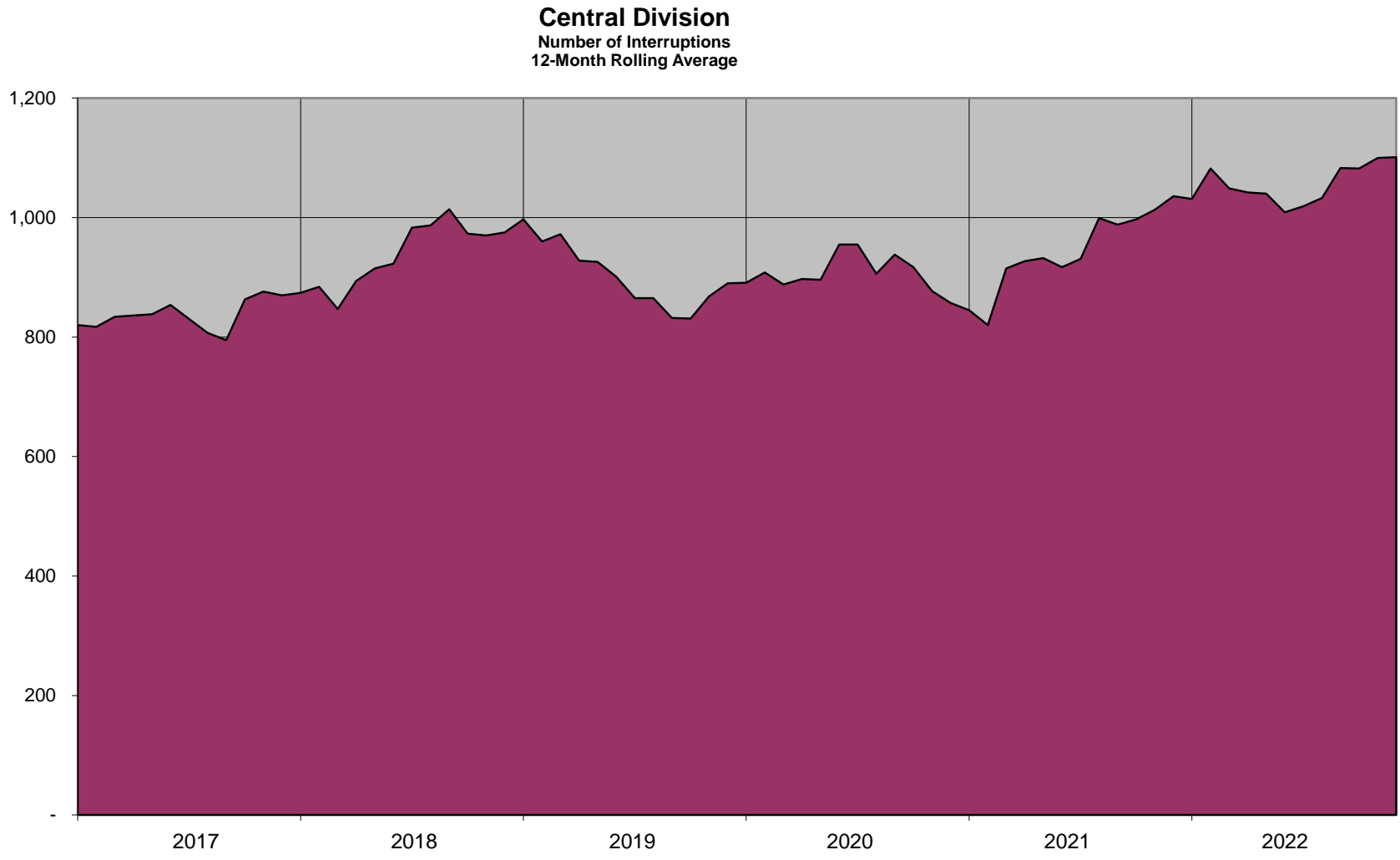
| MONTH | 2017 | 2018 | 2019 | 2020 | 2021 | 5 YR AVG | 2022 | 2022 |
|--------|------|------|------|------|------|-------------|-------------------|-----------------|
| | | | | | | | ACTUAL Monthly | ACTUAL Y-T-D |
| JAN | 0.04 | 0.07 | 0.06 | 0.09 | 0.14 | 0.08 | 0.03 | 0.03 |
| FEB | 0.09 | 0.02 | 0.05 | 0.06 | 0.06 | 0.05 | 0.11 | 0.14 |
| MAR | 0.13 | 0.02 | 0.11 | 0.02 | 0.12 | 0.08 | 0.05 | 0.19 |
| APR | 0.07 | 0.07 | 0.06 | 0.06 | 0.05 | 0.06 | 0.10 | 0.30 |
| MAY | 0.06 | 0.09 | 0.15 | 0.03 | 0.11 | 0.09 | 0.05 | 0.35 |
| JUN | 0.09 | 0.26 | 0.09 | 0.09 | 0.17 | 0.14 | 0.09 | 0.44 |
| JLY | 0.14 | 0.18 | 0.07 | 0.11 | 0.09 | 0.12 | 0.11 | 0.56 |
| AUG | 0.14 | 0.14 | 0.16 | 0.02 | 0.15 | 0.12 | 0.12 | 0.67 |
| SEP | 0.04 | 0.14 | 0.05 | 0.07 | 0.08 | 0.07 | 0.15 | 0.82 |
| OCT | 0.17 | 0.11 | 0.14 | 0.10 | 0.09 | 0.12 | 0.06 | 0.88 |
| NOV | 0.02 | 0.11 | 0.20 | 0.03 | 0.15 | 0.10 | 0.10 | 0.98 |
| DEC | 0.04 | 0.07 | 0.10 | 0.03 | 0.11 | 0.07 | 0.04 | 1.02 |
| YR END | 1.03 | 1.29 | 1.24 | 0.71 | 1.32 | 1.12 | | 1.02 |

RESTORATION - MINUTES OF INTERR / CUST AFFECTED

| MONTH | 2017 | 2018 | 2019 | 2020 | 2021 | 5 YR AVG | 2022 | 2022 |
|-------------|--------|--------|--------|--------|--------|-------------|-------------------|-----------------|
| | | | | | | | ACTUAL Monthly | ACTUAL Y-T-D |
| JAN | 96.80 | 91.82 | 109.48 | 107.90 | 75.23 | 96.25 | 154.94 | 154.94 |
| FEB | 303.72 | 160.13 | 191.40 | 124.15 | 116.79 | 179.24 | 120.51 | 128.62 |
| MAR | 89.82 | 185.01 | 44.01 | 89.57 | 109.05 | 103.49 | 130.85 | 129.23 |
| APR | 98.27 | 138.29 | 165.83 | 107.21 | 85.08 | 118.94 | 55.81 | 103.74 |
| MAY | 138.07 | 121.72 | 170.08 | 114.49 | 126.47 | 134.17 | 171.70 | 114.15 |
| JUN | 129.36 | 63.52 | 82.55 | 137.02 | 48.74 | 92.24 | 106.53 | 112.57 |
| JLY | 77.14 | 105.66 | 150.61 | 173.77 | 111.06 | 123.65 | 160.41 | 122.47 |
| AUG | 91.45 | 116.00 | 71.93 | 80.23 | 98.50 | 91.62 | 117.58 | 121.62 |
| SEP | 101.68 | 103.80 | 72.70 | 153.21 | 151.80 | 116.64 | 89.09 | 115.59 |
| OCT | 137.87 | 106.33 | 84.41 | 75.68 | 85.70 | 98.00 | 112.88 | 115.41 |
| NOV | 142.89 | 87.38 | 113.82 | 161.66 | 63.73 | 113.90 | 106.10 | 114.48 |
| DEC | 100.80 | 150.14 | 83.07 | 54.72 | 82.41 | 94.23 | 124.26 | 114.84 |
| YR END(Min) | 123.82 | 103.27 | 106.83 | 121.88 | 90.99 | 109.36 | | 114.84 |
| YR END(Hr) | 2.06 | 1.72 | 1.78 | 2.03 | 1.52 | 1.82 | | 1.91 |

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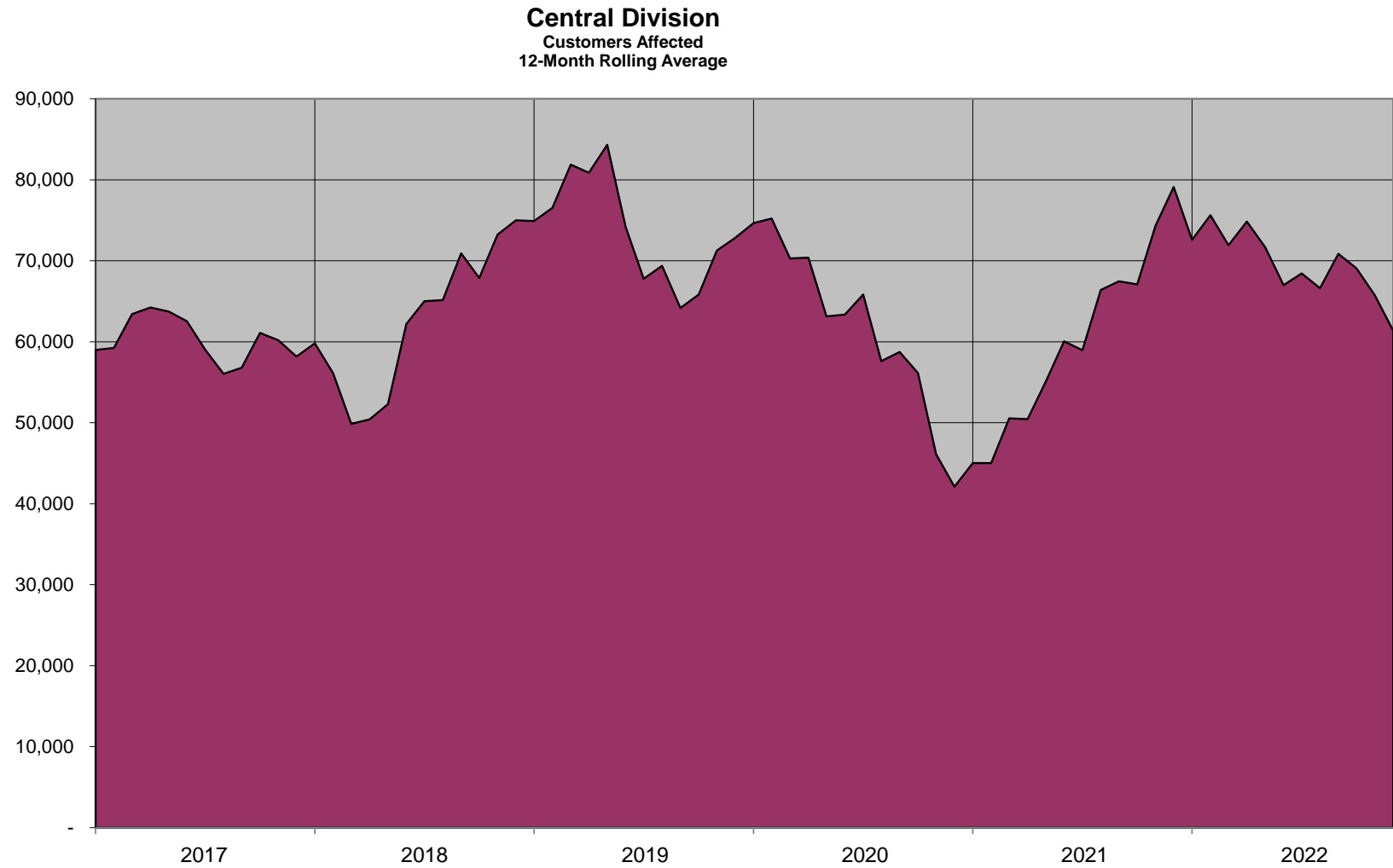
FIGURE 4.1 - 12 MONTH ROLLING AVERAGE – NUMBER OF INTERRUPTIONS



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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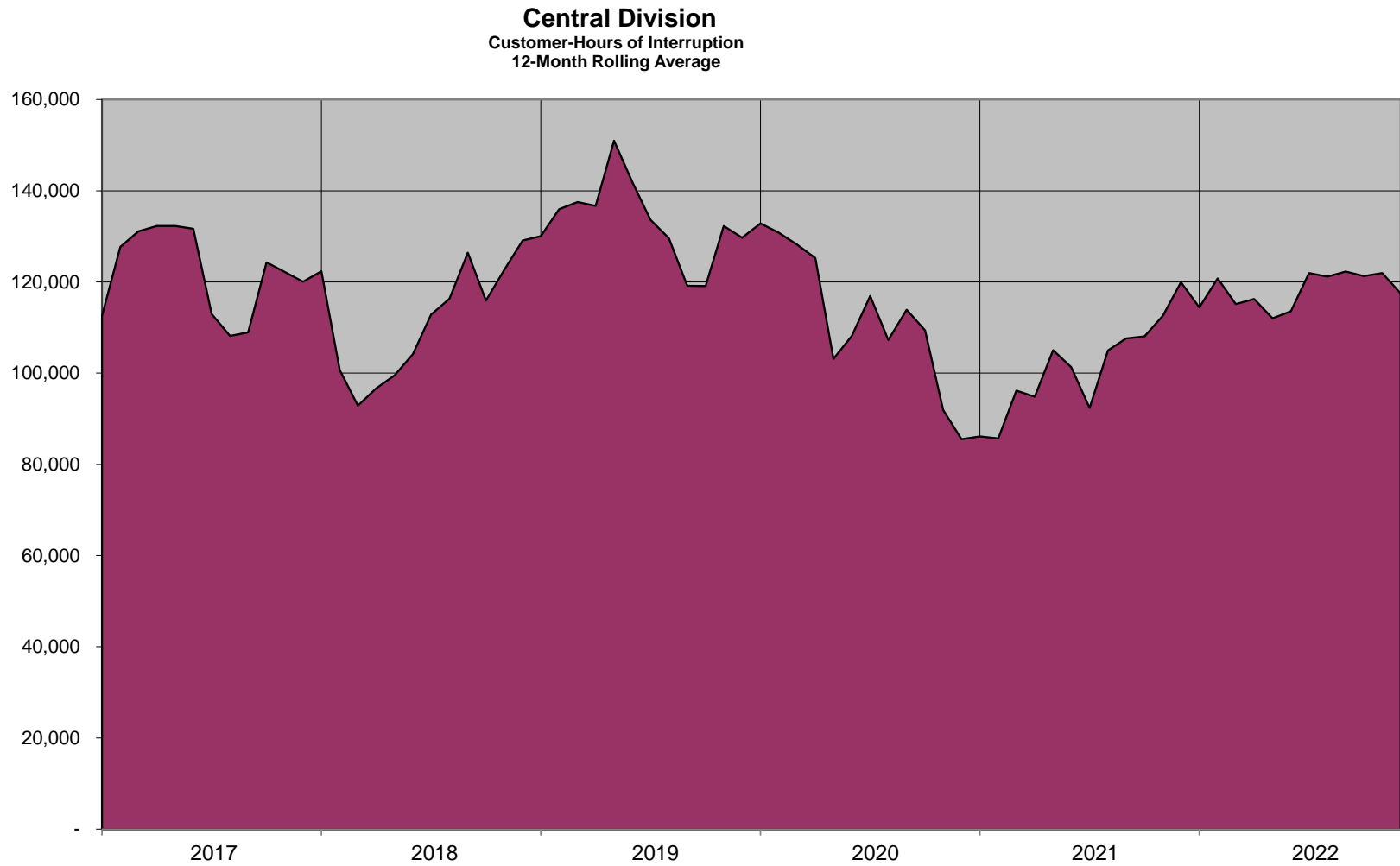
FIGURE 4.2 - 12 MONTH ROLLING AVERAGE – CUSTOMERS AFFECTED



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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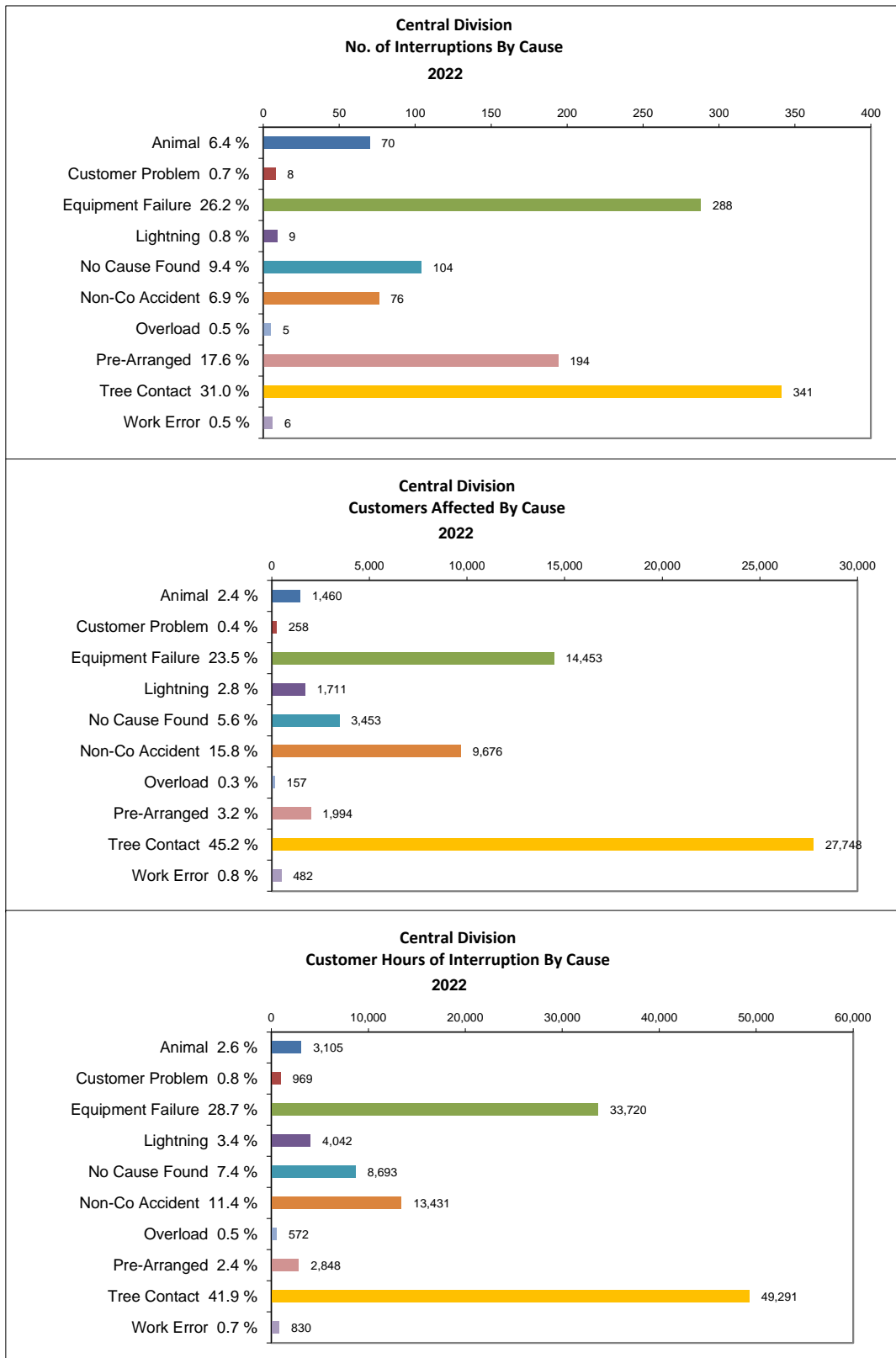
FIGURE 4.3 - 12 MONTH ROLLING AVERAGE – CUSTOMER-HOURS OF INTERRUPTIONS



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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FIGURE 4.4 - OUTAGE STATISTICS BY CAUSE



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TABLE 4.2 - EQUIPMENT FAILURES – BY TYPE AND EQUIPMENT FAILURE CODE

| Equipment | Number of Interruptions By Year | | | | | | |
|------------------------|---------------------------------|------|------|------|------|----------|------|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 5 Yr Ave | 2022 |
| Arrester | 14 | 4 | 2 | 4 | 4 | 6 | 4 |
| Connector/Splice - Pri | 3 | 8 | 9 | 8 | 8 | 7 | 9 |
| Connector/Splice - Sec | 41 | 72 | 39 | 42 | 37 | 46 | 40 |
| Disconnect | 0 | 2 | 0 | 0 | 1 | 1 | 0 |
| Electric Meter | 5 | 0 | 1 | 4 | 0 | 2 | 4 |
| Fuse/Cutout/Eld | 28 | 14 | 17 | 8 | 6 | 15 | 15 |
| GOAB | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Hardware/Pole | 16 | 21 | 16 | 14 | 22 | 18 | 20 |
| Insulator | 1 | 1 | 2 | 1 | 0 | 1 | 1 |
| Not Coded | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| O/H Step Transf | 0 | 4 | 1 | 1 | 4 | 2 | 2 |
| O/H Transformer | 34 | 42 | 42 | 41 | 47 | 41 | 48 |
| Recloser | 0 | 3 | 0 | 0 | 0 | 1 | 0 |
| Riser Pole Cutout | 2 | 9 | 1 | 6 | 5 | 5 | 7 |
| Wire/Cable - Pri | 31 | 12 | 17 | 36 | 44 | 28 | 20 |
| Wire/Cable - Sec | 20 | 37 | 31 | 34 | 39 | 32 | 20 |
| Total - OH | 195 | 230 | 179 | 199 | 217 | 204 | 190 |
| Brkr/Kyle/Switch | 3 | 1 | 3 | 6 | 0 | 3 | 2 |
| Buss | 0 | 5 | 0 | 0 | 0 | 1 | 0 |
| Cable | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Hardware/Pole/Tower | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Insulator | 0 | 0 | 4 | 0 | 0 | 1 | 0 |
| Not Coded | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Regulator | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Transformer | 0 | 0 | 0 | 1 | 3 | 1 | 0 |
| Total - Trans/Substa | 3 | 7 | 7 | 8 | 4 | 6 | 3 |
| Arrester | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Boxpad/Silo/Vault | 1 | 3 | 0 | 0 | 2 | 1 | 0 |
| Bushing | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Connector/Splice - Sec | 1 | 3 | 0 | 0 | 0 | 1 | 0 |
| Elbow | 2 | 3 | 2 | 2 | 1 | 2 | 3 |
| Hardware/Pole | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| Not Coded | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| O/H Transformer | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Padmount Transf | 19 | 33 | 22 | 23 | 28 | 25 | 46 |
| Splice/Junction - Pri | 1 | 1 | 1 | 1 | 2 | 1 | 1 |
| Splice/Junction - Sec | 5 | 7 | 3 | 5 | 11 | 6 | 3 |
| Stress Cone | 2 | 1 | 2 | 3 | 0 | 2 | 1 |
| Switch | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Wire/Cable - Pri | 11 | 14 | 16 | 14 | 22 | 15 | 26 |
| Wire/Cable - Sec | 7 | 18 | 12 | 4 | 8 | 10 | 14 |
| Total - UG | 50 | 87 | 59 | 54 | 75 | 65 | 95 |
| Total - Year | 248 | 324 | 245 | 261 | 296 | 275 | 288 |

Note: Figures in red denote that the value exceeds the five-year average

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TABLE 4.2 - EQUIPMENT FAILURES – BY TYPE AND EQUIPMENT FAILURE CODE (CONT.)

| Equipment | Customers Affected By Year | | | | | | |
|------------------------|----------------------------|--------|--------|--------|--------|----------|--------|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 5 Yr Ave | 2022 |
| Arrester | 162 | 208 | 318 | 39 | 115 | 168 | 1,051 |
| Connector/Splice - Pri | 52 | 462 | 4,684 | 347 | 54 | 1,120 | 830 |
| Connector/Splice - Sec | 54 | 95 | 58 | 68 | 65 | 68 | 232 |
| Disconnect | 0 | 2,207 | 0 | 0 | 1,930 | 827 | 0 |
| Electric Meter | 5 | 0 | 1 | 4 | 0 | 2 | 4 |
| Fuse/Cutout/Eld | 318 | 81 | 1,954 | 541 | 126 | 604 | 588 |
| GOAB | 0 | 0 | 1,369 | 0 | 0 | 274 | 0 |
| Hardware/Pole | 604 | 4,565 | 5,705 | 2,340 | 3,396 | 3,322 | 1,621 |
| Insulator | 4 | 21 | 970 | 1 | 0 | 199 | 197 |
| Not Coded | 0 | 95 | 0 | 0 | 0 | 19 | 0 |
| O/H Step Transf | 0 | 315 | 182 | 6 | 136 | 128 | 111 |
| O/H Transformer | 132 | 186 | 402 | 367 | 582 | 334 | 1,751 |
| Recloser | 0 | 4,763 | 0 | 0 | 0 | 953 | 0 |
| Riser Pole Cutout | 63 | 650 | 21 | 21 | 22 | 155 | 99 |
| Wire/Cable - Pri | 7,612 | 3,839 | 4,117 | 7,979 | 10,495 | 6,808 | 5,122 |
| Wire/Cable - Sec | 28 | 76 | 246 | 193 | 123 | 133 | 44 |
| Total - OH | 9,034 | 17,563 | 20,027 | 11,906 | 17,044 | 15,115 | 11,650 |
| Brkr/Kyle/Switch | 697 | 1,462 | 4,073 | 3,548 | 0 | 1,956 | 468 |
| Buss | 0 | 6,778 | 0 | 0 | 0 | 1,356 | 0 |
| Cable | 0 | 0 | 0 | 0 | 326 | 65 | 0 |
| Hardware/Pole/Tower | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Insulator | 0 | 0 | 1,931 | 0 | 0 | 386 | 0 |
| Not Coded | 0 | 1,263 | 0 | 0 | 0 | 253 | 0 |
| Regulator | 0 | 0 | 0 | 301 | 0 | 60 | 0 |
| Transformer | 0 | 0 | 0 | 699 | 419 | 224 | 0 |
| Total - Trans/Substa | 697 | 9,503 | 6,004 | 4,548 | 745 | 4,299 | 469 |
| Arrester | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Boxpad/Silo/Vault | 195 | 4 | 0 | 0 | 81 | 56 | 0 |
| Bushing | 0 | 0 | 0 | 19 | 0 | 4 | 6 |
| Connector/Splice - Sec | 1 | 3 | 0 | 0 | 0 | 1 | 0 |
| Elbow | 222 | 1,390 | 307 | 304 | 10 | 447 | 150 |
| Hardware/Pole | 0 | 0 | 0 | 148 | 161 | 62 | 0 |
| Not Coded | 1 | 2 | 0 | 0 | 0 | 1 | 0 |
| O/H Transformer | 0 | 15 | 0 | 0 | 0 | 3 | 0 |
| Padmount Transf | 154 | 421 | 797 | 310 | 1,249 | 586 | 486 |
| Splice/Junction - Pri | 1 | 50 | 22 | 109 | 40 | 44 | 43 |
| Splice/Junction - Sec | 25 | 23 | 51 | 12 | 98 | 42 | 3 |
| Stress Cone | 4 | 37 | 2 | 20 | 0 | 13 | 6 |
| Switch | 0 | 14 | 0 | 0 | 0 | 3 | 0 |
| Wire/Cable - Pri | 470 | 552 | 635 | 545 | 1,200 | 680 | 1,936 |
| Wire/Cable - Sec | 7 | 89 | 87 | 50 | 22 | 51 | 23 |
| Total - UG | 1,080 | 2,600 | 1,902 | 1,517 | 2,861 | 1,992 | 2,653 |
| Total - Year | 10,811 | 29,666 | 27,933 | 17,971 | 20,650 | 21,406 | 14,772 |

Note: Figures in red denote that the value exceeds the five-year average

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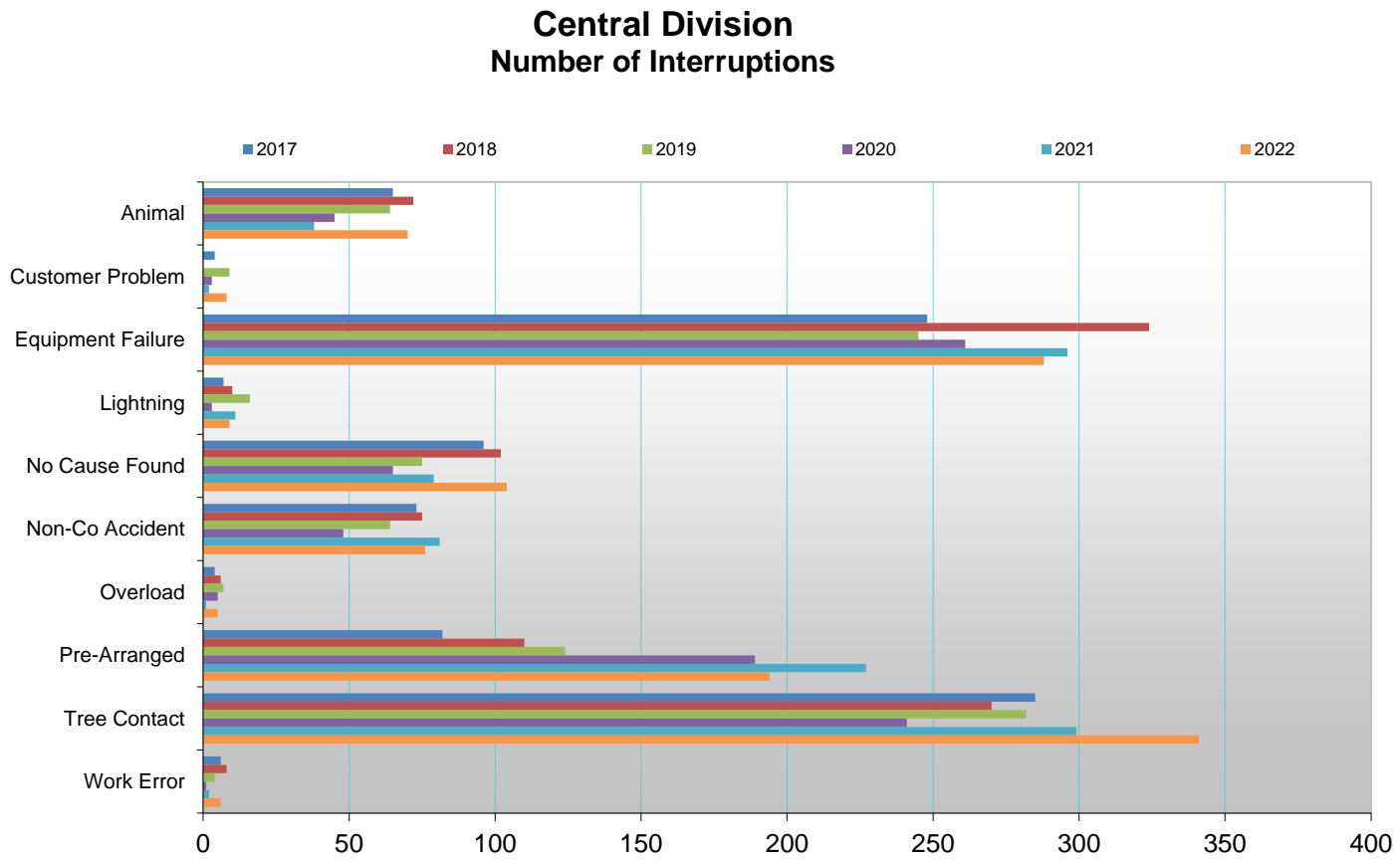
TABLE 4.2 - EQUIPMENT FAILURES – BY TYPE AND EQUIPMENT FAILURE CODE (CONT.)

| Outage Type | Equipment | Total Minutes of Interruption By Year | | | | | | |
|---------------------|-----------------------------|---------------------------------------|------------------|------------------|------------------|------------------|------------------|---------------|
| | | 2017 | 2018 | 2019 | 2020 | 2021 | 5 Yr Ave | 2022 |
| Overhead | Arrester | 17,928 | 24,764 | 26,557 | 6,473 | 8,566 | 16,858 | 46,725 |
| | Connector/Splice - Pri | 6,502 | 44,546 | 304,925 | 17,414 | 8,417 | 76,361 | 83,186 |
| | Connector/Splice - Sec | 8,896 | 15,691 | 8,139 | 14,591 | 9,684 | 11,400 | 32,338 |
| | Disconnect | 0 | 49,575 | 0 | 0 | 12,219 | 12,359 | 0 |
| | Electric Meter | 564 | 0 | 143 | 1,276 | 0 | 397 | 1,322 |
| | Fuse/Cutout/Eld | 64,315 | 11,215 | 74,734 | 41,696 | 11,616 | 40,715 | 37,154 |
| | GOAB | 0 | 0 | 138,983 | 0 | 0 | 27,797 | 0 |
| | Hardware/Pole | 87,837 | 473,980 | 192,361 | 266,970 | 181,196 | 240,469 | 138,312 |
| | Insulator | 1,036 | 4,074 | 45,178 | 133 | 0 | 10,084 | 13,568 |
| | Not Coded | 0 | 2,945 | 0 | 0 | 0 | 589 | 0 |
| | O/H Step Transf | 0 | 33,908 | 98,462 | 2,952 | 58,564 | 38,777 | 42,750 |
| | O/H Transformer | 38,966 | 60,536 | 103,691 | 67,965 | 71,932 | 68,618 | 87,036 |
| | Recloser | 0 | 248,695 | 0 | 0 | 0 | 49,739 | 0 |
| | Riser Pole Cutout | 15,041 | 166,826 | 13,398 | 3,672 | 1,680 | 40,123 | 14,619 |
| | Wire/Cable - Pri | 547,421 | 285,329 | 771,452 | 994,169 | 729,214 | 665,517 | 833,865 |
| Wire/Cable - Sec | 4,499 | 11,228 | 42,003 | 14,818 | 22,657 | 19,041 | 7,631 | |
| Total - OH | 793,005 | 1,433,312 | 1,820,026 | 1,432,129 | 1,115,745 | 1,318,843 | 1,338,506 | |
| Trans/Substa | Brkr/Kyle/Switch | 6,273 | 83,334 | 689,535 | 110,999 | 0 | 178,028 | 20,967 |
| | Buss | 0 | 339,554 | 0 | 0 | 0 | 67,911 | 0 |
| | Cable | 0 | 0 | 0 | 0 | 20,375 | 4,075 | 0 |
| | Hardware/Pole/Tower | 0 | 0 | 0 | 0 | 0 | 0 | 1,097 |
| | Insulator | 0 | 0 | 145,637 | 0 | 0 | 29,127 | 0 |
| | Not Coded | 0 | 144,512 | 0 | 0 | 0 | 28,902 | 0 |
| | Regulator | 0 | 0 | 0 | 38,227 | 0 | 7,645 | 0 |
| | Transformer | 0 | 0 | 0 | 67,977 | 19,705 | 17,536 | 0 |
| | Total - Trans/Substa | 6,273 | 567,400 | 835,172 | 217,203 | 40,080 | 333,226 | 22,064 |
| Underground | Arrester | 0 | 0 | 298 | 0 | 0 | 60 | 0 |
| | Boxpad/Silo/Vault | 3,926 | 433 | 0 | 0 | 19,567 | 4,785 | 0 |
| | Bushing | 0 | 0 | 0 | 4,719 | 0 | 944 | 2,688 |
| | Connector/Splice - Sec | 337 | 748 | 0 | 0 | 0 | 217 | 0 |
| | Elbow | 67,321 | 299,516 | 81,803 | 134,779 | 4,750 | 117,634 | 24,273 |
| | Hardware/Pole | 0 | 0 | 0 | 60,088 | 31,073 | 18,232 | 0 |
| | Not Coded | 355 | 1,794 | 0 | 0 | 0 | 430 | 0 |
| | O/H Transformer | 0 | 1,798 | 0 | 0 | 0 | 360 | 0 |
| | Padmount Transf | 30,185 | 83,068 | 138,706 | 91,847 | 115,035 | 91,768 | 107,440 |
| | Splice/Junction - Pri | 124 | 13,100 | 1,254 | 59,393 | 19,020 | 18,578 | 17,243 |
| | Splice/Junction - Sec | 5,560 | 9,152 | 9,186 | 2,059 | 23,935 | 9,978 | 1,202 |
| | Stress Cone | 875 | 1,665 | 782 | 5,869 | 0 | 1,838 | 2,634 |
| | Switch | 0 | 2,016 | 0 | 0 | 0 | 403 | 0 |
| | Wire/Cable - Pri | 151,912 | 148,669 | 195,829 | 153,548 | 365,876 | 203,167 | 498,625 |
| Wire/Cable - Sec | 2,743 | 33,311 | 41,301 | 6,390 | 9,048 | 18,559 | 8,513 | |
| Total - UG | 263,338 | 595,270 | 469,159 | 518,692 | 588,304 | 486,953 | 662,618 | |
| Total - Year | 1,062,616 | 2,595,982 | 3,124,357 | 2,168,024 | 1,744,129 | 2,139,022 | 2,023,188 | |

Note: Figures in red denote that the value exceeds the five-year average

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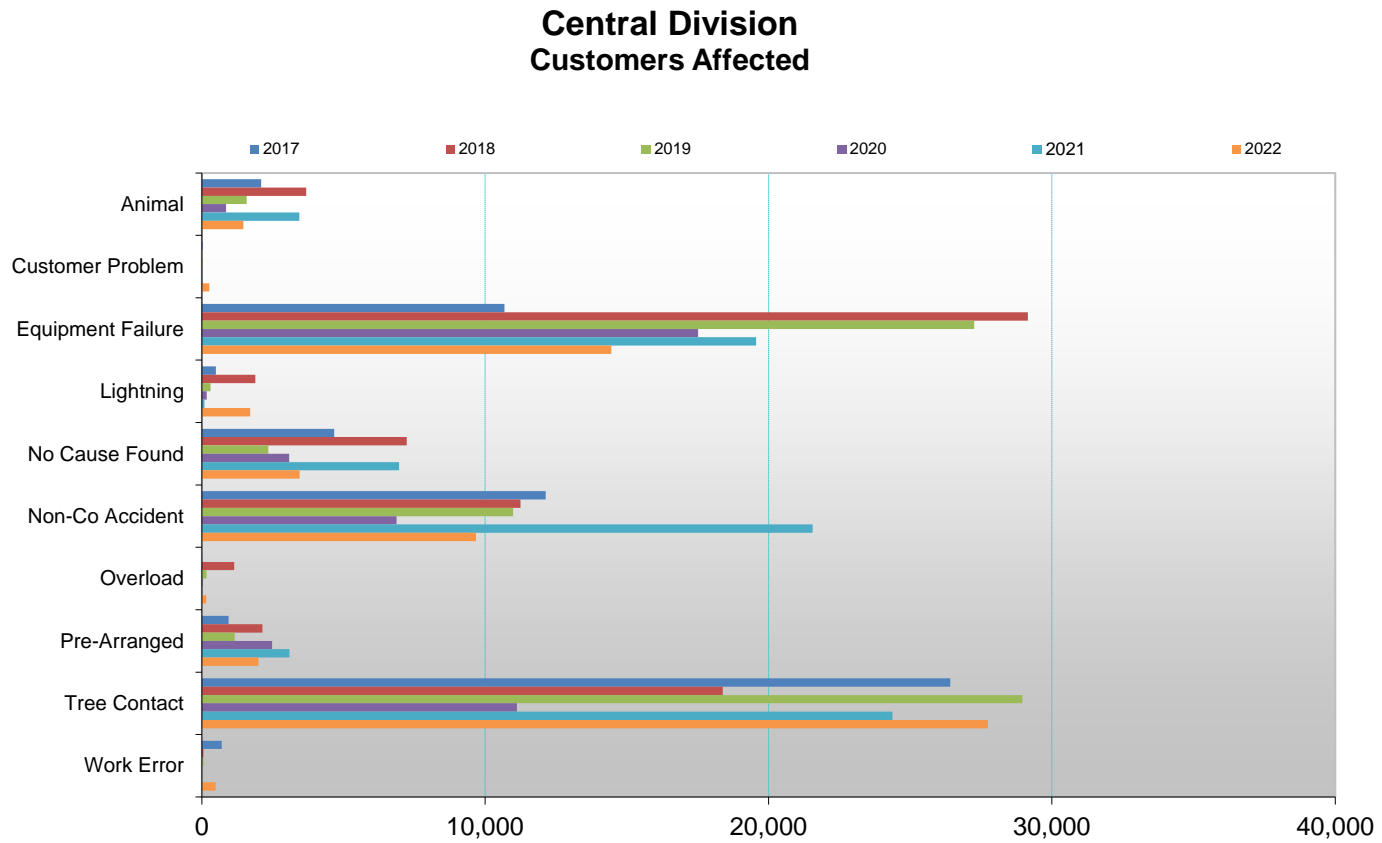
FIGURE 4.5 - 5-YEAR COMPARISON – NUMBER OF INTERRUPTIONS BY MAJOR CAUSE



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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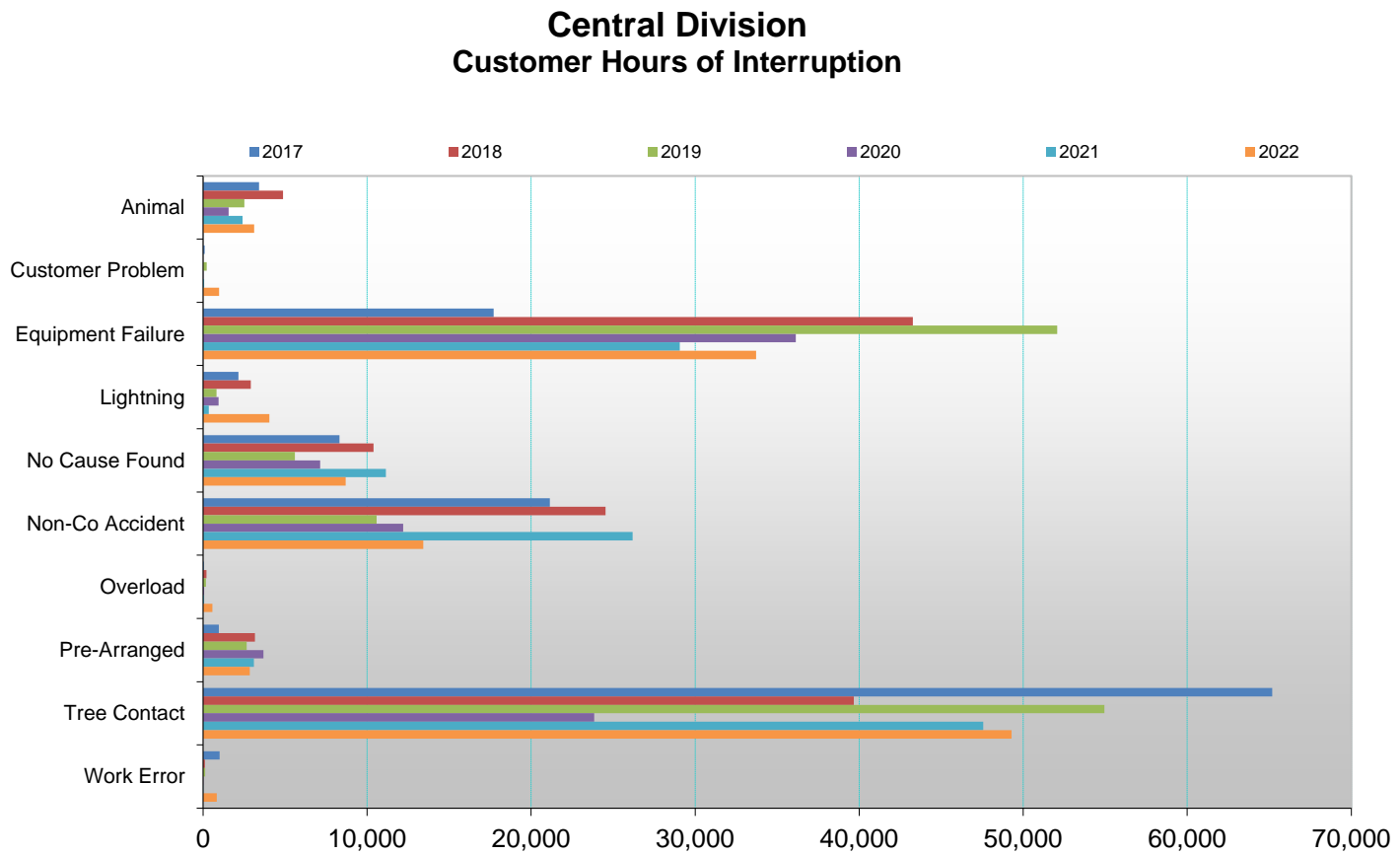
FIGURE 4.6 - 5-YEAR COMPARISON – CUSTOMERS AFFECTED BY MAJOR CAUSE



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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FIGURE 4.7 - 5-YEAR COMPARISON – CUSTOMER-HOURS OF INTERRUPTIONS BY MAJOR CAUSE



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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TABLE 4.3 - 5-YR COMPARISON – LARGE OUTAGE (>5,000 CUSTOMERS) IMPACT ON SAIFI, CAIDI & SAIDI

**Central Division Without Storms
Effect of Interruptions Affecting 5,000 or more Customers**

| YEAR | CUSTOMERS SERVED (CS) | # OF INTERRUPTIONS | CUSTOMERS AFFECTED (CA) | CUSTOMER MINUTES OF INTERRUPTION (CM) | FREQUENCY (CA/CS) | RESTORATION (CM/CA) | DURATION (CM/CS) |
|---|-----------------------|--------------------|-------------------------|---------------------------------------|-------------------|---------------------|------------------|
| WITHOUT STORMS | | | | | | | |
| 2017 | 56,353 | 870 | 58,169 | 7,202,401 | 1.03 | 2.06 | 2.13 |
| 2018 | 57,976 | 975 | 74,992 | 7,744,345 | 1.29 | 1.72 | 2.23 |
| 2019 | 58,533 | 890 | 72,847 | 7,782,250 | 1.24 | 1.78 | 2.22 |
| 2020 | 59,171 | 857 | 42,097 | 5,130,629 | 0.71 | 2.03 | 1.45 |
| 2021 | 59,839 | 1,036 | 79,104 | 7,197,548 | 1.32 | 1.52 | 2.00 |
| 5-Yr Average | 58,374 | 926 | 65,442 | 7,011,435 | 1.12 | 1.79 | 2.00 |
| 2022 | 60,476 | 1,101 | 61,392 | 7,050,043 | 1.02 | 1.91 | 1.94 |
| WITHOUT STORMS - OUTAGES AFFECTING > 5000 CUSTOMERS | | | | | | | |
| YEAR | SERVED | INTERR's | CUST AFF | CUST MIN | | | |
| 2017 | 56,353 | - | - | - | | | |
| 2018 | 57,976 | - | - | - | | | |
| 2019 | 58,533 | 1 | 5,753 | 3,884 | | | |
| 2020 | 59,171 | - | - | - | | | |
| 2021 | 59,839 | - | - | - | | | |
| 5-Yr Average | 58,374 | 0.20 | 1,151 | 777 | | | |
| 2022 | 60,476 | - | - | - | | | |
| WITHOUT STORMS AND WITHOUT THOSE OUTAGES AFFECTING > 5000 CUSTOMERS | | | | | | | |
| 2017 | 56,353 | 870 | 58,169 | 7,202,401 | 1.03 | 2.06 | 2.13 |
| 2018 | 57,976 | 975 | 74,992 | 7,744,345 | 1.29 | 1.72 | 2.23 |
| 2019 | 58,533 | 889 | 67,094 | 7,778,366 | 1.15 | 1.93 | 2.21 |
| 2020 | 59,171 | 857 | 42,097 | 5,130,629 | 0.71 | 2.03 | 1.45 |
| 2021 | 59,839 | 1,036 | 79,104 | 7,197,548 | 1.32 | 1.52 | 2.00 |
| 5-Yr Average | 58,374 | 925 | 64,291 | 7,010,658 | 1.10 | 1.82 | 2.00 |
| 2022 | 60,476 | 1,101 | 61,392 | 7,050,043 | 1.02 | 1.91 | 1.94 |

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4.3. Central Division Worst Performing Circuits

4.3.1. Circuit 84-1-13

Circuit 84-1-13 is ranked first in the Central Division per 2022 priority circuit rating results. The circuit originates from the Hunt Substation and serves a total of 2,201 customers in Monroe, New York.

In 2022, there were 35 interruptions, which affected 3,983 customers and resulted in 6,629 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 84-1-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 84-1-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 2 | 5.7 | 68 | 1.7 | 77.3 | 1.2 |
| Branch Contact (In Trim Zone) | 1 | 2.9 | 157 | 3.9 | 397.7 | 6.0 |
| Equipment Failure | 10 | 28.6 | 1,684 | 42.3 | 2,221.5 | 33.5 |
| No Cause Found | 4 | 11.4 | 169 | 4.2 | 346.3 | 5.2 |
| Non-Co Acc - Other | 1 | 2.9 | 3 | 0.1 | 13.9 | 0.2 |
| Overload - Company | 2 | 5.7 | 16 | 0.4 | 76.0 | 1.2 |
| Pre-Arr - Company | 1 | 2.9 | 3 | 0.1 | 2.3 | 0.0 |
| Tree Contact (In Trim Zone) | 11 | 31.4 | 1,714 | 43.0 | 2,828.4 | 42.7 |
| Tree Contact (Out of Trim Zone) | 3 | 8.6 | 169 | 4.2 | 665.3 | 10.0 |
| Total | 35 | | 3,983 | | 6,628.7 | |

In 2022, four of the 35 incidents accounted for 3,413 (51%) of the 6,629 total customer-hours of interruption for the year. The four incidents were the result of tree contacts and equipment failures. Given that these few events had such a significant impact to the circuit's reliability performance, 2022 should be considered an anomaly.

The largest event occurred on November 7, 2022, on Lakeview Drive in Monroe, NY. The outage was the result of tree contact. The event accounted for 1,117 (17%) of the total 6,629 customer-hours of interruption. A fallen tree caused damage to two sections of primary lines outside of the substation, resulting in a transformer catching fire and tripping the substation. Within just over two hours, crews were able to locate and isolate the fault, enabling the fire department to extinguish the fire. Afterward, crews replaced the damaged transformer and repaired the two damaged primary sections before re-energizing service to customers.

The second largest event occurred on August 7, 2022, on Eagleton Drive, Monroe, NY. The outage was the result of an underground pad mounted transformer failure which was caused by extreme

heat temperatures we were experiencing during that period. The event accounted for 810 (12%) of the total 6,629 customer-hours of interruption.

The third largest event occurred on December 15, 2022, on Lakeview Drive, Monroe, NY. The outage occurred due to a fallen tree, which caused all three sections of primary lines to be pinned down, leading to the cutout blowing. The event accounted for 757 (11%) of the total 6,629 customer-hours of interruption.

The fourth largest event occurred on July 18, 2022, on Old-Tuxedo Road, Greenwood Lake, NY. An outage was caused by a lightning strike, which resulted in the failure of the arrester and subsequent breaker lockout. Repairs to the arrester were swiftly carried out, leading to the restoration of services to affected customers in just over an hour and a half. This quick response was due to having the ability to switch out the circuit remotely, which efficiently helped to minimize the outage and ultimately saved just over one-thousand customers from being impacted. The event accounted for 729 (11%) of the total 6,629 customer-hours of interruption.

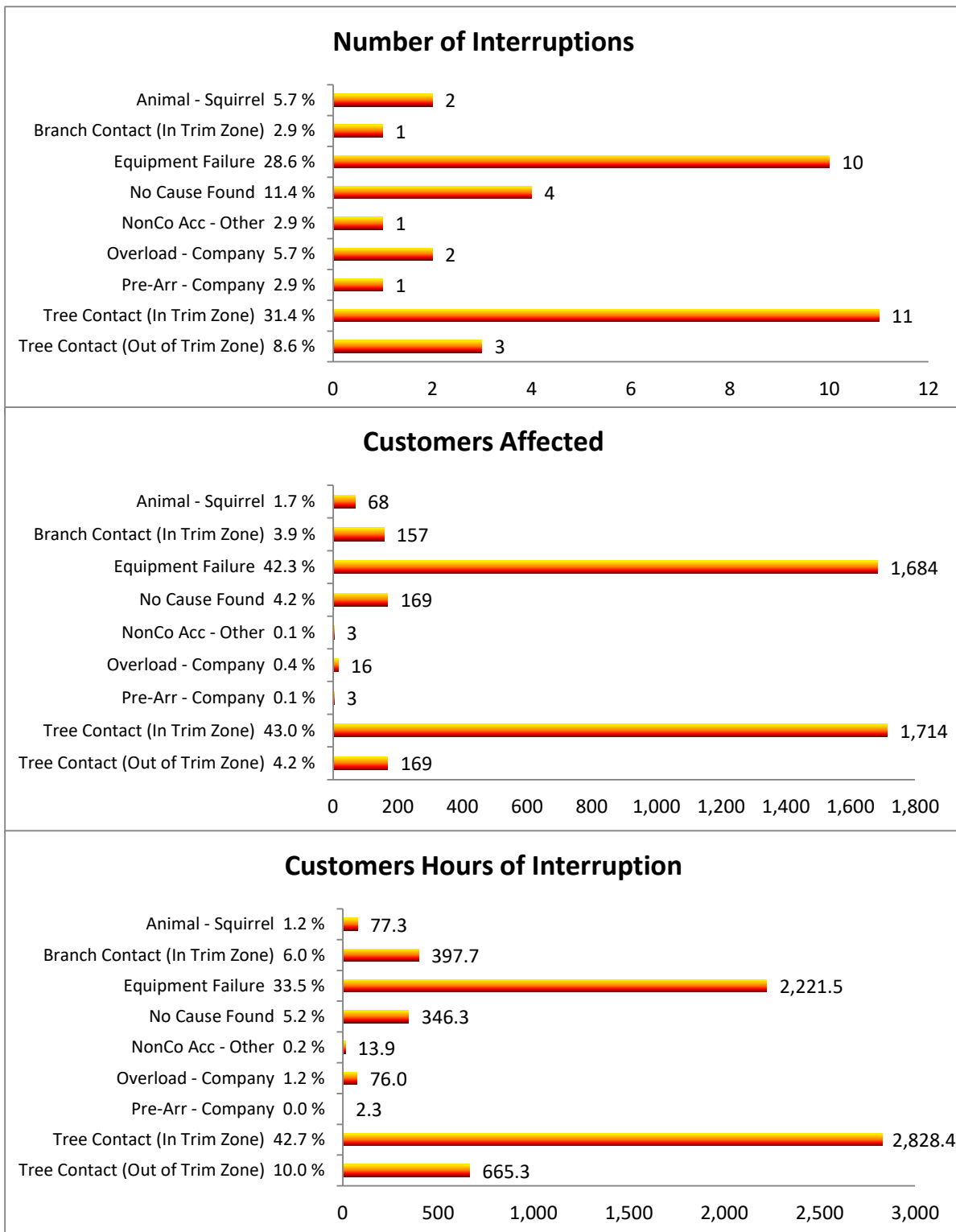
In 2023, this circuit will be included in the circuit ownership program. It will be thoroughly patrolled for broken and defective components, vegetation contact, missing animal guards and lightning protection. An infrared thermal inspection is scheduled on this circuit for 2023 as well. The Company intends to correct identified defects from both of those inspections.

84-1-13 At A Glance

| Circuit Stats | | | |
|--------------------|--------|---------------|--------------|
| | Count | Rank Division | Rank Company |
| Customers | 2,201 | 5 | 18 |
| Critical Customers | 12 | 9 | 26 |
| Circuit Miles | 51 | 6 | 51 |
| Customers/Mile | 43.2 | 27 | 192 |
| Connected kVA | 21,160 | 19 | 79 |

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CIRCUIT 84-1-13 – ONE-YEAR PERFORMANCE



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4.3.2. Circuit 80-3-13

Circuit 80-3-13 is ranked second in the Central Division per 2022 priority circuit rating results. The circuit originates from the Wisner Substation in Warwick, New York, extends for approximately 74 circuit miles and serves 3,018 customers.

In 2022, there were 30 interruptions, which affected 3,450 customers and resulted in 4,234 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 80-3-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 80-3-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 2 | 6.7 | 42 | 1.2 | 98.5 | 2.3 |
| Equipment Failure | 7 | 23.3 | 277 | 8.0 | 997.7 | 23.6 |
| No Cause Found | 3 | 10.0 | 194 | 5.6 | 484.3 | 11.4 |
| Non-Co Acc – Motor Veh | 2 | 6.7 | 148 | 4.3 | 272.2 | 6.4 |
| Overload - Company | 1 | 3.3 | 2 | 0.1 | 0.7 | 0.0 |
| Pre-Arr - Company | 4 | 13.3 | 137 | 4.0 | 233.5 | 5.5 |
| Tree Contact (In Trim Zone) | 9 | 30.0 | 2,606 | 75.5 | 2,066.5 | 48.8 |
| Vine Contact | 1 | 3.3 | 41 | 1.2 | 79.3 | 1.9 |
| Work Err - Company | 1 | 3.3 | 3 | 0.1 | 1.5 | 0.0 |
| Total | 30 | | 3,450 | | 4,234.2 | |

In 2022, one of the 30 incidents accounted for 1,321 (31%) of the 4,234 total customer-hours of interruption for the year. The incident occurred as a result of a tree falling on section of the primary infrastructure and compromising it. Removing this single event would drop this circuit off the worst performing circuit list.

The Company has continuously been taking steps to improve the performance of circuit 80-3-13. This includes increasing remote switching capacity and enhancing monitoring capabilities. The Company has also invested in additional maintenance efforts so that the circuit is functioning properly. However, due to the circuit's considerable length, it is more susceptible to issues such as tree contact, which are the leading cause of interruptions, resulting in the circuit remaining in the top five worst performing circuits.

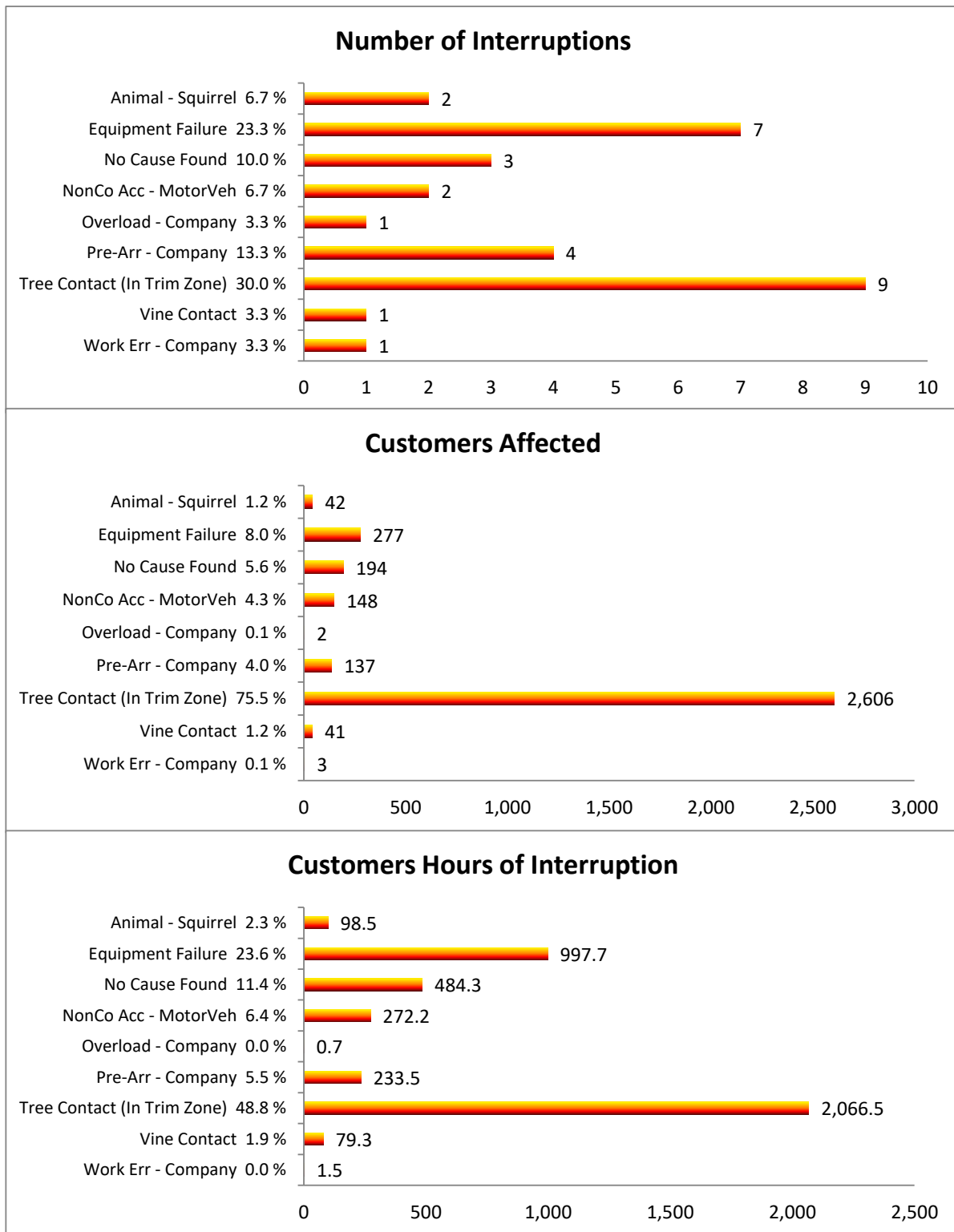
In 2023, the Company is planning to install Hendrix cable as a means of enhancing circuit dependability along Pumpkin Hill Road, which is prone to power outages caused by trees. The project is designed to storm harden this section of mainline by upgrading the existing horizontal cross-arm construction to a Hendrix Spacer Cable system and perform tree trimming along this 2,000-foot section of roadway. The conductor upgrade along with tree trimming, will improve reliability to this known problem area.

80-3-13 At A Glance

| Circuit Stats | | | |
|--------------------|--------|---------------|--------------|
| | Count | Rank Division | Rank Company |
| Customers | 3,018 | 1 | 2 |
| Critical Customers | 13 | 6 | 20 |
| Circuit Miles | 75 | 1 | 2 |
| Customers/Mile | 40.4 | 30 | 201 |
| Connected kVA | 40,621 | 1 | 3 |

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CIRCUIT 80-3-13 – ONE-YEAR PERFORMANCE



4.3.3. Circuit 89-2-13

Circuit 89-2-13 is ranked third in the Central Division per 2022 priority circuit rating results. The circuit originates from the South Goshen Substation and serves a total of 1,118 customers in Goshen, New York.

In 2022, there were 26 interruptions, which affected 2,099 customers and resulted in 8,317 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 89-2-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 89-2-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 1 | 3.9 | 4 | 0.2 | 6.9 | 0.1 |
| Equipment Failure | 8 | 30.8 | 1,410 | 67.2 | 6,676.3 | 80.3 |
| No Cause Found | 4 | 15.4 | 164 | 7.8 | 428.9 | 5.2 |
| Non-Co Acc – Motor Veh | 6 | 23.1 | 489 | 23.3 | 1,114.4 | 13.4 |
| Non-Co Acc - Other | 1 | 3.9 | 4 | 0.2 | 0.8 | 0.0 |
| Pre-Arr - Company | 3 | 11.5 | 9 | 0.4 | 11.5 | 0.1 |
| Tree Contact (In Trim Zone) | 2 | 7.7 | 15 | 0.7 | 68.6 | 0.8 |
| Vine Contact | 1 | 3.9 | 4 | 0.2 | 9.4 | 0.1 |
| Total | 26 | | 2,099 | | 8,316.8 | |

In 2022, two of the 26 incidents accounted for 6,494 (78%) of the 8,317 total customer-hours of interruption for the year. The incidents were both the result of equipment failure.

The largest event was due to equipment failure during an extreme heat event which caused significant impact on customers. The failure was related to a primary conductor that came apart, which affected 1,102 (53%) customers of the total number of customers impacted. Additionally, the total customer hours impacted were 5,451 (66%) of the total customer hours.

The second largest incident was also related to equipment failure, specifically a pole top failure, which impacted 198 (9%) customers of the total number of customers impacted. This incident resulted in a total of 1,043 (13%) customer hours.

These two events are the primary reason why the circuit is currently on the worst performing circuit list and removing them would significantly improve its overall performance.

In 2022, the Company has increased the automation on the circuit by replacing seven manual switches with motor operated remote capable switches (MOABs). MOABs are scheduled to be commissioned in early 2023, which should allow for faster isolation of faults and restoration of customers.

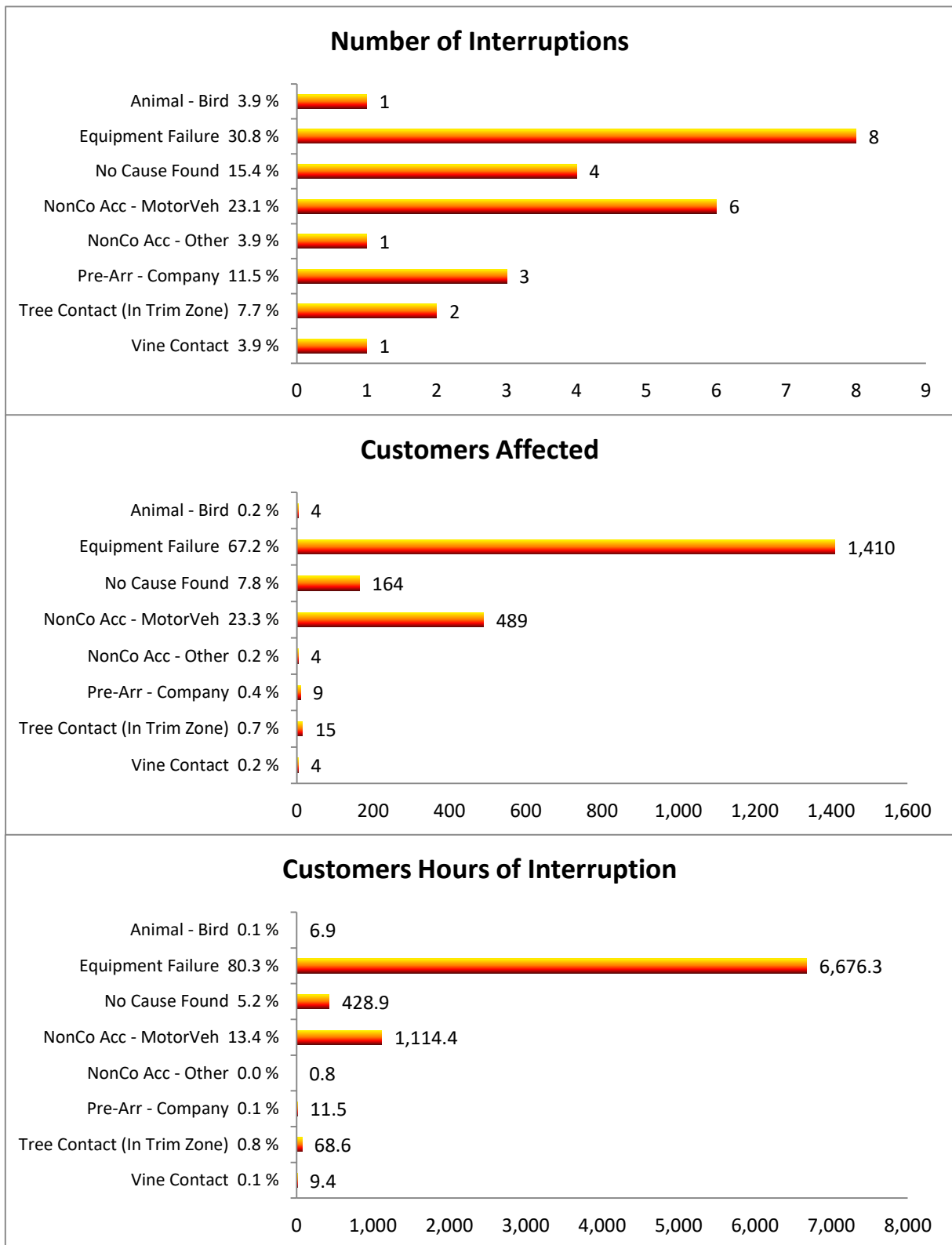
In 2022, O&R completed an infrared thermal inspection of this circuit, and no defects were detected. The circuit is slated to undergo another inspection using the same method in 2023. The circuit will also be included in the circuit ownership program in 2023. It will be thoroughly patrolled for broken and defective components, vegetation contact, missing animal guards and lightning protection.

89-2-13 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|----------------------|---------------------|
| | Count | Rank Division | Rank Company |
| Customers | 1,118 | 26 | 126 |
| Critical Customers | 14 | 2 | 12 |
| Circuit Miles | 49 | 8 | 19 |
| Customers/Mile | 23 | 44 | 254 |
| Connected kVA | 34,015 | 3 | 8 |

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CIRCUIT 89-2-13 – ONE-YEAR PERFORMANCE



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4.3.4. Circuit 71-3-13

Circuit 71-3-13 is ranked fourth in the Central Division per 2022 priority circuit rating results. The circuit originates from the Harriman Substation and serves a total of 2,395 customers in Central Valley, New York.

In 2022, there were 39 interruptions, which affected 3,539 customers and resulted in 5,420 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 71-3-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 71-3-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 1 | 2.6 | 25 | 0.7 | 50.4 | 0.9 |
| Branch Contact (In Trim Zone) | 1 | 2.6 | 4 | 0.1 | 5.8 | 0.1 |
| Customer Problem | 1 | 2.6 | 16 | 0.5 | 62.9 | 1.2 |
| Equipment Failure | 7 | 18.0 | 691 | 19.5 | 1,332.3 | 24.6 |
| No Cause Found | 1 | 2.6 | 8 | 0.2 | 83.1 | 1.5 |
| Non-Co Acc – Motor-Veh | 1 | 2.6 | 3 | 0.1 | 3.3 | 0.1 |
| Non-Co Acc - Tree | 1 | 2.56 | 52 | 1.47 | 72.8 | 1.34 |
| Pre-Arr - Company | 18 | 46.15 | 167 | 4.72 | 193.45 | 3.57 |
| Tree Contact (In Trim Zone) | 8 | 20.5 | 2,573 | 72.7 | 3,615.9 | 66.7 |
| Total | 39 | | 3,539 | | 5,419.9 | |

In 2022, two of the 39 incidents accounted for 3,150 (58%) of the 5,420 total customer-hours of interruption for the year. The two incidents were the result of tree contact. Given that these two events had such a significant impact to the circuit's reliability performance, 2022 should be considered an anomaly.

The largest event occurred on December 12, 2022. The outage was the result of tree contact with primary conductor. A tree caused damage to the conductor and subsequently broke a pole outside of business hours, necessitating the call in of O&R crews. The event accounted for 1,608 (30%) of the total 5,420 customer-hours of interruption.

The second largest event occurred on September 6, 2022. The outage occurred due to a tree making contact with the primary conductor, which caused it to go down. The event took place at the beginning of the circuit and triggered a circuit lockout. Thanks to automation, the event was quickly switched out to prevent customers on the circuit from experiencing the outage. The event accounted for 1,542 (28%) of the total 5,420 customer-hours of interruption.

In 2022, O&R completed an infrared thermal inspection of this circuit, and no defects were detected. An infrared thermal inspection is scheduled on this circuit for 2023.

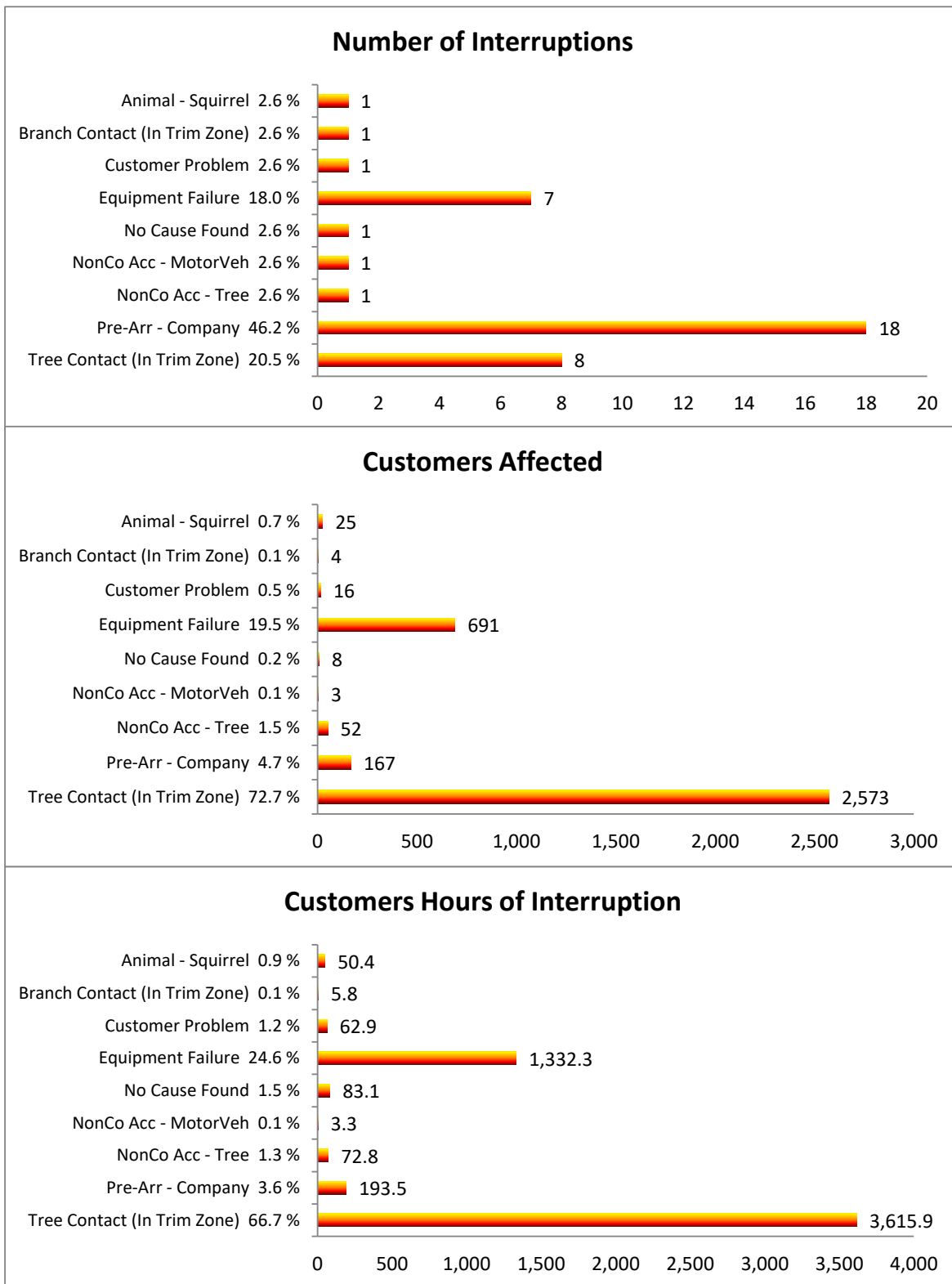
In 2023, the circuit will be included in the circuit ownership program. It will be thoroughly patrolled for broken and defective components, vegetation contact, missing animal guards and lightning protection. The Company intends to correct identified defects from both of those inspections.

71-3-13 At A Glance

| Circuit Stats | | | |
|--------------------|--------|---------------|--------------|
| | Count | Rank Division | Rank Company |
| Customers | 2,395 | 3 | 14 |
| Critical Customers | 15 | 1 | 10 |
| Circuit Miles | 54 | 4 | 13 |
| Customers/Mile | 44.3 | 24 | 184 |
| Connected kVA | 30,020 | 5 | 18 |

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CIRCUIT 71-3-13 – ONE-YEAR PERFORMANCE



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4.3.5. Circuit 89-1-13

Circuit 89-1-13 is ranked fifth in the Central Division per 2022 priority circuit rating results. The circuit originates from the South Goshen Substation and serves a total of 1,692 customers in Goshen, New York.

In 2022, there were 17 interruptions, which affected 2,083 customers and resulted in 4,429 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 89-1-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 89-1-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 3 | 17.7 | 59 | 2.8 | 106.5 | 2.4 |
| Branch Contact (In Trim Zone) | 2 | 11.8 | 604 | 29.0 | 119.0 | 2.7 |
| Equipment Failure | 1 | 5.9 | 2 | 0.1 | 4.4 | 0.1 |
| Lightning - Previous | 1 | 5.9 | 1,143 | 54.9 | 3,567.5 | 80.5 |
| No Cause Found | 5 | 29.4 | 169 | 8.1 | 268.2 | 6.1 |
| Pre-Arr - Company | 3 | 17.7 | 16 | 0.8 | 7.7 | 0.2 |
| Tree Contact (In Trim Zone) | 2 | 11.8 | 90 | 4.3 | 356.0 | 8.0 |
| Total | 17 | | 2,083 | | 4,429.2 | |

In 2022, one of the 17 incidents accounted for 3,567 (81%) of the 4,429 total customer-hours of interruption for the year. The outage was caused by a lightning event that took place outside of normal business hours. Unfortunately, the incident was also accompanied by heavy rainfall, which considerably impeded restoration efforts. Given that this event had such a significant impact to the circuit's reliability performance, 2022 should be considered an anomaly.

In 2022, O&R completed an infrared thermal inspection of this circuit, and an infrared thermal inspection is scheduled on this circuit for 2023, as well.

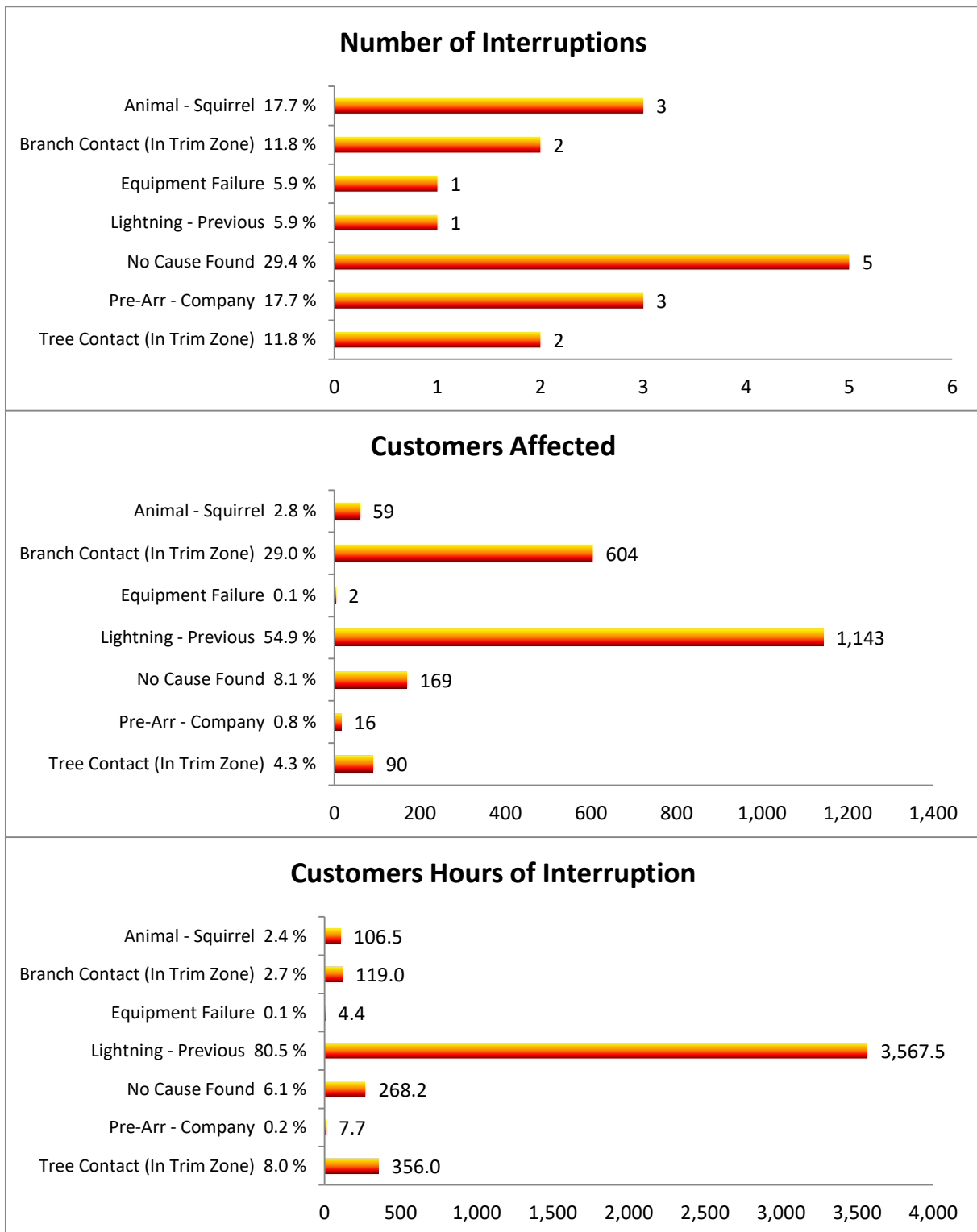
In 2023, the circuit will be included in the circuit ownership program. It will be thoroughly patrolled for broken and defective components, vegetation contact, missing animal guards and lightning protection.

89-1-13 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|----------------------|---------------------|
| | Count | Rank Division | Rank Company |
| Customers | 1,692 | 15 | 51 |
| Critical Customers | 6 | 22 | 100 |
| Circuit Miles | 32 | 21 | 55 |
| Customers/Mile | 53.2 | 16 | 149 |
| Connected kVA | 29,718 | 6 | 19 |

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CIRCUIT 89-1-13 – ONE-YEAR PERFORMANCE



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5. WESTERN DIVISION

5.1. 2022 Divisional Performance

In 2022, the year-end frequency for the Western Division was 1.35 customers affected per customer served, which was an improvement from the 2021 performance of 1.73, lower than the five-year average of 1.39 and also lower than the divisional standard of 1.73. The 2022 performance was the third highest in the last six years.

The year-end restoration for the Western Division was 1.92 customer hours of interruption per customer affected, the worst performance in the past six years, and well above the trailing five-year average of 1.67 and the divisional standard of 2.00.

[Figures 5-1](#), [5-2](#), and [5-3](#), show performance trends on a rolling 12-month basis from 2017 through 2022. The rolling 12-month average number of interruptions continued an increasing trajectory after a two-year downward trend that started in May 2019. The graph of the 12-month rolling number of customers affected had a downward trend in comparison to 2021 and the 12-month rolling customer-hours of interruption, once again, continued an upward trend that started in 2021. This places customer-hours of interruption slightly above historical performance.

A summary by cause for Western Division interruptions experienced in 2022 is shown in [Figure 5-4](#). With tree contact being the major cause for outages, and increasing from 2021 levels, it also continued to be the leading cause of interruptions, customers affected and customer-hours of interruption. The number of interruptions in this category remained above historical levels for the fifth year in a row. Equipment failures were a distant second in terms of interruptions and customer-hours of interruption for the year. Non-Company accidents were also a distant second when it came to customers affected. Pre-arranged outages continue to be the third leading cause of interruptions, similar to the Central Division where system upgrades and voltage conversion work from 4,800 V to 13.2 kV continue on an ongoing basis. All other causes were well below tree contact and equipment failures and were consistent with historical norms.

Of the 444 interruptions in the tree contact category, 81 (18%) were attributable to partial power or single service conditions. Of the 254 interruptions in the equipment failure category, 100 (39%), were attributable to partial power/single service customer conditions.

A graphical representation, by cause, is depicted in [Figures 5-5](#), [5-6](#), and [5-7](#), which shows the annual contribution to the number of interruptions, customers affected, and customer hours of interruption, respectively, from 2017 through 2022.

Although the second largest contributor to customer interruptions in the Western Division in 2022, equipment failures were also within historical norms for most categories, except primary wire failures which were well above historical norms for the third year in a row. A review of the outages

did not result in any identifiable trends or commonality between the outages in this category. The Company will continue to monitor this category in 2023.

[Table 5-3](#) shows the Western Division history from 2017 through 2022, with and without major events. There were no events in the division during the year that impacted greater than 5,000 customers.

There are 55 circuits serving the Western Division. [Appendix A](#) details the circuit priority ratings for all of O&R's distribution circuits. Only circuits that serve at least 40% of the Company's New York customers, with respect to its total number of customers served, were considered for evaluation in the worst performing circuit analysis for this report.

Western Division circuits are also listed in [Appendix D](#), first in order of decreasing frequency and then in order of decreasing restoration. 20 of the 54 circuits were not considered for this evaluation because the number of customers served did not exceed 100, or the number of interruptions did not exceed three. Of the remaining circuits, 36 (67%) made the minimum acceptable level for frequency, and 36 (67%) circuits made the minimum acceptable level for restoration. Both measures showed an increase from 2021 levels when 34 circuits met the SAIFI minimum and 34 met the CAIDI minimum.

The 2022 Company storm statistics and analysis table is shown in [Appendix E](#). During 2022, there were two qualifying storms in the Western Division as outlined.

For the Western Division, MAIFI_e was 7.64 based upon 56,191 Western Division New York customers served, and a total of 425,155 momentary interruptions experienced by these customers. This represents slightly more than a 9% improvement from the 2021 MAIFI_e performance of 8.44. Currently, the Company calculates MAIFI_e based on operations from the substation breaker that supply the circuit.

5.2 Port Jervis Substation

On March of 2022, in our Western Division, O&R's new Port Jervis substation came online to boost electric capacity and enhance service for the City of Port Jervis and the surrounding area. Port Jervis used to be a two-circuit mobile substation serving approximately 2,300 customers and now is a newly rebuilt dual bus six circuit substation serving approximately 4,800 customers. The new substation has room and capabilities for two additional circuits for future growth in the area and with the current circuit configuration it helped alleviate the load in the Port Jervis area and on adjacent circuits from Deerpark substation.

It will take some time to collect performance data on the circuits from the new substation to be able to evaluate its new performance to any past performance in the area and show the improvements.

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TABLE 5.1 - 5 YEAR COMPARISON – FREQUENCY AND RESTORATION BY MONTH

WESTERN DIVISION - NYS - ALL OUTAGES - WITHOUT STORMS
 calculations for calendar year reliability goals

FREQUENCY - CUSTOMERS AFFECTED / CUSTOMERS SERVED

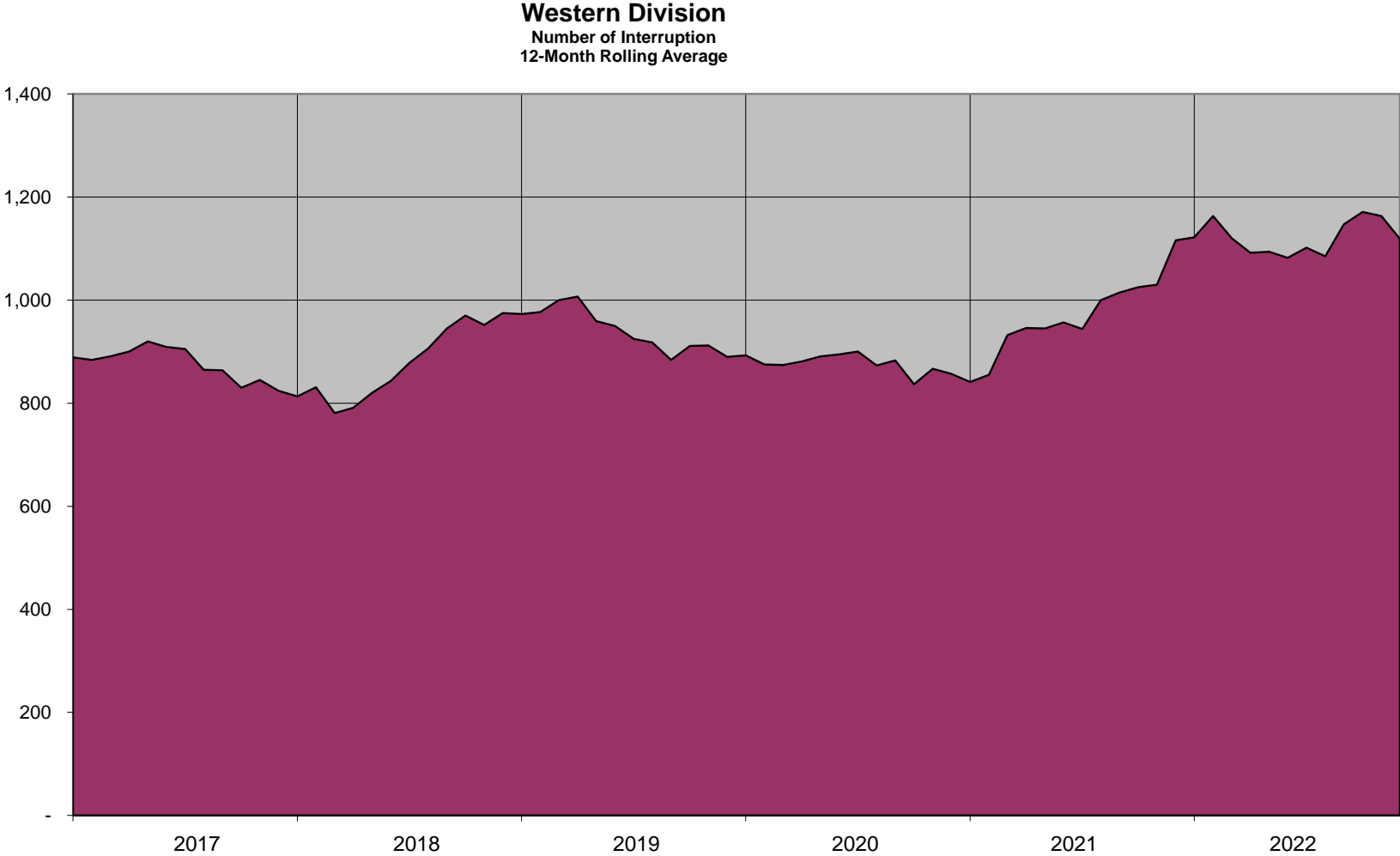
| MONTH | 2017 | 2018 | 2019 | 2020 | 2021 | 5 YR AVG | 2022 | 2022 |
|--------|------|------|------|------|------|-------------|-------------------|-----------------|
| | | | | | | | ACTUAL Monthly | ACTUAL Y-T-D |
| JAN | 0.16 | 0.18 | 0.09 | 0.04 | 0.04 | 0.10 | 0.04 | 0.04 |
| FEB | 0.01 | 0.14 | 0.04 | 0.04 | 0.14 | 0.07 | 0.15 | 0.19 |
| MAR | 0.07 | 0.04 | 0.05 | 0.11 | 0.12 | 0.08 | 0.14 | 0.33 |
| APR | 0.03 | 0.15 | 0.11 | 0.11 | 0.29 | 0.14 | 0.19 | 0.52 |
| MAY | 0.10 | 0.18 | 0.06 | 0.05 | 0.08 | 0.09 | 0.07 | 0.59 |
| JUN | 0.12 | 0.10 | 0.12 | 0.09 | 0.21 | 0.13 | 0.13 | 0.72 |
| JLY | 0.07 | 0.17 | 0.11 | 0.11 | 0.16 | 0.12 | 0.16 | 0.88 |
| AUG | 0.11 | 0.19 | 0.14 | 0.08 | 0.14 | 0.13 | 0.13 | 1.02 |
| SEP | 0.14 | 0.16 | 0.21 | 0.06 | 0.24 | 0.16 | 0.10 | 1.12 |
| OCT | 0.12 | 0.19 | 0.16 | 0.10 | 0.07 | 0.13 | 0.05 | 1.17 |
| NOV | 0.10 | 0.09 | 0.11 | 0.40 | 0.13 | 0.17 | 0.13 | 1.30 |
| DEC | 0.03 | 0.08 | 0.08 | 0.02 | 0.10 | 0.06 | 0.06 | 1.35 |
| YR END | 1.06 | 1.67 | 1.28 | 1.22 | 1.73 | 1.39 | | 1.35 |

RESTORATION - MINUTES OF INTERR / CUST AFFECTED

| MONTH | 2017 | 2018 | 2019 | 2020 | 2021 | 5 YR AVG | 2022 | 2022 |
|-------------|--------|--------|--------|--------|--------|-------------|-------------------|-----------------|
| | | | | | | | ACTUAL Monthly | ACTUAL Y-T-D |
| JAN | 80.74 | 86.23 | 96.77 | 124.11 | 80.00 | 93.57 | 90.86 | 90.86 |
| FEB | 150.88 | 70.52 | 222.76 | 142.10 | 50.17 | 127.29 | 99.81 | 97.89 |
| MAR | 152.86 | 86.48 | 112.27 | 71.50 | 168.70 | 118.36 | 95.65 | 96.95 |
| APR | 155.97 | 126.79 | 101.34 | 109.99 | 54.11 | 109.64 | 74.37 | 88.88 |
| MAY | 75.11 | 77.30 | 125.21 | 146.65 | 87.68 | 102.39 | 109.59 | 91.45 |
| JUN | 124.09 | 112.05 | 85.25 | 106.86 | 109.02 | 107.45 | 150.71 | 101.94 |
| JLY | 95.50 | 143.29 | 116.29 | 154.37 | 94.10 | 120.71 | 132.97 | 107.63 |
| AUG | 94.80 | 100.01 | 93.20 | 107.20 | 113.74 | 101.79 | 98.83 | 106.45 |
| SEP | 81.71 | 112.41 | 55.28 | 153.52 | 58.08 | 92.20 | 165.17 | 111.85 |
| OCT | 67.19 | 88.48 | 147.15 | 76.71 | 111.14 | 98.14 | 173.01 | 114.46 |
| NOV | 114.41 | 109.66 | 77.30 | 64.47 | 154.97 | 104.16 | 116.46 | 114.66 |
| DEC | 101.84 | 106.34 | 153.26 | 145.22 | 243.96 | 150.12 | 123.17 | 115.03 |
| YR END(Min) | 97.83 | 101.66 | 104.00 | 98.30 | 100.41 | 100.44 | 115.03 | 115.03 |
| YR END(Hr) | 1.63 | 1.69 | 1.73 | 1.64 | 1.67 | 1.67 | 1.92 | 1.92 |

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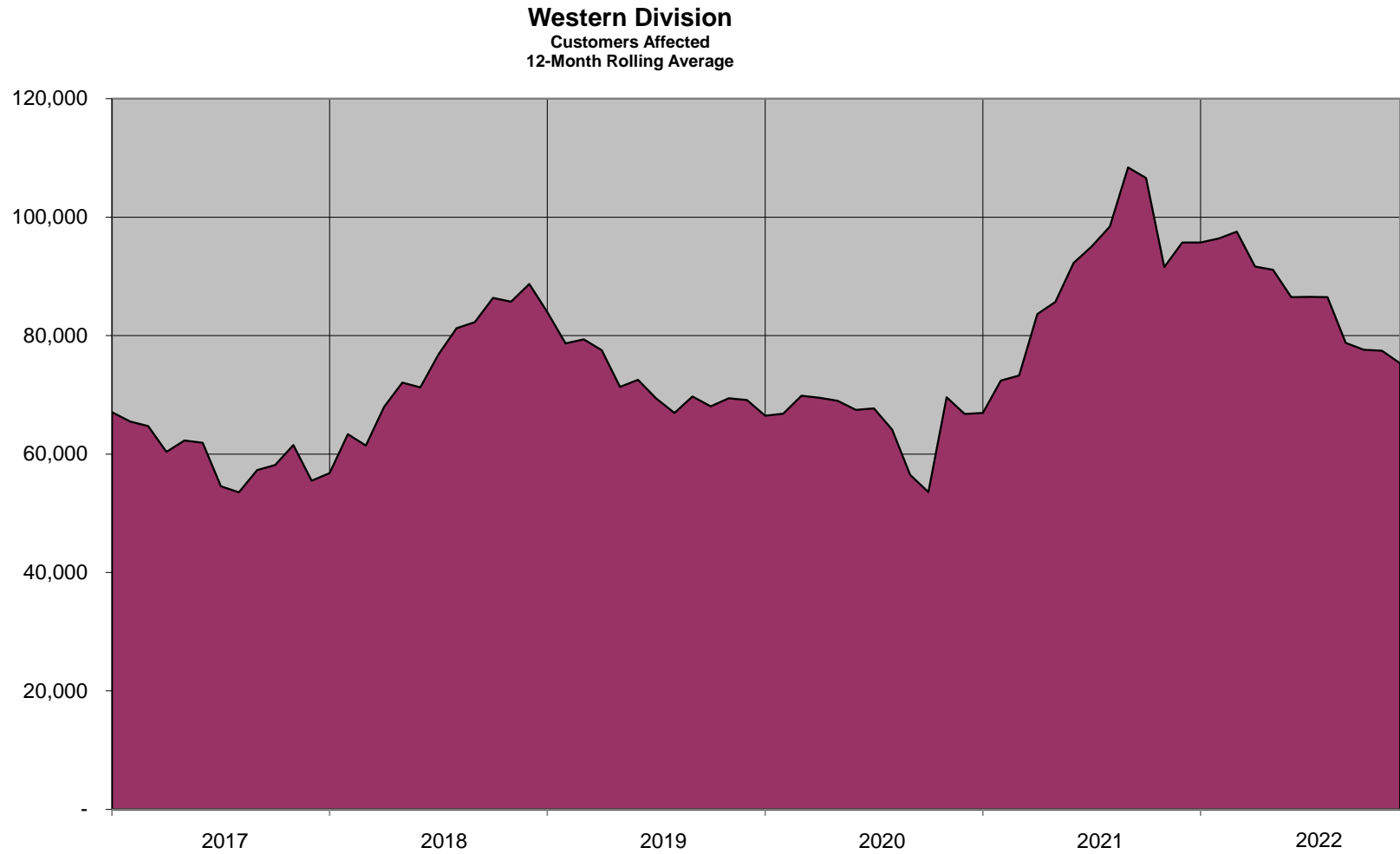
FIGURE 5.1 - 12-MONTH ROLLING AVERAGE – NUMBER OF INTERRUPTIONS



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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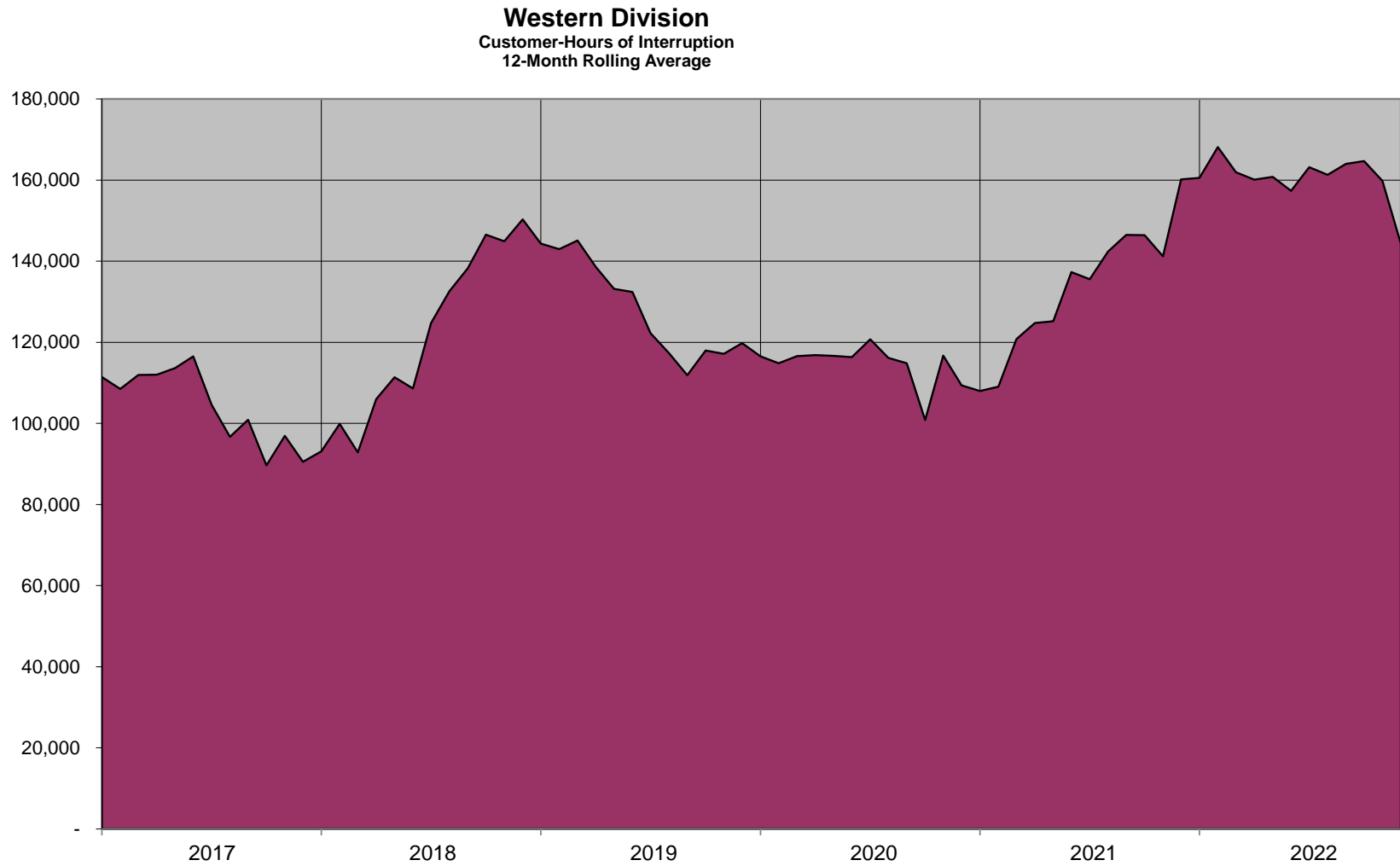
FIGURE 5.2 - 12-MONTH ROLLING AVERAGE – CUSTOMERS AFFECTED



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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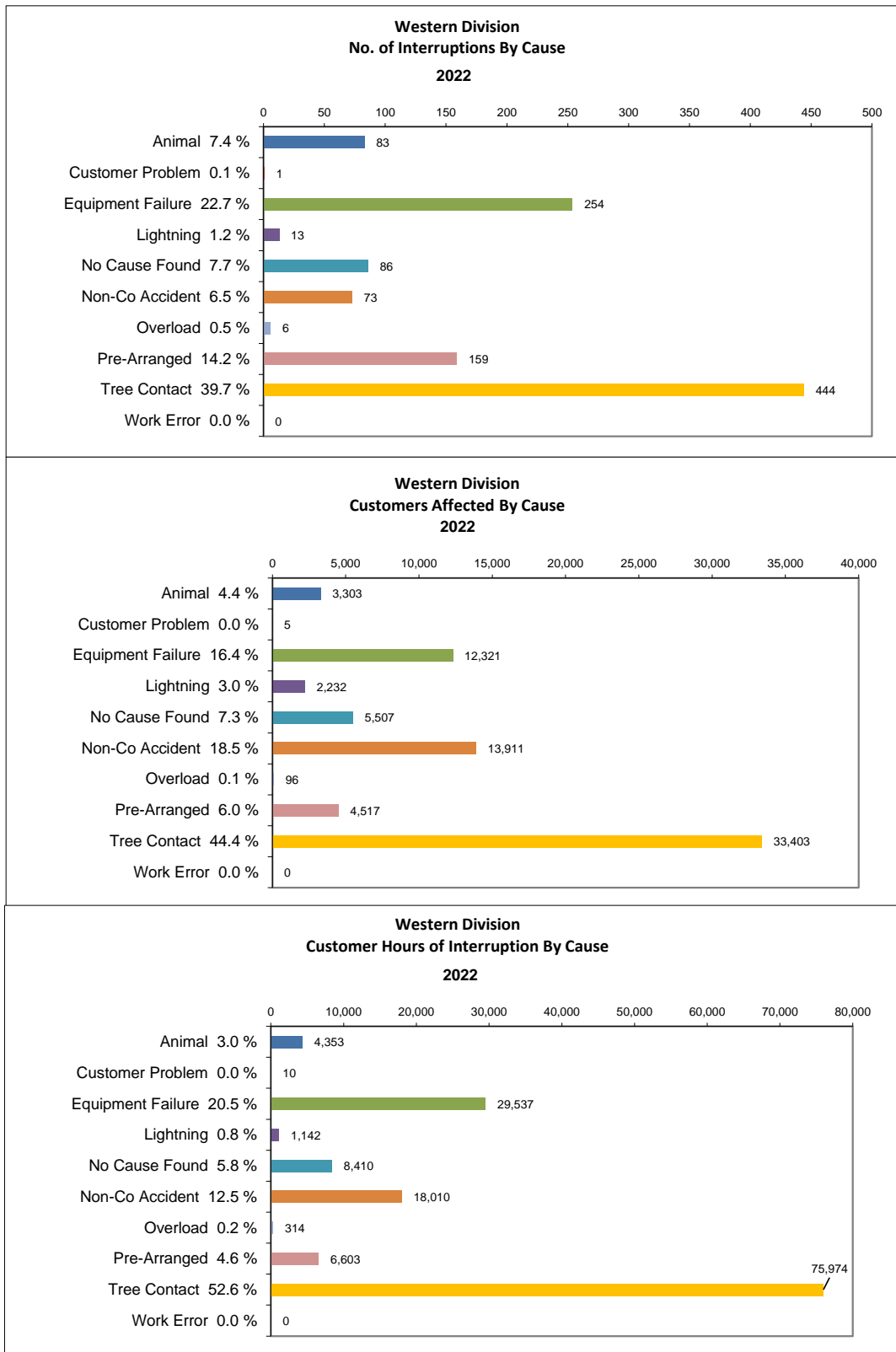
FIGURE 5.3 - 12-MONTH ROLLING AVERAGE – CUSTOMER-HOURS OF INTERRUPTIONS



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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FIGURE 5.4 - OUTAGE STATISTICS BY CAUSE



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TABLE 5.2 - EQUIPMENT FAILURES – BY TYPE AND EQUIPMENT FAILURE CODE

| | | Number of Interruptions By Year | | | | | | |
|---------------------|------------------------|---------------------------------|------------|------------|------------|------------|------------|------------|
| | | 2017 | 2018 | 2019 | 2020 | 2021 | 5 Yr Ave | 2022 |
| Outage Type | Equipment | | | | | | | |
| Overhead | Arrester | 3 | 7 | 2 | 5 | 4 | 4 | 2 |
| | Capacitor | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Connector/Splice - Pri | 3 | 5 | 12 | 10 | 14 | 9 | 15 |
| | Connector/Splice - Sec | 36 | 69 | 45 | 21 | 44 | 43 | 41 |
| | Disconnect | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| | Elbow | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | Electric Meter | 3 | 1 | 1 | 0 | 2 | 1 | 2 |
| | Fuse/Cutout/Eld | 15 | 21 | 23 | 9 | 9 | 15 | 13 |
| | GOAB | 0 | 2 | 0 | 2 | 0 | 1 | 0 |
| | Hardware/Pole | 22 | 19 | 9 | 13 | 24 | 17 | 23 |
| | Insulator | 0 | 1 | 2 | 1 | 0 | 1 | 0 |
| | O/H Step Transf | 2 | 4 | 3 | 2 | 5 | 3 | 2 |
| | O/H Transformer | 58 | 56 | 43 | 35 | 47 | 48 | 67 |
| | Recloser | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| | Regulator | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Riser Pole Cutout | 0 | 1 | 2 | 8 | 15 | 5 | 4 |
| | Splice/Junction - Sec | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Wire/Cable - Pri | 34 | 19 | 26 | 42 | 43 | 33 | 19 | |
| Wire/Cable - Sec | 26 | 17 | 8 | 34 | 16 | 20 | 15 | |
| | Total - OH | 202 | 224 | 177 | 184 | 225 | 202 | 204 |
| Trans/Substa | Brkr/Kyle/Switch | 1 | 2 | 2 | 0 | 0 | 1 | 1 |
| | Hardware/Pole/Tower | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Insulator | 0 | 0 | 0 | 0 | 8 | 2 | 0 |
| | Not Coded | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| | Transformer | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | | Total - Trans/Substa | 1 | 2 | 2 | 0 | 9 | 3 |
| Underground | Boxpad/Silo/Vault | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Connector/Splice - Sec | 0 | 3 | 0 | 0 | 0 | 1 | 0 |
| | Elbow | 1 | 1 | 1 | 0 | 2 | 1 | 1 |
| | O/H Transformer | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| | Padmount Transf | 12 | 7 | 13 | 13 | 34 | 16 | 14 |
| | Splice/Junction - Pri | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| | Splice/Junction - Sec | 1 | 4 | 4 | 5 | 5 | 4 | 3 |
| | Stress Cone | 3 | 0 | 1 | 2 | 1 | 1 | 0 |
| | Switch | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| | Wire/Cable - Pri | 15 | 6 | 7 | 9 | 14 | 10 | 14 |
| Wire/Cable - Sec | 7 | 21 | 7 | 6 | 9 | 10 | 13 | |
| | Total - UG | 39 | 42 | 35 | 35 | 66 | 43 | 46 |
| Total - Year | | 242 | 268 | 214 | 219 | 300 | 249 | 254 |

Note: Figures in red denote that the value exceeds the five-year average

TABLE 5.2 - EQUIPMENT FAILURES – BY TYPE AND EQUIPMENT FAILURE CODE (CONT.)

| | | Customers Affected By Year | | | | | | |
|---------------------|-----------------------------|----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | | 2017 | 2018 | 2019 | 2020 | 2021 | 5 Yr Ave | 2022 |
| Outage Type | Equipment | | | | | | | |
| Overhead | Arrester | 15 | 80 | 47 | 1,042 | 205 | 278 | 215 |
| | Capacitor | 0 | 35 | 0 | 0 | 0 | 7 | 0 |
| | Connector/Splice - Pri | 102 | 177 | 4,227 | 433 | 2,849 | 1,558 | 509 |
| | Connector/Splice - Sec | 46 | 82 | 54 | 34 | 68 | 57 | 70 |
| | Disconnect | 0 | 0 | 0 | 0 | 206 | 41 | 0 |
| | Elbow | 0 | 0 | 0 | 4 | 0 | 1 | 0 |
| | Electric Meter | 4 | 1 | 1 | 0 | 2 | 2 | 2 |
| | Fuse/Cutout/Eld | 457 | 584 | 478 | 2,118 | 343 | 796 | 250 |
| | GOAB | 0 | 2,747 | 0 | 453 | 0 | 640 | 0 |
| | Hardware/Pole | 3,163 | 2,684 | 1,748 | 3,456 | 2,303 | 2,671 | 3,142 |
| | Insulator | 0 | 9 | 917 | 38 | 0 | 193 | 0 |
| | O/H Step Transf | 326 | 503 | 617 | 711 | 271 | 486 | 124 |
| | O/H Transformer | 2,840 | 1,864 | 356 | 358 | 2,086 | 1,501 | 643 |
| | Recloser | 0 | 137 | 0 | 1 | 0 | 28 | 0 |
| | Regulator | 0 | 0 | 45 | 0 | 0 | 9 | 146 |
| | Riser Pole Cutout | 0 | 1 | 2 | 131 | 596 | 146 | 9 |
| | Splice/Junction - Sec | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| | Wire/Cable - Pri | 7,019 | 2,289 | 9,067 | 12,258 | 10,827 | 8,292 | 2,367 |
| | Wire/Cable - Sec | 94 | 77 | 8 | 118 | 71 | 74 | 31 |
| Total - OH | 14,066 | 11,270 | 17,567 | 21,155 | 19,828 | 16,777 | 7,508 | |
| Trans/Substa | Brkr/Kyle/Switch | 17 | 1,698 | 2,938 | 0 | 0 | 931 | 916 |
| | Hardware/Pole/Tower | 0 | 0 | 0 | 0 | 0 | 0 | 303 |
| | Insulator | 0 | 0 | 0 | 0 | 8,492 | 1,698 | 0 |
| | Not Coded | 0 | 0 | 0 | 0 | 305 | 61 | 0 |
| | Transformer | 0 | 0 | 0 | 0 | 0 | 0 | 1,354 |
| | Total - Trans/Substa | 17 | 1,698 | 2,938 | 0 | 8,797 | 2,690 | 2,573 |
| Underground | Boxpad/Silo/Vault | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| | Connector/Splice - Sec | 0 | 30 | 0 | 0 | 0 | 6 | 0 |
| | Elbow | 8 | 37 | 1 | 0 | 46 | 18 | 11 |
| | O/H Transformer | 0 | 0 | 9 | 0 | 0 | 2 | 0 |
| | Padmount Transf | 30 | 55 | 63 | 163 | 199 | 102 | 77 |
| | Splice/Junction - Pri | 0 | 0 | 16 | 0 | 0 | 3 | 0 |
| | Splice/Junction - Sec | 4 | 4 | 15 | 5 | 15 | 9 | 3 |
| | Stress Cone | 4 | 0 | 59 | 33 | 1 | 19 | 0 |
| | Switch | 0 | 0 | 0 | 0 | 9 | 2 | 0 |
| | Wire/Cable - Pri | 347 | 240 | 124 | 260 | 287 | 252 | 2,519 |
| | Wire/Cable - Sec | 17 | 46 | 10 | 23 | 85 | 36 | 14 |
| Total - UG | 410 | 412 | 297 | 484 | 642 | 449 | 2,646 | |
| Total - Year | | 14,493 | 13,380 | 20,802 | 21,639 | 29,267 | 19,916 | 12,727 |

Note: Figures in red denote that the value exceeds the five-year average

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TABLE 5.2 - EQUIPMENT FAILURES – BY TYPE AND EQUIPMENT FAILURE CODE (CONT.)

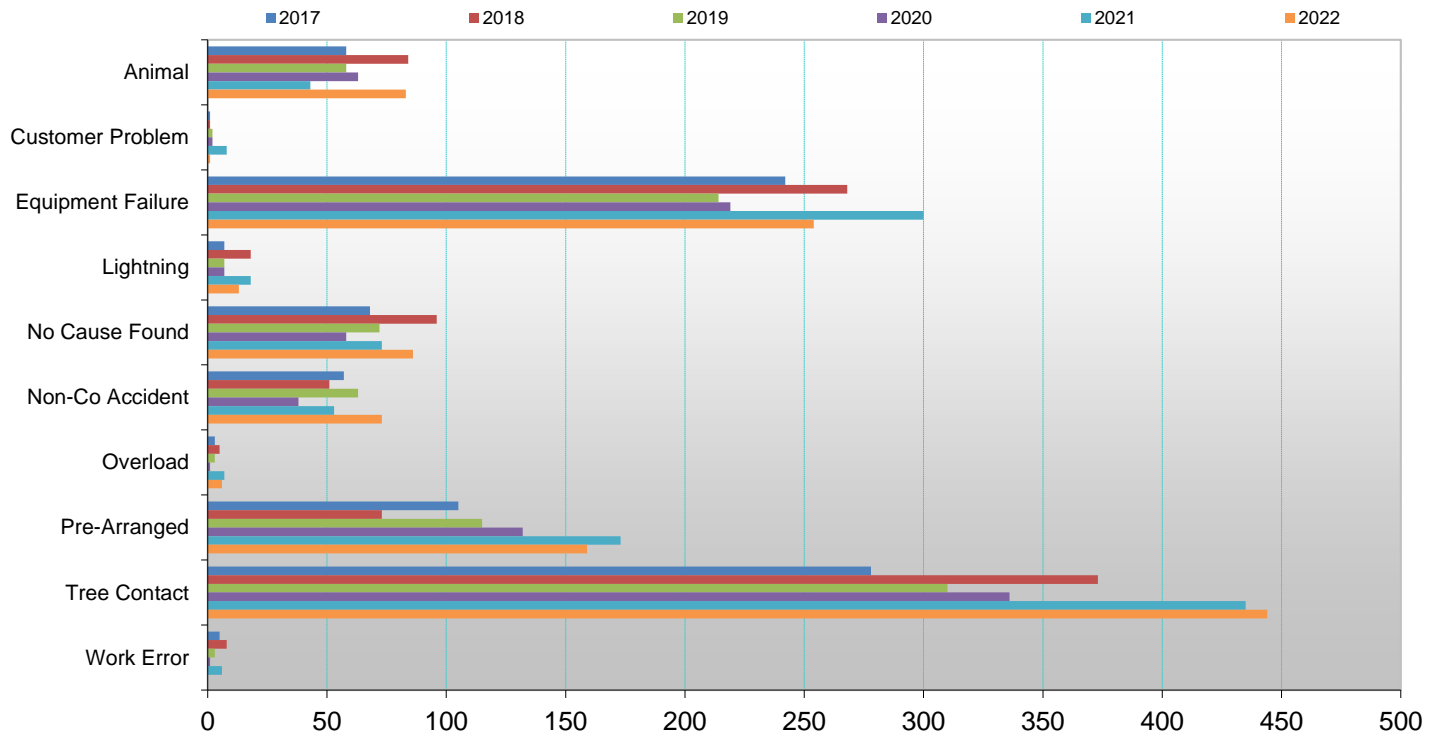
| | | Total Minutes of Interruption By Year | | | | | | |
|---------------------|-----------------------------|---------------------------------------|------------------|------------------|------------------|------------------|------------------|----------------|
| | | 2017 | 2018 | 2019 | 2020 | 2021 | 5 Yr Ave | 2022 |
| Outage Type | Equipment | | | | | | | |
| Overhead | Arrester | 2,518 | 7,718 | 2,697 | 138,464 | 55,779 | 41,435 | 21,759 |
| | Capacitor | 0 | 1,400 | 0 | 0 | 0 | 280 | 0 |
| | Connector/Splice - Pri | 6,568 | 21,940 | 320,830 | 26,898 | 118,806 | 99,008 | 61,492 |
| | Connector/Splice - Sec | 13,656 | 16,466 | 7,838 | 4,426 | 9,173 | 10,312 | 10,283 |
| | Disconnect | 0 | 0 | 0 | 0 | 10,094 | 2,019 | 0 |
| | Elbow | 0 | 0 | 0 | 1,684 | 0 | 337 | 0 |
| | Electric Meter | 1,120 | 293 | 511 | 0 | 379 | 461 | 354 |
| | Fuse/Cutout/Eld | 37,258 | 80,198 | 37,732 | 39,007 | 83,747 | 55,588 | 14,945 |
| | GOAB | 0 | 95,683 | 0 | 18,574 | 0 | 22,851 | 0 |
| | Hardware/Pole | 313,142 | 669,749 | 134,211 | 251,299 | 255,905 | 324,861 | 229,531 |
| | Insulator | 0 | 1,089 | 155,807 | 1,482 | 0 | 31,676 | 0 |
| | O/H Step Transf | 14,293 | 158,189 | 138,648 | 58,605 | 62,066 | 86,360 | 39,396 |
| | O/H Transformer | 198,985 | 282,718 | 96,989 | 61,049 | 363,566 | 200,661 | 124,129 |
| | Recloser | 0 | 11,423 | 0 | 61 | 0 | 2,297 | 0 |
| | Regulator | 0 | 0 | 7,200 | 0 | 0 | 1,440 | 1,314 |
| | Riser Pole Cutout | 0 | 60 | 212 | 12,479 | 27,651 | 8,080 | 1,184 |
| | Splice/Junction - Sec | 0 | 0 | 0 | 0 | 239 | 48 | 0 |
| | Wire/Cable - Pri | 643,102 | 141,929 | 778,307 | 674,837 | 588,127 | 565,260 | 243,565 |
| | Wire/Cable - Sec | 12,135 | 40,073 | 2,095 | 15,037 | 12,546 | 16,377 | 5,534 |
| Total - OH | | 1,242,777 | 1,528,928 | 1,683,077 | 1,303,902 | 1,588,078 | 1,469,352 | 753,486 |
| Trans/Substa | Brkr/Kyle/Switch | 3,954 | 285,264 | 256,958 | 0 | 0 | 109,235 | 90,684 |
| | Hardware/Pole/Tower | 0 | 0 | 0 | 0 | 0 | 0 | 2,424 |
| | Insulator | 0 | 0 | 0 | 0 | 154,422 | 30,884 | 0 |
| | Not Coded | 0 | 0 | 0 | 0 | 49,410 | 9,882 | 0 |
| | Transformer | 0 | 0 | 0 | 0 | 0 | 0 | 512,849 |
| | Total - Trans/Substa | 3,954 | 285,264 | 256,958 | 0 | 203,832 | 150,002 | 605,957 |
| Underground | Boxpad/Silo/Vault | 0 | 0 | 0 | 0 | 0 | 0 | 2,618 |
| | Connector/Splice - Sec | 0 | 18,839 | 0 | 0 | 0 | 3,768 | 0 |
| | Elbow | 272 | 16,391 | 648 | 0 | 12,197 | 5,902 | 4,664 |
| | O/H Transformer | 0 | 0 | 891 | 0 | 0 | 178 | 0 |
| | Padmount Transf | 11,466 | 9,750 | 15,080 | 74,453 | 32,356 | 28,621 | 39,391 |
| | Splice/Junction - Pri | 0 | 0 | 3,376 | 0 | 0 | 675 | 0 |
| | Splice/Junction - Sec | 1,932 | 1,195 | 3,130 | 869 | 3,144 | 2,054 | 1,436 |
| | Stress Cone | 1,109 | 0 | 21,948 | 5,118 | 1,222 | 5,879 | 0 |
| | Switch | 0 | 0 | 0 | 0 | 1,224 | 245 | 0 |
| | Wire/Cable - Pri | 118,155 | 91,733 | 37,493 | 76,052 | 76,196 | 79,926 | 359,263 |
| Wire/Cable - Sec | 13,836 | 28,214 | 3,289 | 4,254 | 30,548 | 16,028 | 5,414 | |
| Total - UG | 146,770 | 166,122 | 85,855 | 160,746 | 156,887 | 143,276 | 412,786 | |
| Total - Year | 1,393,501 | 1,980,314 | 2,025,890 | 1,464,648 | 1,948,797 | 1,762,630 | 1,772,229 | |

Note: Figures in red denote that the value exceeds the five-year average

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FIGURE 5.5 - 5-YEAR COMPARISON – NUMBER OF INTERRUPTIONS BY MAJOR CAUSE

Western Division Number of Interruptions

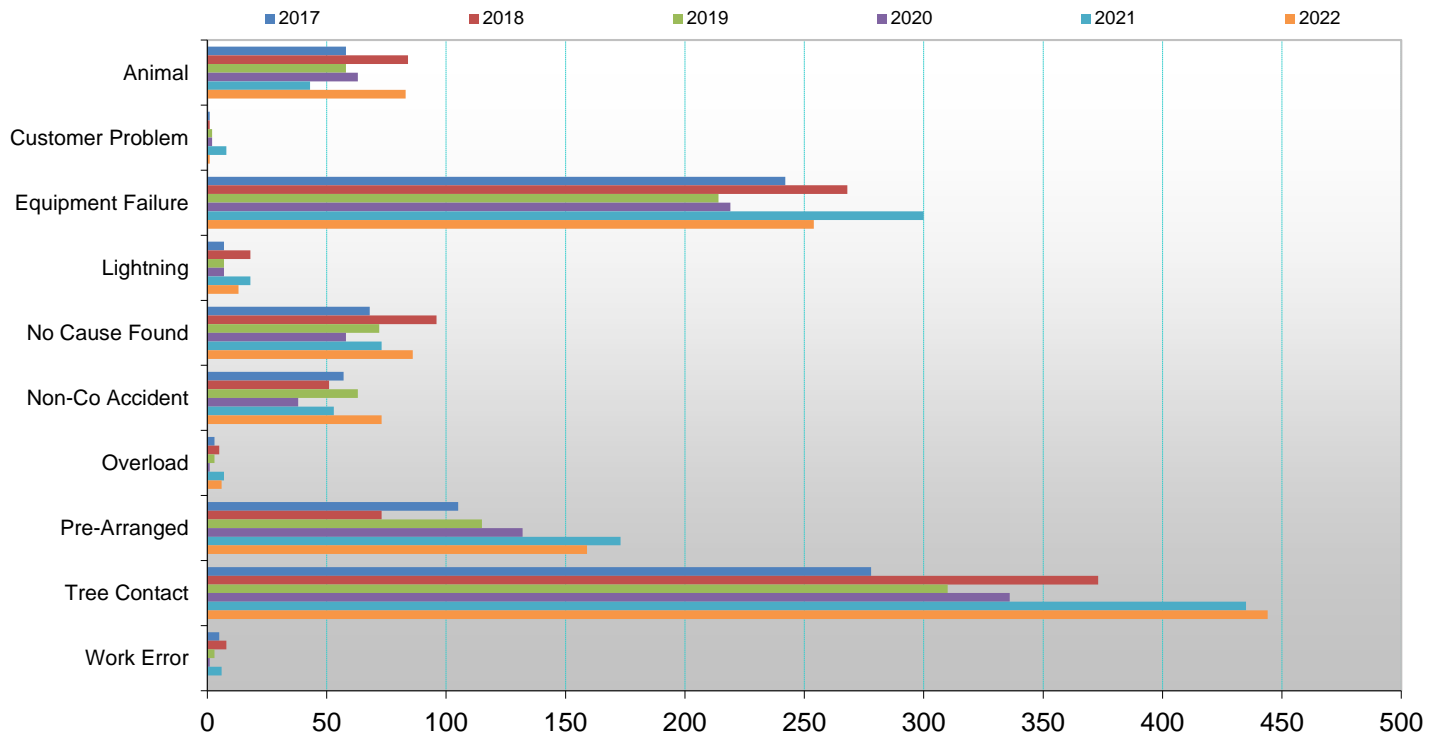


Includes Partial Powers, Single No Lights
Excludes Storm Activity

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FIGURE 5.6 - 5-YEAR COMPARISON – CUSTOMERS AFFECTED BY MAJOR CAUSE

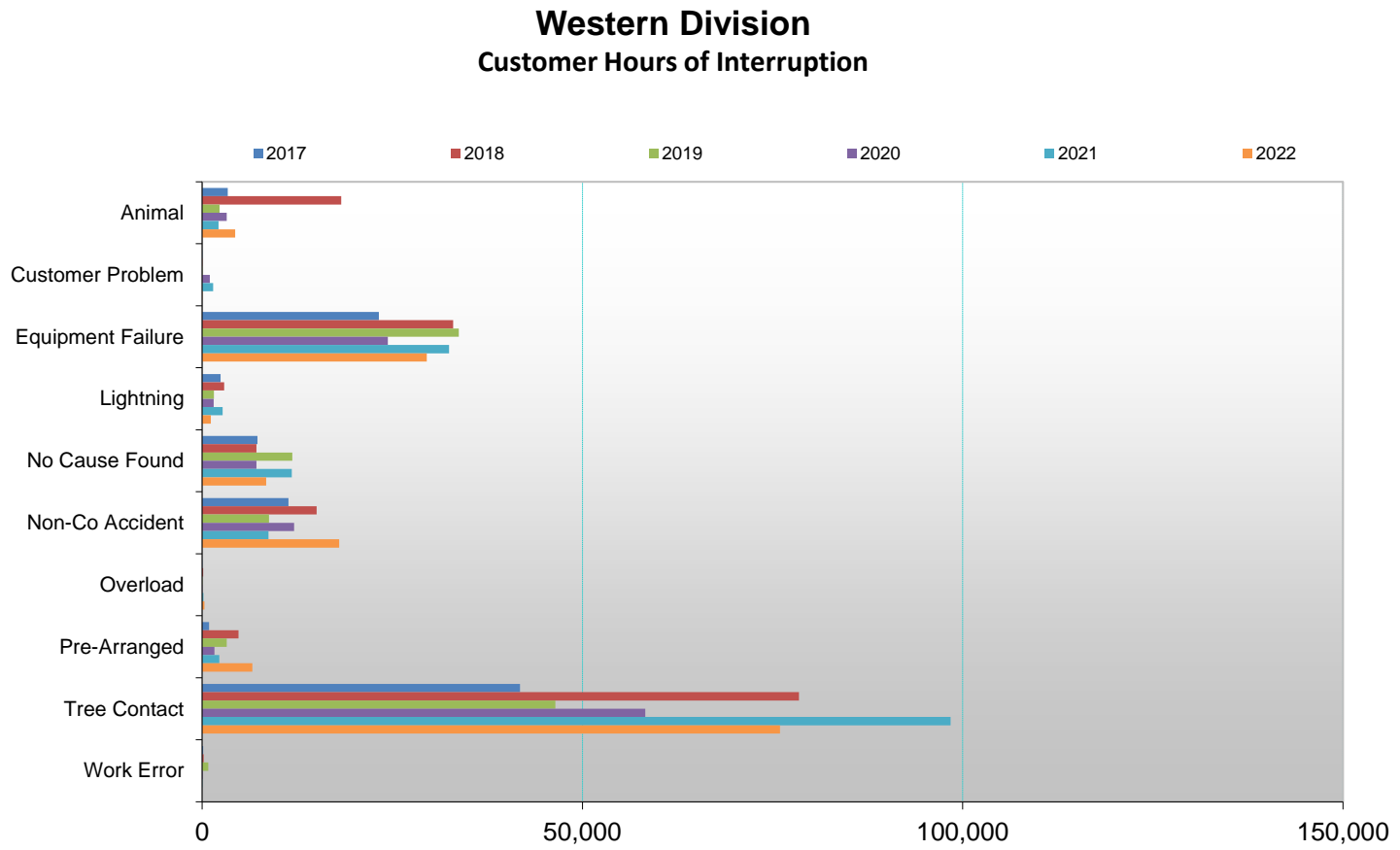
Western Division Number of Interruptions



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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FIGURE 5.7 - 5-YEAR COMPARISON – CUSTOMER-HOURS OF INTERRUPTIONS BY MAJOR CAUSE



Includes Partial Powers, Single No Lights
Excludes Storm Activity

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TABLE 5.3 - 5-YR COMPARISON – LARGE OUTAGE (>5,000 CUSTOMERS) IMPACT ON SAIFI, CAIDI & SAIDI

Western Division Without Storms
Effect of Interruptions Affecting 5,000 or more Customers

| YEAR | CUSTOMERS SERVED (CS) | # OF INTERRUPTIONS | CUSTOMERS AFFECTED (CA) | CUSTOMER MINUTES OF INTERRUPTION (CM) | FREQUENCY (CA/CS) | RESTORATION (CM/CA) | DURATION (CM/CS) |
|---|-----------------------|--------------------|-------------------------|---------------------------------------|-------------------|---------------------|------------------|
| WITHOUT STORMS | | | | | | | |
| 2017 | 52,394 | 824 | 55,521 | 5,431,349 | 1.06 | 1.63 | 1.73 |
| 2018 | 53,241 | 975 | 88,712 | 9,018,221 | 1.67 | 1.69 | 2.82 |
| 2019 | 53,851 | 890 | 69,102 | 7,186,949 | 1.28 | 1.73 | 2.22 |
| 2020 | 54,575 | 857 | 66,764 | 6,562,819 | 1.22 | 1.64 | 2.00 |
| 2021 | <u>55,342</u> | <u>1,116</u> | <u>95,728</u> | <u>9,612,096</u> | <u>1.73</u> | <u>1.67</u> | <u>2.89</u> |
| 5-Yr Average | 53,881 | 932 | 75,165 | 7,562,287 | 1.40 | 1.68 | 2.34 |
| 2022 | 55,587 | 1,119 | 75,295 | 8,661,135 | 1.35 | 1.92 | 2.60 |
| WITHOUT STORMS - OUTAGES AFFECTING > 5000 CUSTOMERS | | | | | | | |
| YEAR | SERVED | INTERR's | CUST AFF | CUST MIN | | | |
| 2017 | 52,394 | - | - | - | | | |
| 2018 | 53,241 | 1 | 6,403 | 357,472 | | | |
| 2019 | 53,851 | - | - | - | | | |
| 2020 | 54,575 | - | - | - | | | |
| 2021 | <u>55,342</u> | <u>1</u> | <u>8,492</u> | <u>154,422</u> | | | |
| 5-Yr Average | 53,881 | 0.40 | 2,979 | 102,379 | | | |
| 2022 | 55,587 | - | - | - | | | |
| WITHOUT STORMS AND WITHOUT THOSE OUTAGES AFFECTING > 5000 CUSTOMERS | | | | | | | |
| 2017 | 52,394 | 824 | 55,521 | 5,431,349 | 1.06 | 1.63 | 1.73 |
| 2018 | 53,241 | 974 | 82,309 | 8,660,749 | 1.55 | 1.75 | 2.71 |
| 2019 | 53,851 | 890 | 69,102 | 7,186,949 | 1.28 | 1.73 | 2.22 |
| 2020 | 54,575 | 857 | 66,764 | 6,562,819 | 1.22 | 1.64 | 2.00 |
| 2021 | <u>55,342</u> | <u>1,115</u> | <u>87,236</u> | <u>9,457,674</u> | <u>1.58</u> | <u>1.81</u> | <u>2.85</u> |
| 5-Yr Average | 53,881 | 932 | 72,186 | 7,459,908 | 1.34 | 1.72 | 2.31 |
| 2022 | 55,587 | 1,119 | 75,295 | 8,661,135 | 1.35 | 1.92 | 2.60 |

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5.4. Western Division Worst Performing Circuits

5.4.1. Circuit 12-1-13

Circuit 12-1-13 ranked first in the Western Division per 2022 priority circuit rating results. The circuit originates from the Bloomingburg Substation and serves a total of 2,079 customers over 67 circuit miles.

In 2022, there were 51 interruptions, which affected 4,552 customers and resulted in 7,962 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 12-1-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 12-1-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 3 | 5.9 | 108 | 2.4 | 167.4 | 2.1 |
| Branch Contact (In Trim Zone) | 2 | 3.9 | 61 | 1.3 | 223.5 | 2.8 |
| Equipment Failure | 6 | 11.8 | 2,012 | 44.2 | 2,831.5 | 35.6 |
| No Cause Found | 5 | 9.8 | 215 | 4.7 | 607.0 | 7.6 |
| Non-Co Acc – Motor Veh | 6 | 11.8 | 410 | 9.0 | 306.8 | 3.9 |
| Non-Co Acc - UG | 1 | 2.0 | 33 | 0.7 | 62.2 | 0.8 |
| Pre-Arr - Company | 4 | 7.84 | 240 | 5.27 | 195.0 | 2.45 |
| Tree Contact (In Trim Zone) | 20 | 39.22 | 1,298 | 28.51 | 2,811.7 | 35.32 |
| Tree Contact (Out of Trim Zone) | 4 | 7.84 | 175 | 3.84 | 756.5 | 9.5 |
| Total | 51 | | 4,552 | | 7,961.6 | |

In 2022, five of the 51 incidents accounted for 5,043 (63%) of the 7,962 total customer-hours of interruption for the year. The largest incident was due to equipment failure and the other four incidents were caused by tree contact.

The largest event happened on April 28, 2022, on Winterton Road in Bloomingburg, which resulted from equipment failure caused by a failed primary conductor, leading to a circuit lockout. This event alone was responsible for 2,533 customer-hours of interruption, which accounted for 32% of the total for the year.

The second largest outage occurred on December 23, 2022, on Route 17M in Bloomingburg and was caused by tree contact that damaged a pole and transformer, resulting in 950 customer-hours of interruption, or 12% of the total.

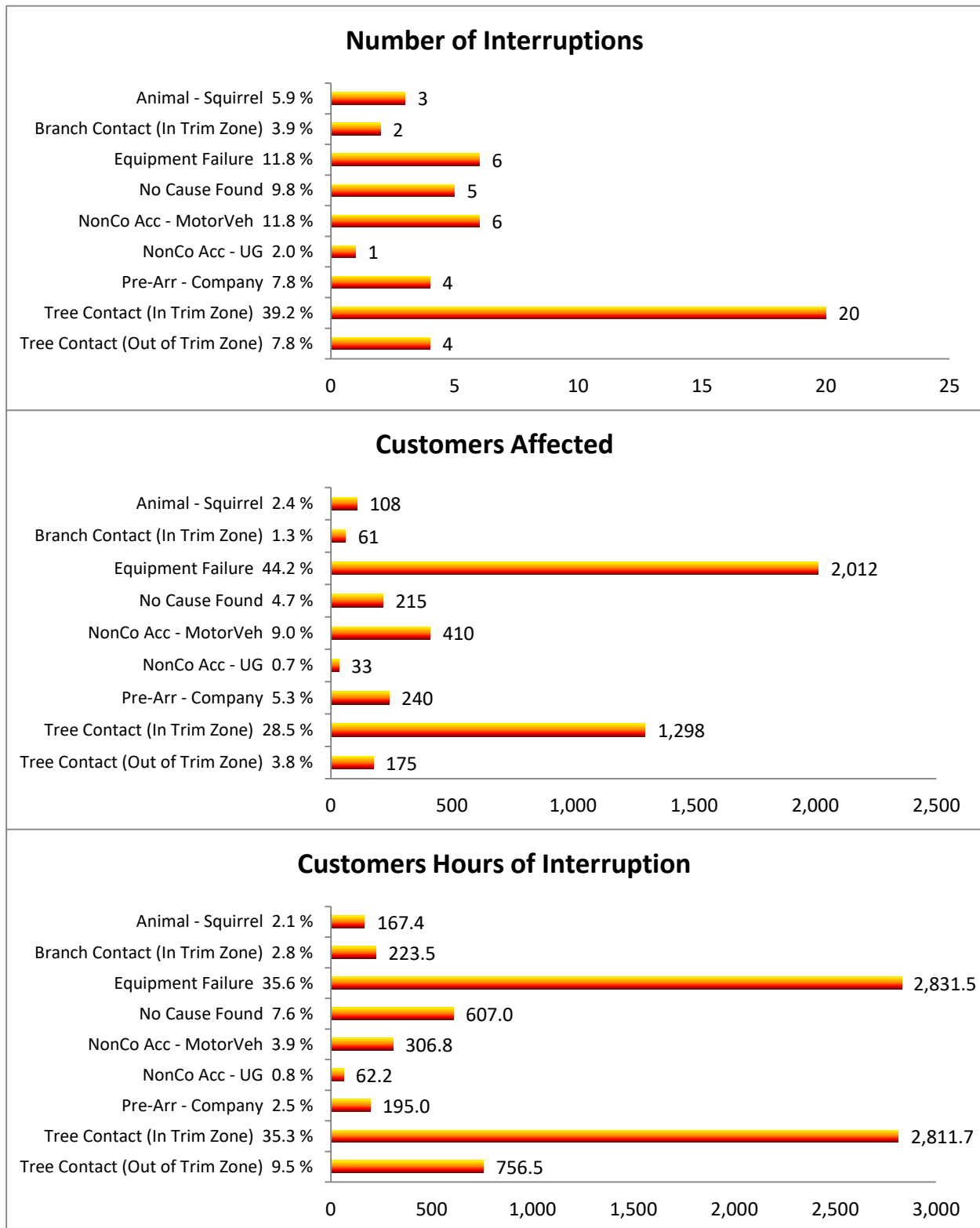
The third largest event happened on August 5, 2022, on Walker-Valley Road in Pine Bush, when a fallen tree caused damage to a primary conductor, leading to 656 customer-hours of interruption, or 8% of the total.

12-1-13 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|--------------------------|-------------------------|
| | Count | Rank Division | Rank Company |
| Customers | 2,079 | 5 | 25 |
| Critical Customers | 3 | 27 | 175 |
| Circuit Miles | 67 | 4 | 6 |
| Customers/Mile | 31.2 | 25 | 232 |
| Connected kVA | 24,495 | 12 | 49 |

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CIRCUIT 12-1-13 – ONE-YEAR PERFORMANCE



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5.4.2. Circuit 10-2-13

Circuit 10-2-13 ranked second in the Western Division per 2022 priority circuit rating results. The circuit originates from the Summitville Substation and serves a total of 665 customers over 47 circuit miles.

In 2022, there were 51 interruptions, which affected 5,380 customers and resulted in 15,702 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 10-2-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 10-2-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|-----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Branch Contact (In Trim Zone) | 2 | 3.9 | 380 | 7.1 | 1,361.6 | 8.7 |
| Equipment Failure | 11 | 21.6 | 441 | 8.2 | 2,269.4 | 14.5 |
| No Cause Found | 1 | 2.0 | 31 | 0.6 | 144.2 | 0.9 |
| Non-Co Acc - Motor Veh | 2 | 3.9 | 675 | 12.6 | 1,686.7 | 10.7 |
| Pre-Arr - Company | 1 | 2.0 | 2 | 0.0 | 2.0 | 0.0 |
| Tree Contact (In Trim Zone) | 32 | 62.8 | 3,836 | 71.3 | 10,168.1 | 64.8 |
| Tree Contact (Out of Trim Zone) | 2 | 3.9 | 15 | 0.3 | 70.2 | 0.5 |
| Total | 51 | | 5,380 | | 15,702.1 | |

In 2022, five of the 51 incidents accounted for 7,847 (50%) of the 15,702 total customer-hours of interruption for the year. Four of the five incidents were caused by contact with trees, while the remaining incident involved a non-Company motor vehicle.

On June 8, 2022, the largest power outage on circuit 10-2-13 was due to an event that occurred on Firehouse Road in Spring Glen. The incident was caused by a tree that made contact with a pole and wires, resulting in the wires coming down and moving the pole. The event resulted in 1,768 customer-hours of interruption, or 11% of the total customer hours of interruption.

The second largest power outage event occurred on June 11, 2022, on State Route 209 in Summitville. It was caused by a non-Company motor vehicle accident that resulted the breaking of the pole, causing a fire to the transformer, and section of wire, which caused a circuit lockout leading to 1,683 customer-hours of interruption, or 11% of the total.

The third largest event happened on August 7, 2022, on Anderson Drive in Spring Glen, when a fallen tree pinned down all three phases of primary conductor, causing fuses to blow and leading to 1,646 customer-hours of interruption, or 10% of the total.

The fourth largest outage took place on June 16, 2022, State Route 209 in Wurtsboro, and was caused by a tree falling and damaging cross arm and section on primary conductor which resulted in 1,485 customer-hours of interruption, or 9% of the total.

The fifth largest event occurred on November 27, 2022, on County Route 56, Wurtsboro, NY. An outage was caused by a tree making contact with primary conductor and causing an outage. The event accounted for 1,266 (8%) of the total 15,702 customer-hours of interruption.

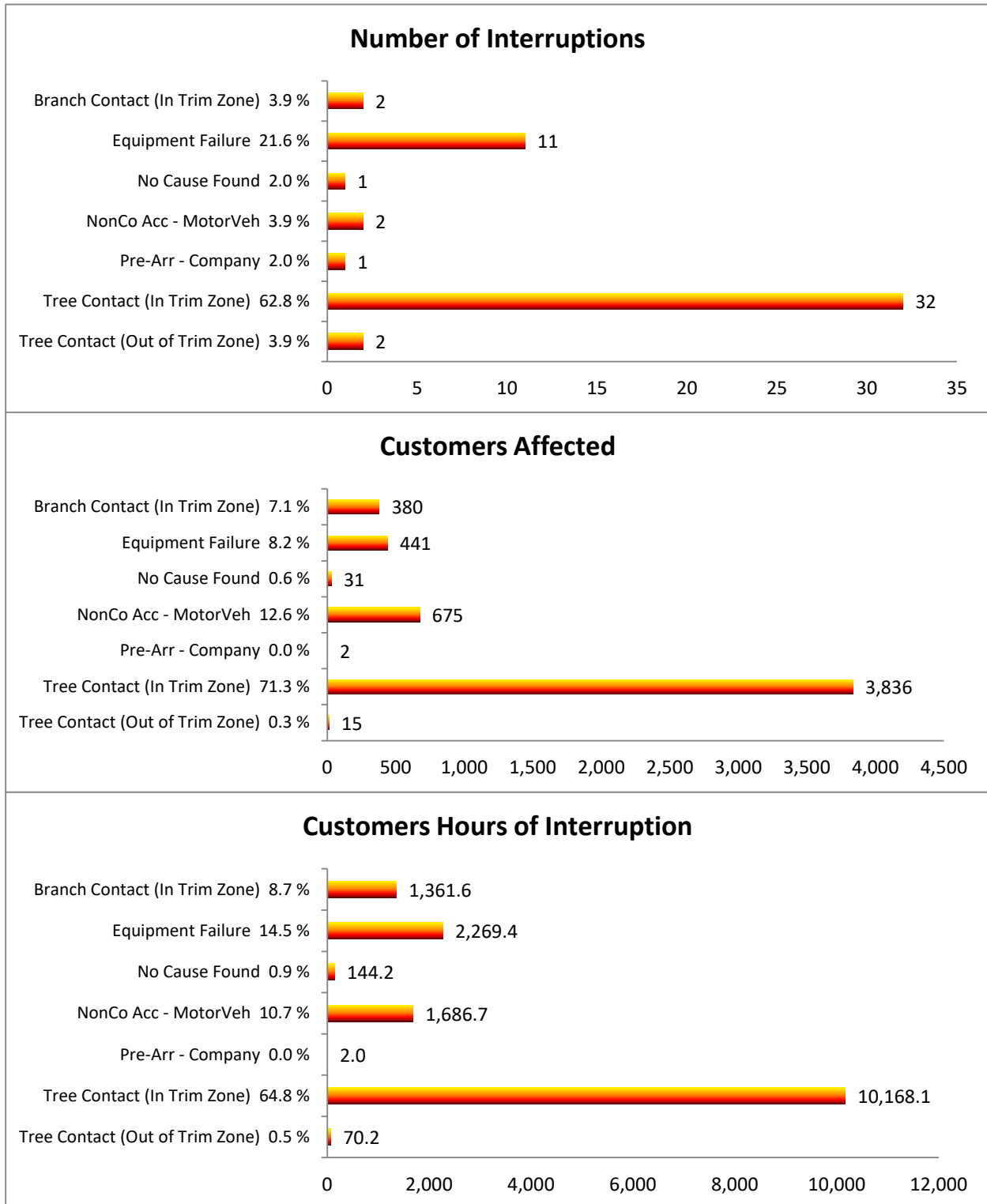
In 2023, the circuit will be included in the circuit ownership program. It will be thoroughly patrolled for broken and defective components, vegetation contact, missing animal guards and lightning protection. An infrared thermal inspection is scheduled on this circuit for 2023 as well. The Company intends to correct identified defects from both of those inspections.

10-2-13 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|----------------------|---------------------|
| | Count | Rank Division | Rank Company |
| Customers | 665 | 36 | 196 |
| Critical Customers | 2 | 35 | 205 |
| Circuit Miles | 47 | 11 | 21 |
| Customers/Mile | 14.2 | 47 | 286 |
| Connected kVA | 12,290 | 33 | 204 |

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CIRCUIT 10-2-13 – ONE-YEAR PERFORMANCE



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5.4.3. Circuit 5-10-34

Circuit 5-10-34 ranked third in the Western Division per 2022 priority circuit rating results. The circuit originates from the Cuddebackville Substation and serves a total of 929 customers over 45 circuit miles.

In 2022, there were 32 interruptions, which affected 2,527 customers and resulted in 6,319 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 5-10-34, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 5-10-34 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 2 | 6.3 | 92 | 3.6 | 106.2 | 1.7 |
| Equipment Failure | 6 | 18.8 | 251 | 9.9 | 1,941.3 | 30.7 |
| Lightning - Previous | 1 | 3.1 | 8 | 0.3 | 30.0 | 0.5 |
| No Cause Found | 3 | 9.4 | 126 | 5.0 | 588.1 | 9.3 |
| Non-Co Acc – Motor Veh | 1 | 3.1 | 912 | 36.1 | 744.8 | 11.8 |
| Pre-Arr - Company | 3 | 9.4 | 264 | 10.5 | 514.2 | 8.1 |
| Tree Contact (In Trim Zone) | 15 | 46.9 | 791 | 31.3 | 2,276.9 | 36.0 |
| Tree Contact (Out of Trim Zone) | 1 | 3.1 | 83 | 3.3 | 117.6 | 1.9 |
| Total | 32 | | 2,527 | | 6,319.0 | |

In 2022, three of the 32 incidents accounted for 2,975 (47%) of the 6,319 total customer-hours of interruption for the year. Two out of the three incidents were due to equipment failure, while the remaining one was caused by a non-company motor vehicle accident.

On June 23, 2022, the largest power outage on circuit 5-10-34 was due to event that occurred on Galley Hill Road in Cuddebackville. The incident was caused by equipment failure, which after investigation and inspection of breaker, the Company found the breaker had internal fire damage which caused the incident, resulting in 1,511 customer-hours of interruption, or 24% of the total customer hours of interruption.

The second largest power outage event occurred on June 19, 2022, on Airport Road in Huguenot. It was caused by a non-Company motor vehicle accident that resulted in a broken pole, which caused a circuit lockout leading to 745 customer-hours of interruption, or 12% of the total.

The third event was caused by the equipment failure of an underground primary conductor, resulting in blown fuses and a total of 719 customer-hours of interruption, which accounted for 11% of the total.

In 2022, the Company successfully completed its annual vegetation management cycle, which involved trimming trees to reduce the likelihood of outages caused by vegetation interference on the circuit.

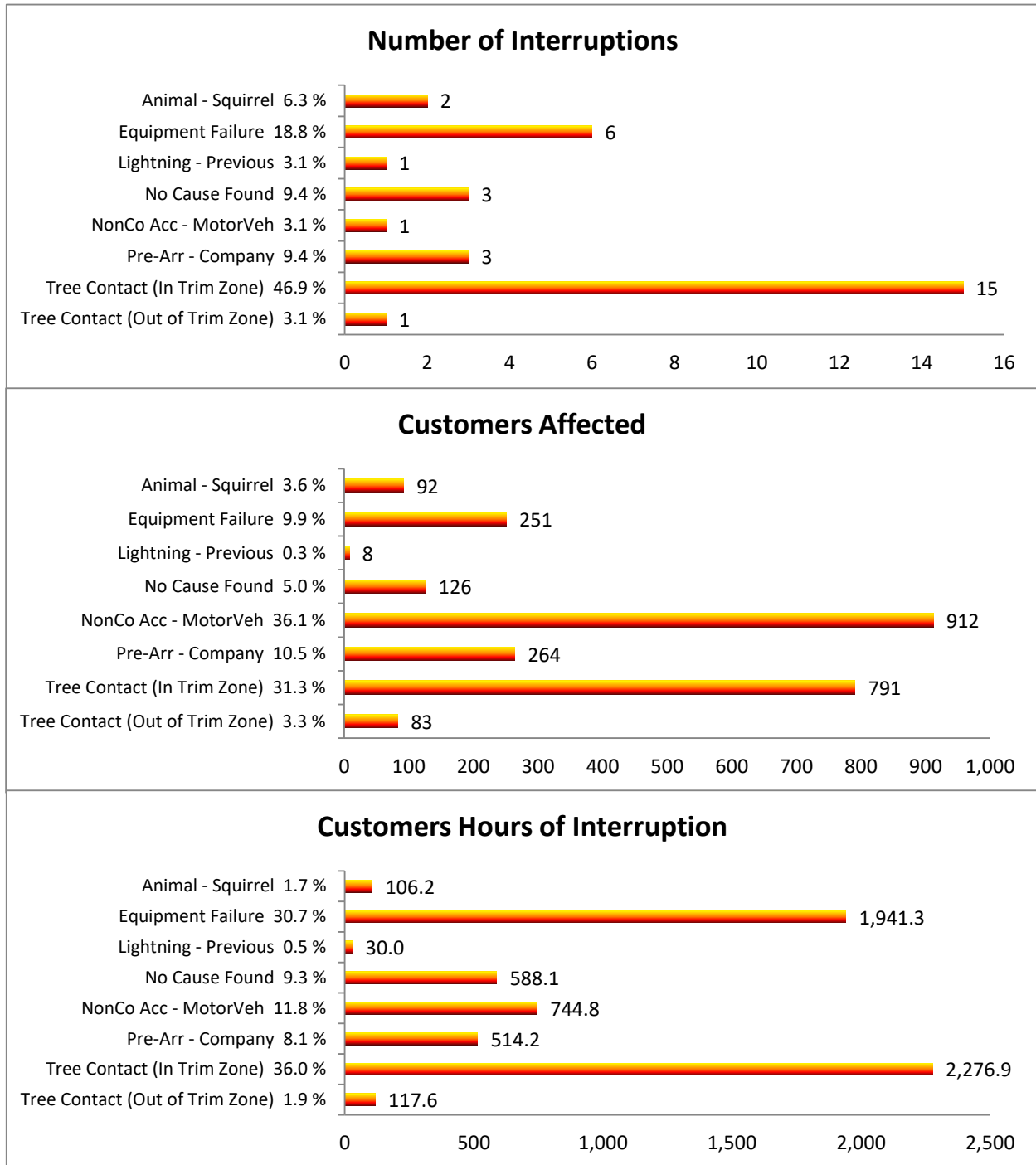
In 2023, this circuit will be included in the circuit ownership program. It will be thoroughly patrolled for broken and defective components, vegetation contact, missing animal guards and lightning protection. An infrared thermal inspection is scheduled on this circuit for 2023, as well. The Company intends to correct identified defects from both of those inspections.

5-10-34 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|----------------------|---------------------|
| | Count | Rank Division | Rank Company |
| Customers | 929 | 29 | 164 |
| Critical Customers | 5 | 22 | 129 |
| Circuit Miles | 45 | 13 | 24 |
| Customers/Mile | 20.5 | 42 | 268 |
| Connected kVA | 16,735 | 28 | 148 |

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CIRCUIT 5-10-34 – ONE-YEAR PERFORMANCE



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5.4.4. Circuit 116-8-13

Circuit 116-8-13 ranked fourth in the Western Division per 2022 priority circuit rating results. The circuit originates from the Deerpark Substation and serves a total of 1,690 customers over 15 circuit miles.

In 2022, there were 17 interruptions, which affected 3,052 customers and resulted in 1,898 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 116-8-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 116-8-13 | | | | | | |
|---|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 1 | 5.9 | 13 | 0.4 | 13.0 | 0.7 |
| Branch Contact (In Trim Zone) | 1 | 5.9 | 8 | 0.3 | 10.8 | 0.6 |
| Equipment Failure | 3 | 17.7 | 2,895 | 94.9 | 1,645.3 | 86.7 |
| No Cause Found | 1 | 5.9 | 3 | 0.1 | 8.1 | 0.4 |
| Non-Co Acc – Motor Veh | 1 | 5.9 | 54 | 1.8 | 126.0 | 6.6 |
| Non-Co Acc - Other | 1 | 5.9 | 5 | 0.2 | 1.5 | 0.1 |
| Pre-Arr - Company | 7 | 41.2 | 67 | 2.2 | 66.6 | 3.5 |
| Tree Contact (In Trim Zone) | 2 | 11.8 | 7 | 0.2 | 26.4 | 1.4 |
| Total | 17 | | 3,052 | | 1,897.7 | |

In 2022, one of the 17 incidents accounted for 1,061 (56%) of the 1,898 total customer-hours of interruption for the year. The event took place on August 26, 2022, on Pennsylvania Avenue in Port Jervis. The incident was the result of equipment failure, defective junction pole came down during weather event with scattered showers and thunderstorms. Given that a single event had such a significant impact to the circuit’s reliability performance, 2022 should be considered an anomaly.

In 2022, the Company has increased the automation on the circuit by replacing five manual switches with motor operated remote capable switches (MOABs). MOABs were commissioned in late 2022, which should allow for faster isolation of faults and restoration of customers going forward.

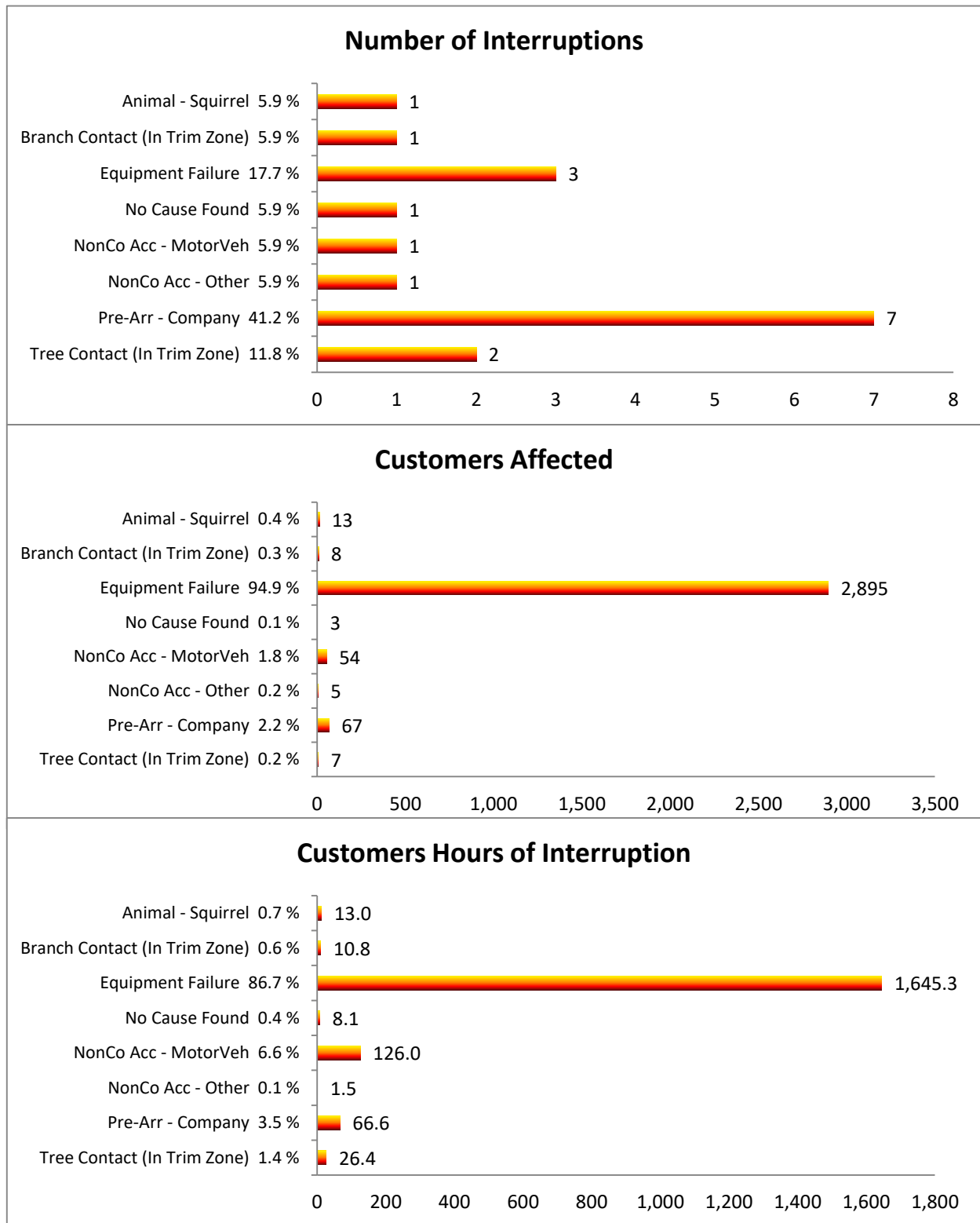
In 2023, this circuit will be incorporated into the circuit ownership program and will be frequently monitored for broken or defective components, vegetation contact, missing animal guards, and lightning protection. Any identified defects will be promptly addressed. The circuit is scheduled for an infrared thermal inspection in 2023, which should contribute to its continued improvement.

116-8-13 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|--------------------------|-------------------------|
| | Count | Rank Division | Rank Company |
| Customers | 1,690 | 11 | 53 |
| Critical Customers | 19 | 1 | 4 |
| Circuit Miles | 15 | 32 | 163 |
| Customers/Mile | 116 | 10 | 41 |
| Connected kVA | 20,719 | 17 | 84 |

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CIRCUIT 116-8-13 – ONE-YEAR PERFORMANCE



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5.4.5. Circuit 7-2-13

Circuit 7-2-13 ranked fifth in the Western Division per 2022 priority circuit rating results. The circuit originates from the Otisville Substation and serves a total of 1,176 customers over 26 circuit miles.

In 2022, there were 17 interruptions, which affected 1,961 customers and resulted in 1,944 customer-hours of interruption. The table below identifies the one-year outage data associated with circuit 7-2-13, grouped by cause.

| One-Year Summary (1/1/2022 - 12/31/2022) 7-2-13 | | | | | | |
|---|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Equipment Failure | 5 | 29.4 | 619 | 31.6 | 1,082.4 | 55.7 |
| Lightning - Previous | 1 | 5.9 | 1,162 | 59.3 | 445.4 | 22.9 |
| No Cause Found | 1 | 5.9 | 2 | 0.1 | 6.7 | 0.3 |
| Non-Co Acc – Motor Veh | 3 | 17.7 | 42 | 2.1 | 77.2 | 4.0 |
| Non-Co Acc - Tree | 1 | 5.9 | 2 | 0.1 | 2.4 | 0.1 |
| Pre-Arr - Company | 2 | 11.8 | 28 | 1.4 | 18.6 | 1.0 |
| Tree Contact (In Trim Zone) | 4 | 23.5 | 106 | 5.4 | 311.1 | 16.0 |
| Total | 17 | | 1,961 | | 1,943.7 | |

In 2022, two of the 17 incidents accounted for 1,480 (76%) of the 1,944 total customer-hours of interruption for the year. The two incidents were the result of equipment failure and lightning damage. Given that these few events had such a significant impact to the circuit’s reliability performance, 2022 should be considered an anomaly.

On February 10, 2022, the largest power outage on circuit 7-2-13 was due to event that occurred on Guymard Turnpike in Middletown. The event was classified as an equipment failure, where three sections of the primary conductor fell on the ground, resulting in the recloser opening to isolate the fault. The outage resulted in 1,035 customer-hours of interruption, or 53% of the total customer hours of interruption.

On April 8, 2022, second largest event on circuit 7-2-13 was due to event that occurred on Glenn Avenue in Middletown. The cause of the event was lightning, causing pole top to burn up and it resulted in 445 customer-hours of interruption, or 23% of the total customer hours of interruption.

In 2023, this circuit will be incorporated into the circuit ownership program and will be frequently monitored for broken or defective components, vegetation contact, missing animal guards, and

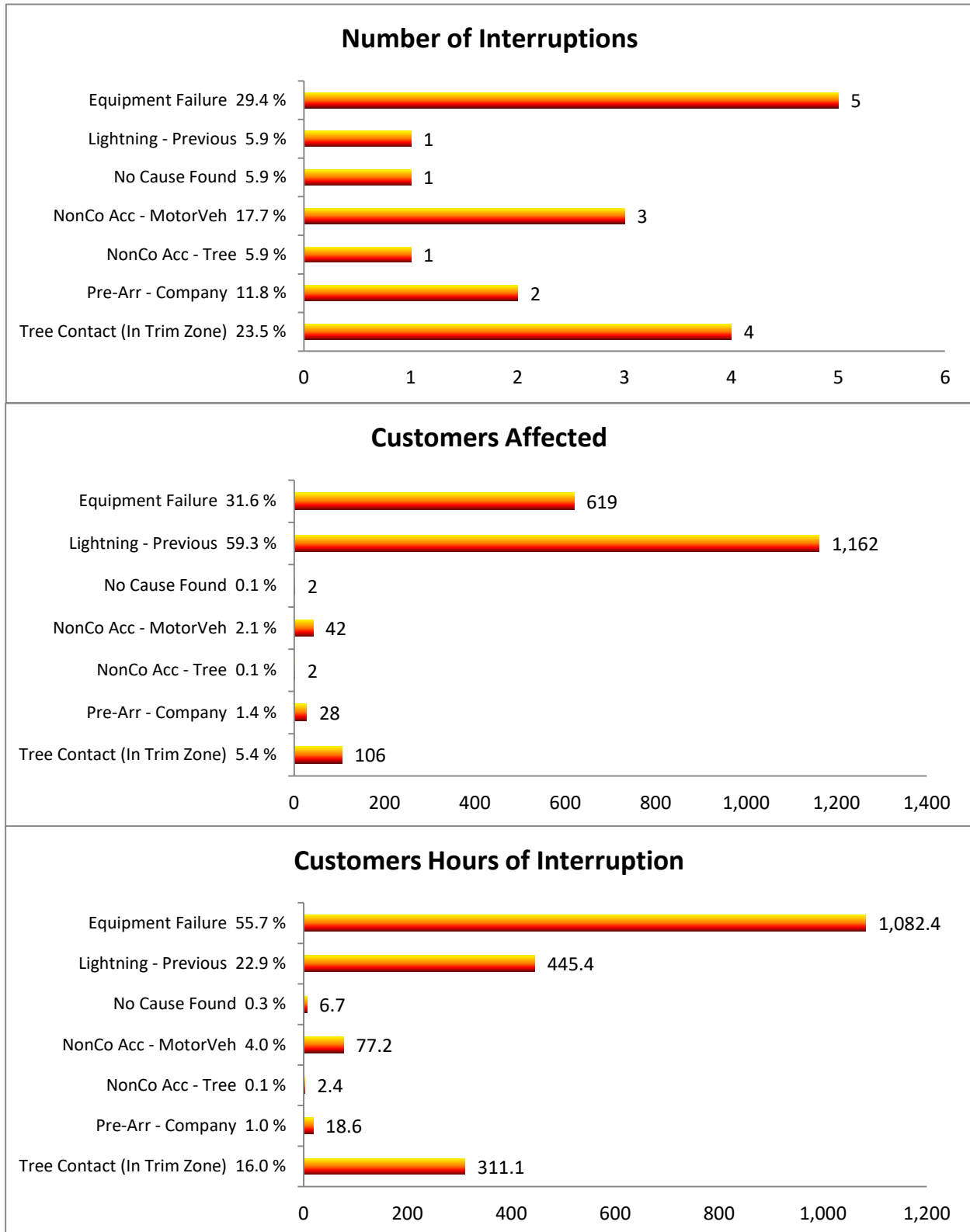
lightning protection. Any identified defects will be promptly addressed. The circuit is scheduled for an infrared thermal inspection in 2023 which should contribute to its continued improvement.

7-2-13 At A Glance

| Circuit Stats | | | |
|----------------------|--------------|--------------------------|-------------------------|
| | Count | Rank Division | Rank Company |
| Customers | 1,176 | 19 | 119 |
| Critical Customers | 8 | 9 | 68 |
| Circuit Miles | 44.4 | 15 | 27 |
| Customers/Mile | 26 | 27 | 241 |
| Connected kVA | 23,457 | 13 | 55 |

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CIRCUIT 7-2-13 – ONE-YEAR PERFORMANCE



6. 2021 WPC Analysis

6.1. Overview

The following section of this Report reviews and discusses the 2022 performance of circuits identified in 2021 as being the worst performers in each of the Company's three operating divisions.

Of the 15 circuits under consideration, 11 saw enough improvement to drop from the list of worst performers. Four circuits were in the Eastern Division, three circuits were in the Central Division and four circuits were in the Western Division. Of the worst performers in the Eastern Division from 2021, only one remained as the worst performer in 2022, while positions in the Central and Western Divisions, two and one positions from 2021 respectively remained in 2022 (see tables below).

| Rank | Eastern | | Central | | Western | |
|------|----------|----------|---------|---------|----------|----------|
| | 2021 | 2022 | 2021 | 2022 | 2021 | 2022 |
| 1 | 19-8-13 | 17-2-13 | 80-3-13 | 84-1-13 | 109-4-34 | 12-1-13 |
| 2 | 17-2-13 | 54-7-13 | 76-3-13 | 80-3-13 | 5-3-34 | 10-2-13 |
| 3 | 27-8-13 | 44-1-13 | 80-5-13 | 89-2-13 | 103-4-13 | 5-10-13 |
| 4 | 21-13-13 | 45-3-13 | 67-1-13 | 71-3-13 | 12-1-13 | 116-8-13 |
| 5 | 44-5-13 | 19-10-13 | 89-2-13 | 89-1-13 | 6M1-1-13 | 7-2-13 |

Note: Red indicates repeat circuit from previous year

| Circuit | Division | 2021 Rank | 2022 Rank | Performance Change |
|----------|----------|-----------|-----------|--------------------|
| 19-8-13 | East | 1 | 34 | ▲ 33 |
| 17-2-13 | East | 2 | 1 | ▼ -1 |
| 21-13-13 | East | 3 | 15 | ▲ 12 |
| 27-8-13 | East | 4 | 23 | ▲ 19 |
| 44-5-13 | East | 5 | 52 | ▲ 47 |
| 80-3-13 | Central | 1 | 2 | ▲ 1 |
| 76-3-13 | Central | 2 | 7 | ▲ 5 |
| 80-5-13 | Central | 3 | 10 | ▲ 7 |
| 67-1-13 | Central | 4 | 23 | ▲ 19 |
| 89-2-13 | Central | 5 | 3 | ▼ -2 |
| 109-4-34 | West | 1 | 9 | ▲ 8 |
| 5-3-34 | West | 2 | 20 | ▲ 18 |
| 103-4-13 | West | 3 | 6 | ▲ 3 |
| 12-1-13 | West | 4 | 1 | ▼ -3 |
| 6M1-1-13 | West | 5 | 35 | ▲ 30 |

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6.2. Eastern Division

6.2.1. Circuit 19-8-13

Circuit 19-8-13 was ranked first in Eastern Division per the 2021 priority circuit rating results. The circuit’s performance declined and is now ranked 35th in the Eastern Division per 2022 priority circuit rating results. The circuit originates from the Burns Substation in Rockland County, New York and serves a total of 2,924 customers in New York.

In 2021, there were 16 interruptions, which affected 3,896 customers that resulted in 9,651 customer-hours of interruption. In 2022, there were eight interruptions, which affected 336 customers that resulted in 977 customer-hours of interruption.

Review of 2021 versus 2022 data, identified a decrease of 8,674 (90%) of the 9,651 total customer-hours of interruption. The tables below identify the outage data associated with circuit 19-8-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 19-8-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Branch Contact (In Trim Zone) | 2 | 12.5 | 114 | 2.9 | 892.1 | 9.2 |
| Equipment Failure | 7 | 43.8 | 2,563 | 65.8 | 7,872.3 | 81.6 |
| No Cause Found | 1 | 6.3 | 61 | 1.6 | 79.3 | 0.8 |
| Non-Co Acc – Motor Veh | 1 | 6.3 | 1,064 | 27.3 | 620.7 | 6.4 |
| Non-Co Acc - Other | 1 | 6.3 | 2 | 0.1 | 24.6 | 0.3 |
| Pre-Arr - Company | 2 | 12.5 | 12 | 0.31 | 9.0 | 0.09 |
| Tree Contact | 0 | 0 | 0 | 0 | 0.0 | 0 |
| Tree Contact (In Trim Zone) | 2 | 12.5 | 80 | 2.05 | 154.0 | 1.6 |
| Total | 16 | | 3,896 | | 9,651.9 | |

| One-Year Summary (1/1/2022 - 12/31/2022) 19-8-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 1 | 12.5 | 4 | 1.2 | 74.3 | 7.6 |
| Branch Contact (In Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Equipment Failure | 6 | 75.0 | 321 | 95.5 | 881.2 | 90.2 |
| No Cause Found | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Non-Co Acc – Motor Veh | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Non-Co Acc - Other | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Pre-Arr - Company | 1 | 12.5 | 11 | 3.3 | 22.0 | 2.3 |
| Tree Contact (In Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Total | 8 | | 336 | | 977.5 | |

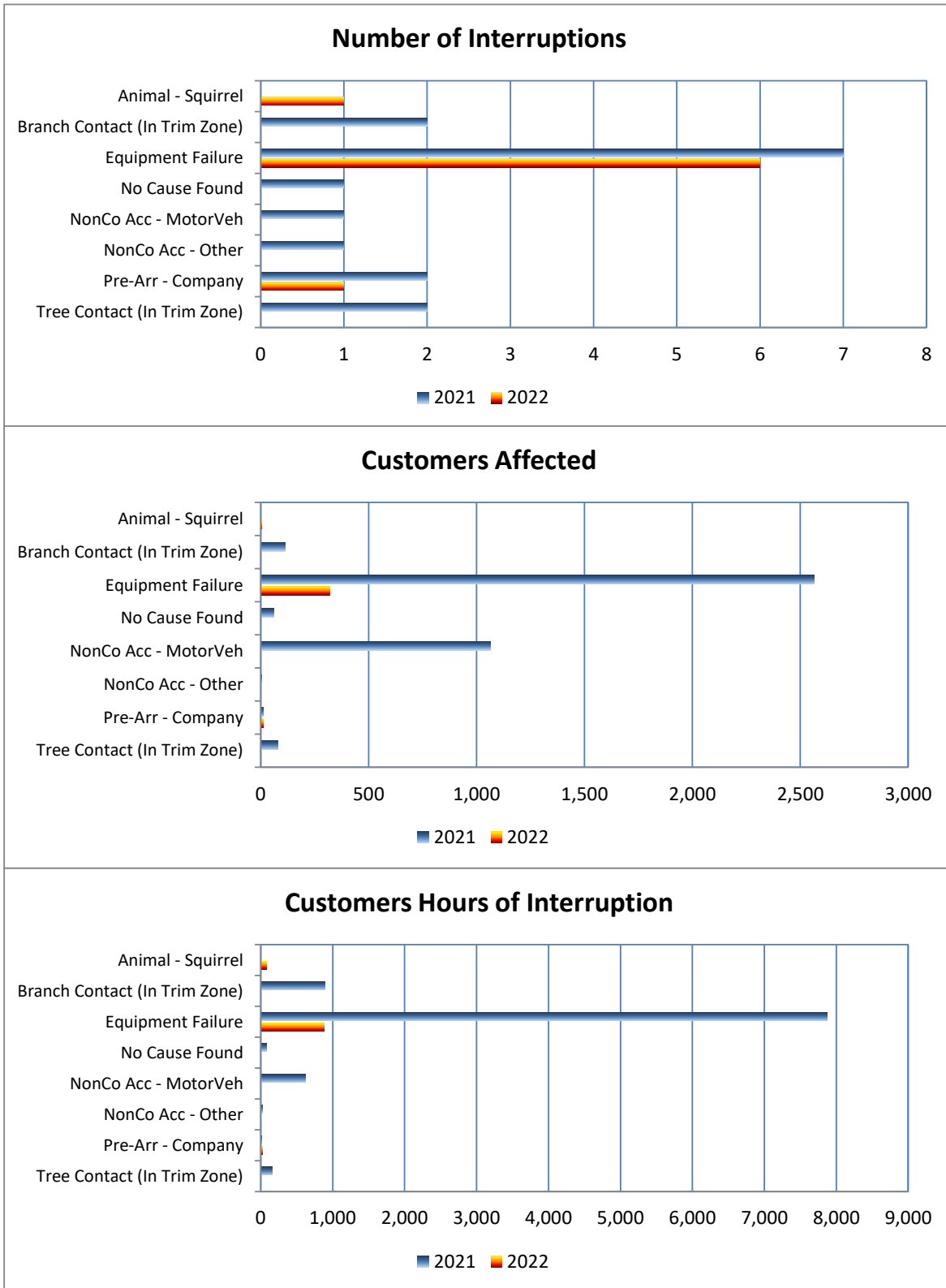
A small number of outages on mainline sections of the circuit that have affected a large number of customers have had a significant impact on the overall performance of the circuit.

In 2021, four equipment failure incidents accounted for 6,114 (63%) of the 9,651 total customer-hours of interruption for the year. Even though in 2022 the number of equipment failures were one less than the previous year, the number of customers affected and customer hours were much smaller which can be factored to the number of new MOABs installed over the last two years as mentioned below.

In 2021, the Company installed five MOABs (three are Tie MOABs) on the circuit. In 2022, the Company installed two additional MOABs. The MOABs enhance the circuit by assisting with faster fault isolation and customer restoration, as well as providing enhanced reliability in cases of major storm events.

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CIRCUIT 19-8-13 YEAR-OVER-YEAR PERFORMANCE 2021 – 2022



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6.2.2. Circuit 17-2-13

Circuit 17-2-13 was ranked second in Eastern Division per the 2021 priority circuit rating results. The circuit's performance declined and is now ranked No. 1 in the Eastern Division per 2022 priority circuit rating results. The circuit originates from the Hillburn Substation in Rockland County, New York and serves 2,537 customers in New York.

In 2021, there were 17 interruptions, which affected 2,993 customers that resulted in 3,056 customer-hours of interruption. In 2022, there were 14 interruptions, which affected 5,519 customers that resulted in 3,608 customer-hours of interruption.

Review of 2021 versus 2022 data, identified an increase of 552 (18%) of the 3,056 total customer-hours of interruption. The tables below identify the outage data associated with circuit 17-2-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 17-2-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 1 | 5.9 | 19 | 0.6 | 39.6 | 1.3 |
| Animal - Squirrel | 2 | 11.8 | 2,580 | 86.2 | 1,994.1 | 65.2 |
| Equipment Failure | 6 | 35.3 | 255 | 8.5 | 800.2 | 26.2 |
| Lightning - Present | 0 | 0 | 0 | 0 | 0.0 | 0 |
| No Cause Found | 0 | 0 | 0 | 0 | 0.0 | 0 |
| Non-Co Acc - Other | 1 | 5.9 | 12 | 0.4 | 56.4 | 1.9 |
| Pre-Arr - Company | 6 | 35.3 | 118 | 3.9 | 61.4 | 2.0 |
| Tree Contact (In Trim Zone) | 1 | 5.9 | 9 | 0.3 | 104.9 | 3.4 |
| Vine Contact | 0 | 0 | 0 | 0 | 0.0 | 0 |
| Total | 17 | | 2,993 | | 3,056.6 | |

| One-Year Summary (1/1/2022 - 12/31/2022) 17-2-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 0 | 0 | 0 | 0 | 0.0 | 0 |
| Animal - Squirrel | 0 | 0 | 0 | 0 | 0.0 | 0 |
| Equipment Failure | 5 | 35.71 | 3,952 | 71.61 | 1,889.8 | 52.37 |
| Lightning - Present | 1 | 7.14 | 66 | 1.2 | 178.2 | 4.94 |
| No Cause Found | 4 | 28.6 | 1,403 | 25.4 | 1,232.4 | 34.2 |
| Non-Co Acc - Other | 1 | 7.1 | 14 | 0.3 | 17.0 | 0.5 |
| Pre-Arr - Company | 0 | 0 | 0 | 0 | 0.0 | 0 |
| Tree Contact (In Trim Zone) | 2 | 14.3 | 19 | 0.3 | 52.7 | 1.5 |
| Vine Contact | 1 | 7.14 | 65 | 1.18 | 238.3 | 6.6 |
| Total | 14 | | 5,519 | | 3,608.5 | |

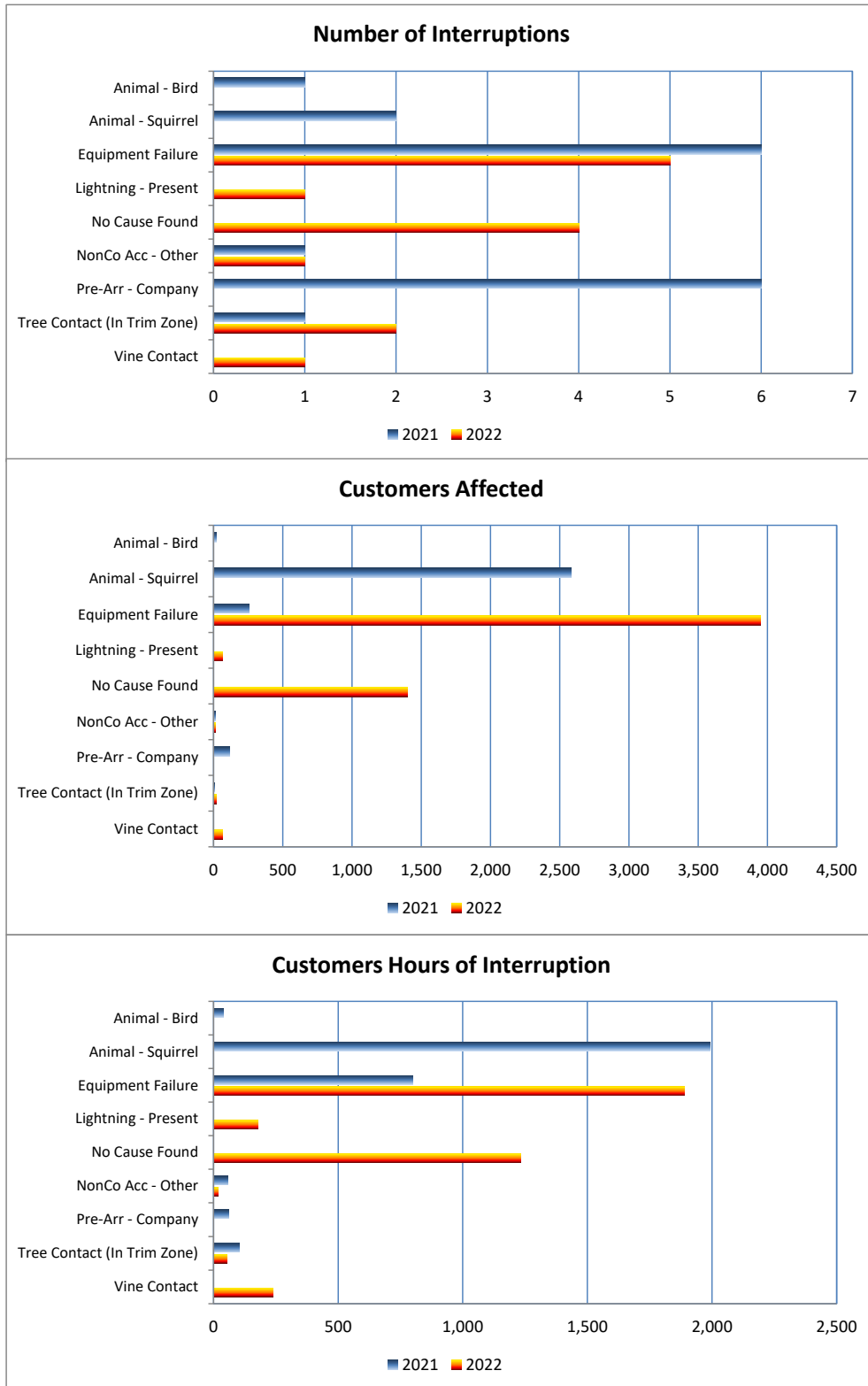
A small number of outages on mainline sections of the circuit that have affected a large number of customers have had a significant impact on the overall performance of the circuit. In 2021, one of the 17 incidents accounted for 1,877 (61%) of the 3,056 total customer-hours of interruption for the year. The incident was the result of animal contact.

In 2022, two of the 17 incidents accounted for 2,750 (76%) of the 3,608 total customer-hours of interruption for the year. The two incidents were the result of equipment failure and no cause found. Removing these two events would drop this circuit off the worst performing circuit list.

In 2021, the Company installed seven MOABs on the circuit. In 2022, the Company installed three additional MOABs. The Company expects that these enhancements will result in an improvement to the circuit's performance in 2023 by allowing for quicker fault isolation and restoration.

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CIRCUIT 17-2-13 YEAR-OVER-YEAR PERFORMANCE 2021 – 2022



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6.2.3. Circuit 21-13-13

Circuit 21-13-13 was ranked third in Eastern Division per the 2021 priority circuit rating results. The circuit's performance declined and is now ranked 14th in the Eastern Division per 2022 priority circuit rating results. The circuit originates from the West Nyack Substation in Rockland County, New York and serves 2,324 customers in New York.

In 2021, there were 17 interruptions, which affected 2,680 customers that resulted in 4,036 customer-hours of interruption. In 2022, there were 13 interruptions, which affected 1,253 customers that resulted in 1,432 customer-hours of interruption.

Review of 2021 versus 2022 data, identified a decrease of 2,603 (64%) of the 4,036 total customer-hours of interruption. The tables below identify the outage data associated with circuit 21-13-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 21-13-13 | | | | | | |
|--|---------------------------|---------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Animal - Squirrel | 1 | 5.9 | 30 | 1.1 | 44.0 | 1.1 |
| Branch Contact (In Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Equipment Failure | 4 | 23.5 | 2,354 | 87.8 | 3,345.3 | 82.9 |
| No Cause Found | 3 | 17.7 | 46 | 1.7 | 41.7 | 1.0 |
| Pre-Arr - Company | 2 | 11.8 | 131 | 4.9 | 384.2 | 9.5 |
| Tree Contact (In Trim Zone) | 5 | 29.4 | 89 | 3.3 | 176.0 | 4.4 |
| Tree Contact (Out of Trim Zone) | 1 | 5.9 | 27 | 1.0 | 33.3 | 0.8 |
| Vine Contact | 1 | 5.9 | 3 | 0.1 | 11.8 | 0.3 |
| Total | 17 | | 2,680 | | 4,036.2 | |

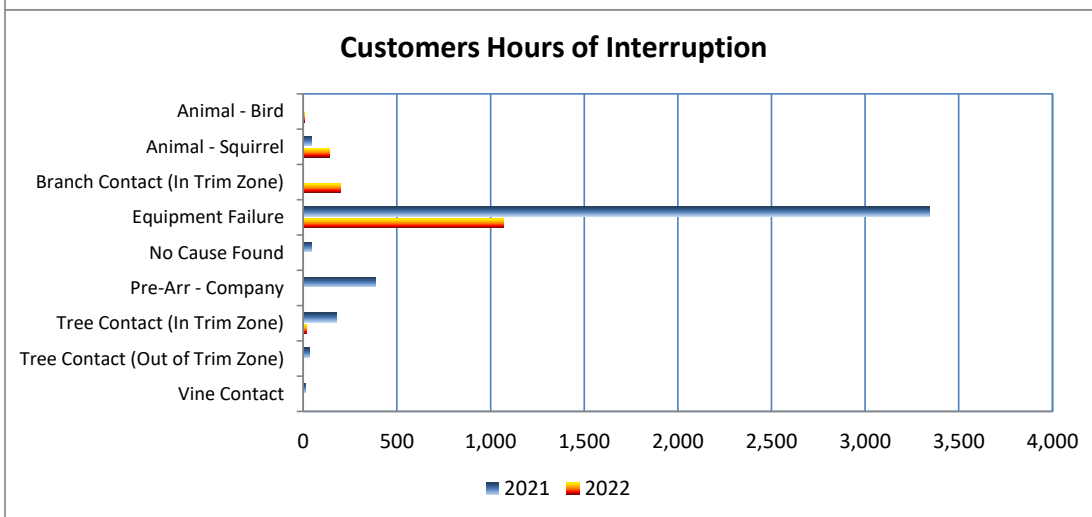
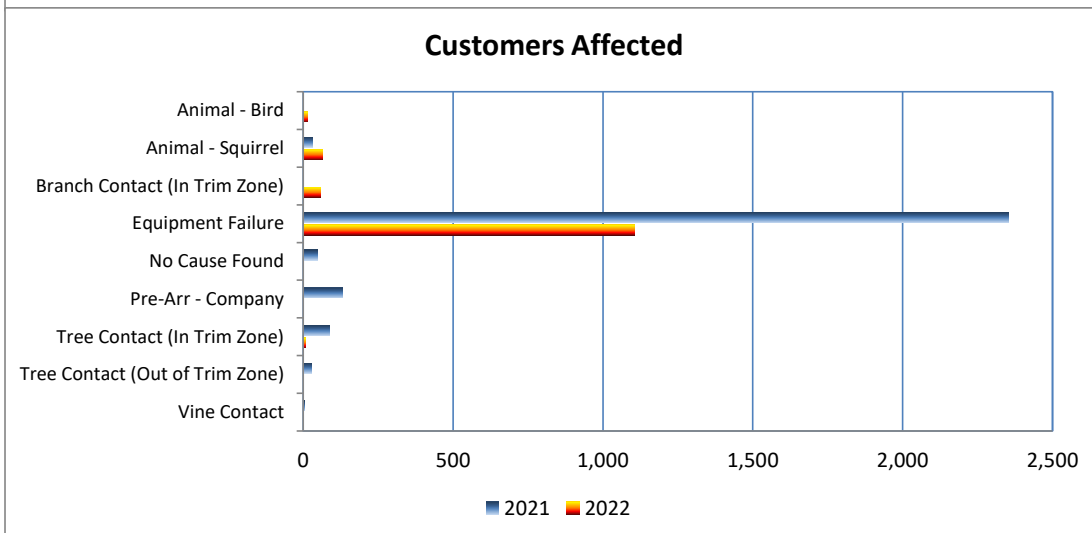
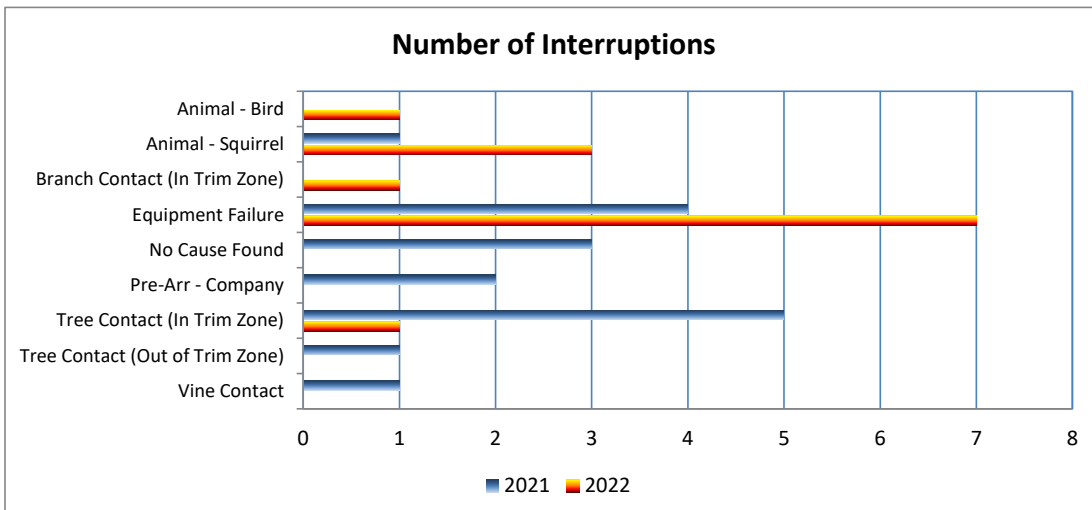
| One-Year Summary (1/1/2022 - 12/31/2022) 21-13-13 | | | | | | |
|---|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 1 | 7.7 | 14 | 1.1 | 8.2 | 0.6 |
| Animal - Squirrel | 3 | 23.1 | 65 | 5.2 | 138.3 | 9.7 |
| Branch Contact (In Trim Zone) | 1 | 7.7 | 58 | 4.6 | 200.1 | 14.0 |
| Equipment Failure | 7 | 53.9 | 1,107 | 88.4 | 1,070.6 | 74.7 |
| No Cause Found | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Pre-Arr - Company | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Tree Contact (In Trim Zone) | 1 | 7.7 | 9 | 0.7 | 15.8 | 1.1 |
| Tree Contact (Out of Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Vine Contact | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Total | 13 | | 1,253 | | 1,432.9 | |

In 2021, one of the 17 incidents accounted for 2,302 (57%) of the 4,036 customer-hours of interruption for the year. The incident was the result of equipment failure. In comparison to 2022 the number of interruptions were lower along with the number of customers affected and the customer hours of interruptions. The improvement is a result of automation for assisting in isolation to minimize number of customers affected and the amount of time interrupted.

The Company installed nine MOABs (three are Tie MOABs) on the circuit. The MOABs will enhance the circuit by assisting with faster fault isolation and customer restoration, as well as providing enhanced reliability in cases of major storm events.

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CIRCUIT 21-13-13 YEAR-OVER-YEAR PERFORMANCE 2021 - 2022



6.2.4. Circuit 27-8-13

Circuit 27-8-13 was ranked fourth in Eastern Division per the 2021 priority circuit rating results. The circuit's performance improved and is now ranked 24th in the Eastern Division per 2022 priority circuit rating results. The circuit originates from the West Haverstraw Substation in Rockland County, New York and serves 1,526 customers in New York.

In 2021, there were 23 interruptions, which affected 2,205 customers that resulted in 5,775 customer-hours of interruption. In 2022, there were 14 interruptions, which affected 1,048 customers that resulted in 1,046 customer-hours of interruption.

Review of 2021 versus 2022 data, identified a decrease of 4,728 (82%) of the 5,775 total customer-hours of interruption. The tables below identify the outage data associated with circuit 27-8-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 27-8-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 2 | 8.7 | 114 | 5.2 | 180.0 | 3.1 |
| Animal - Other | 1 | 4.4 | 19 | 0.9 | 59.5 | 1.0 |
| Animal - Squirrel | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Equipment Failure | 5 | 21.7 | 1,674 | 75.9 | 4,858.4 | 84.1 |
| No Cause Found | 5 | 21.7 | 160 | 7.3 | 436.4 | 7.6 |
| Non-Co Acc - Other | 1 | 4.4 | 87 | 4.0 | 50.8 | 0.9 |
| Pre-Arr - Company | 8 | 34.8 | 147 | 6.7 | 175.8 | 3.0 |
| Tree Contact (In Trim Zone) | 1 | 4.4 | 4 | 0.2 | 14.1 | 0.2 |
| Total | 23 | | 2,205 | | 5,775.0 | |

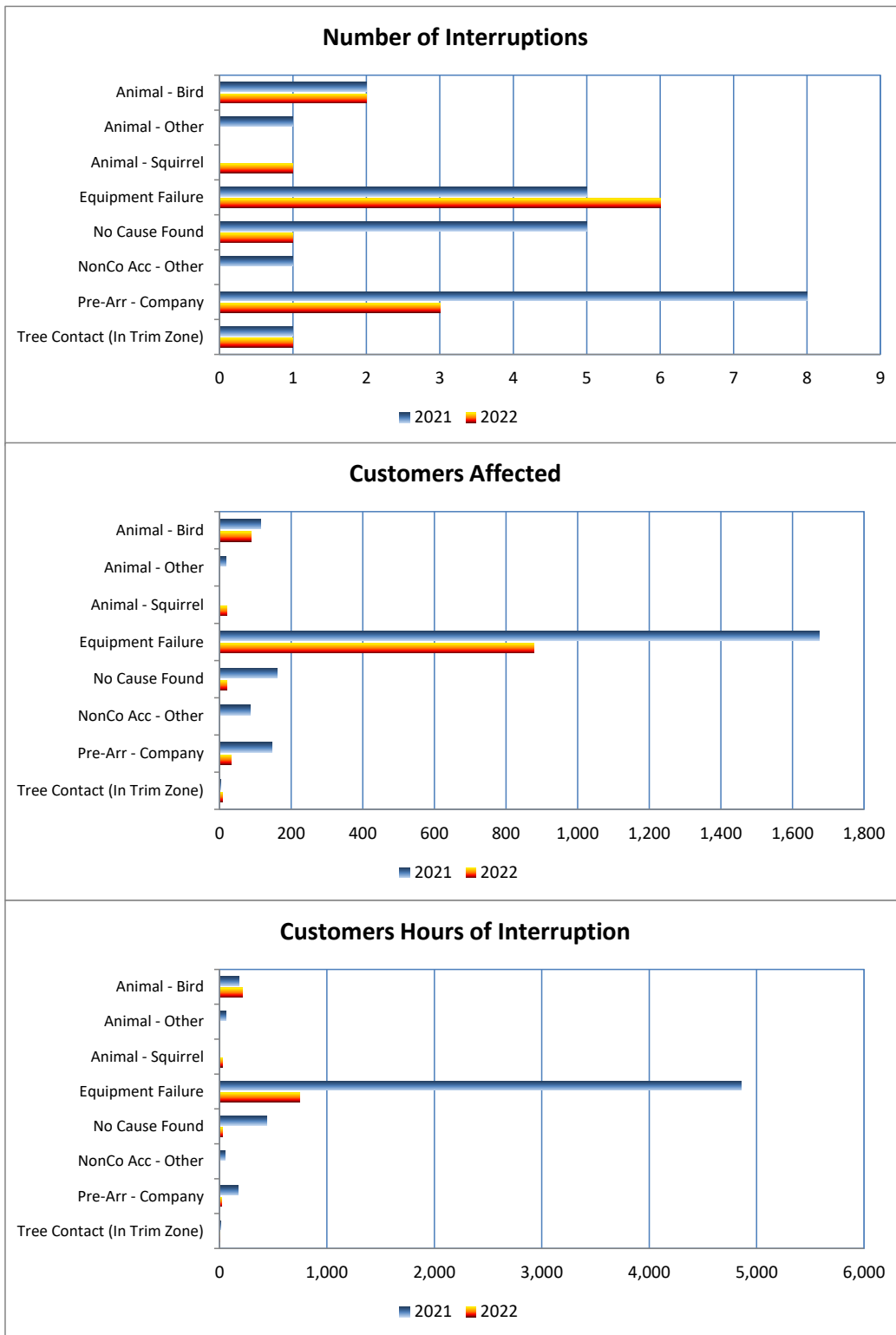
| One-Year Summary (1/1/2022 - 12/31/2022) 27-8-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 2 | 14.3 | 88 | 8.4 | 212.3 | 20.3 |
| Animal - Other | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Animal - Squirrel | 1 | 7.1 | 20 | 1.9 | 29.3 | 2.8 |
| Equipment Failure | 6 | 42.9 | 878 | 83.8 | 749.1 | 71.6 |
| No Cause Found | 1 | 7.1 | 20 | 1.9 | 30.7 | 2.9 |
| Non-Co Acc - Other | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Pre-Arr - Company | 3 | 21.4 | 33 | 3.2 | 19.9 | 1.9 |
| Tree Contact (In Trim Zone) | 1 | 7.1 | 9 | 0.9 | 5.6 | 0.5 |
| Total | 14 | | 1,048 | | 1,046.8 | |

In 2021, one of the 23 incidents accounted for 3,004 (52%) of the 5,775 total customer-hours of interruption for the year. The incident was the result of equipment failure. Removing this single event would drop this circuit off the worst performing circuit list.

The Company installed six MOABs (two are Tie MOABs) on the circuit. The MOABs will enhance the circuit by assisting with faster fault isolation and customer restoration, as well as providing enhanced reliability in cases of major storm events.

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CIRCUIT 27-8-13 YEAR-OVER-YEAR PERFORMANCE 2021 - 2022



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6.2.5. Circuit 44-5-13

Circuit 44-5-13 was ranked fifth in Eastern Division per the 2021 priority circuit rating results. The circuit's performance improved and is now ranked 51st in the Eastern Division per 2022 priority circuit rating results. The circuit originates from the Monsey Substation in Rockland County, New York and serves 1,538 customers in New York.

In 2021, there were 27 interruptions, which affected 2,924 customers that resulted in 2,006 customer-hours of interruption. In 2022, there were 28 interruptions, which affected 503 customers that resulted in 754 customer-hours of interruption.

Review of 2021 versus 2022 data, identified an improvement of 1,251 (62%) of the 2,006 total customer-hours of interruption. The tables below identify the outage data associated with circuit 44-5-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 44-5-13 | | | | | | |
|---|---------------------------|---------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 1 | 3.7 | 26 | 0.9 | 63.7 | 3.2 |
| Animal - Squirrel | 3 | 11.1 | 98 | 3.4 | 207.7 | 10.4 |
| Branch Contact (In Trim Zone) | 1 | 3.7 | 2 | 0.1 | 3.2 | 0.2 |
| Equipment Failure | 8 | 29.6 | 1,769 | 60.5 | 1,158.7 | 57.8 |
| Lightning - Previous | 1 | 3.7 | 9 | 0.3 | 38.0 | 1.9 |
| Non-Co Acc – Motor Veh | 1 | 3.7 | 22 | 0.8 | 36.7 | 1.8 |
| Non-Co Acc - Other | 1 | 3.7 | 617 | 21.1 | 164.5 | 8.2 |
| Overload - Company | 2 | 7.4 | 12 | 0.4 | 80.7 | 4.0 |
| Overload - Customer | 1 | 3.7 | 6 | 0.2 | 19.2 | 1.0 |
| Pre-Arr - Company | 4 | 14.8 | 38 | 1.3 | 122.6 | 6.1 |
| Tree Contact (In Trim Zone) | 3 | 11.1 | 316 | 10.8 | 96.6 | 4.8 |
| Vine Contact | 1 | 3.7 | 9 | 0.3 | 14.7 | 0.7 |
| Total | 27 | | 2,924 | | 2,006.2 | |

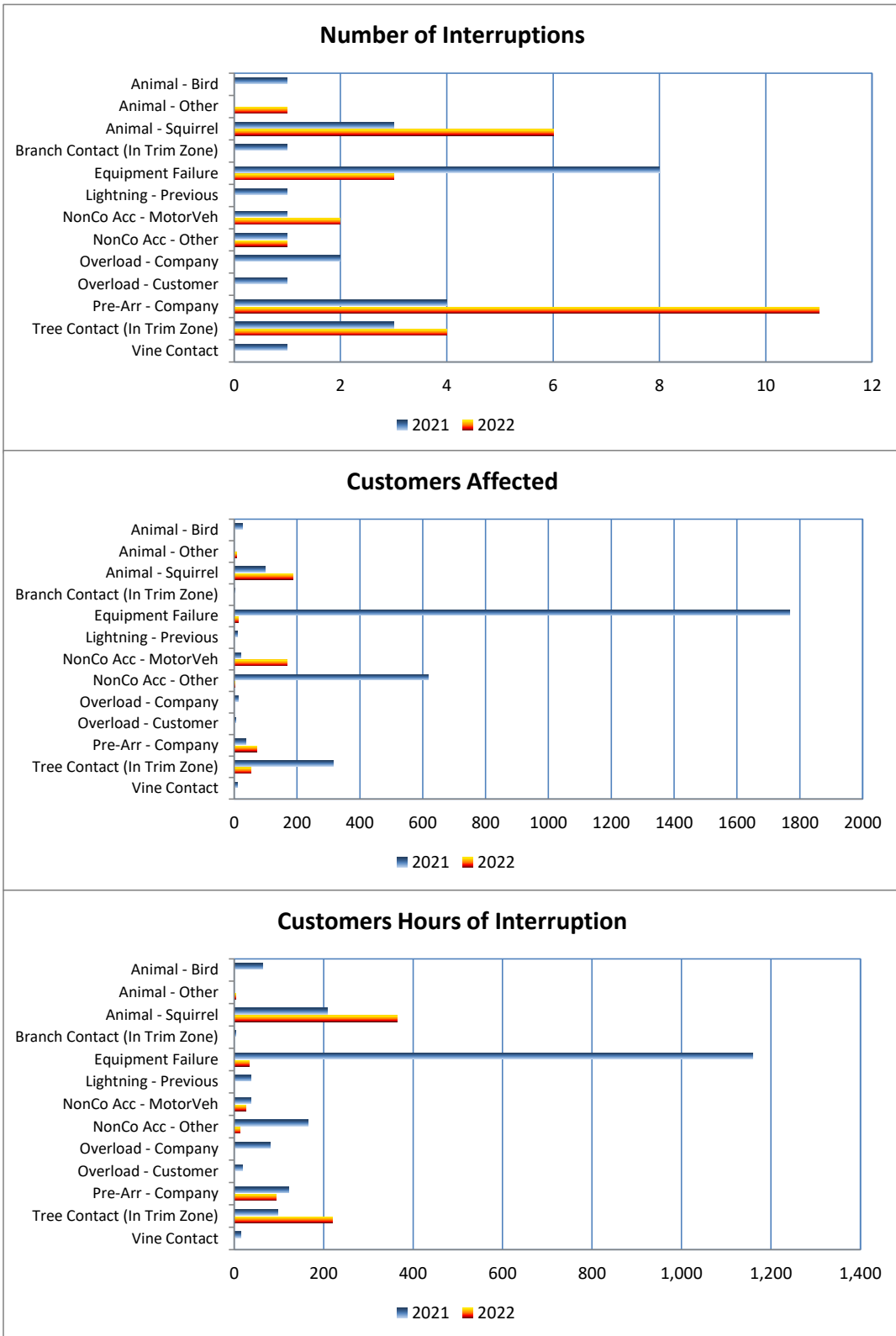
| One-Year Summary (1/1/2022 - 12/31/2022) 44-5-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Other | 1 | 3.6 | 7 | 1.4 | 2.9 | 0.4 |
| Animal - Squirrel | 6 | 21.4 | 186 | 37.0 | 364.4 | 48.3 |
| Equipment Failure | 3 | 10.7 | 14 | 2.8 | 34.3 | 4.5 |
| Non-Co Acc – Motor Veh | 2 | 7.1 | 169 | 33.6 | 25.4 | 3.4 |
| Non-Co Acc - Other | 1 | 3.6 | 2 | 0.4 | 13.1 | 1.7 |
| Pre-Arr - Company | 11 | 39.3 | 71 | 14.1 | 94.1 | 12.5 |
| Tree Contact (In Trim Zone) | 4 | 14.3 | 54 | 10.7 | 220.5 | 29.2 |
| Total | 28 | | 503 | | 754.7 | |

In 2021, two of the 27 incidents accounted for 1,030 (52%) of the 2,006 customer-hours of interruption for the year.

A small number of outages on mainline sections of the circuit affected a large number of customers and have had a significant impact on the overall performance of the circuit.

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CIRCUIT 44-5-13 YEAR-OVER-YEAR PERFORMANCE 2021 - 2022



6.3. Central Division

6.3.1. Circuit 80-3-13

Circuit 80-3-13 was ranked first in Central Division per the 2021 priority circuit rating results. The circuit's performance improved and is now ranked third in the Central Division per 2022 priority circuit rating results. Circuit 80-3-13 originates from the Wisner Substation, Warwick, New York and extends for approximately 74 circuit miles.

In 2021, there were 36 interruptions, which affected 8,662 customers that resulted in 9,237 customer-hours of interruption. In 2022, there were 30 interruptions, which affected 3,450 customers that resulted in 4,234 customer-hours of interruption.

The data comparison between 2021 and 2022 shows a decrease in the number of customers affected by 5,212(60%), and a significant decrease of 5,003 (54%) in the total customer-hours of interruption, indicating an improvement in 2022. The tables below identify the outage data associated with circuit 80-3-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 80-3-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 2 | 5.6 | 14 | 0.2 | 25.6 | 0.3 |
| Animal - Squirrel | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Branch Contact (In Trim Zone) | 2 | 5.6 | 2,890 | 33.4 | 1,676.9 | 18.2 |
| Equipment Failure | 10 | 27.8 | 1,168 | 13.5 | 2,912.9 | 31.5 |
| No Cause Found | 3 | 8.3 | 893 | 10.3 | 287.5 | 3.1 |
| Non-Co Acc – Motor Veh | 1 | 2.8 | 2,862 | 33.0 | 2,300.0 | 24.9 |
| Non-Co Acc - Other | 1 | 2.8 | 51 | 0.6 | 61.2 | 0.7 |
| Overload - Company | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Pre-Arr - Company | 5 | 13.9 | 79 | 0.9 | 94.9 | 1.0 |
| Tree Contact (In Trim Zone) | 7 | 19.4 | 506 | 5.8 | 892.9 | 9.7 |
| Tree Contact (Out of Trim Zone) | 4 | 11.1 | 145 | 1.7 | 799.0 | 8.7 |
| Vine Contact | 1 | 2.8 | 54 | 0.6 | 186.3 | 2.0 |
| Work Err - Company | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Total | 36 | | 8,662 | | 9,237.0 | |

| One-Year Summary (1/1/2022 - 12/31/2022) 80-3-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Animal - Squirrel | 2 | 6.7 | 42 | 1.2 | 98.5 | 2.3 |
| Branch Contact (In Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Equipment Failure | 7 | 23.3 | 277 | 8.0 | 997.7 | 23.6 |
| No Cause Found | 3 | 10.0 | 194 | 5.6 | 484.3 | 11.4 |
| Non-Co Acc – Motor Veh | 2 | 6.7 | 148 | 4.3 | 272.2 | 6.4 |
| Non-Co Acc - Other | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Overload - Company | 1 | 3.3 | 2 | 0.1 | 0.7 | 0.0 |
| Pre-Arr - Company | 4 | 13.3 | 137 | 4.0 | 233.5 | 5.5 |
| Tree Contact (In Trim Zone) | 9 | 30.0 | 2,606 | 75.5 | 2,066.5 | 48.8 |
| Tree Contact (Out of Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Vine Contact | 1 | 3.3 | 41 | 1.2 | 79.3 | 1.9 |
| Work Err - Company | 1 | 3.3 | 3 | 0.1 | 1.5 | 0.0 |
| Total | 30 | | 3,450 | | 4,234.2 | |

In 2021, two of the 36 incidents accounted for 2,063 (23%) of the 9,237 total customer-hours of interruption for the year. The incidents were result of equipment failure and non-company motor vehicle accident.

In 2022, one of the 30 incidents accounted for 1,321 (31%) of the 4,234 total customer-hours of interruption for the year. The incident occurred as a result of a tree falling on section of the primary infrastructure and compromising it. Removing this single event would drop this circuit off the worst performing circuit list.

The Company has continuously been taking steps to improve the performance of circuit 80-3-13. This includes increasing remote switching capacity and enhancing monitoring capabilities. The Company has also invested in additional maintenance efforts to ensure the circuit is functioning properly. However, due to the circuit's considerable length, it is more susceptible to issues such as tree contact, which are the leading cause of interruptions, resulting in the circuit remaining in the top five worst performing circuits.

In 2023, the Company is planning to install Hendrix cable as a means of enhancing circuit dependability along Pumpkin Hill Road, which is prone to power outages caused by trees. Project designed to storm harden this section of mainline by upgrading the existing horizontal cross-arm construction to a Hendrix Spacer Cable system and perform tree trimming along this 2,000-foot section of roadway. The conductor upgrade along with the tree trimming, will improve reliability to this known problem area and will significantly improve reliability.

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CIRCUIT 80-3-13 YEAR-OVER-YEAR PERFORMANCE 2021 - 2022



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6.3.2. Circuit 76-3-13

Circuit 76-3-13 was ranked second in Central Division per the 2021 priority circuit rating results. The circuit's performance improved and is now ranked 8th in the Central Division per 2022 priority circuit rating results. Circuit 76-3-13 originates from the Blooming Grove Substation, Blooming Grove, New York. The circuit serves 2,192 customers over 48 circuit miles.

In 2021, there were 23 interruptions, which affected 5,841 customers that resulted in 6,116 customer-hours of interruption. In 2022, there were 18 interruptions, which affected 2,299 customers that resulted in 3,378 customer-hours of interruption.

The data comparison between 2021 and 2022 shows a decrease in the number of customers affected by 3,542 (61%), and a significant decrease of 2,740 (48%) in the total customer-hours of interruption, indicating an improvement in 2022. The tables below identify the outage data associated with circuit 76-3-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 76-3-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Branch Contact (In Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Customer Problem | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Equipment Failure | 9 | 39.1 | 4,067 | 69.6 | 2,874.7 | 47.0 |
| No Cause Found | 2 | 8.7 | 19 | 0.3 | 49.2 | 0.8 |
| Non-Co Acc – Motor Veh | 1 | 4.3 | 813 | 13.9 | 1,354.1 | 22.1 |
| Pre-Arr - Company | 10 | 43.5 | 128 | 2.2 | 54.5 | 0.9 |
| Tree Contact (In Trim Zone) | 1 | 4.3 | 814 | 13.9 | 1,783.1 | 29.2 |
| Total | 23 | | 5,841.0 | | 6,115.6 | |

| One-Year Summary (1/1/2022 - 12/31/2022) 76-3-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 1 | 5.6 | 38 | 1.7 | 144.4 | 4.3 |
| Branch Contact (In Trim Zone) | 2 | 11.1 | 1,944 | 84.6 | 2,447.0 | 72.5 |
| Customer Problem | 1 | 5.6 | 6 | 0.3 | 2.5 | 0.1 |
| Equipment Failure | 6 | 33.3 | 171 | 7.4 | 515.7 | 15.3 |
| No Cause Found | 3 | 16.7 | 57 | 2.5 | 134.9 | 4.0 |
| Non-Co Acc – Motor Veh | 1 | 5.6 | 6 | 0.3 | 6.0 | 0.2 |
| Pre-Arr - Company | 2 | 11.1 | 26 | 1.1 | 73.0 | 2.2 |
| Tree Contact (In Trim Zone) | 2 | 11.11 | 51 | 2.22 | 54.1 | 1.6 |
| Total | 18 | | 2,299.0 | | 3,377.5 | |

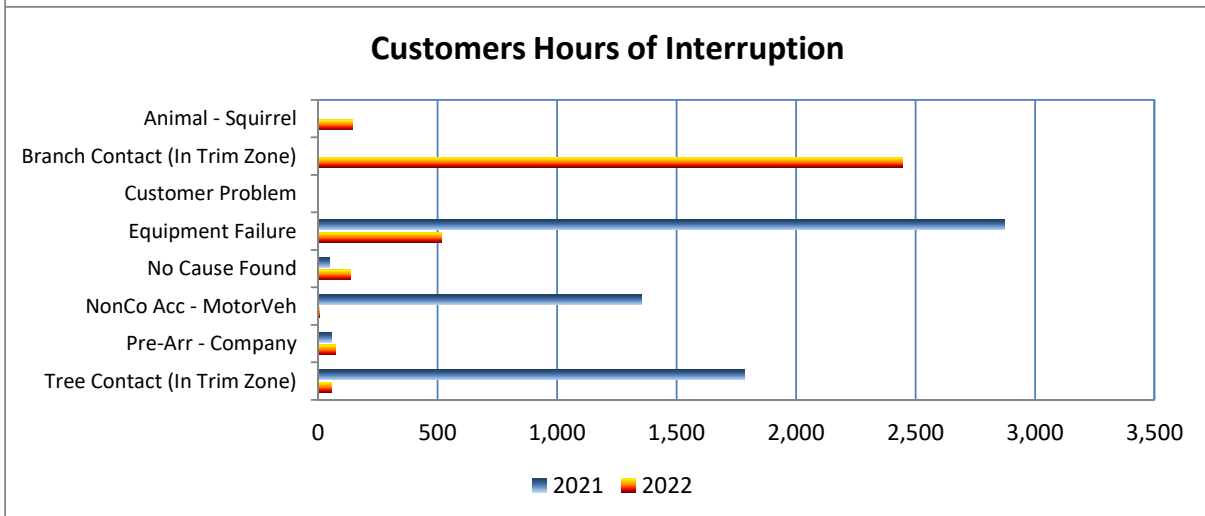
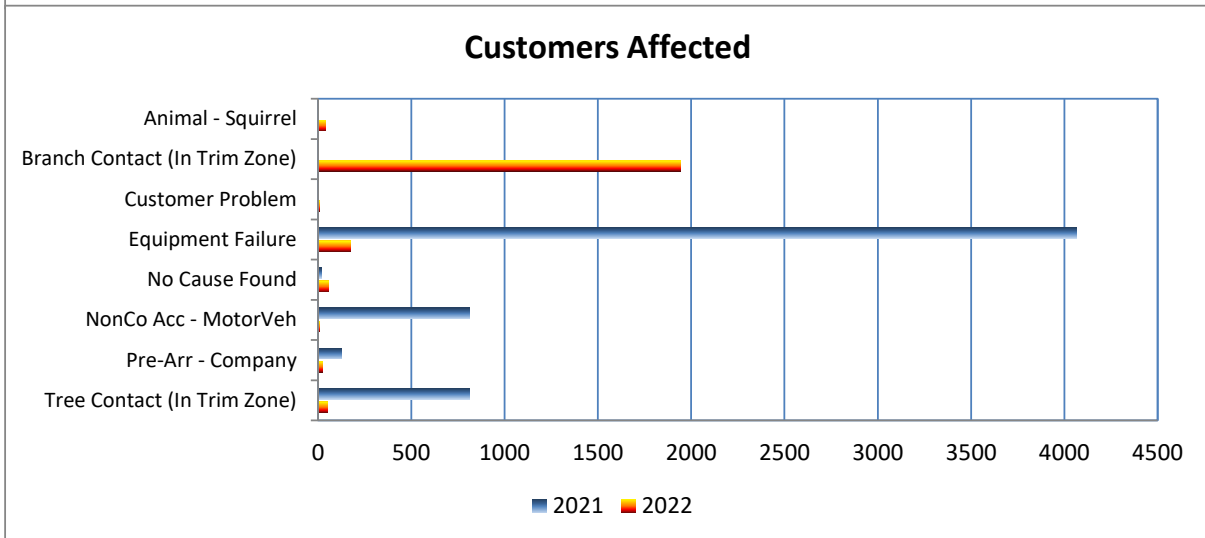
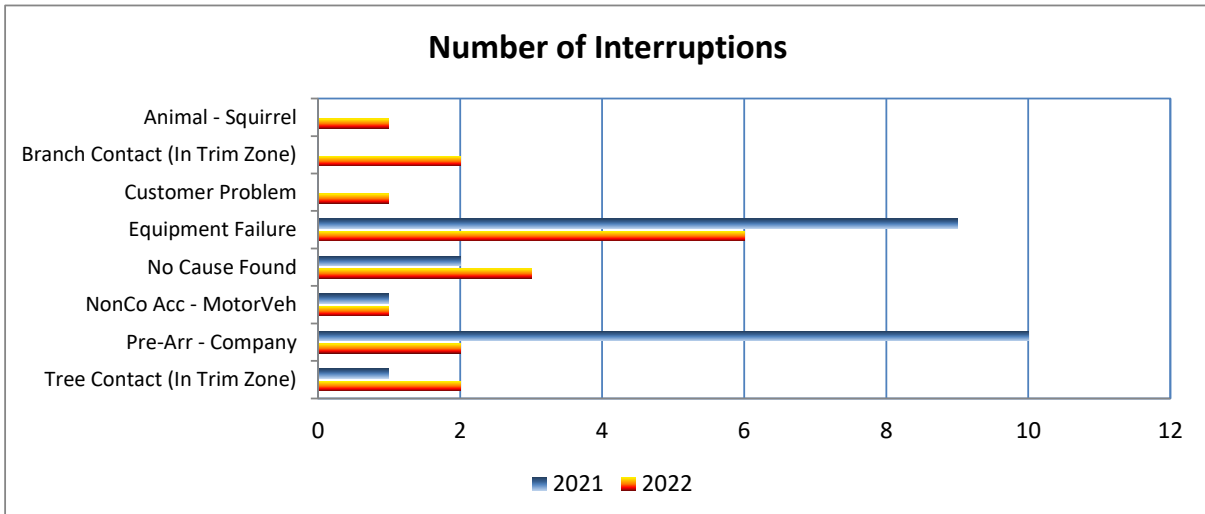
In 2021, one of the 23 incidents accounted for 1,886 (31%) of the 6,116 total customer-hours of interruption for the year. The incident was the result of equipment failure.

In 2022, one of the 18 incidents accounted for 2,447 (72%) of the 3,378 total customer-hours of interruption for the year. The incident was the result of tree contact on a windy day. Although outage was short, tree branch came down across the phases and caused recloser to lock out and causing an outage to 1932 customers. This one outage described above accounts for over half the customer hours of interruption for the year.

In 2022, the circuit was thoroughly patrolled for broken and defective components, vegetation contact, missing animal guards and lightning protection and it's scheduled for IR inspection in 2023.

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CIRCUIT 76-3-13 YEAR-OVER-YEAR PERFORMANCE 2021 - 2022



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6.3.3. Circuit 80-5-13

Circuit 80-5-13 was ranked third in Central Division per the 2021 priority circuit rating results. The circuit’s performance improved and is now ranked 10th in the Central Division per 2022 priority circuit rating results. Circuit 80-5-13 originates from the Wisner Substation, Warwick, New York and circuit serves 1,730 customers from over 61 circuit miles.

In 2021, there were 24 interruptions, which affected 4,271 customers that resulted in 3,915 customer-hours of interruption. In 2022, there were 41 interruptions, which affected 2,274 customers that resulted in 3075 customer-hours of interruption.

The data comparison between 2021 and 2022 shows a decrease in the number of customers affected by 1,997 (47%), and a decrease of 840 (21%) in the total customer-hours of interruption, indicating an improvement in 2022. The tables below identify the outage data associated with circuit 80-5-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 80-5-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Other | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Animal - Squirrel | 1 | 4.2 | 1,758 | 41.2 | 563.2 | 14.4 |
| Branch Contact (In Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Equipment Failure | 4 | 16.7 | 294 | 6.9 | 915.7 | 23.4 |
| No Cause Found | 3 | 12.5 | 90 | 2.1 | 226.5 | 5.8 |
| Non-Co Acc – Motor Veh | 1 | 4.2 | 365 | 8.6 | 626.3 | 16.0 |
| Pre-Arr - Company | 8 | 33.3 | 43 | 1.0 | 75.5 | 1.9 |
| Tree Contact (In Trim Zone) | 6 | 25.0 | 1,600 | 37.5 | 1,286.1 | 32.9 |
| Tree Contact (Out of Trim Zone) | 1 | 4.2 | 121 | 2.8 | 221.8 | 5.7 |
| Vine Contact | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Total | 24 | | 4,271 | | 3,915.0 | |

| One-Year Summary (1/1/2022 - 12/31/2022) 80-5-13 | | | | | | |
|---|---------------------------|---------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Other | 1 | 2.4 | 19 | 0.8 | 39.9 | 1.3 |
| Animal - Squirrel | 2 | 4.9 | 5 | 0.2 | 11.5 | 0.4 |
| Branch Contact (In Trim Zone) | 3 | 7.3 | 26 | 1.1 | 43.7 | 1.4 |
| Equipment Failure | 8 | 19.5 | 1,490 | 65.5 | 784.8 | 25.5 |
| No Cause Found | 9 | 22.0 | 206 | 9.1 | 521.0 | 16.9 |
| Non-Co Acc – Motor Veh | 2 | 4.9 | 35 | 1.5 | 207.0 | 6.7 |
| Pre-Arr - Company | 3 | 7.3 | 8 | 0.4 | 7.8 | 0.3 |
| Tree Contact (In Trim Zone) | 10 | 24.4 | 385 | 16.9 | 949.8 | 30.9 |
| Tree Contact (Out of Trim Zone) | 1 | 2.4 | 27 | 1.19 | 357.3 | 11.6 |
| Vine Contact | 2 | 4.9 | 73 | 3.21 | 152.3 | 5.0 |
| Total | 41 | | 2,274 | | 3,074.9 | |

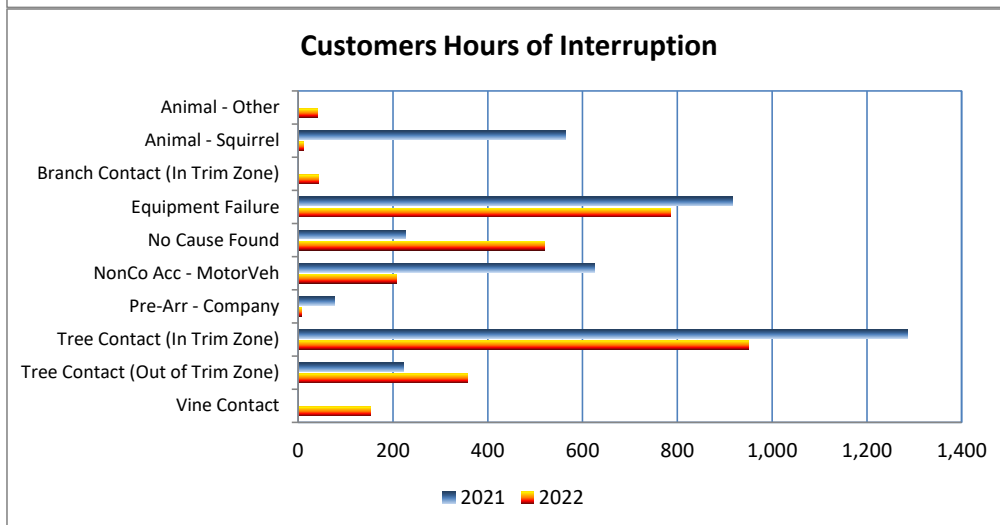
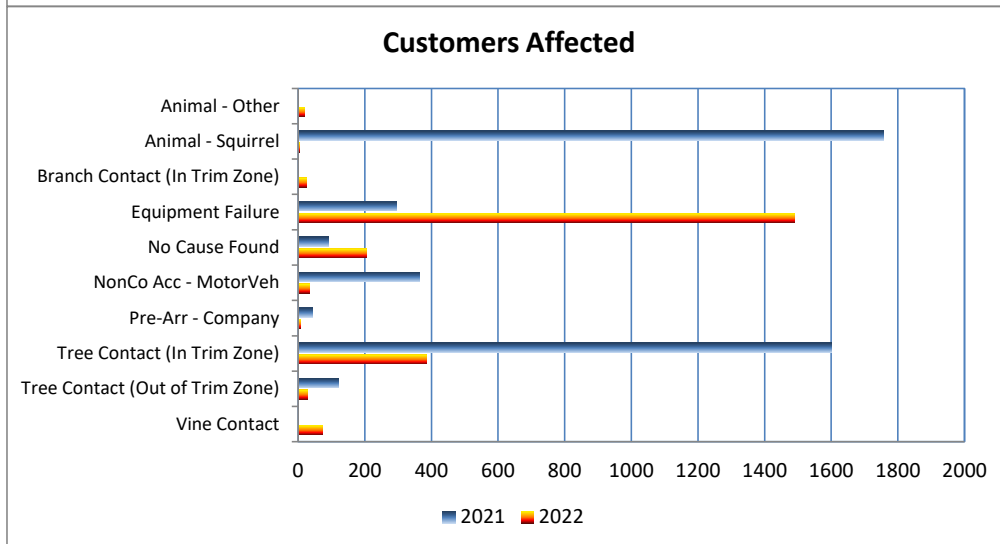
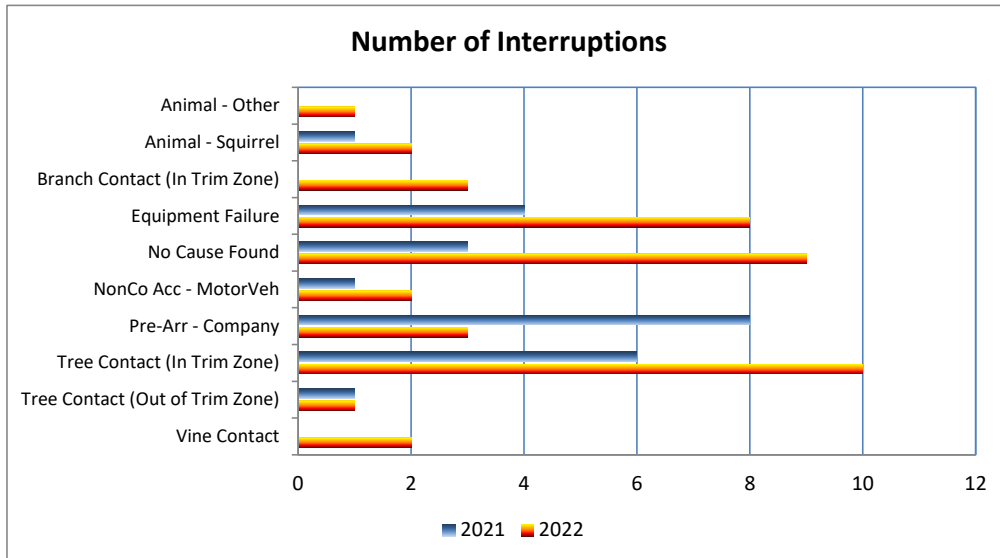
In 2021, two of the 36 incidents accounted for 1,326 (34%) of the 3,915 total customer-hours of interruption for the year. The incidents were the result of equipment failure and tree contact.

In 2022, ten of the 41 incidents accounted for 2,383 (75%) of the 3,075 total customer-hours of interruption for the year. The incidents were the result of six tree contact, two equipment failures, one non-company motor vehicle accident and one no cause found.

In 2022, O&R conducted a thermal infrared inspection, which identified a few defects. O&R promptly addressed these issues in accordance with its established protocol. Additionally, in 2022, O&R installed six motor-operated, remote-capable switches (MOABs), which are scheduled to become fully operational in 2023. As part of our vegetation trim cycle, O&R completed trimming the circuit in March 2023. This circuit should benefit from this trimming over the next few years.

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6.3.4. Circuit 67-1-13

Circuit 67-1-13 was ranked fourth in Central Division per the 2021 priority circuit rating results. The circuit's performance improved and is now ranked 22nd in the Central Division per 2022 priority circuit rating results. The circuit originates from the Sterling Forest Substation, Tuxedo, New York and serves a total of 1,043 customers over 46 circuit miles.

In 2021, there were 45 interruptions, which affected 5,041 customers that resulted in 9,209 customer-hours of interruption. In 2022, there were 52 interruptions, which affected 2,107 customers that resulted in 3,892 customer-hours of interruption.

The data comparison between 2021 and 2022 shows a considerable decrease in the number of customers affected by 2,934 (58%), and a significant decrease of 5,317 (58%) in the total customer-hours of interruption, indicating an improvement in 2022. The tables below identify the outage data associated with circuit 67-1-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 67-1-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Branch Contact (In Trim Zone) | 2 | 4.4 | 26 | 0.5 | 37.1 | 0.4 |
| Equipment Failure | 12 | 26.7 | 596 | 11.8 | 1,464.5 | 15.9 |
| No Cause Found | 5 | 11.1 | 1,104 | 21.9 | 313.3 | 3.4 |
| Non-Co Acc – Motor Veh | 1 | 2.2 | 234 | 4.6 | 399.6 | 4.3 |
| Non-Co Acc - OH | 1 | 1.9 | 4 | 0.2 | 27.2 | 0.7 |
| Non-Co Acc - Other | 1 | 2.2 | 17 | 0.3 | 64.9 | 0.7 |
| Pre-Arr - Company | 6 | 13.3 | 113 | 2.2 | 247.7 | 2.7 |
| Tree Contact (In Trim Zone) | 16 | 35.6 | 2,374 | 47.1 | 5,753.5 | 62.5 |
| Tree Contact (Out of Trim Zone) | 2 | 4.4 | 577 | 11.5 | 928.6 | 10.1 |
| Vine Contact | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Total | 45 | | 5,041 | | 9,209.2 | |

| One-Year Summary (1/1/2022 - 12/31/2022) 67-1-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 1 | 1.9 | 2 | 0.1 | 5.6 | 0.1 |
| Branch Contact (In Trim Zone) | 5 | 9.6 | 85 | 4.0 | 298.2 | 7.7 |
| Equipment Failure | 8 | 15.4 | 492 | 23.4 | 147.8 | 3.8 |
| No Cause Found | 4 | 7.7 | 84 | 4.0 | 110.1 | 2.8 |
| Non-Co Acc – Motor Veh | 5 | 9.6 | 298 | 14.1 | 890.9 | 22.9 |
| Non-Co Acc - OH | 1 | 1.9 | 4 | 0.2 | 27.2 | 0.7 |
| Non-Co Acc - Other | 1 | 2.2 | 17 | 0.3 | 64.9 | 0.7 |
| Pre-Arr - Company | 9 | 17.3 | 41 | 2.0 | 135.1 | 3.5 |
| Tree Contact (In Trim Zone) | 15 | 28.9 | 810 | 38.4 | 1,031.0 | 26.5 |
| Tree Contact (Out of Trim Zone) | 3 | 5.8 | 287 | 13.6 | 1,230.8 | 31.6 |
| Vine Contact | 1 | 1.9 | 4 | 0.2 | 14.9 | 0.4 |
| Total | 52 | | 2,107 | | 3,891.5 | |

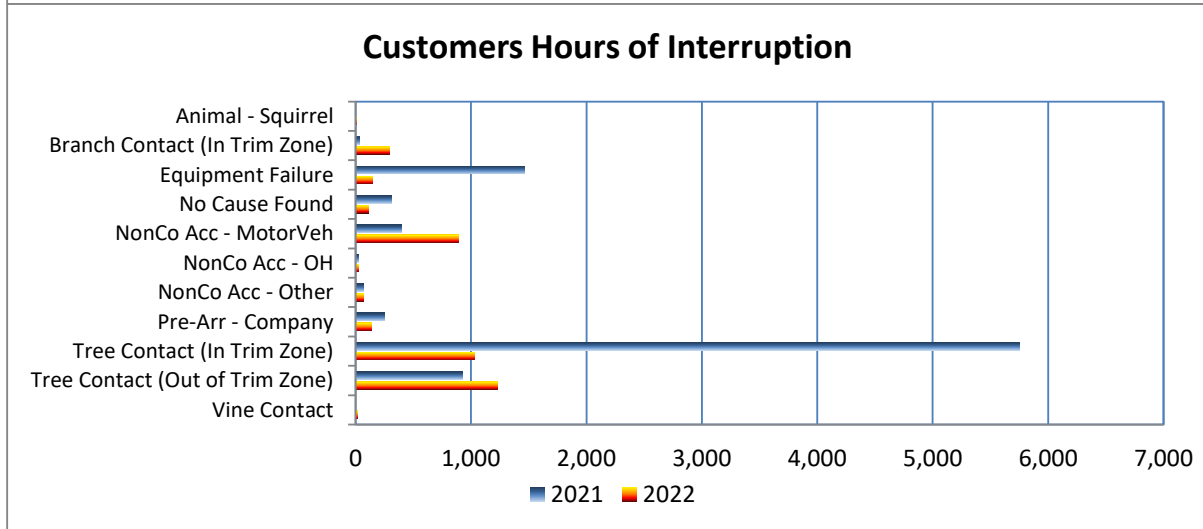
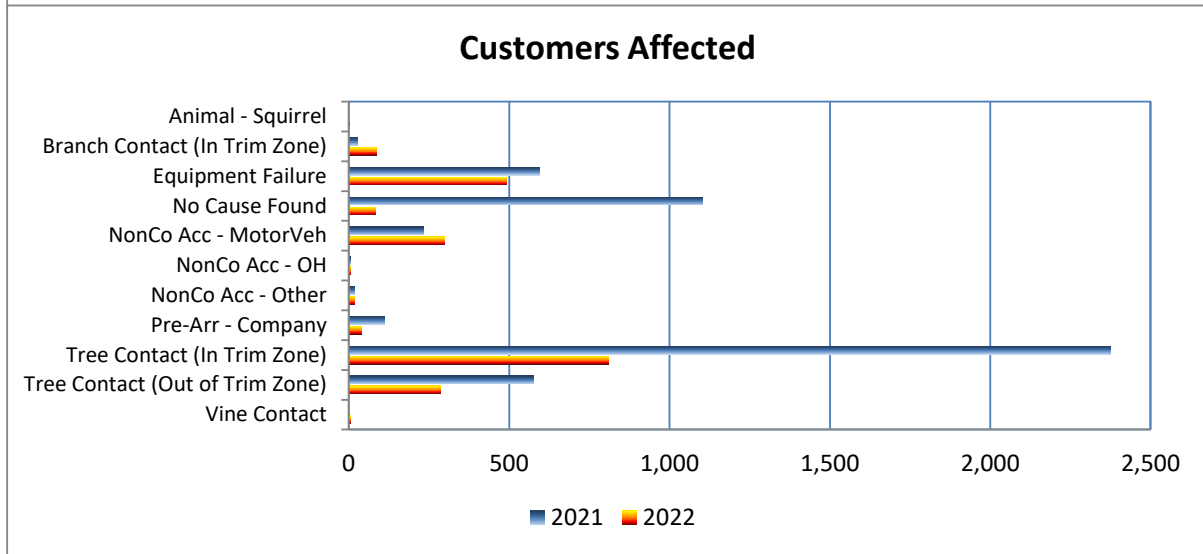
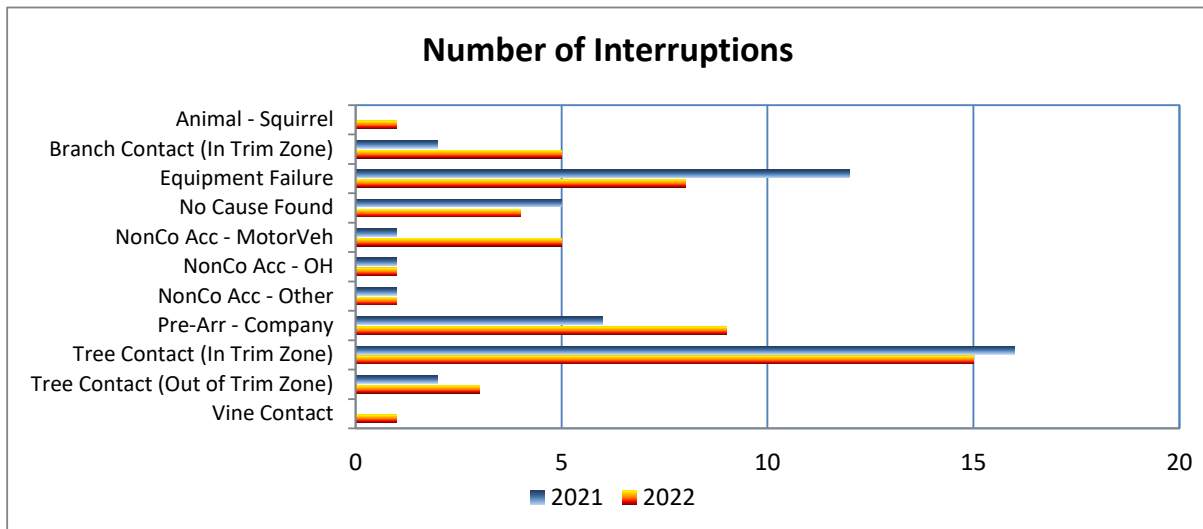
In 2021, two of the 45 incidents accounted for 4,008 (44%) of the 9,209 total customer-hours of interruption for the year. The two incidents are the result of tree contact and equipment failure.

In 2022, two of the 52 incidents accounted for 1,881 (48%) of the 3,892 total customer-hours of interruption for the year. The incidents are the result of tree contact and non-company motor vehicle accident. Removing these two events would drop this circuit off the worst performing circuit list.

In 2023, the Company has plans to increase the automation on the circuit by replacing four manual switches with motor operated remote capable switches (MOABs). An infrared thermal inspection is scheduled on this circuit for 2023 and the circuit will be part of the 2023 circuit ownership program. The company also completed a major capital project in Tuxedo Park, which involved replacing sections of the mainline with Hendrix Spacer Cable. This cable technology is designed to minimize tree-related outages and improve the overall reliability of the system.

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CIRCUIT 67-1-13 YEAR-OVER-YEAR PERFORMANCE 2021 – 2022



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6.3.5. Circuit 89-2-13

Circuit 89-2-13 was ranked fifth in Central Division per the 2021 priority circuit rating results. The circuit’s performance declined and is now ranked fourth in the Central Division per 2022 priority circuit rating results. Circuit 89-2-13 originates from the South Goshen Substation, Goshen, New York and serves a total of 1,115 customers over 48 circuit miles.

In 2021, there were 26 interruptions, which affected 2,126 customers that resulted in 1,946 customer-hours of interruption. In 2022, there were 26 interruptions, which affected 2,099 customers that resulted in 8,316 customer-hours of interruption.

The data comparison between 2021 and 2022 shows a decrease in the number of customers affected by 27 (1%), and a significant increase of 6,371 (327%) in the total customer-hours of interruption, indicating an improvement in 2022. The tables below identify the outage data associated with circuit 89-2-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 89-2-13 | | | | | | |
|---|---------------------------|---------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 3 | 11.5 | 26 | 1.2 | 52.2 | 2.7 |
| Equipment Failure | 8 | 30.8 | 1,628 | 76.6 | 909.0 | 46.7 |
| No Cause Found | 5 | 19.2 | 213 | 10.0 | 383.9 | 19.7 |
| Non-Co Acc – Motor Veh | 4 | 15.4 | 189 | 8.9 | 250.3 | 12.9 |
| Non-Co Acc - Other | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Pre-Arr - Company | 2 | 7.7 | 9 | 0.4 | 16.8 | 0.9 |
| Tree Contact (In Trim Zone) | 4 | 15.4 | 61 | 2.9 | 333.6 | 17.2 |
| Vine Contact | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Total | 26 | | 2,126 | | 1,945.7 | |

| One-Year Summary (1/1/2022 - 12/31/2022) 89-2-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Bird | 1 | 3.9 | 4 | 0.2 | 6.9 | 0.1 |
| Equipment Failure | 8 | 30.8 | 1,410 | 67.2 | 6,676.3 | 80.3 |
| No Cause Found | 4 | 15.4 | 164 | 7.8 | 428.9 | 5.2 |
| Non-Co Acc – Motor Veh | 6 | 23.1 | 489 | 23.3 | 1,114.4 | 13.4 |
| Non-Co Acc - Other | 1 | 3.9 | 4 | 0.2 | 0.8 | 0.0 |
| Pre-Arr - Company | 3 | 11.5 | 9 | 0.4 | 11.5 | 0.1 |
| Tree Contact (In Trim Zone) | 2 | 7.7 | 15 | 0.7 | 68.6 | 0.8 |
| Vine Contact | 1 | 3.9 | 4 | 0.2 | 9.4 | 0.1 |
| Total | 26 | | 2,099 | | 8,316.8 | |

In 2021, one of the 26 incidents accounted for 812 (42%) of the 1,946 total customer-hours of interruption for the year. The incident was result of equipment failures. Excluding this single event, we could see a stellar circuit performance, and it would no longer be classified as one of the worst performing circuits.

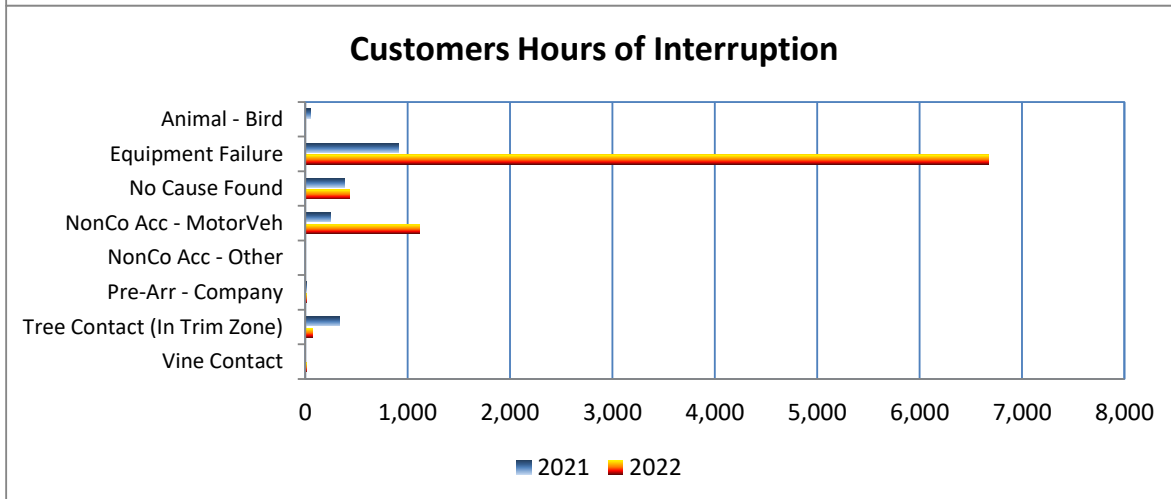
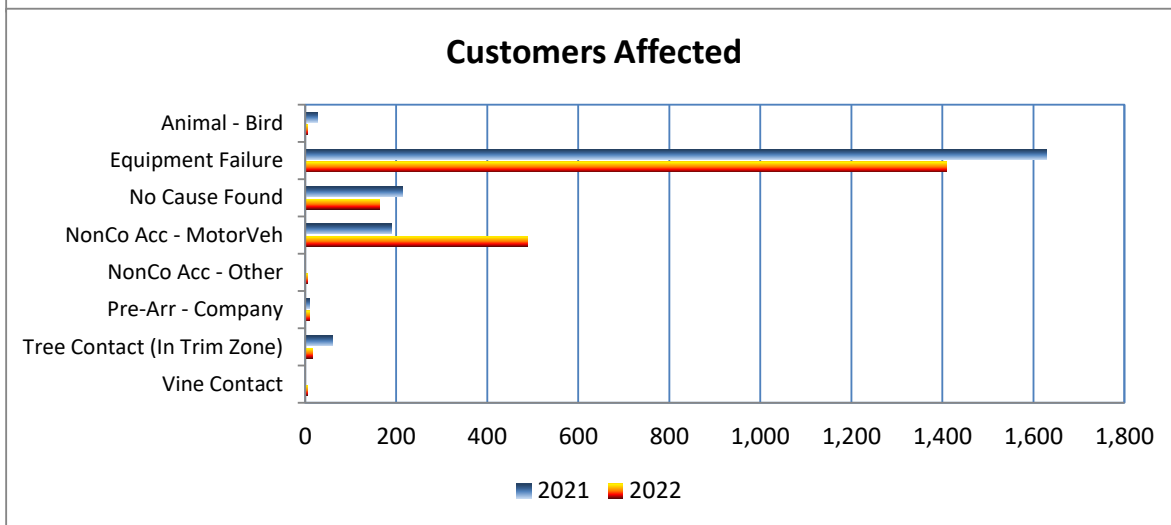
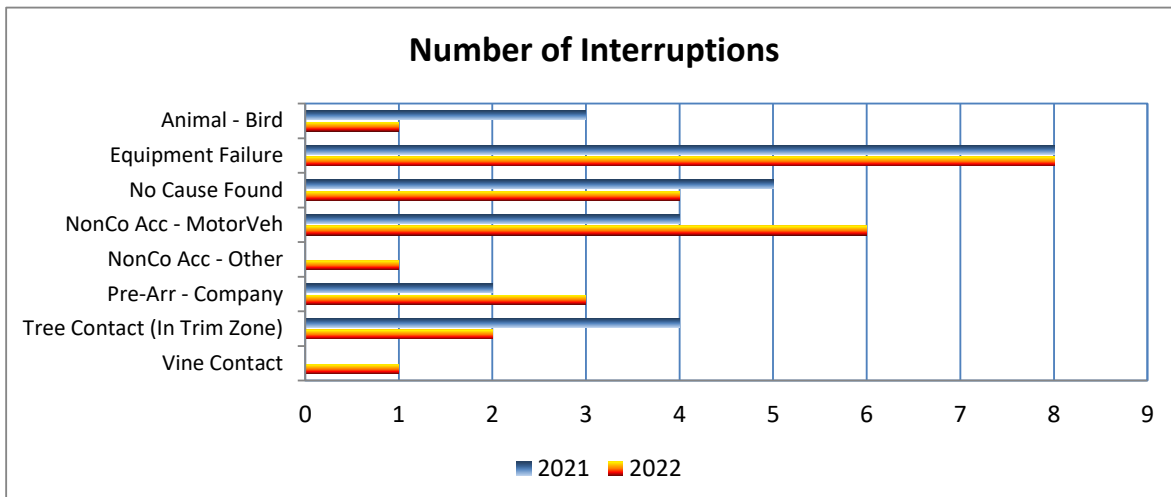
In 2022, two of the 26 incidents accounted for 6,494 (78%) of the 8,317 total customer-hours of interruption for the year. The incidents were both the result of equipment failure. The largest event was due to equipment failure during extreme heat which caused significant impact on the customers. The failure was related to a primary conductor that came apart, which affected 1,102 customers, representing 53% of the total number of customers impacted. Additionally, the total customer hours impacted were 5,451, which represents 66% of the total customer hours. Second largest incident was also related to equipment failure, specifically a pole top failure, which impacted 198 customers, representing 9% of the total number of customers impacted. This incident also resulted in a total of 1,043 customer hours. These two events are the primary reason why the circuit is currently on the worst performing circuit list and removing them would significantly improve its overall performance.

In 2022, the Company installed seven remote-capable switches (MOABs), which are scheduled to be commissioned and fully operational in 2023. As part of O&R’s vegetation trim cycle, the Company completed trimming the circuit in March 2023. This circuit should benefit from this trimming over the next few years. O&R completed an infrared thermal inspection in 2022, which found no defects. An infrared thermal inspection is scheduled for 2023 on this circuit.

O&R expects that this circuit’s reliability will benefit from these improvements over the next several years.

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CIRCUIT 89-2-13 YEAR-OVER-YEAR PERFORMANCE 2021 - 2022



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6.4. Western Division

6.4.1.Circuit 109-4-34

Circuit 109-4-34 was ranked first in the Western Division, in accordance with the Company’s 2021 circuit priority rating system. The circuit’s performance improved and is now ranked fifth in the Western Division per 2022 priority circuit rating results. Circuit 109-4-34 originates from the Washington Heights Substation, in Middletown. This circuit serves 1,973 customers over 72 circuit miles.

In 2021, there were 58 interruptions which affected 8,617 customers and resulted in 13,758 customer-hours of interruption. In 2022, there were 48 interruptions, which affected 7,098 customers that resulted in 10,807 customer-hours of interruption.

Review of 2021 versus 2022 data, identified a decrease of 2,951 (21%) of the 13,758 total customer-hours of interruption. The tables below identify the outage data associated with circuit 109-4-34 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 109-4-34 | | | | | | |
|--|---------------------------|---------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 1 | 1.7 | 2 | 0.0 | 14.7 | 0.1 |
| Branch Contact (In Trim Zone) | 4 | 6.9 | 1,156 | 13.4 | 1,362.6 | 9.9 |
| Branch Contact (Out of Trim Zone) | 1 | 1.7 | 2 | 0.0 | 32.6 | 0.2 |
| Equipment Failure | 18 | 31.0 | 3,352 | 38.9 | 4,173.0 | 30.3 |
| Lightning - Previous | 1 | 1.7 | 37 | 0.4 | 217.1 | 1.6 |
| No Cause Found | 6 | 10.3 | 286 | 3.3 | 285.3 | 2.1 |
| Non-Co Acc – Motor Veh | 3 | 5.2 | 371 | 4.3 | 944.9 | 6.9 |
| Overload - Company | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Pre-Arr - Company | 5 | 8.6 | 83 | 1.0 | 214.4 | 1.6 |
| Tree Contact (In Trim Zone) | 16 | 27.6 | 3,159 | 36.7 | 5,845.6 | 42.5 |
| Tree Contact (Out of Trim Zone) | 2 | 3.5 | 53 | 0.6 | 167.4 | 1.2 |
| Vine Contact | 1 | 1.7 | 116 | 1.4 | 500.7 | 3.6 |
| Total | 58 | | 8,617 | | 13,758.2 | |

| One-Year Summary (1/1/2022 - 12/31/2022) 109-4-34 | | | | | | |
|---|--------------------|--------------------|--------------------|-------------------------|-----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Branch Contact (In Trim Zone) | 4 | 8.3 | 162 | 2.3 | 156.6 | 1.5 |
| Branch Contact (Out of Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Equipment Failure | 10 | 20.8 | 182 | 2.6 | 544.7 | 5.0 |
| Lightning - Previous | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| No Cause Found | 4 | 8.3 | 164 | 2.3 | 406.0 | 3.8 |
| Non-Co Acc – Motor Veh | 5 | 10.4 | 2,729 | 38.5 | 3,545.1 | 32.8 |
| Overload - Company | 1 | 2.1 | 20 | 0.3 | 158.7 | 1.5 |
| Pre-Arr - Company | 5 | 10.4 | 49 | 0.7 | 23.6 | 0.2 |
| Tree Contact (In Trim Zone) | 19 | 39.6 | 3,792 | 53.4 | 5,972.1 | 55.3 |
| Tree Contact (Out of Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Vine Contact | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Total | 48 | | 7,098 | | 10,806.7 | |

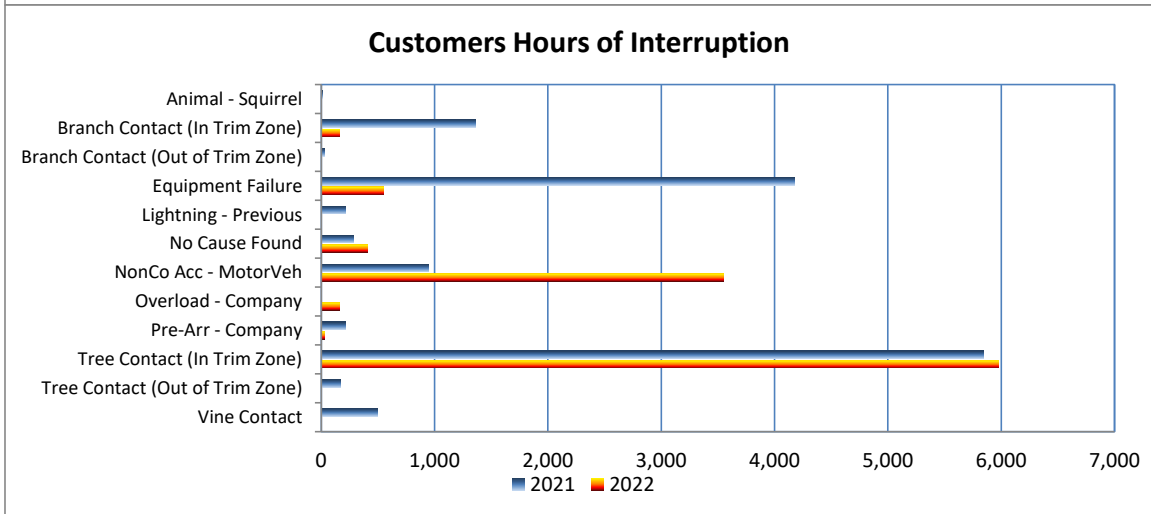
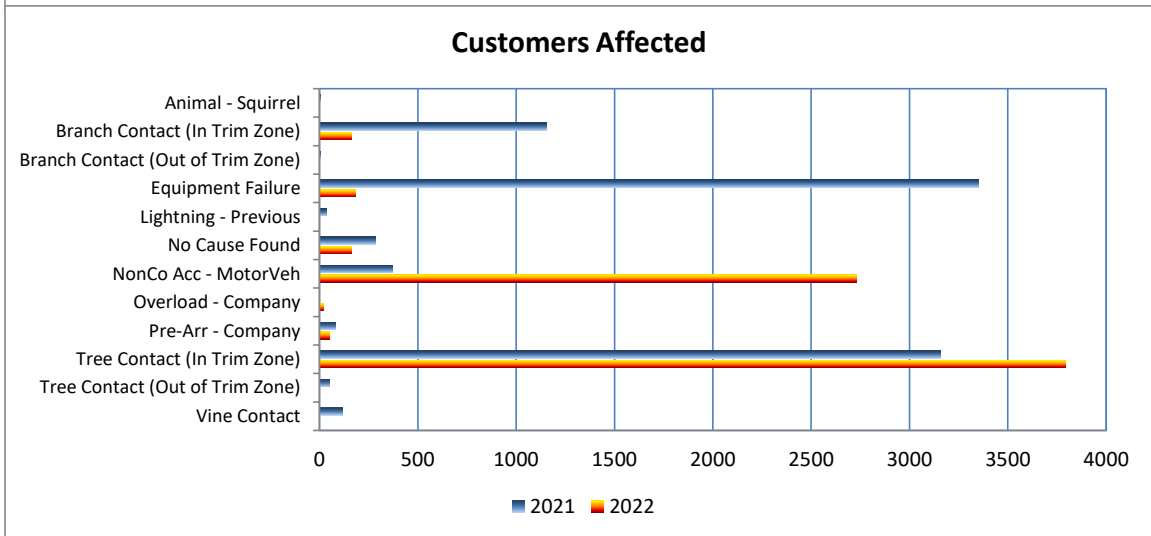
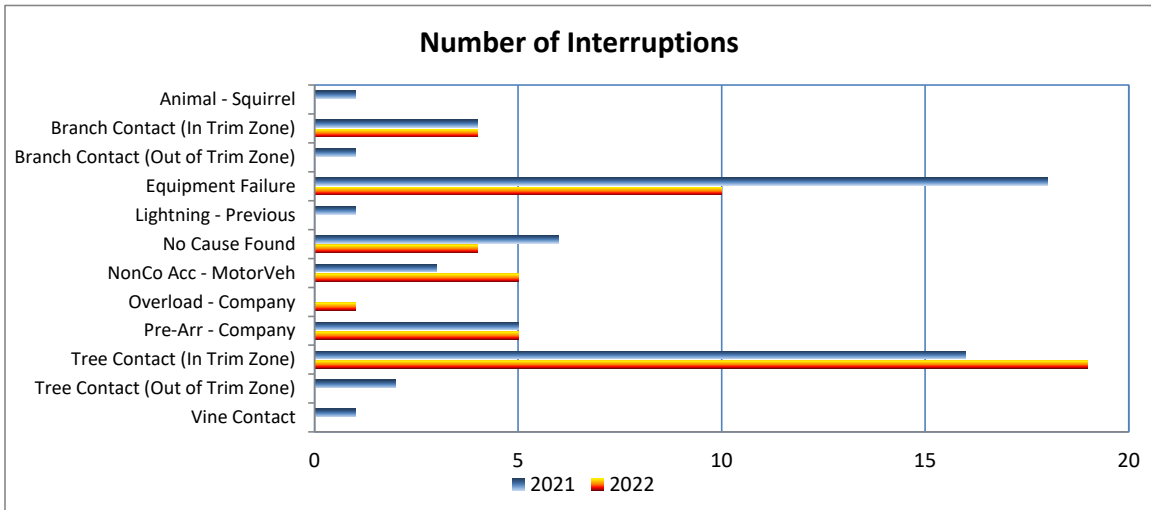
In 2022, this circuit has seen increase in non-Company motor vehicle accidents and decrease of equipment failures. In 2022 equipment failures accounted for 545 customer hours, comparing it to 4,173 customer hours of interruption in 2021, which is 87% decrease. Non-Company motor vehicle accidents increased in 2022 by 2,600 customer hours or 375%.

In 2022, three of the 48 incidents accounted for 4,160 (38%) customer hours. The largest incident was due to tree contact which impacted 1,106 customers for total of 1,824(17%) customer hours, while the second and third largest incidents were both caused by non-Company motor vehicle accidents which together account for 2,336 (21%) customer hours impacting 2,080 customers.

In 2022, O&R implemented a scheduled vegetation trimming cycle aimed at minimizing tree-related outages in the future. Additionally, O&R conducted a thermal infrared inspection in 2022, which identified several defects. O&R promptly addressed these issues according to the Company's established protocol. Furthermore, O&R thoroughly patrolled the circuit in 2022 for broken or defective components, vegetation contact, missing animal guards, and lightning protection. O&R has scheduled another infrared thermal inspection for 2023.

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CIRCUIT 109-4-34 YEAR-OVER-YEAR PERFORMANCE 2021 – 2022



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6.4.2. Circuit 5-3-34

Circuit 5-3-34 was ranked second in the Western Division per the 2021 circuit priority rating system. The circuit performance has improved and its now ranked 13th in the Western Division per 2022 circuit rating results. Circuit 5-3-34 originates from the Cuddebackville Substation, in Cuddebackville, New York and it serves 1,488 customers over 68 circuit miles.

In 2021, there were 72 interruptions which affected 7,274 customers and resulted in 17,585 customer-hours of interruption. In 2022, there were 56 interruptions which affected 3,888 customers and resulted in 9,323 customer-hours of interruption.

Review of 2021 versus 2022 data, identified a decrease of 8,262 (47%) of the 17,585 total customer-hours of interruption, and decrease of 3,386 (47%) customers affected. The tables below identify the outage data associated with circuit 5-3-34 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 5-3-34 | | | | | | |
|---|--------------------|--------------------|--------------------|-------------------------|-----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Branch Contact (In Trim Zone) | 1 | 1.4 | 5 | 0.1 | 3.8 | 0.0 |
| Branch Contact (Out of Trim Zone) | 1 | 1.4 | 156 | 2.1 | 23.4 | 0.1 |
| Equipment Failure | 13 | 18.1 | 1,151 | 15.8 | 1,525.1 | 8.7 |
| Lightning - Previous | 1 | 1.4 | 2 | 0.0 | 10.8 | 0.1 |
| No Cause Found | 3 | 4.2 | 99 | 1.4 | 307.9 | 1.8 |
| Non-Co Acc – Motor Veh | 4 | 5.6 | 191 | 2.6 | 564.3 | 3.2 |
| Pre-Arr - Company | 3 | 4.2 | 259 | 3.6 | 140.8 | 0.8 |
| Tree Contact (In Trim Zone) | 41 | 56.9 | 4,311 | 59.3 | 11,431.4 | 65.0 |
| Tree Contact (Out of Trim Zone) | 5 | 6.9 | 1,100 | 15.1 | 3,577.1 | 20.3 |
| Total | 72 | | 7,274 | | 17,584.5 | |

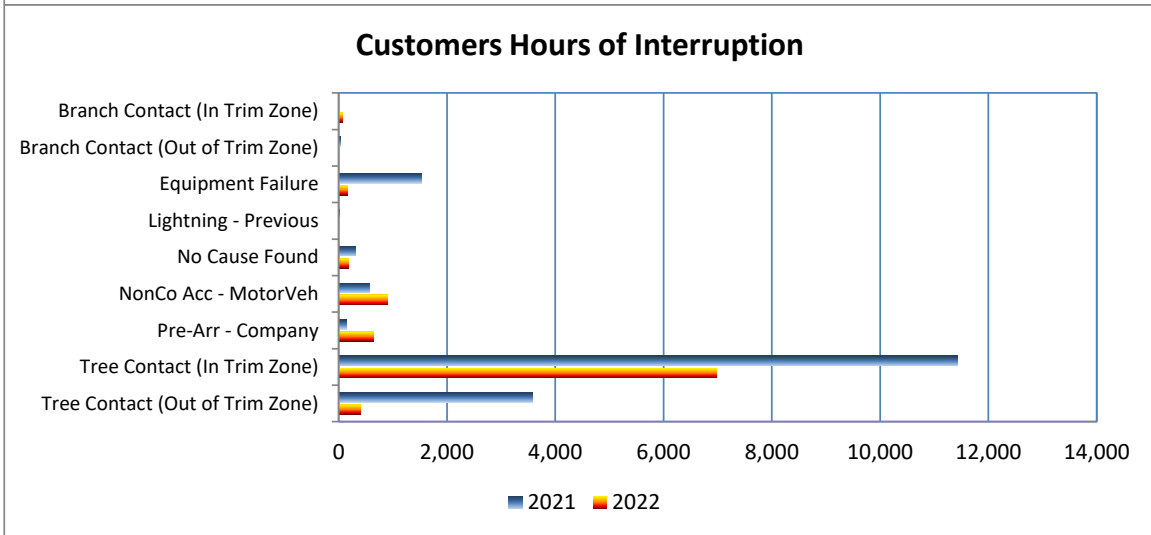
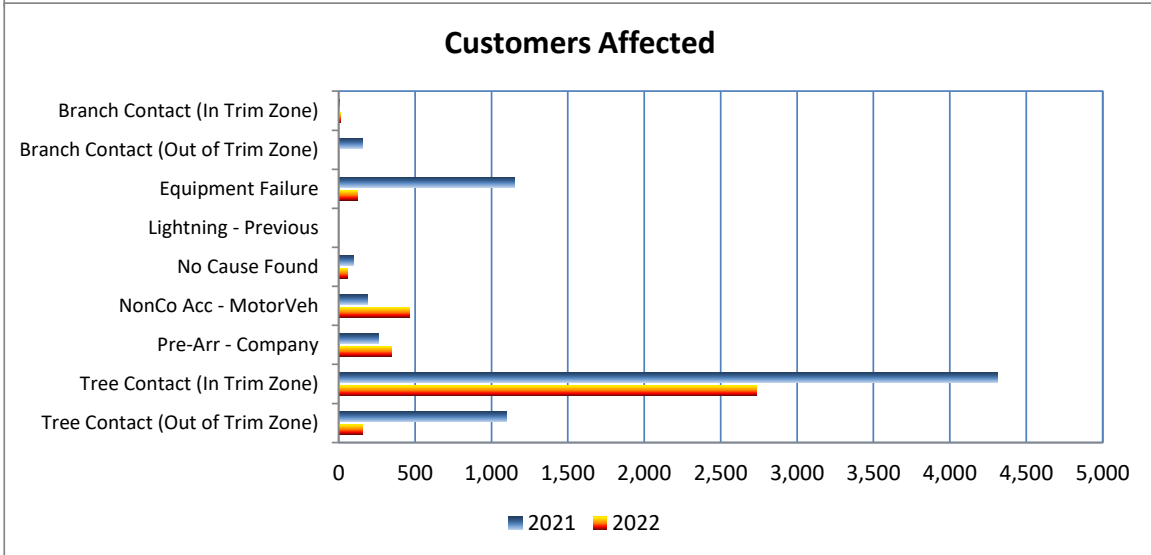
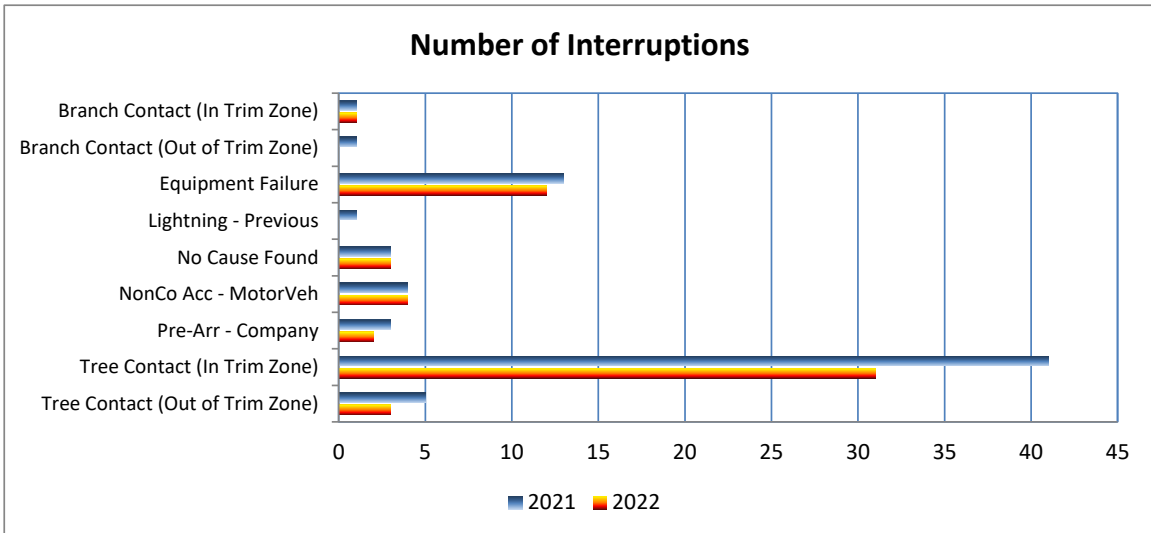
| One-Year Summary (1/1/2022 - 12/31/2022) 5-3-34 | | | | | | |
|---|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Branch Contact (In Trim Zone) | 1 | 1.8 | 11 | 0.3 | 59.8 | 0.6 |
| Branch Contact (Out of Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Equipment Failure | 12 | 21.4 | 121 | 3.1 | 162.2 | 1.7 |
| Lightning - Previous | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| No Cause Found | 3 | 5.4 | 59 | 1.5 | 172.3 | 1.9 |
| Non-Co Acc – Motor Veh | 4 | 7.1 | 463 | 11.9 | 903.9 | 9.7 |
| Pre-Arr - Company | 2 | 3.6 | 347 | 8.9 | 635.5 | 6.8 |
| Tree Contact (In Trim Zone) | 31 | 55.4 | 2,735 | 70.3 | 6,983.8 | 74.9 |
| Tree Contact (Out of Trim Zone) | 3 | 5.4 | 152 | 3.9 | 405.9 | 4.4 |
| Total | 56 | | 3,888 | | 9,323.2 | |

In 2022, tree related interruptions continued to account for over 75% of total customers affected and total customer hours on the circuit, nevertheless we have seen reduction of 2,674 (48%) customers affected and 7,585 (50%) of customer hours in contrast to 2021. In the early part of 2022, circuit vegetation cycle trimming was completed, which impacts can be directly seen from tree related interruptions data difference between year 2021 and 2022.

This circuit was included in the circuit ownership program and is frequently patrolled for broken and defective components, vegetation contact, missing animal guards and lightning protection. Defects identified are corrected. The circuit is also included in the annual infrared inspection program and was inspected in 2022. Defects found were classified in accordance with the program guidelines. In 2022, additional circuit recloser settings were reviewed, which led to a settings update. Upgrade of settings minimized outages in 2022 and should improve overall circuit performance. An infrared thermal inspection is scheduled on this circuit for 2023 and the circuit will be part of the 2023 circuit ownership program.

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CIRCUIT 5-3-34 YEAR-OVER-YEAR PERFORMANCE 2021 - 2022



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6.4.3.Circuit 103-4-13

Circuit 103-4-13 was ranked second in the Western Division per the 2021 circuit priority rating system. The circuit performance has improved and its now ranked 9th in the Western Division per 2022 circuit rating results. The circuit originates from the Westtown Substation and serves 1,694 customers over 82 miles.

In 2021, there were 33 interruptions which affected 3,782 customers and resulted in 6,588 customer-hours of interruption. In 2022, there were 42 interruptions which affected 1,532 customers and resulted in 3,044 customer-hours of interruption.

Review of 2021 versus 2022 data, identified a decrease of 3,544 (54%) of the total customer-hours of interruption, and decrease of 2,250 (59%) customers affected. It is interesting to note that the number of interruptions increased from 33 in 2021 to 42 in 2022, but the total customer hours decreased from 6,588 in 2021 to 3,044 in 2022. This suggests that the interruptions in 2022 were shorter in duration compared to those in 2021.

The tables below identify the outage data associated with circuit 103-4-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 103-4-13 | | | | | | |
|--|---------------------------|---------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 3 | 9.1 | 103 | 2.7 | 197.8 | 3.0 |
| Branch Contact (In Trim Zone) | 2 | 6.1 | 129 | 3.4 | 239.4 | 3.6 |
| Equipment Failure | 12 | 36.4 | 1,786 | 47.2 | 4,695.9 | 71.3 |
| Lightning - Present | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Lightning - Previous | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| No Cause Found | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Non-Co Acc – Motor Veh | 2 | 6.1 | 1,453 | 38.4 | 387.9 | 5.9 |
| Overload - Customer | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Pre-Arr - Company | 2 | 6.1 | 5 | 0.1 | 4.0 | 0.1 |
| Tree Contact (In Trim Zone) | 12 | 36.4 | 306 | 8.1 | 1,063.1 | 16.1 |
| Tree Contact (Out of Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Total | 33 | | 3,782 | | 6,588.2 | |

| One-Year Summary (1/1/2022 - 12/31/2022) 103-4-13 | | | | | | |
|---|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 8 | 19.1 | 313 | 20.4 | 370.8 | 12.2 |
| Branch Contact (In Trim Zone) | 3 | 7.1 | 71 | 4.6 | 173.4 | 5.7 |
| Equipment Failure | 6 | 14.3 | 233 | 15.2 | 231.5 | 7.6 |
| Lightning - Present | 1 | 2.4 | 43 | 2.8 | 67.4 | 2.2 |
| Lightning - Previous | 2 | 4.8 | 43 | 2.8 | 74.3 | 2.4 |
| No Cause Found | 5 | 11.9 | 281 | 18.3 | 462.4 | 15.2 |
| Non-Co Acc – Motor Veh | 4 | 9.5 | 81 | 5.3 | 143.0 | 4.7 |
| Overload - Customer | 1 | 2.4 | 3 | 0.2 | 0.9 | 0.0 |
| Pre-Arr - Company | 1 | 2.4 | 2 | 0.1 | 1.8 | 0.1 |
| Tree Contact (In Trim Zone) | 9 | 21.4 | 364 | 23.8 | 1,210.1 | 39.8 |
| Tree Contact (Out of Trim Zone) | 2 | 4.8 | 98 | 6.4 | 308.6 | 10.1 |
| Total | 42 | | 1,532 | | 3,044.2 | |

A small number of outages on mainline sections of this circuit have affected a large number of customers and have had a significant impact on the overall performance of the circuit. These small number of events that occurred in 2022 and 2021, impacted the circuit’s reliability performance.

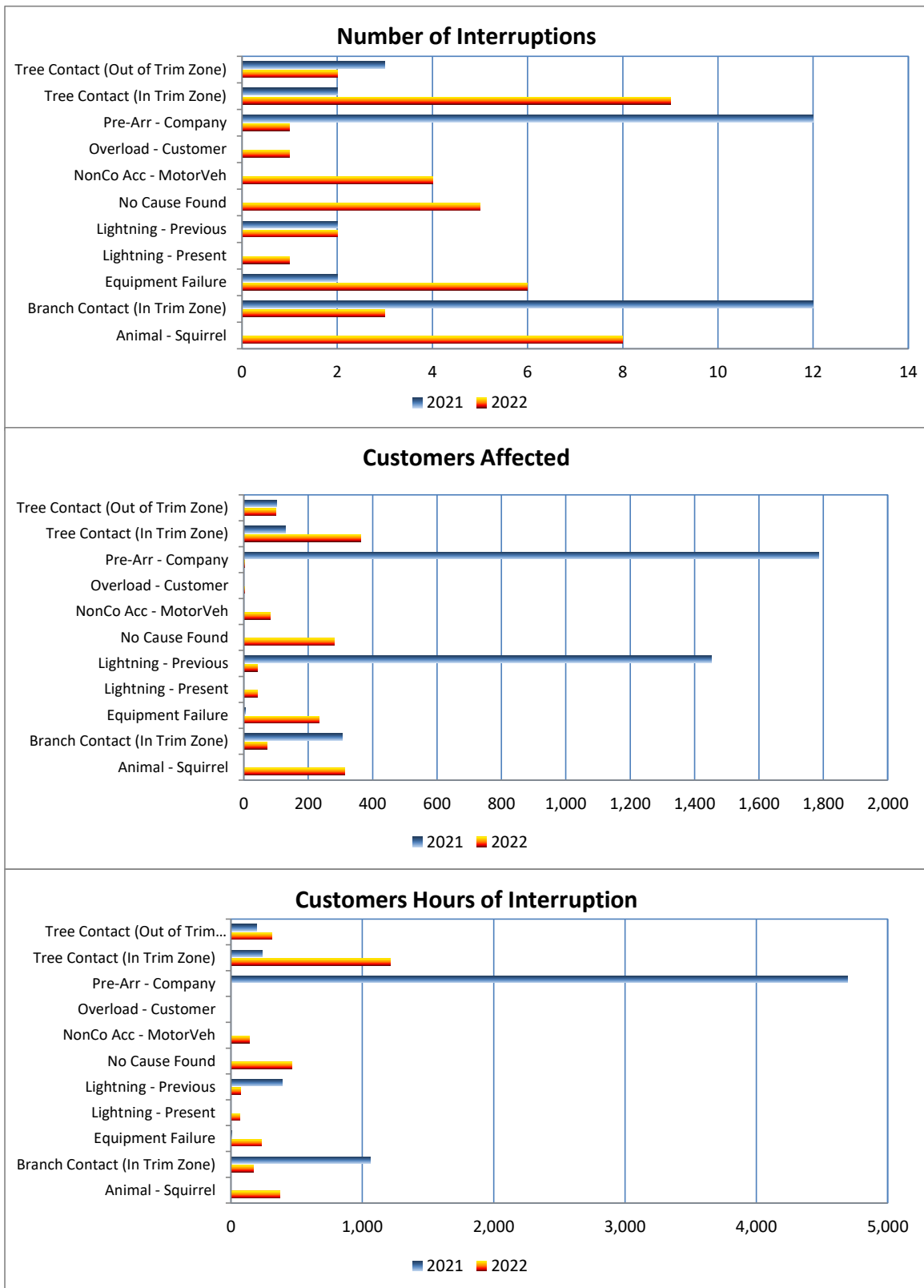
In 2021, one of the 33 incidents accounted for 4,277 (64%) of the 6,558 total customer-hours of interruption for the year. The incident was the result of equipment failure. Removing this single event would drop this circuit off the worst performing circuit list.

In 2022, one of the 42 incidents accounted for 847 (28%) of the 3,044 total customer-hours of interruption for the year. The incident was the result of tree contact. Removing this event would drop this circuit off the worst performing circuit list.

In 2022, O&R conducted a thermal infrared inspection, which identified several defects. O&R promptly addressed these issues in accordance with the Company’s established protocol. An infrared thermal inspection is scheduled for 2023 on this circuit. In 2022, the Company added one midpoint recloser to improve reliability. The automation addition will help minimize the impact of outages and the additional ability to tie the circuit will improve the reliability of the circuit. This circuit was added to the circuit ownership program in 2021 and is frequently patrolled for broken and defective components, vegetation contact, missing animal guards and lightning protection. Defects identified are corrected. O&R has scheduled vegetation management cycle trimming in 2023 on the circuit, which should reduce the impact of tree contacts on the circuit’s performance.

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CIRCUIT 103-4-13 YEAR-OVER-YEAR PERFORMANCE 2021 - 2022



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6.4.4. Circuit 12-1-13

This circuit was ranked fourth in the Western Division per the 2021 priority circuit rating results. The circuit’s performance declined and is now ranked first in the Western Division per 2022 priority circuit rating results. Circuit 12-1-13 originates from the Bloomingburg Substation, in Bloomingburg, New York. This circuit serves 1,971 customers over 65 circuit miles.

In 2021, there were 47 interruptions, which affected 3,864 customers that resulted in 12,846 customer-hours of interruption. In 2022, there were 51 interruptions, which affected 4,552 customers that resulted in 7962 customer-hours of interruption.

Review of 2021 versus 2022 data, although O&R identified an increase of 688 (18%) of customers affected, customer hours of interruption have decreased by 4,884 (38%). The tables below identify the outage data associated with circuit 12-1-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 12-1-13 | | | | | | |
|---|---------------------------|---------------------------|---------------------------|--------------------------------|-----------------------|----------------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Branch Contact (In Trim Zone) | 4 | 8.5 | 363 | 9.4 | 1,045.7 | 8.1 |
| Equipment Failure | 7 | 14.9 | 642 | 16.6 | 640.7 | 5.0 |
| Lightning - Present | 1 | 2.1 | 2 | 0.1 | 8.9 | 0.1 |
| No Cause Found | 2 | 4.3 | 116 | 3.0 | 166.8 | 1.3 |
| Non-Co Acc – Motor Veh | 2 | 4.3 | 127 | 3.3 | 178.6 | 1.4 |
| Non-Co Acc - UG | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Pre-Arr - Company | 5 | 10.6 | 19 | 0.5 | 36.8 | 0.3 |
| Tree Contact (In Trim Zone) | 22 | 46.8 | 2,070 | 53.6 | 9,528.3 | 74.2 |
| Tree Contact (Out of Trim Zone) | 3 | 6.4 | 522 | 13.5 | 1,232.5 | 9.6 |
| Work Err - Company | 1 | 2.1 | 3 | 0.1 | 7.3 | 0.1 |
| Total | 47 | | 3,864 | | 12,845.6 | |

| One-Year Summary (1/1/2022 - 12/31/2022) 12-1-13 | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 3 | 5.9 | 108 | 2.4 | 167.4 | 2.1 |
| Branch Contact (In Trim Zone) | 2 | 3.9 | 61 | 1.3 | 223.5 | 2.8 |
| Equipment Failure | 6 | 11.8 | 2,012 | 44.2 | 2,831.5 | 35.6 |
| Lightning - Present | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| No Cause Found | 5 | 9.8 | 215 | 4.7 | 607.0 | 7.6 |
| Non-Co Acc – Motor Veh | 6 | 11.8 | 410 | 9.0 | 306.8 | 3.9 |
| Non-Co Acc - UG | 1 | 2.0 | 33 | 0.7 | 62.2 | 0.8 |
| Pre-Arr - Company | 4 | 7.8 | 240 | 5.3 | 195.0 | 2.5 |
| Tree Contact (In Trim Zone) | 20 | 39.2 | 1,298 | 28.5 | 2,811.7 | 35.3 |
| Tree Contact (Out of Trim Zone) | 4 | 7.8 | 175 | 3.8 | 756.5 | 9.5 |
| Work Err - Company | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Total | 51 | | 4,552 | | 7,961.6 | |

The performance of the circuit has seen an increase in number of interruptions and number of customers affected from the previous year, however customer hours have decreased and as result more customers are experiencing shorter outages.

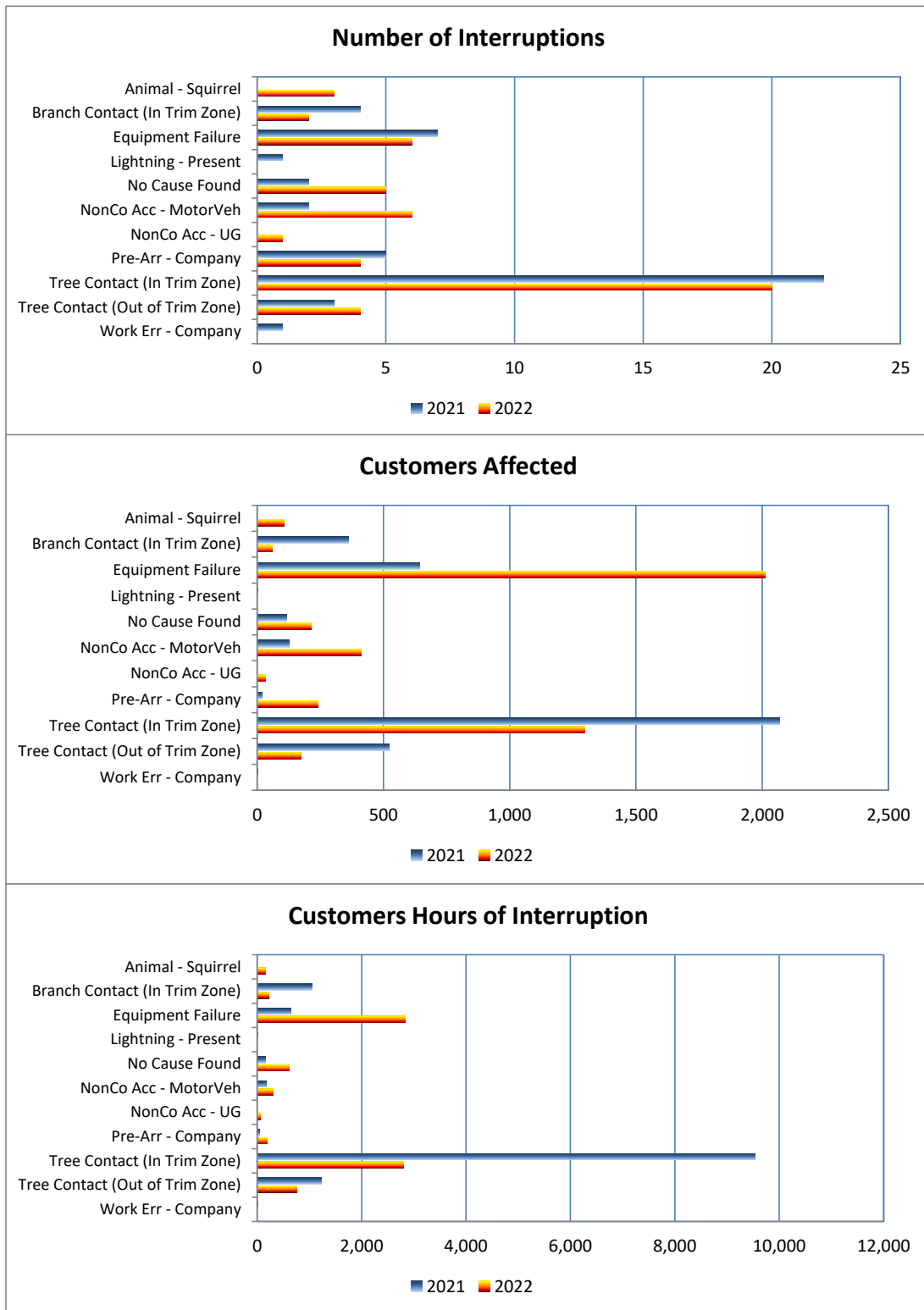
In 2021, two of the 47 incidents accounted for 3,806 (30%) of the 12,846 total customer-hours of interruption for the year. Both incidents were the result of tree contact. In August 2022 circuit vegetation cycle trimming was completed, which impacts can be directly seen from tree related interruptions data difference between year 2021 and 2022.

In 2022, one of the 51 incidents accounted for 2,533 (32%) of the 7,962 total customer-hours of interruption for the year. This incident was due to equipment failure, which was caused by failed primary conductor, which interim caused circuit lockout. This incident aside, the majority of issues on the circuit are caused by trees.

In 2022, O&R executed a vegetation cycle trimming on the circuit, which is expected to enhance circuit performance by reducing tree contact outages, which caused the majority of outages. This circuit was incorporated into the circuit ownership program and is frequently monitored for broken or defective components, vegetation contact, missing animal guards, and lightning protection. Any identified defects are promptly addressed. The circuit is scheduled for an infrared thermal inspection in 2023.

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CIRCUIT 12-1-13 YEAR-OVER-YEAR PERFORMANCE 2021 - 2022



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6.4.5. Circuit 6M1-1-13

Circuit was ranked fifth in the Western Division per the 2021 priority circuit rating results. The circuit’s performance has improved significantly and is now ranked No. 33 in the Western Division per 2022 priority circuit rating results. Circuit 6M1-1-13 originates from the Port Jarvis mobile substation and serves 1,748 customers over 34 miles.

In 2021, there were 21 interruptions, which affected 2,530 customers that resulted in 3,190 customer-hours of interruption. In 2022, there were five interruptions, which affected 247 customers that resulted in 403 customer-hours of interruption.

Review of 2021 versus 2022 data, identified a decrease of 2,283 (90%) of customers affected, customer hours of interruption have decreased by 2,787 (87%). The tables below identify the outage data associated with circuit 6M1-1-13 for each of the respective years, grouped by cause.

| One-Year Summary (1/1/2021 - 12/31/2021) 6M1-1-13 | | | | | | |
|---|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 1 | 4.8 | 185 | 7.3 | 317.6 | 10.0 |
| Branch Contact (In Trim Zone) | 1 | 4.8 | 2 | 0.1 | 1.8 | 0.1 |
| Customer Problem | 2 | 9.5 | 1,709 | 67.6 | 1,171.2 | 36.7 |
| Equipment Failure | 2 | 9.5 | 79 | 3.1 | 361.7 | 11.3 |
| Lightning - Present | 1 | 4.8 | 27 | 1.1 | 57.6 | 1.8 |
| Lightning - Previous | 1 | 4.8 | 5 | 0.2 | 34.6 | 1.1 |
| Non-Co Acc – Motor Veh | 4 | 19.1 | 262 | 10.4 | 633.6 | 19.9 |
| No Cause Found | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Pre-Arr - Company | 2 | 9.5 | 22 | 0.9 | 21.3 | 0.7 |
| Tree Contact (In Trim Zone) | 4 | 19.05 | 200 | 7.91 | 489.9 | 15.36 |
| Tree Contact (Out of Trim Zone) | 1 | 4.76 | 14 | 0.55 | 54.8 | 1.72 |
| Vine Contact | 2 | 9.52 | 25 | 0.99 | 45.8 | 1.44 |
| Total | 21 | | 2,530 | | 3,189.9 | |

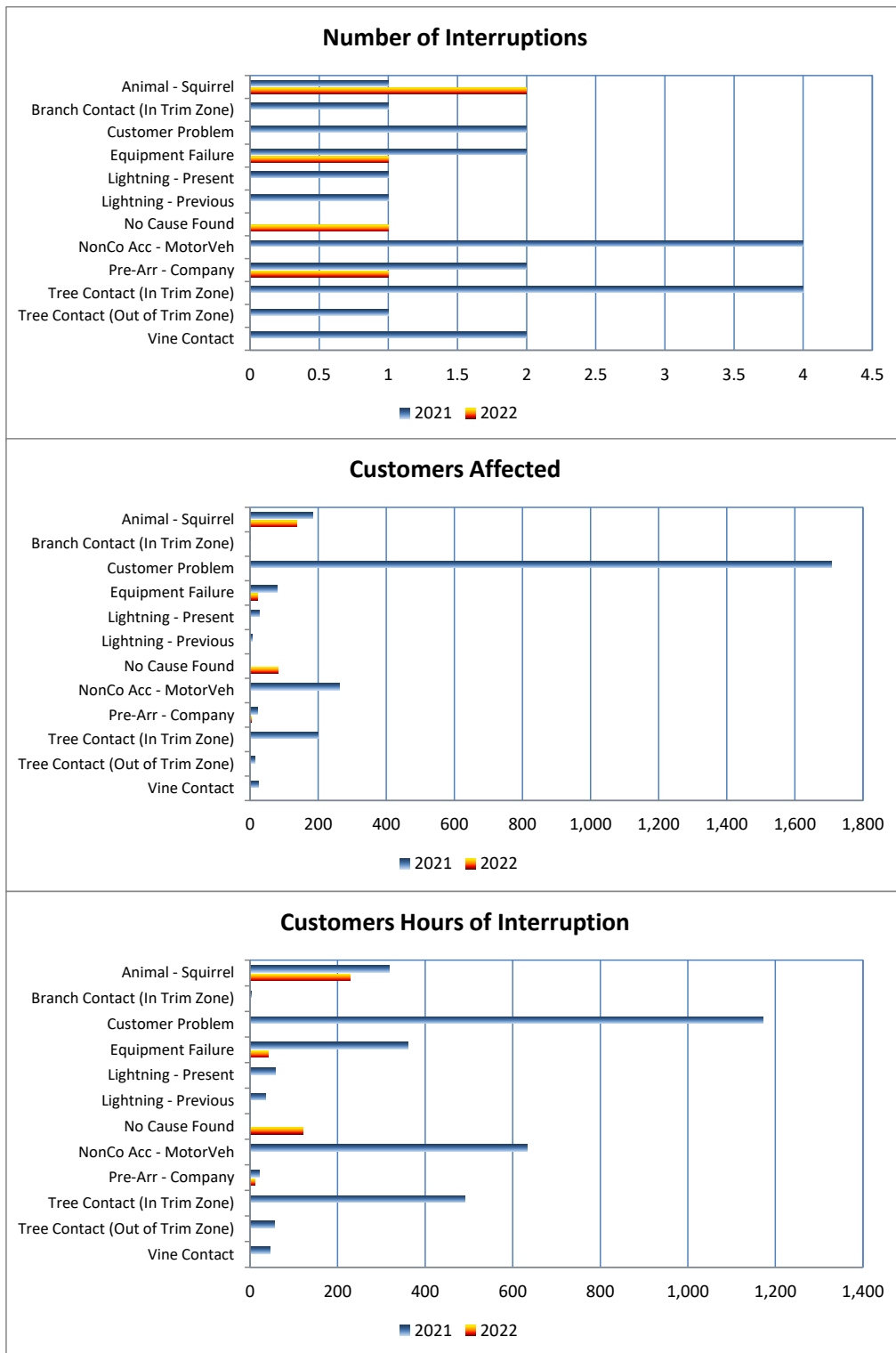
| One-Year Summary (1/1/2022 - 12/31/2022) 6-1-13* | | | | | | |
|--|--------------------|--------------------|--------------------|-------------------------|----------------|---------------------|
| Cause | # of Interruptions | % of Interruptions | Customers Affected | % of Customers Affected | Customer Hours | % of Customer Hours |
| Animal - Squirrel | 2 | 40.0 | 138 | 55.9 | 229.3 | 57.0 |
| Branch Contact (In Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Customer Problem | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Equipment Failure | 1 | 20.0 | 23 | 9.3 | 41.0 | 10.2 |
| Lightning - Present | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Lightning - Previous | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Non-Co Acc – Motor Veh | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| No Cause Found | 1 | 20.0 | 83 | 33.6 | 120.4 | 29.9 |
| Pre-Arr - Company | 1 | 20.0 | 3 | 1.2 | 11.8 | 2.9 |
| Tree Contact (In Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Tree Contact (Out of Trim Zone) | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Vine Contact | 0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Total | 5 | | 247 | | 402.5 | |

In 2021, one of the 21 incidents accounted for 959 (38%) of the 2,530 customer-hours of interruption for the year. In 2022, one of five incidents accounted for 187 (46%) of the 403 customer hours of interruption for the year, which was caused by animal contact.

Given that just one interruption in 2021 had such a significant impact to the circuit’s reliability performance for the year, the Company considers inclusion of circuit 6M1-1-13 on the 2021 list of worst performers to be the exception to ranking on the list. The Company recognizes the significant impact of just one interruption on the circuit's reliability performance for the year. Therefore, in 2022, O&R implemented several improvements on circuit 6M-1-13, including upgrades on both the substation and distribution side, additional backfeeds to the circuit, and the installation of manual switches with motor-operated remote capable switches (MOABs). As a result of these improvements in the electricity distribution system, interruptions were reduced, resulting in fewer disruptions and less impact on customers.

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CIRCUIT 6M1-1-13 YEAR-OVER-YEAR PERFORMANCE 2021 – 2022



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APPENDICES

Appendix A

O&R Priority Methodology and Circuit Ratings

O&R Circuit Priority Rating System

DATA SELECTED:

Overhead and underground incidents affecting the distribution system occurring in calendar year 2022.

DATA EXCLUDED:

Partial power outages and single no light outages;
Outages affecting only secondary/services;
Outages associated with regulatory storms; and
Transmission and substation caused distribution outages.

O&R's priority rating system is designed to quantify individual circuit performance and to provide a means for identifying circuits that performing at a level below the Company's and its customers' expectations. The information included in the analysis consists of seven categories of data to calculate the priority rating for each circuit. These include both outage statistics and circuit characteristics. These categories are as follows:

OUTAGE DATA

Breaker trip and reclose activity [18%];
Number of interruptions [14%];
Customers affected [14%];
Customer hours of interruption [7%];
Number of customers served by the circuit [7%];
SAIFI for the given circuit [7%]; and
Customer outage hours attributed to lightning, animal contact, tree contact and equipment failures ("LATE") [33%].

For each circuit, a score and ranking is generated for each of the seven categories in the above list. Individual circuit priority ratings are then calculated using a weighted ranking of each category (the weightings are as listed in parenthesis next to each category). The priority rating is then used to rank each circuit in an overall priority list. This list is maintained by the Performance and Operations Engineering group.

An analysis of the performance of each circuit identified in the top five highest priorities in each operating division was conducted for 2022. A plan is then developed and implemented to improve the circuit's performance over the upcoming calendar year. The following pages of this appendix detail the priority ratings by circuit for all of O&R's distribution circuits.

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New York – Eastern Division – 2022 Circuit Priority List

| Circuit | No. of Trips/ Recloses | Rank Trip/ Recloses | No. of INTRP | Rank No. of INTRP | Cust AF | Rank Cust AF | Cust Served | Rank Cust Served | Cust Hrs | Rank Cust Hrs | LATE | Rank LATE | SAIFI | Rank SAIFI | PRTY Rating | Rank PRTY Rating |
|----------|------------------------|---------------------|--------------|-------------------|---------|--------------|-------------|------------------|----------|---------------|---------|-----------|-------|------------|-------------|------------------|
| 17-2-13 | 13 | 18 | 11 | 104 | 5,523 | 2 | 2,529 | 10 | 3,610.4 | 34 | 4,137.6 | 7 | 2.2 | 25 | 13.5 | 3 |
| 54-7-13 | 9 | 41 | 13 | 73 | 3,227 | 12 | 1,403 | 82 | 4,219.1 | 27 | 3,035.0 | 16 | 2.3 | 19 | 25.3 | 6 |
| 23-1-13 | 1 | 155 | 26 | 7 | 2,881 | 14 | 1,337 | 90 | 6,542.5 | 11 | 1,098.5 | 51 | 2.2 | 27 | 42.6 | 13 |
| 24-2-13 | 0 | 170 | 15 | 54 | 1,618 | 57 | 1,356 | 87 | 2,889.9 | 44 | 2,735.3 | 18 | 1.2 | 74 | 45.6 | 17 |
| 45-3-13 | 14 | 11 | 19 | 27 | 2,455 | 23 | 1,361 | 85 | 2,881.2 | 45 | 1,238.3 | 46 | 1.8 | 42 | 43.5 | 14 |
| 19-10-13 | 4 | 110 | 25 | 8 | 1,659 | 54 | 3,464 | 1 | 2,125.1 | 70 | 2,820.9 | 17 | 0.5 | 176 | 46.1 | 18 |
| 44-1-13 | 13 | 18 | 7 | 169 | 1,315 | 69 | 1,596 | 62 | 3,479.0 | 35 | 3,471.5 | 12 | 0.8 | 127 | 46.3 | 19 |
| 19-9-13 | 18 | 5 | 15 | 54 | 1,076 | 93 | 1,691 | 52 | 1,911.8 | 78 | 4,705.5 | 4 | 0.6 | 149 | 49.8 | 22 |
| 29-3-13 | 9 | 41 | 15 | 54 | 1,698 | 50 | 2,063 | 26 | 1,211.3 | 132 | 2,019.8 | 24 | 0.8 | 128 | 51.8 | 25 |
| 42-2-13 | 6 | 77 | 5 | 195 | 1,149 | 85 | 1,042 | 142 | 2,289.9 | 64 | 4,433.3 | 6 | 1.1 | 89 | 56.0 | 29 |
| 27-3-13 | 5 | 94 | 12 | 92 | 1,308 | 70 | 2,408 | 13 | 2,519.3 | 58 | 1,313.5 | 43 | 0.5 | 162 | 61.3 | 32 |
| 45-5-13 | 17 | 7 | 30 | 2 | 1,846 | 45 | 1,549 | 66 | 2,893.9 | 43 | 690.8 | 86 | 1.2 | 75 | 66.3 | 34 |
| 50-3-13 | 0 | 170 | 15 | 54 | 1,157 | 84 | 725 | 188 | 2,160.8 | 67 | 1,359.0 | 40 | 1.6 | 46 | 70.5 | 39 |
| 44-4-13 | 8 | 51 | 14 | 64 | 610 | 150 | 1,774 | 42 | 3,285.4 | 37 | 3,093.8 | 15 | 0.3 | 206 | 68.1 | 36 |
| 21-13-13 | 9 | 41 | 11 | 104 | 1,253 | 74 | 2,341 | 16 | 1,432.9 | 110 | 1,217.1 | 48 | 0.5 | 166 | 69.2 | 37 |
| 23-4-13 | 0 | 170 | 18 | 31 | 839 | 117 | 1,294 | 96 | 1,622.0 | 98 | 1,408.5 | 37 | 0.6 | 144 | 78.9 | 45 |
| 23-6-13 | 2 | 141 | 16 | 43 | 2,366 | 26 | 1,740 | 47 | 2,648.1 | 51 | 509.0 | 118 | 1.4 | 57 | 78.4 | 44 |
| 22-2-13 | 14 | 11 | 15 | 54 | 1,340 | 68 | 1,293 | 97 | 2,473.0 | 59 | 718.0 | 79 | 1.0 | 97 | 76.1 | 42 |
| 19-14-13 | 17 | 7 | 25 | 8 | 844 | 116 | 2,191 | 20 | 1,739.4 | 91 | 1,083.6 | 52 | 0.4 | 200 | 78.1 | 43 |
| 54-6-13 | 5 | 94 | 10 | 116 | 2,747 | 17 | 1,339 | 88 | 875.1 | 163 | 600.7 | 97 | 2.1 | 31 | 80.5 | 49 |
| 45-4-13 | 14 | 11 | 16 | 43 | 749 | 130 | 1,666 | 54 | 1,771.8 | 88 | 1,297.1 | 44 | 0.4 | 183 | 79.7 | 47 |
| 27-6-13 | 11 | 30 | 24 | 13 | 1,067 | 95 | 1,094 | 131 | 2,408.4 | 61 | 823.3 | 68 | 1.0 | 106 | 80.5 | 48 |
| 27-8-13 | 6 | 77 | 13 | 73 | 1,050 | 96 | 1,560 | 64 | 1,049.1 | 144 | 992.6 | 55 | 0.7 | 141 | 82.6 | 51 |
| 45-9-13 | 23 | 3 | 18 | 31 | 1,580 | 60 | 1,692 | 50 | 1,359.8 | 113 | 615.9 | 93 | 0.9 | 111 | 82.1 | 50 |
| 27-4-13 | 4 | 110 | 8 | 148 | 572 | 155 | 2,371 | 15 | 1,652.1 | 96 | 1,479.1 | 35 | 0.2 | 231 | 87.4 | 53 |
| 45-1-13 | 9 | 41 | 23 | 16 | 1,172 | 81 | 1,134 | 123 | 1,316.6 | 117 | 701.3 | 83 | 1.0 | 98 | 88.8 | 57 |
| 24-11-13 | 1 | 155 | 23 | 16 | 1,552 | 62 | 1,807 | 39 | 2,711.7 | 46 | 409.0 | 130 | 0.9 | 120 | 95.7 | 62 |
| 23-2-13 | 0 | 170 | 15 | 54 | 736 | 132 | 987 | 153 | 1,727.5 | 93 | 885.1 | 62 | 0.7 | 130 | 97.5 | 64 |
| 50-1-13 | 0 | 170 | 9 | 133 | 1,962 | 39 | 505 | 226 | 2,708.1 | 47 | 410.9 | 129 | 3.9 | 3 | 101.0 | 67 |
| 19-11-13 | 7 | 65 | 38 | 1 | 1,119 | 87 | 1,613 | 59 | 1,243.8 | 128 | 549.3 | 113 | 0.7 | 138 | 102.4 | 68 |
| 45-8-13 | 14 | 11 | 20 | 23 | 791 | 124 | 1,915 | 31 | 1,262.6 | 125 | 597.4 | 100 | 0.4 | 195 | 105.8 | 73 |
| 29-1-13 | 5 | 94 | 18 | 31 | 620 | 149 | 1,767 | 43 | 1,024.1 | 147 | 713.8 | 81 | 0.4 | 204 | 108.8 | 76 |
| 50-2-13 | 0 | 170 | 30 | 2 | 850 | 115 | 2,096 | 23 | 1,769.3 | 89 | 509.4 | 117 | 0.4 | 197 | 110.9 | 78 |
| 19-8-13 | 4 | 110 | 8 | 148 | 336 | 196 | 2,935 | 4 | 977.5 | 154 | 955.5 | 59 | 0.1 | 248 | 112.8 | 80 |

| Circuit | No. of Trips/ Recloses | Rank Trip/ Recloses | No. of INTRP | Rank No. of INTRP | Cust AF | Rank Cust AF | Cust Served | Rank Cust Served | Cust Hrs | Rank Cust Hrs | LATE | Rank LATE | SAIFI | Rank SAIFI | PRTY Rating | Rank PRTY Rating |
|------------|------------------------|---------------------|--------------|-------------------|---------|--------------|-------------|------------------|----------|---------------|---------|-----------|-------|------------|-------------|------------------|
| 45-2-13 | 5 | 94 | 7 | 169 | 404 | 184 | 1,581 | 63 | 953.0 | 157 | 980.0 | 57 | 0.3 | 224 | 113.4 | 81 |
| 51-4-13 | 3 | 129 | 4 | 215 | 367 | 191 | 1,379 | 83 | 1,096.2 | 139 | 1,056.3 | 54 | 0.3 | 219 | 115.2 | 82 |
| 22-5-13 | 13 | 18 | 14 | 64 | 648 | 144 | 1,509 | 73 | 1,436.3 | 109 | 568.2 | 105 | 0.4 | 191 | 115.4 | 83 |
| 19-13-13 | 0 | 170 | 4 | 215 | 316 | 200 | 1,607 | 61 | 1,252.4 | 126 | 856.6 | 63 | 0.2 | 239 | 120.6 | 86 |
| 22-1-13 | 12 | 27 | 13 | 73 | 1,111 | 90 | 985 | 154 | 1,607.6 | 101 | 307.9 | 150 | 1.1 | 83 | 121.8 | 88 |
| 22-7-13 | 7 | 65 | 10 | 116 | 667 | 141 | 2,463 | 12 | 1,307.5 | 119 | 437.0 | 126 | 0.3 | 217 | 124.2 | 89 |
| 51-1-13 | 7 | 65 | 6 | 182 | 521 | 164 | 1,103 | 127 | 985.3 | 152 | 678.0 | 88 | 0.5 | 178 | 124.3 | 90 |
| 27-7-13 | 3 | 129 | 8 | 148 | 891 | 108 | 1,902 | 32 | 2,566.0 | 56 | 267.5 | 160 | 0.5 | 180 | 127.3 | 92 |
| 44-2-13 | 14 | 11 | 18 | 31 | 350 | 193 | 1,138 | 122 | 805.5 | 167 | 734.7 | 77 | 0.3 | 213 | 124.5 | 91 |
| 16M3-11-13 | 0 | 170 | 12 | 92 | 1,085 | 92 | 0 | 302 | 1,015.3 | 150 | 814.3 | 70 | 0.0 | 280 | 129.7 | 94 |
| 27-1-13 | 2 | 141 | 13 | 73 | 426 | 181 | 847 | 173 | 823.2 | 165 | 701.3 | 84 | 0.5 | 174 | 130.6 | 95 |
| 72-4-13 | 6 | 77 | 14 | 64 | 531 | 162 | 1,211 | 109 | 978.6 | 153 | 526.4 | 116 | 0.4 | 189 | 133.2 | 100 |
| 22-4-13 | 8 | 51 | 10 | 116 | 826 | 119 | 1,302 | 93 | 1,420.0 | 111 | 281.6 | 156 | 0.6 | 150 | 133.6 | 101 |
| 53-8-13 | 10 | 36 | 6 | 182 | 317 | 199 | 439 | 237 | 777.5 | 170 | 714.7 | 80 | 0.7 | 134 | 135.4 | 104 |
| 21-11-13 | 6 | 77 | 10 | 116 | 480 | 174 | 892 | 167 | 854.8 | 164 | 568.1 | 106 | 0.5 | 164 | 136.8 | 105 |
| 44-3-13 | 8 | 51 | 13 | 73 | 156 | 229 | 2,096 | 23 | 709.6 | 182 | 645.3 | 91 | 0.1 | 265 | 136.9 | 106 |
| 53-1-13 | 11 | 30 | 13 | 73 | 513 | 166 | 2,001 | 28 | 1,058.8 | 141 | 360.2 | 142 | 0.3 | 223 | 138.9 | 108 |
| 44-5-13 | 13 | 18 | 24 | 13 | 506 | 169 | 1,551 | 65 | 759.1 | 174 | 401.6 | 132 | 0.3 | 209 | 138.8 | 107 |
| 27-5-13 | 6 | 77 | 4 | 215 | 1,003 | 101 | 1,157 | 119 | 906.7 | 158 | 251.9 | 163 | 0.9 | 119 | 140.5 | 111 |
| 51-6-13 | 0 | 170 | 10 | 116 | 717 | 135 | 1,314 | 92 | 1,103.5 | 138 | 193.4 | 171 | 0.5 | 161 | 150.2 | 115 |
| 24-4-13 | 0 | 170 | 6 | 182 | 658 | 143 | 1,298 | 94 | 645.8 | 187 | 286.8 | 155 | 0.5 | 172 | 152.5 | 118 |
| 17-1-13 | 4 | 110 | 5 | 195 | 480 | 174 | 599 | 204 | 629.8 | 189 | 433.7 | 127 | 0.8 | 129 | 151.8 | 116 |
| 42-3-13 | 1 | 155 | 8 | 148 | 487 | 172 | 1,115 | 126 | 752.3 | 176 | 375.2 | 139 | 0.4 | 190 | 153.7 | 120 |
| 44-6-13 | 8 | 51 | 10 | 116 | 2,646 | 18 | 1,211 | 109 | 1,027.2 | 146 | 2.0 | 260 | 2.2 | 24 | 152.7 | 119 |
| 45-7-13 | 6 | 77 | 15 | 54 | 1,126 | 86 | 996 | 150 | 682.6 | 184 | 96.8 | 204 | 1.1 | 82 | 153.9 | 121 |
| 54-1-13 | 5 | 94 | 8 | 148 | 988 | 102 | 825 | 174 | 273.6 | 229 | 163.4 | 179 | 1.2 | 72 | 154.5 | 122 |
| 53-3-13 | 12 | 27 | 8 | 148 | 414 | 182 | 467 | 231 | 487.3 | 203 | 386.0 | 135 | 0.9 | 116 | 156.5 | 125 |
| 51-3-13 | 9 | 41 | 18 | 31 | 278 | 209 | 1,053 | 137 | 592.0 | 193 | 391.7 | 134 | 0.3 | 221 | 159.0 | 128 |
| 53-7-13 | 2 | 141 | 8 | 148 | 382 | 189 | 1,119 | 124 | 658.2 | 186 | 356.4 | 144 | 0.3 | 207 | 161.5 | 129 |
| 24-1-13 | 0 | 170 | 13 | 73 | 493 | 171 | 1,099 | 128 | 780.9 | 169 | 223.6 | 168 | 0.4 | 184 | 164.0 | 132 |
| 19-15-13 | 4 | 110 | 16 | 43 | 508 | 168 | 1,083 | 133 | 562.2 | 198 | 179.4 | 175 | 0.5 | 179 | 167.2 | 135 |
| 45-10-13 | 14 | 11 | 10 | 116 | 681 | 140 | 1,065 | 135 | 904.7 | 159 | 114.7 | 201 | 0.6 | 147 | 165.7 | 133 |
| 23-3-13 | 0 | 170 | 6 | 182 | 254 | 211 | 1,031 | 147 | 473.3 | 204 | 383.5 | 136 | 0.2 | 228 | 170.1 | 137 |
| 50-4-13 | 0 | 170 | 7 | 169 | 474 | 177 | 881 | 169 | 1,111.5 | 137 | 153.7 | 185 | 0.5 | 165 | 174.2 | 140 |
| 21-12-13 | 4 | 110 | 10 | 116 | 209 | 220 | 1,503 | 74 | 363.2 | 215 | 281.5 | 157 | 0.1 | 243 | 173.5 | 139 |

| Circuit | No. of Trips/ Recloses | Rank Trip/ Recloses | No. of INTRP | Rank No. of INTRP | Cust AF | Rank Cust AF | Cust Served | Rank Cust Served | Cust Hrs | Rank Cust Hrs | LATE | Rank LATE | SAIFI | Rank SAIFI | PRTY Rating | Rank PRTY Rating |
|----------|------------------------|---------------------|--------------|-------------------|---------|--------------|-------------|------------------|----------|---------------|-------|-----------|-------|------------|-------------|------------------|
| 51-5-13 | 6 | 77 | 5 | 195 | 1,014 | 99 | 993 | 151 | 445.8 | 207 | 63.7 | 224 | 1.0 | 99 | 173.1 | 138 |
| 21-9-13 | 8 | 51 | 2 | 248 | 521 | 164 | 456 | 235 | 175.2 | 238 | 175.2 | 177 | 1.1 | 80 | 175.2 | 141 |
| 54-8-13 | 5 | 94 | 5 | 195 | 851 | 114 | 815 | 176 | 305.5 | 225 | 68.7 | 219 | 1.0 | 95 | 178.2 | 142 |
| 24-12-13 | 3 | 129 | 8 | 148 | 210 | 219 | 1,158 | 118 | 322.8 | 222 | 206.3 | 169 | 0.2 | 240 | 184.8 | 146 |
| 27-2-13 | 6 | 77 | 6 | 182 | 118 | 239 | 2,467 | 11 | 214.8 | 236 | 185.3 | 173 | 0.0 | 269 | 183.7 | 145 |
| 19-12-13 | 5 | 94 | 17 | 41 | 137 | 234 | 1,524 | 71 | 335.5 | 218 | 170.1 | 178 | 0.1 | 257 | 184.9 | 147 |
| 51-2-13 | 13 | 18 | 7 | 169 | 296 | 204 | 958 | 157 | 595.0 | 192 | 157.0 | 182 | 0.3 | 211 | 183.4 | 143 |
| 26-2-13 | 2 | 141 | 7 | 169 | 511 | 167 | 885 | 168 | 597.6 | 190 | 63.7 | 225 | 0.6 | 157 | 193.9 | 157 |
| 53-6-13 | 6 | 77 | 5 | 195 | 201 | 223 | 1,749 | 46 | 359.1 | 216 | 73.5 | 217 | 0.1 | 247 | 200.0 | 159 |
| 45-6-13 | 5 | 94 | 8 | 148 | 300 | 203 | 707 | 192 | 494.3 | 202 | 66.4 | 221 | 0.4 | 193 | 204.8 | 161 |
| 54-4-13 | 7 | 65 | 4 | 215 | 180 | 225 | 341 | 248 | 332.5 | 219 | 119.4 | 199 | 0.5 | 167 | 205.0 | 162 |
| 54-2-13 | 1 | 155 | 3 | 228 | 402 | 185 | 371 | 243 | 135.3 | 245 | 58.4 | 229 | 1.1 | 90 | 207.4 | 163 |
| 22-3-13 | 3 | 129 | 0 | 278 | 464 | 178 | 490 | 228 | 100.4 | 250 | 0.0 | 263 | 0.9 | 109 | 222.8 | 170 |
| 72-7-13 | 2 | 141 | 2 | 248 | 321 | 198 | 623 | 201 | 575.4 | 195 | 0.0 | 263 | 0.5 | 169 | 224.2 | 172 |
| 54-3-13 | 8 | 51 | 3 | 228 | 41 | 255 | 76 | 275 | 96.8 | 251 | 84.1 | 212 | 0.5 | 163 | 222.3 | 169 |
| 22-8-13 | 8 | 51 | 1 | 261 | 372 | 190 | 579 | 211 | 52.5 | 262 | 3.9 | 256 | 0.6 | 146 | 222.9 | 171 |
| 21-16-13 | 5 | 94 | 2 | 248 | 72 | 249 | 500 | 227 | 131.1 | 246 | 83.9 | 213 | 0.1 | 242 | 225.7 | 173 |
| 42-1-13 | 4 | 110 | 3 | 228 | 209 | 220 | 205 | 259 | 317.3 | 223 | 0.0 | 263 | 1.0 | 100 | 229.0 | 174 |
| 51-8-13 | 4 | 110 | 0 | 278 | 145 | 232 | 599 | 204 | 164.3 | 240 | 0.0 | 263 | 0.2 | 229 | 241.8 | 180 |
| 24-3-13 | 0 | 170 | 1 | 261 | 17 | 267 | 222 | 258 | 58.7 | 260 | 58.7 | 228 | 0.1 | 263 | 244.9 | 181 |
| 26-6-13 | 2 | 141 | 1 | 261 | 2 | 276 | 523 | 221 | 3.6 | 277 | 3.6 | 259 | 0.0 | 279 | 259.5 | 189 |
| 26-5-13 | 0 | 170 | 1 | 261 | 2 | 276 | 117 | 269 | 12.3 | 274 | 12.3 | 251 | 0.0 | 276 | 260.8 | 191 |
| 22-6-13 | 2 | 141 | 1 | 261 | 5 | 273 | 284 | 251 | 3.9 | 276 | 3.9 | 257 | 0.0 | 275 | 260.5 | 190 |
| 54-5-13 | 1 | 155 | 1 | 261 | 2 | 276 | 18 | 285 | 5.3 | 275 | 5.3 | 255 | 0.1 | 250 | 261.4 | 192 |
| 21-15-13 | 0 | 170 | 2 | 248 | 10 | 271 | 161 | 263 | 27.5 | 268 | 0.0 | 263 | 0.1 | 267 | 262.8 | 193 |
| 24-10-13 | 0 | 170 | 0 | 278 | 0 | 281 | 138 | 266 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 268.5 | 199 |
| 21-14-13 | 0 | 170 | 0 | 278 | 0 | 281 | 112 | 270 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 268.9 | 200 |
| 26-1-13 | 0 | 170 | 0 | 278 | 0 | 281 | 20 | 283 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 270.2 | 204 |
| 53-4-13 | 1 | 155 | 0 | 278 | 0 | 281 | 12 | 290 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 270.5 | 205 |
| 26-10-13 | 0 | 170 | 0 | 278 | 0 | 281 | 6 | 292 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 271.1 | 209 |
| 23-5-13 | 0 | 170 | 0 | 278 | 0 | 281 | 4 | 296 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 271.5 | 213 |
| 98-1-13 | 0 | 170 | 0 | 278 | 0 | 281 | 4 | 296 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 271.5 | 213 |

New York – Central Division – 2022 Circuit priority list

| Circuit | No. of Trips/ Recloses | Rank Trip/ Recloses | No. of INTRP | Rank No. of INTRP | Cust AF | Rank Cust AF | Cust Served | Rank Cust Served | Cust Hrs | Rank Cust Hrs | LATE | Rank LATE | SAIFI | Rank SAIFI | PRTY Rating | Rank PRTY Rating |
|----------|------------------------|---------------------|--------------|-------------------|---------|--------------|-------------|------------------|----------|---------------|----------|-----------|-------|------------|-------------|------------------|
| 84-1-13 | 8 | 51 | 20 | 23 | 3,984 | 6 | 2,201 | 18 | 6,628.7 | 10 | 4,597.5 | 5 | 1.8 | 40 | 12.1 | 2 |
| 80-3-13 | 11 | 30 | 20 | 23 | 3,452 | 11 | 3,017 | 2 | 4,237.2 | 26 | 3,288.5 | 13 | 1.1 | 79 | 20.1 | 4 |
| 89-2-13 | 9 | 41 | 24 | 13 | 2,101 | 33 | 1,118 | 125 | 8,316.8 | 6 | 20,049.6 | 1 | 1.9 | 37 | 25.2 | 5 |
| 71-3-13 | 15 | 9 | 30 | 2 | 3,545 | 8 | 2,399 | 14 | 5,423.6 | 13 | 1,386.4 | 38 | 1.5 | 50 | 26.7 | 7 |
| 89-1-13 | 19 | 4 | 13 | 73 | 2,083 | 35 | 1,692 | 50 | 4,429.2 | 22 | 3,678.4 | 9 | 1.2 | 68 | 27.0 | 8 |
| 63-7-13 | 9 | 41 | 8 | 148 | 1,671 | 52 | 1,501 | 75 | 4,323.4 | 24 | 3,957.0 | 8 | 1.1 | 85 | 37.1 | 12 |
| 76-3-13 | 2 | 141 | 14 | 64 | 2,301 | 29 | 2,194 | 19 | 3,380.1 | 36 | 1,320.2 | 41 | 1.0 | 94 | 44.3 | 16 |
| 63-2-13 | 7 | 65 | 5 | 195 | 2,077 | 36 | 933 | 161 | 4,348.0 | 23 | 2,206.7 | 22 | 2.2 | 20 | 44.0 | 15 |
| 61-9-13 | 18 | 5 | 21 | 20 | 1,008 | 100 | 1,928 | 30 | 4,662.9 | 20 | 3,623.7 | 11 | 0.5 | 168 | 47.4 | 20 |
| 80-5-13 | 8 | 51 | 25 | 8 | 2,274 | 30 | 1,875 | 33 | 3,074.9 | 38 | 836.2 | 66 | 1.2 | 70 | 51.3 | 24 |
| 61-8-13 | 4 | 110 | 12 | 92 | 2,321 | 28 | 1,198 | 114 | 2,248.3 | 66 | 853.7 | 64 | 1.9 | 34 | 60.9 | 30 |
| 61-3-13 | 7 | 65 | 19 | 27 | 2,789 | 15 | 2,264 | 17 | 4,121.5 | 29 | 598.0 | 99 | 1.2 | 67 | 61.2 | 31 |
| 61-1-13 | 6 | 77 | 11 | 104 | 2,090 | 34 | 1,542 | 68 | 2,690.1 | 48 | 710.4 | 82 | 1.4 | 59 | 65.7 | 33 |
| 13-9-13 | 11 | 30 | 18 | 31 | 1,161 | 83 | 1,801 | 40 | 1,946.5 | 76 | 727.0 | 78 | 0.6 | 145 | 79.3 | 46 |
| 84-3-13 | 6 | 77 | 16 | 43 | 2,554 | 20 | 1,868 | 34 | 3,983.8 | 30 | 291.0 | 153 | 1.4 | 56 | 87.9 | 55 |
| 76-4-13 | 1 | 155 | 13 | 73 | 2,336 | 27 | 1,226 | 107 | 7,178.0 | 9 | 273.6 | 158 | 1.9 | 36 | 97.4 | 63 |
| 80-2-13 | 31 | 1 | 23 | 16 | 1,664 | 53 | 1,841 | 37 | 2,081.9 | 71 | 343.5 | 148 | 0.9 | 113 | 99.7 | 66 |
| 61-7-13 | 11 | 30 | 13 | 73 | 535 | 160 | 2,165 | 21 | 1,580.1 | 103 | 782.0 | 73 | 0.2 | 227 | 102.5 | 69 |
| 61-2-13 | 6 | 77 | 14 | 64 | 769 | 126 | 1,982 | 29 | 1,335.5 | 115 | 624.8 | 92 | 0.4 | 198 | 104.3 | 70 |
| 63-8-13 | 6 | 77 | 13 | 73 | 891 | 108 | 2,634 | 8 | 1,850.9 | 84 | 559.6 | 110 | 0.3 | 208 | 104.9 | 72 |
| 61-10-13 | 13 | 18 | 11 | 104 | 544 | 159 | 1,214 | 108 | 1,162.7 | 135 | 944.9 | 60 | 0.4 | 185 | 104.7 | 71 |
| 63-4-13 | 4 | 110 | 11 | 104 | 554 | 158 | 992 | 152 | 724.5 | 179 | 1,219.1 | 47 | 0.6 | 158 | 107.0 | 74 |
| 67-1-13 | 7 | 65 | 29 | 5 | 2,110 | 32 | 1,036 | 144 | 3,891.5 | 32 | 153.4 | 186 | 2.0 | 32 | 112.7 | 79 |
| 71-7-13 | 3 | 129 | 10 | 116 | 1,444 | 66 | 922 | 165 | 1,865.8 | 83 | 294.7 | 152 | 1.6 | 47 | 117.2 | 84 |
| 91-3-13 | 0 | 170 | 10 | 116 | 572 | 155 | 798 | 180 | 2,069.0 | 72 | 468.4 | 121 | 0.7 | 135 | 131.3 | 97 |
| 61-6-13 | 6 | 77 | 5 | 195 | 1,815 | 47 | 816 | 175 | 2,601.1 | 53 | 117.8 | 200 | 2.2 | 21 | 131.1 | 96 |
| 76-1-13 | 5 | 94 | 19 | 27 | 710 | 137 | 1,830 | 38 | 784.6 | 168 | 367.4 | 140 | 0.4 | 199 | 133.9 | 102 |
| 76-2-13 | 2 | 141 | 12 | 92 | 646 | 145 | 601 | 203 | 1,729.9 | 92 | 349.2 | 146 | 1.1 | 91 | 139.1 | 109 |
| 71-2-13 | 5 | 94 | 9 | 133 | 1,615 | 58 | 1,432 | 79 | 2,604.7 | 52 | 37.4 | 241 | 1.1 | 84 | 147.2 | 114 |
| 84-2-13 | 4 | 110 | 9 | 133 | 590 | 153 | 1,327 | 91 | 1,697.6 | 94 | 179.8 | 174 | 0.4 | 186 | 152.1 | 117 |
| 71-1-13 | 2 | 141 | 3 | 228 | 193 | 224 | 260 | 255 | 634.4 | 188 | 598.4 | 98 | 0.7 | 131 | 155.5 | 124 |
| 61-4-13 | 4 | 110 | 9 | 133 | 340 | 195 | 1,627 | 58 | 538.8 | 199 | 357.7 | 143 | 0.2 | 236 | 158.7 | 127 |
| 91-4-13 | 0 | 170 | 6 | 182 | 435 | 180 | 486 | 229 | 1,306.5 | 120 | 267.6 | 159 | 0.9 | 114 | 162.7 | 130 |
| 73-6-13 | 12 | 27 | 6 | 182 | 932 | 105 | 582 | 210 | 1,599.7 | 102 | 51.6 | 235 | 1.6 | 45 | 167.7 | 136 |

| Circuit | No. of Trips/ Recloses | Rank Trip/ Recloses | No. of INTRP | Rank No. of INTRP | Cust AF | Rank Cust AF | Cust Served | Rank Cust Served | Cust Hrs | Rank Cust Hrs | LATE | Rank LATE | SAIFI | Rank SAIFI | PRTY Rating | Rank PRTY Rating |
|----------|------------------------|---------------------|--------------|-------------------|---------|--------------|-------------|------------------|----------|---------------|-------|-----------|-------|------------|-------------|------------------|
| 80-1-13 | 3 | 129 | 9 | 133 | 592 | 152 | 1,252 | 104 | 1,269.9 | 123 | 40.8 | 240 | 0.5 | 177 | 185.4 | 148 |
| 61-5-13 | 0 | 170 | 7 | 169 | 532 | 161 | 412 | 239 | 746.3 | 177 | 72.6 | 218 | 1.3 | 64 | 186.8 | 150 |
| 68-4-13 | 4 | 110 | 6 | 182 | 393 | 187 | 556 | 214 | 725.2 | 178 | 109.4 | 202 | 0.7 | 136 | 188.4 | 151 |
| 71-4-13 | 3 | 129 | 3 | 228 | 86 | 246 | 342 | 247 | 752.9 | 175 | 346.0 | 147 | 0.3 | 225 | 189.0 | 152 |
| 13-8-13 | 7 | 65 | 9 | 133 | 402 | 185 | 548 | 218 | 711.7 | 181 | 85.6 | 210 | 0.7 | 133 | 189.7 | 153 |
| 80-4-13 | 9 | 41 | 5 | 195 | 487 | 172 | 589 | 209 | 421.1 | 210 | 84.3 | 211 | 0.8 | 126 | 189.8 | 154 |
| 63-1-13 | 4 | 110 | 7 | 169 | 296 | 204 | 718 | 190 | 596.6 | 191 | 128.8 | 194 | 0.4 | 196 | 192.8 | 156 |
| 73-1-13 | 8 | 51 | 3 | 228 | 500 | 170 | 1,201 | 113 | 538.8 | 200 | 40.9 | 239 | 0.4 | 194 | 199.2 | 158 |
| 89-10-34 | 0 | 170 | 4 | 215 | 207 | 222 | 95 | 272 | 353.1 | 217 | 52.5 | 234 | 2.2 | 26 | 210.8 | 164 |
| 68-2-13 | 1 | 155 | 1 | 261 | 36 | 258 | 17 | 288 | 176.7 | 237 | 66.8 | 220 | 2.1 | 29 | 216.4 | 166 |
| 71-8-13 | 5 | 94 | 5 | 195 | 133 | 235 | 1,522 | 72 | 403.6 | 212 | 10.2 | 252 | 0.1 | 260 | 222.0 | 168 |
| 63-9-34 | 0 | 170 | 3 | 228 | 92 | 245 | 108 | 271 | 127.4 | 247 | 35.9 | 242 | 0.9 | 121 | 231.8 | 176 |
| 71-5-13 | 2 | 141 | 3 | 228 | 48 | 254 | 554 | 216 | 64.0 | 258 | 54.2 | 232 | 0.1 | 261 | 237.9 | 179 |
| 63-6-13 | 2 | 141 | 5 | 195 | 86 | 246 | 276 | 253 | 295.0 | 228 | 0.0 | 263 | 0.3 | 210 | 245.1 | 182 |
| 63-3-13 | 1 | 155 | 6 | 182 | 29 | 260 | 120 | 268 | 18.0 | 273 | 3.8 | 258 | 0.2 | 230 | 253.6 | 187 |
| 89-3-13 | 7 | 65 | 5 | 195 | 39 | 257 | 397 | 240 | 57.8 | 261 | 0.0 | 263 | 0.1 | 253 | 251.7 | 185 |
| 13-3-13 | 0 | 170 | 1 | 261 | 5 | 273 | 50 | 277 | 1.3 | 279 | 0.0 | 263 | 0.1 | 252 | 264.5 | 195 |
| 91-2-13 | 0 | 170 | 0 | 278 | 2 | 276 | 18 | 285 | 22.3 | 271 | 0.0 | 263 | 0.1 | 250 | 265.4 | 196 |
| 67-2-13 | 1 | 155 | 0 | 278 | 0 | 281 | 44 | 278 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 269.3 | 202 |
| 71-6-13 | 0 | 170 | 0 | 278 | 0 | 281 | 5 | 295 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 271.4 | 210 |

New York – Western Division – 2022 Circuit priority list

| Circuit | No. of Trips/ Recloses | Rank Trip/ Recloses | No. of INTRP | Rank No. of INTRP | Cust AF | Rank Cust AF | Cust Served | Rank Cust Served | Cust Hrs | Rank Cust Hrs | LATE | Rank LATE | SAIFI | Rank SAIFI | PRTY Rating | Rank PRTY Rating |
|----------|------------------------|---------------------|--------------|-------------------|---------|--------------|-------------|------------------|----------|---------------|---------|-----------|-------|------------|-------------|------------------|
| 12-1-13 | 27 | 2 | 25 | 8 | 4,555 | 5 | 2,078 | 25 | 7,964.2 | 7 | 5,997.8 | 2 | 2.2 | 23 | 7.7 | 1 |
| 10-2-13 | 0 | 170 | 15 | 54 | 5,385 | 3 | 664 | 195 | 15,710.3 | 1 | 2,277.5 | 20 | 8.1 | 1 | 34.9 | 9 |
| 116-8-13 | 8 | 51 | 14 | 64 | 3,053 | 13 | 1,690 | 53 | 1,900.4 | 79 | 1,658.3 | 30 | 1.8 | 41 | 36.3 | 10 |
| 5-10-34 | 4 | 110 | 16 | 43 | 2,528 | 21 | 929 | 163 | 6,319.9 | 12 | 2,078.4 | 23 | 2.7 | 12 | 37.1 | 11 |
| 103-4-13 | 13 | 18 | 28 | 6 | 1,533 | 63 | 1,641 | 56 | 3,045.1 | 39 | 1,488.0 | 34 | 0.9 | 110 | 49.0 | 21 |
| 7-2-13 | 5 | 94 | 13 | 73 | 1,964 | 38 | 1,176 | 117 | 1,945.2 | 77 | 1,528.4 | 32 | 1.7 | 44 | 50.0 | 23 |
| 113-8-13 | 7 | 65 | 8 | 148 | 1,459 | 65 | 1,089 | 132 | 2,960.2 | 40 | 1,810.4 | 26 | 1.3 | 60 | 53.2 | 26 |
| 13-2-13 | 6 | 77 | 13 | 73 | 1,655 | 55 | 522 | 222 | 5,058.2 | 18 | 1,639.0 | 31 | 3.2 | 8 | 53.5 | 27 |
| 109-4-34 | 15 | 9 | 25 | 8 | 7,110 | 1 | 2,010 | 27 | 10,821.5 | 3 | 546.9 | 114 | 3.5 | 5 | 55.4 | 28 |
| 102-2-13 | 10 | 36 | 10 | 116 | 2,002 | 37 | 1,043 | 141 | 2,572.9 | 55 | 803.9 | 72 | 1.9 | 35 | 66.7 | 35 |
| 109-3-13 | 4 | 110 | 8 | 148 | 1,191 | 79 | 2,615 | 9 | 1,841.5 | 86 | 1,276.9 | 45 | 0.5 | 182 | 70.2 | 38 |
| 11-4-13 | 6 | 77 | 13 | 73 | 2,443 | 24 | 1,699 | 49 | 7,501.5 | 8 | 491.9 | 120 | 1.4 | 53 | 73.6 | 40 |
| 6-4-13 | 0 | 170 | 2 | 248 | 1,090 | 91 | 1,047 | 140 | 1,346.3 | 114 | 1,809.3 | 27 | 1.0 | 96 | 75.8 | 41 |
| 102-3-13 | 10 | 36 | 16 | 43 | 1,866 | 44 | 851 | 172 | 2,060.8 | 73 | 566.2 | 107 | 2.2 | 22 | 85.6 | 52 |
| 103-2-13 | 9 | 41 | 22 | 19 | 1,901 | 42 | 1,267 | 100 | 2,159.5 | 68 | 452.2 | 124 | 1.5 | 49 | 87.4 | 53 |
| 7-1-13 | 7 | 65 | 12 | 92 | 1,921 | 41 | 1,033 | 145 | 3,948.4 | 31 | 457.4 | 122 | 1.9 | 38 | 88.4 | 56 |
| 11-1-13 | 7 | 65 | 12 | 92 | 1,221 | 76 | 1,448 | 78 | 1,616.1 | 100 | 659.2 | 90 | 0.8 | 123 | 89.7 | 58 |
| 3-1N-34 | 0 | 170 | 21 | 20 | 1,116 | 88 | 1,157 | 119 | 2,395.2 | 62 | 685.7 | 87 | 1.0 | 107 | 90.3 | 59 |
| 7-3-13 | 10 | 36 | 14 | 64 | 716 | 136 | 230 | 257 | 1,567.8 | 106 | 989.7 | 56 | 3.1 | 9 | 92.1 | 60 |
| 5-3-34 | 8 | 51 | 21 | 20 | 3,890 | 7 | 1,535 | 70 | 9,323.2 | 5 | 162.2 | 180 | 2.5 | 16 | 93.3 | 61 |
| 103-3-13 | 10 | 36 | 9 | 133 | 665 | 142 | 1,040 | 143 | 1,631.2 | 97 | 960.4 | 58 | 0.6 | 148 | 97.5 | 65 |
| 109-1-13 | 13 | 18 | 12 | 92 | 1,650 | 56 | 2,848 | 5 | 4,206.0 | 28 | 236.0 | 167 | 0.6 | 156 | 108.0 | 75 |
| 109-2-13 | 9 | 41 | 11 | 104 | 1,553 | 61 | 1,541 | 69 | 875.6 | 162 | 380.8 | 137 | 1.0 | 102 | 110.8 | 77 |
| 9-1-48 | 0 | 170 | 8 | 148 | 4,653 | 4 | 1,801 | 40 | 9,972.8 | 4 | 53.6 | 233 | 2.6 | 14 | 119.4 | 85 |
| 15-6-13 | 5 | 94 | 12 | 92 | 746 | 131 | 2,646 | 7 | 3,868.5 | 33 | 350.7 | 145 | 0.3 | 216 | 121.7 | 87 |
| 11-2-13 | 14 | 11 | 11 | 104 | 1,069 | 94 | 2,957 | 3 | 1,826.2 | 87 | 198.7 | 170 | 0.4 | 202 | 127.4 | 93 |
| 103-1-13 | 11 | 30 | 11 | 104 | 530 | 163 | 715 | 191 | 723.0 | 180 | 596.7 | 101 | 0.7 | 132 | 131.7 | 98 |
| 2-1-13 | 4 | 110 | 18 | 31 | 1,832 | 46 | 703 | 193 | 1,574.7 | 105 | 121.2 | 198 | 2.6 | 13 | 132.9 | 99 |
| 12-3-13 | 13 | 18 | 8 | 148 | 3,494 | 9 | 932 | 162 | 5,398.8 | 14 | 22.9 | 245 | 3.7 | 4 | 134.2 | 103 |
| 6-7-13 | 1 | 155 | 2 | 248 | 393 | 187 | 1,098 | 129 | 1,211.2 | 133 | 577.5 | 103 | 0.4 | 203 | 140.3 | 110 |
| 113-4-13 | 6 | 77 | 5 | 195 | 863 | 112 | 1,255 | 102 | 436.9 | 208 | 305.0 | 151 | 0.7 | 139 | 142.1 | 112 |
| 102-1-13 | 3 | 129 | 7 | 169 | 1,219 | 77 | 664 | 195 | 1,884.8 | 81 | 121.4 | 197 | 1.8 | 39 | 143.0 | 113 |
| 3-1S-34 | 0 | 170 | 3 | 228 | 1,742 | 48 | 535 | 219 | 4,639.6 | 21 | 16.5 | 247 | 3.3 | 7 | 155.4 | 123 |
| 116-1-34 | 0 | 170 | 8 | 148 | 1,612 | 59 | 758 | 186 | 2,951.2 | 41 | 13.8 | 250 | 2.1 | 28 | 157.8 | 126 |

| Circuit | No. of Trips/ Recloses | Rank Trip/ Recloses | No. of INTRP | Rank No. of INTRP | Cust AF | Rank Cust AF | Cust Served | Rank Cust Served | Cust Hrs | Rank Cust Hrs | LATE | Rank LATE | SAIFI | Rank SAIFI | PRTY Rating | Rank PRTY Rating |
|----------|------------------------|---------------------|--------------|-------------------|---------|--------------|-------------|------------------|----------|---------------|-------|-----------|-------|------------|-------------|------------------|
| 6-1-13 | 1 | 155 | 5 | 195 | 247 | 212 | 679 | 194 | 402.5 | 213 | 540.6 | 115 | 0.4 | 201 | 163.7 | 131 |
| 13-7-13 | 5 | 94 | 3 | 228 | 917 | 107 | 628 | 200 | 1,620.0 | 99 | 60.9 | 226 | 1.5 | 51 | 166.2 | 134 |
| 113-2-13 | 8 | 51 | 14 | 64 | 179 | 226 | 1,844 | 36 | 453.0 | 206 | 138.4 | 191 | 0.1 | 254 | 183.6 | 144 |
| 9-2-48 | 0 | 170 | 4 | 215 | 825 | 120 | 274 | 254 | 1,302.2 | 121 | 10.2 | 252 | 3.0 | 11 | 185.6 | 149 |
| 6-2-13 | 1 | 155 | 8 | 148 | 246 | 213 | 1,033 | 145 | 533.4 | 201 | 150.1 | 188 | 0.2 | 232 | 192.6 | 155 |
| 116-2-34 | 0 | 170 | 3 | 228 | 59 | 251 | 23 | 281 | 72.6 | 256 | 134.4 | 193 | 2.6 | 15 | 202.2 | 160 |
| 113-7-13 | 2 | 141 | 5 | 195 | 97 | 241 | 794 | 182 | 167.0 | 239 | 93.8 | 206 | 0.1 | 246 | 216.0 | 165 |
| 11-3-13 | 8 | 51 | 3 | 228 | 19 | 265 | 1,762 | 44 | 59.7 | 259 | 59.7 | 227 | 0.0 | 278 | 220.2 | 167 |
| 15-1-13 | 4 | 110 | 5 | 195 | 151 | 230 | 352 | 245 | 296.4 | 226 | 19.8 | 246 | 0.4 | 192 | 230.6 | 175 |
| 113-5-13 | 5 | 94 | 3 | 228 | 119 | 238 | 1,273 | 99 | 104.7 | 249 | 0.0 | 263 | 0.1 | 256 | 234.4 | 177 |
| 113-6-13 | 4 | 110 | 4 | 215 | 54 | 252 | 563 | 213 | 80.4 | 254 | 48.8 | 236 | 0.1 | 255 | 236.9 | 178 |
| 15-5-13 | 3 | 129 | 1 | 261 | 8 | 272 | 18 | 285 | 23.2 | 270 | 23.2 | 244 | 0.4 | 187 | 248.2 | 183 |
| 113-3-13 | 0 | 170 | 2 | 248 | 24 | 262 | 280 | 252 | 33.8 | 265 | 14.8 | 248 | 0.1 | 262 | 252.4 | 185 |
| 15-3-13 | 2 | 141 | 3 | 228 | 16 | 268 | 463 | 233 | 20.7 | 272 | 1.6 | 261 | 0.0 | 272 | 258.0 | 187 |
| 6-8-13 | 1 | 155 | 0 | 278 | 0 | 281 | 527 | 220 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 263.5 | 193 |
| 13-4-13 | 1 | 155 | 1 | 261 | 2 | 276 | 144 | 265 | 0.7 | 280 | 1.3 | 262 | 0.0 | 277 | 265.7 | 196 |
| 113-1-13 | 3 | 129 | 0 | 278 | 0 | 281 | 91 | 273 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 268.1 | 197 |
| 15-4-13 | 0 | 170 | 0 | 278 | 0 | 281 | 78 | 274 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 269.3 | 200 |
| 15-2-13 | 0 | 170 | 0 | 278 | 0 | 281 | 38 | 280 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 269.9 | 202 |
| 11-5-13 | 3 | 129 | 0 | 278 | 0 | 281 | 2 | 300 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 270.8 | 205 |
| 5-4-34 | 3 | 129 | 0 | 278 | 0 | 281 | 0 | 302 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 271.0 | 206 |
| 1-1-13 | 0 | 170 | 0 | 278 | 0 | 281 | 4 | 296 | 0.0 | 281 | 0.0 | 263 | 0.0 | 280 | 271.5 | 209 |

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Appendix B

2022 Service Reliability Program Descriptions

Service Reliability Programs

The Company's service reliability programs are designed to reduce both interruption frequency and outage duration through the prudent inspection and maintenance of critical components installed on the electric transmission and distribution system. These programs define an optimum set of activities that will cost effectively meet customer reliability needs within the framework of the company financial objectives. Reliability programs establish inspection intervals; minimum component testing and performance requirements; and maintenance procedures to be performed during each inspection.

The major programs in effect during the year are listed below, and reference the appropriate O&M or capital budgets and expenditures as contained in Appendix F:

Operations and Maintenance (click on the links below to jump to the program page in this document)

- [Transmission ROW and line maintenance](#)
- [Transmission relay maintenance](#)
- [Substation maintenance](#)
- [Distribution vegetation management](#)
- [Distribution line maintenance](#)
 - o *Capacitor Maintenance Program*
 - o *Regulator Maintenance Program*
 - o *Recloser/Sectionalizer Maintenance Program*
 - o *Circuit Ownership Program*
 - o *Pole Remaining Strength Inspection*
- [Infrared Thermal Inspection Program](#)
- [Visual inspection programs](#)
- [Stray Voltage Testing](#)
- [Power Quality](#)

Capital Programs

- [Underground Cable Rehab and Rebuild Program](#)

Title: TRANSMISSION RIGHT-OF-WAY AND LINE MAINTENANCE

Subject: NYPSC Delivery System Program Review
Transmission Right-Of-Way and Line Maintenance

Item Description:

Examination of the transmission right-of-way (ROW) and line maintenance programs and spot check ROW and lines to validate that maintenance is adequate.

O&R Program:

- A. TRANSMISSION LINE MAINTENANCE: The program is based on standards and specifications for Ground and Helicopter Patrols. Periodic inspections of overhead transmission lines are performed on the lines that are owned and/or operated by the Company. It includes the following types of inspections performed on all overhead transmission lines in the three O&R's Divisions.

The following is a summary of the type and frequency of these inspections:

- Ground patrol
 - o Annual
 - Includes annual stray voltage/visual inspection
 - Every 5-years stray voltage testing is conducted during this inspection
 - As required for emergency patrols
- Helicopter patrol
 - o Bi-monthly (monthly for 500 kV and 345 kV lines, and NERC IROL lines)
 - o As required for emergency patrols
- Climbing inspections
 - o Below 345 kV
 - As required
 - o 345 kV and above
 - Every five-years
- Emergency patrol
- As required
- Ground resistance measurements
 - o Below 345kV
 - As required
 - o 345 kV and above

- Five-years, until structure passes two consecutive tests, then every ten years.
- Infrared inspection
 - Twice a year, spring and summer
 - Each abnormality is photographed
- Wood pole inspection
 - Annual
 - Identify transmission facilities requiring maintenance or replacement.
 - Includes visual and mechanical sound and bore (as needed).

B. Transmission line ROW maintenance:

The transmission ROWs are maintained based on O&R's "Long Range Transmission Right of Way Vegetation Management Plan" that is filed with the NYPSC. The document is updated whenever modifications or changes are made to the program and was recently updated on January 1, 2017. Annually, a summary of the previous year's maintenance and a summary of the next year's schedule is prepared and submitted to the NYPSC under the provisions of Case 27605.

References:

The helicopter patrol records, foot patrol records, infrared thermal vision records and all other pertinent maintenance records related to transmission line maintenance are kept on file for a minimum period of three years, at O&R's T&D Maintenance offices in Blooming Grove, New York.

For scheduled preventive transmission vegetation ROW maintenance, the O&R schedules for each year, listed by corridor number and treatment technique, are kept on file in our T&D Maintenance offices in Blooming Grove, as well as being sent to the NYPSC in accordance with the provisions of Case 27605.

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Title: TRANSMISSION RELAY MAINTENANCE
Subject: NYPSC Delivery System Program Review
Transmission Relay Maintenance

Item Description:

Examine individual utility transmission relay maintenance programs so that proper and timely maintenance is being performed.

O&R Program:

All protection systems for the bulk power system are maintained periodically, at a four- to twelve-year interval, in accordance with regulatory guidance under frequency relay settings are verified on an annual basis and the automatic under-frequency load shedding protection system is maintained on a four to twelve-year interval, in accordance with regulatory guidance requirements. Maintenance of protection system includes performing bench test of protective relays, per manufacture requirements, to verify the operation of protective elements is within specification. In addition, the protective functions of the relays operate as per the specified logic.

Breaker trip coil and DC continuity test for bulk power system are performed periodically, at four to six year interval, in accordance with regulatory guidance requirements.

The substation battery banks and charger testing for bulk power system are maintained in accordance with regulatory guidance requirements.

O&R utilizes automated relay testing with the Doble Engineering program. Our experience has proven it to be substantially more accurate than previous test sets and is giving us more repeatable and thus reliable results.

References:

Settings and performance records of the relays are stored on laptop computers, with backup files on both the O&R network and the computer hard drives. Relay maintenance reports, as well as the reports for the past two years are kept on file at the Spring Valley Operations Center.

The System Operations and Transmission and Substation Engineering Departments generate a report for all mis-operations on the bulk power system and equipment. These reports are kept on file by Transmission and Substation Engineering, as well as are being forwarded to the NYISO.

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Title: SUBSTATION MAINTENANCE
Subject: NYPSC Delivery System Program Review
Substation Maintenance

Item Description:

Examine individual utility substation maintenance programs to validate proper maintenance procedures and verify that maintenance is being performed. Review recent operating data to verify that no adverse trends exist.

O&R Program:

The following details the different class inspections and maintenance programs performed by the Substation Operations Department, and their associated time cycles. Intervals vary depending on equipment type, style and maintenance history.

CLASS #1 INSPECTION - Monthly

- Visual inspection of transformers and oil breakers for oil leaks, oil levels, nitrogen pressure, connections, condition of bushings and Oil Circuit Breaker (OCB) operating mechanism.
- Visual inspection of battery banks, chargers, control board indicating lights, control house lights, yard lights.
- Visual inspection of minor equipment including potential transformers (PTs), current transformers (CTs), capacitive coupled potential devices (CCPDs), disconnect switches and bus connections.
- Visual inspection of all structures, fences/gates and yard surfaces.
- Counter readings taken of OCBs, gas circuit breakers (GCBs), reclosers and tap changers.

STATION BATTERY TESTS – Annually/Monthly visual inspections and verifications

Measure specific gravity and cell voltage. Test with battery impedance testing equipment. Clean batteries.

FANS, PUMPS, HEATERS AND COMPRESSORS - Annually

Check for proper operation prior to winter for heaters and compressors and prior to summer for fans and pumps.

TRANSFORMER GAS-IN-OIL ANALYSIS – Quarterly, semi-annually or annually

Take oil sample from each power transformer compartment and analyze for combustible gas content.

DOBLE POWER FACTOR TEST - Every two to five years

Use Doble instrument to measure the integrity of the insulating medium of certain device.

CIRCUIT BREAKER TIMING - Every three to ten years

Check the time it takes for each operation of certain breakers.

RELAY MAINTENANCE - Every four to twelve years based on relay type and maintenance task

Clean, test and calibrate as required all relays involved in protective relay schemes - Every four years for non-microprocessor relays and every twelve years for microprocessor based relays, with self-check.

Perform a trip test to verify proper operation - Every four years for non-microprocessor relays and every 6 years for microprocessor relays.

CLASS #3 INSPECTIONS - Every four to ten years

The Class #3 inspection on transformers is to include, but is not limited to the following items:

1. Test oil;
2. TTR – Test, Megger test;
3. Inspect all connectors, bushings;
4. Inspect for leaks (oil – nitrogen);
5. Check CT connections, alarm systems on banks; and
6. Doble Power Factor Test.

Transformers with Load Tap Changers

7. Test Oil in LTC cabinet; and
8. Test LTC control for proper operation.

The Class #3 inspection on OCB's is to include, but is not limited to the following items:

1. Test Oil;
2. DLRO (Ductor Test) before and after;
3. Inspect and clean control cabinet;
4. Inspect and clean pneumatic-hydraulic or spring charged operating system; and
5. Operational test.

The Class #3 inspection on reclosers is to include, but is not limited to the following items:

1. Test oil;
2. DLRO (Ductor Test) before and after;
3. Control cabinet clean, checkout and operational test; and

Reclosers with Vacuum Bottles

4. Hi-pot test.

The Class #3 inspection on ACB's is to include, but is not limited to the following items:

1. DLRO (Ductor Test) before and after;
2. Inspect all contacts (action to be taken, if needed);
3. Inspect and test all micro and aux. contacts (close and trip circuit); and
4. Operational testing

CLASS #4 INSPECTIONS – Every ten years or as necessitated by Class #3 Inspection results or as dictated by Gas in Oil analysis

The Class #4 inspection consists of a thorough inspection and testing of the apparatus listed below.

The Class #4 also includes all inspections included in a Class #3.

Transformers with Load Tap Changer

1. Drain oil from LTC cabinet, inspect all contacts;
2. Inspect and tighten all connections;
3. Clean complete LTC cabinet;
4. Filter or replace oil; and
5. Test LTC control for proper operation.

The Class #4 inspection on OCB's is to include, but is not limited to the following items:

1. DLRO (Ductor test) before and after;
2. Drop tanks - inspect and tighten all connections; clean all parts and tanks;
3. Test and filter or replace oil;
4. Inspect and clean control cabinet;
5. Inspect and clean pneumatic-hydraulic or spring charged operating systems; and
6. Operational Test.

The Class #4 inspection on reclosers is to include, but is not limited to the following items:

1. Drop tank (filter or replace oil);
2. Inspect all contacts - repair or replace (depending on the condition);
3. Check and tighten all connections;
4. Control cabinet, clean and checkout;
5. DLRO (Ductor Test) before and after; and
6. Operational Test.

Recloser with Vacuum Bottles

Hi-Pot test.

The Class #4 inspection on ACB's is to include, but is not limited to the following items:

1. DLRO (Ductor Test) before and after;
2. Inspect all contacts - clean and put protective grease coating on;
3. Inspect and clean all arc chutes;
4. Inspect and test all micro and auxiliary contacts (close and trip circuit);
5. Check and tighten all connections; and
6. Operational Test.

References:

All inspection and maintenance records are retained as a hard copy for one year at O&R's main Operating Division headquarters. These records are also retained electronically on a work management system. Repeated callouts and equipment failures that show an abnormal trend are flagged by the work management system.

The Doble power factor testing, transformer gas in oil analysis and infrared inspection records are stored electronically on the Substation Information System (SIS). OCB timing maintenance records are presently kept on a separate electronic storage system that is provided with the test equipment.

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Title: DISTRIBUTION VEGETATION MANAGEMENT
Subject: NYPSC Delivery System Program Review
Distribution Tree Trimming

Item Description:

Examination of the distribution vegetation management (VM) programs and spot check of distribution lines to validate that maintenance is adequate.

O&R Program:

The distribution VM program is a vegetation clearance and control methodology based upon a 4-year cycle. The circuits to be maintained each year are selected using the normal scheduled maintenance cycle. A tree-related outage spreadsheet, derived from OMS and Performance and Operational Engineering, is used to monitor circuits based on vegetation-related outage performance. Patrols are completed as VM supervisors and other company personnel move throughout the service territory. Any identified vegetation issues requiring attention to prevent service interruptions are reported for further investigation and remediation by the VM Department. Beginning in April 2020, Nelson Tree Service has been retained by the Company to complete the scheduled distribution VM programs.

References:

The Company maintains VM records for each substation worked, with completion dates and mileage maintained. Audits are performed by the Company VM Supervisor or Company contractor representative on the circuits as the vegetation work proceeds, so as to maintain the quality of work and the clearance specifications. Additionally, Contractor Field Observation Reports are completed monthly. These observations, completed by Company VM Supervisors and Company contractor representatives, are also performed on the contractors performing the work and focus on work quality as well as several safety-related items.

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Title: DISTRIBUTION LINE MAINTENANCE

Item Description:

Examination of the distribution line maintenance programs (excluding tree trimming) and spot check lines to validate that maintenance is adequate.

O&R Program:

The following details the distribution line maintenance programs performed by O&R's Overhead and Underground Electric Operations Departments.

CAPACITOR MAINTENANCE PROGRAM

All capacitor banks are inspected in accordance with the Capacitor Maintenance Procedure. Maintenance schedules have been set by the divisions and are tailored to best meet the divisions' needs.

REGULATOR MAINTENANCE PROGRAM

Regulator inspections and functional tests are performed annually in accordance with the Regulator Maintenance Procedure. As system conditions allow, deficiencies are corrected prior to the system peak period.

RECLOSER SECTIONALIZER MAINTENANCE PROGRAM

Recloser/Sectionalizer inspections and functional tests are performed in accordance with the Recloser/Sectionalizer Maintenance Procedure. A visual inspection of all line units is performed annually, and functional tests are performed every three years.

CIRCUIT OWNERSHIP PROGRAM

This program was modified in 2013 to target our worst performing circuits that have a relatively poor performance based on their impact on Customers Affected and Customer Hours of interruption. The circuits are patrolled routinely to look for any immediate issues that may adversely affect its reliability.

POLE REMAINING STRENGTH INSPECTION

O&R Rockland is on a 12-year inspection cycle as required by the National Electric Safety Code. The program began in 2007 and a new 12-year inspection cycle started in 2020. To date 17,153 (12.8%) of the 133,805 poles have been inspected. In 2022, 13,135 poles were inspected and of these 455 (3.5%) failed. Of the failures, 15 (3.3%) required replacement and 147 (32.3%) required trussing.

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Title: INFRARED THERMAL INSPECTION PROGRAM

This program is normally administered annually on all three-phase overhead facilities, and on a three-year cycle for all single-phase overhead facilities. Necessary repairs are prioritized by temperature rise and completed as follows:

- Priority 1 - 101^o C - or More - Repair Immediately as system conditions permit;
- Priority 2 - 51^o - 100^o C - Repair in 14 Days as system conditions permit; and
- Priority 3 - 1^o - 50^o C (all others) - Repair as resources allow and/or monitor in next IR cycle.

This program is also administered on the transmission system. Two cycles of inspection are conducted. One in the spring as part of summer preparations plan to ensure system readiness, then another in the summer under full load conditions. These are conducted and maintained as identified in the above Transmission Right-Of-Way and Line Maintenance Program description.

The distribution program consisted of a survey/scan of all three phase mainline in NY and single-phase in alternating divisions on an annual basis.

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Title: VISUAL INSPECTION PROGRAM

By Order issued on January 5, 2005, with subsequent revisions issued on July 21, 2005, December 15, 2008, March 22, 2013 and January 13, 2015 in Case 04-M-0159, the Commission required that O&R initiate a Visual Inspection Program encompassing 20% of all O&R facilities annually, such that within five-years all facilities have been visually inspected. Consistent with the Order, O&R initiated the visual inspection program in 2005 and continues to do so annually.

O&R conducts separate visual inspections of its T&D systems. A non-company contractor labor force performs the majority of the work. Electric Operations located in West Nyack, New York, administers the Distribution Visual Inspection Program. Distribution visual inspection records are stored with the inspection vendor and O&R's Electric Information Management System (EIMS). Transmission inspections are conducted on and maintained as identified in the above Transmission Right-Of-Way and Line Maintenance Program description.

In 2022, approximately 20% of the T&D system was visually inspected. 42 Level 1 deficiencies were identified on the distribution system and no Level 1 deficiencies were identified on the transmission system. All Level 1 deficiencies have been permanently repaired.

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Title: STRAY VOLTAGE TESTING PROGRAM

By order issued on January 5, 2005, with subsequent revisions issued on July 21, 2005, December 15, 2008, March 22, 2013 and January 13, 2015 in Case 04-M-0159, the Commission required that O&R initiate a stray voltage testing program encompassing annual inspection of 20% of O&R facilities capable of conducting electricity, third-party facilities bonded electrically to the O&R system, and all municipal street and traffic light systems. Consistent with the Order, O&R has conducted stray voltage testing in 2022.

O&R conducts separate stray voltage testing of its T&D systems. A non-company contractor labor force performs the majority of the work. Electric Operations located in West Nyack, New York, administers the Distribution Visual Inspection Program. Inspections records are stored with the vendor and O&R's Electric Information Management System (EIMS). Transmission stray voltage testing are conducted and maintained as identified in the above Transmission Right-Of-Way and Line Maintenance Program description. Stray voltage testing was performed on all transmission structures and substation fences in 2021. As per the Safety Standards, is required to be performed again in 2026. Transmission structures are tested on a five-year cycle.

During the 2022 testing cycle, two stray voltage conditions ≥ 1.0 volt were identified. The two voltage conditions were mitigated and no injuries were associated with the findings.

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Title: UNDERGROUND CABLE REHAB AND REBUILD PROGRAM

All underground system outage statistics are analyzed on an individual subdivision basis and a priority listing developed. From this listing it is determined if the cable is to be rehabilitated or rebuilt. Where multiple cable failures have occurred on the same cable section, cables are replaced with Ethylene-Propylene Rubber (EPR) insulated cable.

On older cable subdivisions, that have not had multiple cable failure, a less expensive rehabilitation process is considered. Rehabilitation is accomplished by injecting a patented silicone-based fluid into the interstices of the cable, which impregnates the insulation and fills the voids. This process restores the dielectric properties of the deteriorated cable.

Developments that are serviced by underground facilities are selected for cable rehabilitation based upon the following criteria:

1. Is not a three-phase system with three-phase dependent loads;
2. The U/G facilities incorporates a loop-feed scheme;
3. The cable is rated 15 kV; and
4. The cable is either 175 mil. or 220 mil., HMWPE or XLPE insulated.

The Rehabilitation Program is more of a proactive measure to increase customer reliability and therefore focuses on older underground developments that fit the rehabilitation criteria and have experienced a small number of outages due to cable failure. If there have been multiple outages within a cable section due to cable failures, it is usually more cost effective to rebuild the faulted sections.

Developments that are serviced by underground facilities are selected for cable replacement based upon their frequency of cable failures and either do not fit the criteria for rehabilitation or have been unsuccessfully rehabilitated. Outage statistics are used as an initial guide in identifying underground developments that experience frequent outages. From this selection process, further outage analysis is required to isolate outages that occur only as a result of cable failure. A priority list is then constructed, which ranks URD developments according to outage frequency, customers affected, and load.

References:

The scope of work summaries for all of the service reliability maintenance projects are maintained on O&R's work management system. The individual Operating Divisions maintain the overall records including the circuits that have been addressed and the project timing. These Departments, along with Distribution Engineering, review the circuit statistics and performance to prioritize the circuits which need to be addressed or revisited as part of this program.

The scope of work and completion records for all of the underground cable rehabilitation and rebuild projects is maintained on the work management system. The Underground Operating Department also maintains hard copy records of this program.

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Title: POWER QUALITY
Subject: NYPSC Delivery System Program Review

In 2022, O&R continued its Power Quality (PQ) Initiative to help C&I customers experiencing reliability issues affecting their electric service or electric usage. Several services were available to customers, including:

- Monitoring of customer facilities including equipment placement, data collection and interpretation.
- Full site analysis yielding comprehensive protective measures and recommendations.
- Revenue meter pulse data can be made directly available to customers upon request.

Power Quality Complaint Resolution

O&R’s systems track power quality issues in three categories: Flickering Lights, High Voltage, and Low Voltage. Each of the complaints in the following table was investigated, and the origin of each problem is identified in table below.

Summary of Power Quality Problems – 2022

| Description | | Divisions | | | Grand Total |
|--------------------|------------------|------------|------------|------------|-------------|
| Problem | Cause | Eastern | Central | Western | |
| Flickering Lights | Company | 119 | 69 | 97 | 515 |
| | Customer | 31 | 20 | 19 | |
| | No Problem Found | 56 | 56 | 48 | |
| | Total | 206 | 145 | 164 | |
| High Voltage | Company | 7 | 14 | 11 | 64 |
| | Customer | 3 | 2 | 8 | |
| | No Problem Found | 1 | 8 | 10 | |
| | Total | 11 | 24 | 29 | |
| Low Voltage | Company | 29 | 20 | 32 | 161 |
| | Customer | 14 | 10 | 15 | |
| | No Problem Found | 14 | 13 | 14 | |
| | Total | 57 | 43 | 61 | |
| Grand Total | | 274 | 212 | 254 | 740 |

In addition to the above incidents, more in-depth investigations of the following power quality and voltage complaints were conducted.

Power Quality Investigations - Eastern Division

None

Power Quality Investigations - New York – Western

None

Power Quality Investigations - New York – Central

None

Voltage Investigations - Eastern Division

None

Voltage – New York - Central

None

Voltage – New York - Western

None

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Appendix C

2022 Major Outages

**O&R
New York State Only
Major Incidents
2022**

Non-excludable incidents affecting 5,000 or more customers

| Division | Date | Customers Affected | Cust Min of Interruption | Cause |
|-----------------|-------------|---------------------------------|---------------------------------|--------------|
| Eastern | | No outages over 5,000 customers | | |
| Western | | No outages over 5,000 customers | | |
| Central | | No outages over 5,000 customers | | |

Appendix D

2022 Circuit Performance Frequency and Restoration

Eastern Division 2022 Reliability Data – Excludes storms – Sorted by Frequency

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|------------|----------------------|----------|------------------|----------|-------|-------|-------|
| 50-1-13 | 9 | 1,962 | 505 | 2,708.1 | 3.89 | 1.38 | 5.36 |
| 54-7-13 | 13 | 3,227 | 1,403 | 4,219.1 | 2.30 | 1.31 | 3.01 |
| 44-6-13 | 10 | 2,646 | 1,211 | 1,027.2 | 2.18 | 0.39 | 0.85 |
| 17-2-13 | 11 | 5,523 | 2,529 | 3,610.4 | 2.18 | 0.65 | 1.43 |
| 23-1-13 | 26 | 2,881 | 1,337 | 6,542.5 | 2.15 | 2.27 | 4.89 |
| 54-6-13 | 10 | 2,747 | 1,339 | 875.1 | 2.05 | 0.32 | 0.65 |
| 45-3-13 | 19 | 2,455 | 1,361 | 2,881.2 | 1.80 | 1.17 | 2.12 |
| 50-3-13 | 15 | 1,157 | 725 | 2,160.8 | 1.60 | 1.87 | 2.98 |
| 23-6-13 | 16 | 2,366 | 1,740 | 2,648.1 | 1.36 | 1.12 | 1.52 |
| 54-1-13 | 8 | 988 | 825 | 273.6 | 1.20 | 0.28 | 0.33 |
| 24-2-13 | 15 | 1,618 | 1,356 | 2,889.9 | 1.19 | 1.79 | 2.13 |
| 45-5-13 | 30 | 1,846 | 1,549 | 2,893.9 | 1.19 | 1.57 | 1.87 |
| 21-9-13 | 2 | 521 | 456 | 175.2 | 1.14 | 0.34 | 0.38 |
| 45-7-13 | 15 | 1,126 | 996 | 682.6 | 1.13 | 0.61 | 0.69 |
| 22-1-13 | 13 | 1,111 | 985 | 1,607.6 | 1.13 | 1.45 | 1.63 |
| 42-2-13 | 5 | 1,149 | 1,042 | 2,289.9 | 1.10 | 1.99 | 2.20 |
| 54-2-13 | 3 | 402 | 371 | 135.3 | 1.08 | 0.34 | 0.36 |
| 54-8-13 | 5 | 851 | 815 | 305.5 | 1.04 | 0.36 | 0.37 |
| 22-2-13 | 15 | 1,340 | 1,293 | 2,473.0 | 1.04 | 1.85 | 1.91 |
| 45-1-13 | 23 | 1,172 | 1,134 | 1,316.6 | 1.03 | 1.12 | 1.16 |
| 51-5-13 | 5 | 1,014 | 993 | 445.8 | 1.02 | 0.44 | 0.45 |
| 42-1-13 | 3 | 209 | 205 | 317.3 | 1.02 | 1.52 | 1.55 |
| 27-6-13 | 24 | 1,067 | 1,094 | 2,408.4 | 0.98 | 2.26 | 2.20 |
| 22-3-13 | 0 | 464 | 490 | 100.4 | 0.95 | 0.22 | 0.20 |
| 45-9-13 | 18 | 1,580 | 1,692 | 1,359.8 | 0.93 | 0.86 | 0.80 |
| 53-3-13 | 8 | 414 | 467 | 487.3 | 0.89 | 1.18 | 1.04 |
| 27-5-13 | 4 | 1,003 | 1,157 | 906.7 | 0.87 | 0.90 | 0.78 |
| 24-11-13 | 23 | 1,552 | 1,807 | 2,711.7 | 0.86 | 1.75 | 1.50 |
| 44-1-13 | 7 | 1,315 | 1,596 | 3,479.0 | 0.82 | 2.65 | 2.18 |
| 29-3-13 | 15 | 1,698 | 2,063 | 1,211.3 | 0.82 | 0.71 | 0.59 |
| 16M3-11-13 | 12 | 1,085 | 1,337 | 1,015.3 | 0.81 | 0.94 | 0.76 |
| 17-1-13 | 5 | 480 | 599 | 629.8 | 0.80 | 1.31 | 1.05 |
| 23-2-13 | 15 | 736 | 987 | 1,727.5 | 0.75 | 2.35 | 1.75 |
| 53-8-13 | 6 | 317 | 439 | 777.5 | 0.72 | 2.45 | 1.77 |
| 19-11-13 | 38 | 1,119 | 1,613 | 1,243.8 | 0.69 | 1.11 | 0.77 |
| 27-8-13 | 13 | 1,050 | 1,560 | 1,049.1 | 0.67 | 1.00 | 0.67 |
| 23-4-13 | 18 | 839 | 1,294 | 1,622.0 | 0.65 | 1.93 | 1.25 |
| 22-8-13 | 1 | 372 | 579 | 52.5 | 0.64 | 0.14 | 0.09 |
| 45-10-13 | 10 | 681 | 1,065 | 904.7 | 0.64 | 1.33 | 0.85 |
| 19-9-13 | 15 | 1,076 | 1,691 | 1,911.8 | 0.64 | 1.78 | 1.13 |
| 22-4-13 | 10 | 826 | 1,302 | 1,420.0 | 0.63 | 1.72 | 1.09 |
| 26-2-13 | 7 | 511 | 885 | 597.6 | 0.58 | 1.17 | 0.68 |
| 51-6-13 | 10 | 717 | 1,314 | 1,103.5 | 0.55 | 1.54 | 0.84 |
| 27-3-13 | 12 | 1,308 | 2,408 | 2,519.3 | 0.54 | 1.93 | 1.05 |

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|----------|----------------------|----------|------------------|----------|-------|-------|-------|
| 54-3-13 | 3 | 41 | 76 | 96.8 | 0.54 | 2.36 | 1.27 |
| 21-11-13 | 10 | 480 | 892 | 854.8 | 0.54 | 1.78 | 0.96 |
| 50-4-13 | 7 | 474 | 881 | 1,111.5 | 0.54 | 2.34 | 1.26 |
| 21-13-13 | 11 | 1,253 | 2,341 | 1,432.9 | 0.54 | 1.14 | 0.61 |
| 54-4-13 | 4 | 180 | 341 | 332.5 | 0.53 | 1.85 | 0.98 |
| 72-7-13 | 2 | 321 | 623 | 575.4 | 0.52 | 1.79 | 0.92 |
| 24-4-13 | 6 | 658 | 1,298 | 645.8 | 0.51 | 0.98 | 0.50 |
| 27-1-13 | 13 | 426 | 847 | 823.2 | 0.50 | 1.93 | 0.97 |
| 19-10-13 | 25 | 1,659 | 3,464 | 2,125.1 | 0.48 | 1.28 | 0.61 |
| 51-1-13 | 6 | 521 | 1,103 | 985.3 | 0.47 | 1.89 | 0.89 |
| 19-15-13 | 16 | 508 | 1,083 | 562.2 | 0.47 | 1.11 | 0.52 |
| 27-7-13 | 8 | 891 | 1,902 | 2,566.0 | 0.47 | 2.88 | 1.35 |
| 45-4-13 | 16 | 749 | 1,666 | 1,771.8 | 0.45 | 2.37 | 1.06 |
| 24-1-13 | 13 | 493 | 1,099 | 780.9 | 0.45 | 1.58 | 0.71 |
| 72-4-13 | 14 | 531 | 1,211 | 978.6 | 0.44 | 1.84 | 0.81 |
| 42-3-13 | 8 | 487 | 1,115 | 752.3 | 0.44 | 1.54 | 0.67 |
| 22-5-13 | 14 | 648 | 1,509 | 1,436.3 | 0.43 | 2.22 | 0.95 |
| 45-6-13 | 8 | 300 | 707 | 494.3 | 0.42 | 1.65 | 0.70 |
| 45-8-13 | 20 | 791 | 1,915 | 1,262.6 | 0.41 | 1.60 | 0.66 |
| 50-2-13 | 30 | 850 | 2,096 | 1,769.3 | 0.41 | 2.08 | 0.84 |
| 19-14-13 | 25 | 844 | 2,191 | 1,739.4 | 0.39 | 2.06 | 0.79 |
| 29-1-13 | 18 | 620 | 1,767 | 1,024.1 | 0.35 | 1.65 | 0.58 |
| 44-4-13 | 14 | 610 | 1,774 | 3,285.4 | 0.34 | 5.39 | 1.85 |
| 53-7-13 | 8 | 382 | 1,119 | 658.2 | 0.34 | 1.72 | 0.59 |
| 44-5-13 | 24 | 506 | 1,551 | 759.1 | 0.33 | 1.50 | 0.49 |
| 51-2-13 | 7 | 296 | 958 | 595.0 | 0.31 | 2.01 | 0.62 |
| 44-2-13 | 18 | 350 | 1,138 | 805.5 | 0.31 | 2.30 | 0.71 |
| 22-7-13 | 10 | 667 | 2,463 | 1,307.5 | 0.27 | 1.96 | 0.53 |
| 51-4-13 | 4 | 367 | 1,379 | 1,096.2 | 0.27 | 2.99 | 0.79 |
| 51-3-13 | 18 | 278 | 1,053 | 592.0 | 0.26 | 2.13 | 0.56 |
| 53-1-13 | 13 | 513 | 2,001 | 1,058.8 | 0.26 | 2.06 | 0.53 |
| 45-2-13 | 7 | 404 | 1,581 | 953.0 | 0.26 | 2.36 | 0.60 |
| 23-3-13 | 6 | 254 | 1,031 | 473.3 | 0.25 | 1.86 | 0.46 |
| 51-8-13 | 0 | 145 | 599 | 164.3 | 0.24 | 1.13 | 0.27 |
| 27-4-13 | 8 | 572 | 2,371 | 1,652.1 | 0.24 | 2.89 | 0.70 |
| 19-13-13 | 4 | 316 | 1,607 | 1,252.4 | 0.20 | 3.96 | 0.78 |
| 24-12-13 | 8 | 210 | 1,158 | 322.8 | 0.18 | 1.54 | 0.28 |
| 21-16-13 | 2 | 72 | 500 | 131.1 | 0.14 | 1.82 | 0.26 |
| 21-12-13 | 10 | 209 | 1,503 | 363.2 | 0.14 | 1.74 | 0.24 |
| 53-6-13 | 5 | 201 | 1,749 | 359.1 | 0.11 | 1.79 | 0.21 |
| 19-8-13 | 8 | 336 | 2,935 | 977.5 | 0.11 | 2.91 | 0.33 |
| 54-5-13 | 1 | 2 | 18 | 5.3 | 0.11 | 2.67 | 0.30 |
| 19-12-13 | 17 | 137 | 1,524 | 335.5 | 0.09 | 2.45 | 0.22 |
| 24-3-13 | 1 | 17 | 222 | 58.7 | 0.08 | 3.45 | 0.26 |
| 44-3-13 | 13 | 156 | 2,096 | 709.6 | 0.07 | 4.55 | 0.34 |

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|----------|----------------------|----------|------------------|----------|-------|-------|-------|
| 21-15-13 | 2 | 10 | 161 | 27.5 | 0.06 | 2.75 | 0.17 |
| 27-2-13 | 6 | 118 | 2,467 | 214.8 | 0.05 | 1.82 | 0.09 |
| 22-6-13 | 1 | 5 | 284 | 3.9 | 0.02 | 0.77 | 0.01 |
| 26-5-13 | 1 | 2 | 117 | 12.3 | 0.02 | 6.17 | 0.11 |
| 26-6-13 | 1 | 2 | 523 | 3.6 | 0.00 | 1.80 | 0.01 |
| 96-1-13 | 0 | 0 | 1 | 0.0 | 0.00 | 0.00 | 0.00 |
| 23-5-13 | 0 | 0 | 4 | 0.0 | 0.00 | 0.00 | 0.00 |
| 98-1-13 | 0 | 0 | 4 | 0.0 | 0.00 | 0.00 | 0.00 |
| 26-10-13 | 0 | 0 | 6 | 0.0 | 0.00 | 0.00 | 0.00 |
| 53-4-13 | 0 | 0 | 12 | 0.0 | 0.00 | 0.00 | 0.00 |
| 26-1-13 | 0 | 0 | 20 | 0.0 | 0.00 | 0.00 | 0.00 |
| 21-14-13 | 0 | 0 | 112 | 0.0 | 0.00 | 0.00 | 0.00 |
| 24-10-13 | 0 | 0 | 138 | 0.0 | 0.00 | 0.00 | 0.00 |

Eastern Division 2022 Reliability Data – Excludes storms – Sorted by Restoration

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|----------|----------------------|----------|------------------|----------|-------|-------|-------|
| 26-5-13 | 1 | 2 | 117 | 12.3 | 0.02 | 6.17 | 0.11 |
| 44-4-13 | 14 | 610 | 1,774 | 3,285.4 | 0.34 | 5.39 | 1.85 |
| 44-3-13 | 13 | 156 | 2,096 | 709.6 | 0.07 | 4.55 | 0.34 |
| 19-13-13 | 4 | 316 | 1,607 | 1,252.4 | 0.20 | 3.96 | 0.78 |
| 24-3-13 | 1 | 17 | 222 | 58.7 | 0.08 | 3.45 | 0.26 |
| 51-4-13 | 4 | 367 | 1,379 | 1,096.2 | 0.27 | 2.99 | 0.79 |
| 19-8-13 | 8 | 336 | 2,935 | 977.5 | 0.11 | 2.91 | 0.33 |
| 27-4-13 | 8 | 572 | 2,371 | 1,652.1 | 0.24 | 2.89 | 0.70 |
| 27-7-13 | 8 | 891 | 1,902 | 2,566.0 | 0.47 | 2.88 | 1.35 |
| 21-15-13 | 2 | 10 | 161 | 27.5 | 0.06 | 2.75 | 0.17 |
| 54-5-13 | 1 | 2 | 18 | 5.3 | 0.11 | 2.67 | 0.30 |
| 44-1-13 | 7 | 1,315 | 1,596 | 3,479.0 | 0.82 | 2.65 | 2.18 |
| 53-8-13 | 6 | 317 | 439 | 777.5 | 0.72 | 2.45 | 1.77 |
| 19-12-13 | 17 | 137 | 1,524 | 335.5 | 0.09 | 2.45 | 0.22 |
| 45-4-13 | 16 | 749 | 1,666 | 1,771.8 | 0.45 | 2.37 | 1.06 |
| 54-3-13 | 3 | 41 | 76 | 96.8 | 0.54 | 2.36 | 1.27 |
| 45-2-13 | 7 | 404 | 1,581 | 953.0 | 0.26 | 2.36 | 0.60 |
| 23-2-13 | 15 | 736 | 987 | 1,727.5 | 0.75 | 2.35 | 1.75 |
| 50-4-13 | 7 | 474 | 881 | 1,111.5 | 0.54 | 2.34 | 1.26 |
| 44-2-13 | 18 | 350 | 1,138 | 805.5 | 0.31 | 2.30 | 0.71 |
| 23-1-13 | 26 | 2,881 | 1,337 | 6,542.5 | 2.15 | 2.27 | 4.89 |
| 27-6-13 | 24 | 1,067 | 1,094 | 2,408.4 | 0.98 | 2.26 | 2.20 |
| 22-5-13 | 14 | 648 | 1,509 | 1,436.3 | 0.43 | 2.22 | 0.95 |
| 51-3-13 | 18 | 278 | 1,053 | 592.0 | 0.26 | 2.13 | 0.56 |
| 50-2-13 | 30 | 850 | 2,096 | 1,769.3 | 0.41 | 2.08 | 0.84 |
| 53-1-13 | 13 | 513 | 2,001 | 1,058.8 | 0.26 | 2.06 | 0.53 |
| 19-14-13 | 25 | 844 | 2,191 | 1,739.4 | 0.39 | 2.06 | 0.79 |
| 51-2-13 | 7 | 296 | 958 | 595.0 | 0.31 | 2.01 | 0.62 |
| 42-2-13 | 5 | 1,149 | 1,042 | 2,289.9 | 1.10 | 1.99 | 2.20 |
| 22-7-13 | 10 | 667 | 2,463 | 1,307.5 | 0.27 | 1.96 | 0.53 |
| 23-4-13 | 18 | 839 | 1,294 | 1,622.0 | 0.65 | 1.93 | 1.25 |
| 27-1-13 | 13 | 426 | 847 | 823.2 | 0.50 | 1.93 | 0.97 |
| 27-3-13 | 12 | 1,308 | 2,408 | 2,519.3 | 0.54 | 1.93 | 1.05 |
| 51-1-13 | 6 | 521 | 1,103 | 985.3 | 0.47 | 1.89 | 0.89 |
| 50-3-13 | 15 | 1,157 | 725 | 2,160.8 | 1.60 | 1.87 | 2.98 |
| 23-3-13 | 6 | 254 | 1,031 | 473.3 | 0.25 | 1.86 | 0.46 |
| 54-4-13 | 4 | 180 | 341 | 332.5 | 0.53 | 1.85 | 0.98 |
| 22-2-13 | 15 | 1,340 | 1,293 | 2,473.0 | 1.04 | 1.85 | 1.91 |
| 72-4-13 | 14 | 531 | 1,211 | 978.6 | 0.44 | 1.84 | 0.81 |
| 21-16-13 | 2 | 72 | 500 | 131.1 | 0.14 | 1.82 | 0.26 |
| 27-2-13 | 6 | 118 | 2,467 | 214.8 | 0.05 | 1.82 | 0.09 |
| 26-6-13 | 1 | 2 | 523 | 3.6 | 0.00 | 1.80 | 0.01 |
| 72-7-13 | 2 | 321 | 623 | 575.4 | 0.52 | 1.79 | 0.92 |
| 53-6-13 | 5 | 201 | 1,749 | 359.1 | 0.11 | 1.79 | 0.21 |

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|------------|----------------------|----------|------------------|----------|-------|-------|-------|
| 24-2-13 | 15 | 1,618 | 1,356 | 2,889.9 | 1.19 | 1.79 | 2.13 |
| 21-11-13 | 10 | 480 | 892 | 854.8 | 0.54 | 1.78 | 0.96 |
| 19-9-13 | 15 | 1,076 | 1,691 | 1,911.8 | 0.64 | 1.78 | 1.13 |
| 24-11-13 | 23 | 1,552 | 1,807 | 2,711.7 | 0.86 | 1.75 | 1.50 |
| 21-12-13 | 10 | 209 | 1,503 | 363.2 | 0.14 | 1.74 | 0.24 |
| 53-7-13 | 8 | 382 | 1,119 | 658.2 | 0.34 | 1.72 | 0.59 |
| 22-4-13 | 10 | 826 | 1,302 | 1,420.0 | 0.63 | 1.72 | 1.09 |
| 29-1-13 | 18 | 620 | 1,767 | 1,024.1 | 0.35 | 1.65 | 0.58 |
| 45-6-13 | 8 | 300 | 707 | 494.3 | 0.42 | 1.65 | 0.70 |
| 45-8-13 | 20 | 791 | 1,915 | 1,262.6 | 0.41 | 1.60 | 0.66 |
| 24-1-13 | 13 | 493 | 1,099 | 780.9 | 0.45 | 1.58 | 0.71 |
| 45-5-13 | 30 | 1,846 | 1,549 | 2,893.9 | 1.19 | 1.57 | 1.87 |
| 42-3-13 | 8 | 487 | 1,115 | 752.3 | 0.44 | 1.54 | 0.67 |
| 51-6-13 | 10 | 717 | 1,314 | 1,103.5 | 0.55 | 1.54 | 0.84 |
| 24-12-13 | 8 | 210 | 1,158 | 322.8 | 0.18 | 1.54 | 0.28 |
| 42-1-13 | 3 | 209 | 205 | 317.3 | 1.02 | 1.52 | 1.55 |
| 44-5-13 | 24 | 506 | 1,551 | 759.1 | 0.33 | 1.50 | 0.49 |
| 22-1-13 | 13 | 1,111 | 985 | 1,607.6 | 1.13 | 1.45 | 1.63 |
| 50-1-13 | 9 | 1,962 | 505 | 2,708.1 | 3.89 | 1.38 | 5.36 |
| 45-10-13 | 10 | 681 | 1,065 | 904.7 | 0.64 | 1.33 | 0.85 |
| 17-1-13 | 5 | 480 | 599 | 629.8 | 0.80 | 1.31 | 1.05 |
| 54-7-13 | 13 | 3,227 | 1,403 | 4,219.1 | 2.30 | 1.31 | 3.01 |
| 19-10-13 | 25 | 1,659 | 3,464 | 2,125.1 | 0.48 | 1.28 | 0.61 |
| 53-3-13 | 8 | 414 | 467 | 487.3 | 0.89 | 1.18 | 1.04 |
| 45-3-13 | 19 | 2,455 | 1,361 | 2,881.2 | 1.80 | 1.17 | 2.12 |
| 26-2-13 | 7 | 511 | 885 | 597.6 | 0.58 | 1.17 | 0.68 |
| 21-13-13 | 11 | 1,253 | 2,341 | 1,432.9 | 0.54 | 1.14 | 0.61 |
| 51-8-13 | 0 | 145 | 599 | 164.3 | 0.24 | 1.13 | 0.27 |
| 45-1-13 | 23 | 1,172 | 1,134 | 1,316.6 | 1.03 | 1.12 | 1.16 |
| 23-6-13 | 16 | 2,366 | 1,740 | 2,648.1 | 1.36 | 1.12 | 1.52 |
| 19-11-13 | 38 | 1,119 | 1,613 | 1,243.8 | 0.69 | 1.11 | 0.77 |
| 19-15-13 | 16 | 508 | 1,083 | 562.2 | 0.47 | 1.11 | 0.52 |
| 27-8-13 | 13 | 1,050 | 1,560 | 1,049.1 | 0.67 | 1.00 | 0.67 |
| 24-4-13 | 6 | 658 | 1,298 | 645.8 | 0.51 | 0.98 | 0.50 |
| 16M3-11-13 | 12 | 1,085 | 1,337 | 1,015.3 | 0.00 | 0.94 | 0.00 |
| 27-5-13 | 4 | 1,003 | 1,157 | 906.7 | 0.87 | 0.90 | 0.78 |
| 45-9-13 | 18 | 1,580 | 1,692 | 1,359.8 | 0.93 | 0.86 | 0.80 |
| 22-6-13 | 1 | 5 | 284 | 3.9 | 0.02 | 0.77 | 0.01 |
| 29-3-13 | 15 | 1,698 | 2,063 | 1,211.3 | 0.82 | 0.71 | 0.59 |
| 17-2-13 | 11 | 5,523 | 2,529 | 3,610.4 | 2.18 | 0.65 | 1.43 |
| 45-7-13 | 15 | 1,126 | 996 | 682.6 | 1.13 | 0.61 | 0.69 |
| 51-5-13 | 5 | 1,014 | 993 | 445.8 | 1.02 | 0.44 | 0.45 |
| 44-6-13 | 10 | 2,646 | 1,211 | 1,027.2 | 2.18 | 0.39 | 0.85 |
| 54-8-13 | 5 | 851 | 815 | 305.5 | 1.04 | 0.36 | 0.37 |
| 54-2-13 | 3 | 402 | 371 | 135.3 | 1.08 | 0.34 | 0.36 |

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|----------|----------------------|----------|------------------|----------|-------|-------|-------|
| 21-9-13 | 2 | 521 | 456 | 175.2 | 1.14 | 0.34 | 0.38 |
| 54-6-13 | 10 | 2,747 | 1,339 | 875.1 | 2.05 | 0.32 | 0.65 |
| 54-1-13 | 8 | 988 | 825 | 273.6 | 1.20 | 0.28 | 0.33 |
| 22-3-13 | 0 | 464 | 490 | 100.4 | 0.95 | 0.22 | 0.20 |
| 22-8-13 | 1 | 372 | 579 | 52.5 | 0.64 | 0.14 | 0.09 |
| 96-1-13 | 0 | 0 | 1 | 0.0 | 0.00 | 0.00 | 0.00 |
| 23-5-13 | 0 | 0 | 4 | 0.0 | 0.00 | 0.00 | 0.00 |
| 98-1-13 | 0 | 0 | 4 | 0.0 | 0.00 | 0.00 | 0.00 |
| 26-10-13 | 0 | 0 | 6 | 0.0 | 0.00 | 0.00 | 0.00 |
| 53-4-13 | 0 | 0 | 12 | 0.0 | 0.00 | 0.00 | 0.00 |
| 26-1-13 | 0 | 0 | 20 | 0.0 | 0.00 | 0.00 | 0.00 |
| 21-14-13 | 0 | 0 | 112 | 0.0 | 0.00 | 0.00 | 0.00 |
| 24-10-13 | 0 | 0 | 138 | 0.0 | 0.00 | 0.00 | 0.00 |

Eastern Division Circuit Analysis

| | | |
|-------------------|------|-----|
| Total Circuits | 102 | |
| SAIFI Goal | 0.99 | |
| Meets SAIFI Goal | 80 | 78% |
| CAIDI Goal (Hrs.) | 1.5 | |
| Meets CAIDI Goal | 42 | 41% |

Eastern Division circuits with less than 100 customers or
less than 3 interruptions in 2022

| Circuit | No. of Interruptions | Customers Served |
|----------|-------------------------|---------------------|
| 96-1-13 | 0 | 1 |
| 23-5-13 | 0 | 4 |
| 98-1-13 | 0 | 4 |
| 26-10-13 | 0 | 6 |
| 53-4-13 | 0 | 12 |
| 54-5-13 | 1 | 18 |
| 26-1-13 | 0 | 20 |
| 54-3-13 | 3 | 76 |
| | | |
| 21-14-13 | 0 | 112 |
| 24-10-13 | 0 | 138 |
| 22-3-13 | 0 | 490 |
| 51-8-13 | 0 | 599 |
| 54-5-13 | 1 | 18 |
| 26-5-13 | 1 | 117 |
| 24-3-13 | 1 | 222 |
| 22-6-13 | 1 | 284 |
| 26-6-13 | 1 | 523 |
| 22-8-13 | 1 | 579 |
| 21-15-13 | 2 | 161 |
| 21-9-13 | 2 | 456 |
| 21-16-13 | 2 | 500 |
| 72-7-13 | 2 | 623 |
| 54-3-13 | 3 | 76 |
| 42-1-13 | 3 | 205 |
| 54-2-13 | 3 | 371 |

Central Division 2022 Reliability Data – Excludes storms – Sorted by Frequency

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|----------|----------------------|----------|------------------|----------|-------|-------|-------|
| 63-2-13 | 5 | 2,077 | 933 | 4,348.0 | 2.23 | 2.09 | 4.66 |
| 61-6-13 | 5 | 1,815 | 816 | 2,601.1 | 2.22 | 1.43 | 3.19 |
| 89-10-34 | 4 | 207 | 95 | 353.1 | 2.18 | 1.71 | 3.72 |
| 68-2-13 | 1 | 36 | 17 | 176.7 | 2.12 | 4.91 | 10.39 |
| 67-1-13 | 29 | 2,110 | 1,036 | 3,891.5 | 2.04 | 1.84 | 3.76 |
| 61-8-13 | 12 | 2,321 | 1,198 | 2,248.3 | 1.94 | 0.97 | 1.88 |
| 76-4-13 | 13 | 2,336 | 1,226 | 7,178.0 | 1.91 | 3.07 | 5.85 |
| 89-2-13 | 24 | 2,101 | 1,118 | 8,316.8 | 1.88 | 3.96 | 7.44 |
| 84-1-13 | 20 | 3,984 | 2,201 | 6,628.7 | 1.81 | 1.66 | 3.01 |
| 73-6-13 | 6 | 932 | 582 | 1,599.7 | 1.60 | 1.72 | 2.75 |
| 71-7-13 | 10 | 1,444 | 922 | 1,865.8 | 1.57 | 1.29 | 2.02 |
| 71-3-13 | 30 | 3,545 | 2,399 | 5,423.6 | 1.48 | 1.53 | 2.26 |
| 84-3-13 | 16 | 2,554 | 1,868 | 3,983.8 | 1.37 | 1.56 | 2.13 |
| 61-1-13 | 11 | 2,090 | 1,542 | 2,690.1 | 1.36 | 1.29 | 1.74 |
| 61-5-13 | 7 | 532 | 412 | 746.3 | 1.29 | 1.40 | 1.81 |
| 61-3-13 | 19 | 2,789 | 2,264 | 4,121.5 | 1.23 | 1.48 | 1.82 |
| 89-1-13 | 13 | 2,083 | 1,692 | 4,429.2 | 1.23 | 2.13 | 2.62 |
| 80-5-13 | 25 | 2,274 | 1,875 | 3,074.9 | 1.21 | 1.35 | 1.64 |
| 80-3-13 | 20 | 3,452 | 3,017 | 4,237.2 | 1.14 | 1.23 | 1.40 |
| 71-2-13 | 9 | 1,615 | 1,432 | 2,604.7 | 1.13 | 1.61 | 1.82 |
| 63-7-13 | 8 | 1,671 | 1,501 | 4,323.4 | 1.11 | 2.59 | 2.88 |
| 76-2-13 | 12 | 646 | 601 | 1,729.9 | 1.07 | 2.68 | 2.88 |
| 76-3-13 | 14 | 2,301 | 2,194 | 3,380.1 | 1.05 | 1.47 | 1.54 |
| 80-2-13 | 23 | 1,664 | 1,841 | 2,081.9 | 0.90 | 1.25 | 1.13 |
| 91-4-13 | 6 | 435 | 486 | 1,306.5 | 0.90 | 3.00 | 2.69 |
| 63-9-34 | 3 | 92 | 108 | 127.4 | 0.85 | 1.38 | 1.18 |
| 80-4-13 | 5 | 487 | 589 | 421.1 | 0.83 | 0.86 | 0.71 |
| 71-1-13 | 3 | 193 | 260 | 634.4 | 0.74 | 3.29 | 2.44 |
| 13-8-13 | 9 | 402 | 548 | 711.7 | 0.73 | 1.77 | 1.30 |
| 91-3-13 | 10 | 572 | 798 | 2,069.0 | 0.72 | 3.62 | 2.59 |
| 68-4-13 | 6 | 393 | 556 | 725.2 | 0.71 | 1.85 | 1.30 |
| 13-9-13 | 18 | 1,161 | 1,801 | 1,946.5 | 0.64 | 1.68 | 1.08 |
| 63-4-13 | 11 | 554 | 992 | 724.5 | 0.56 | 1.31 | 0.73 |
| 61-9-13 | 21 | 1,008 | 1,928 | 4,662.9 | 0.52 | 4.63 | 2.42 |
| 80-1-13 | 9 | 592 | 1,252 | 1,269.9 | 0.47 | 2.15 | 1.01 |
| 61-10-13 | 11 | 544 | 1,214 | 1,162.7 | 0.45 | 2.14 | 0.96 |
| 84-2-13 | 9 | 590 | 1,327 | 1,697.6 | 0.44 | 2.88 | 1.28 |
| 73-1-13 | 3 | 500 | 1,201 | 538.8 | 0.42 | 1.08 | 0.45 |
| 63-1-13 | 7 | 296 | 718 | 596.6 | 0.41 | 2.02 | 0.83 |
| 61-2-13 | 14 | 769 | 1,982 | 1,335.5 | 0.39 | 1.74 | 0.67 |
| 76-1-13 | 19 | 710 | 1,830 | 784.6 | 0.39 | 1.11 | 0.43 |
| 63-8-13 | 13 | 891 | 2,634 | 1,850.9 | 0.34 | 2.08 | 0.70 |
| 63-6-13 | 5 | 86 | 276 | 295.0 | 0.31 | 3.43 | 1.07 |
| 71-4-13 | 3 | 86 | 342 | 752.9 | 0.25 | 8.75 | 2.20 |

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|---------|----------------------|----------|------------------|----------|-------|-------|-------|
| 61-7-13 | 13 | 535 | 2,165 | 1,580.1 | 0.25 | 2.95 | 0.73 |
| 63-3-13 | 6 | 29 | 120 | 18.0 | 0.24 | 0.62 | 0.15 |
| 61-4-13 | 9 | 340 | 1,627 | 538.8 | 0.21 | 1.58 | 0.33 |
| 91-2-13 | 0 | 2 | 18 | 22.3 | 0.11 | 11.15 | 1.24 |
| 13-3-13 | 1 | 5 | 50 | 1.3 | 0.10 | 0.25 | 0.03 |
| 89-3-13 | 5 | 39 | 397 | 57.8 | 0.10 | 1.48 | 0.15 |
| 71-8-13 | 5 | 133 | 1,522 | 403.6 | 0.09 | 3.03 | 0.27 |
| 71-5-13 | 3 | 48 | 554 | 64.0 | 0.09 | 1.33 | 0.12 |
| 71-6-13 | 0 | 0 | 5 | 0.0 | 0.00 | 0.00 | 0.00 |
| 67-2-13 | 0 | 0 | 44 | 0.0 | 0.00 | 0.00 | 0.00 |

Central Division 2022 Reliability Data – Excludes storms – Sorted by Restoration

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|----------|----------------------|----------|------------------|----------|-------|-------|-------|
| 91-2-13 | 0 | 2 | 18 | 22.3 | 0.11 | 11.15 | 1.24 |
| 71-4-13 | 3 | 86 | 342 | 752.9 | 0.25 | 8.75 | 2.20 |
| 68-2-13 | 1 | 36 | 17 | 176.7 | 2.12 | 4.91 | 10.39 |
| 61-9-13 | 21 | 1,008 | 1,928 | 4,662.9 | 0.52 | 4.63 | 2.42 |
| 89-2-13 | 24 | 2,101 | 1,118 | 8,316.8 | 1.88 | 3.96 | 7.44 |
| 91-3-13 | 10 | 572 | 798 | 2,069.0 | 0.72 | 3.62 | 2.59 |
| 63-6-13 | 5 | 86 | 276 | 295.0 | 0.31 | 3.43 | 1.07 |
| 71-1-13 | 3 | 193 | 260 | 634.4 | 0.74 | 3.29 | 2.44 |
| 76-4-13 | 13 | 2,336 | 1,226 | 7,178.0 | 1.91 | 3.07 | 5.85 |
| 71-8-13 | 5 | 133 | 1,522 | 403.6 | 0.09 | 3.03 | 0.27 |
| 91-4-13 | 6 | 435 | 486 | 1,306.5 | 0.90 | 3.00 | 2.69 |
| 61-7-13 | 13 | 535 | 2,165 | 1,580.1 | 0.25 | 2.95 | 0.73 |
| 84-2-13 | 9 | 590 | 1,327 | 1,697.6 | 0.44 | 2.88 | 1.28 |
| 76-2-13 | 12 | 646 | 601 | 1,729.9 | 1.07 | 2.68 | 2.88 |
| 63-7-13 | 8 | 1,671 | 1,501 | 4,323.4 | 1.11 | 2.59 | 2.88 |
| 80-1-13 | 9 | 592 | 1,252 | 1,269.9 | 0.47 | 2.15 | 1.01 |
| 61-10-13 | 11 | 544 | 1,214 | 1,162.7 | 0.45 | 2.14 | 0.96 |
| 89-1-13 | 13 | 2,083 | 1,692 | 4,429.2 | 1.23 | 2.13 | 2.62 |
| 63-2-13 | 5 | 2,077 | 933 | 4,348.0 | 2.23 | 2.09 | 4.66 |
| 63-8-13 | 13 | 891 | 2,634 | 1,850.9 | 0.34 | 2.08 | 0.70 |
| 63-1-13 | 7 | 296 | 718 | 596.6 | 0.41 | 2.02 | 0.83 |
| 68-4-13 | 6 | 393 | 556 | 725.2 | 0.71 | 1.85 | 1.30 |
| 67-1-13 | 29 | 2,110 | 1,036 | 3,891.5 | 2.04 | 1.84 | 3.76 |
| 13-8-13 | 9 | 402 | 548 | 711.7 | 0.73 | 1.77 | 1.30 |
| 61-2-13 | 14 | 769 | 1,982 | 1,335.5 | 0.39 | 1.74 | 0.67 |
| 73-6-13 | 6 | 932 | 582 | 1,599.7 | 1.60 | 1.72 | 2.75 |
| 89-10-34 | 4 | 207 | 95 | 353.1 | 2.18 | 1.71 | 3.72 |
| 13-9-13 | 18 | 1,161 | 1,801 | 1,946.5 | 0.64 | 1.68 | 1.08 |
| 84-1-13 | 20 | 3,984 | 2,201 | 6,628.7 | 1.81 | 1.66 | 3.01 |
| 71-2-13 | 9 | 1,615 | 1,432 | 2,604.7 | 1.13 | 1.61 | 1.82 |
| 61-4-13 | 9 | 340 | 1,627 | 538.8 | 0.21 | 1.58 | 0.33 |
| 84-3-13 | 16 | 2,554 | 1,868 | 3,983.8 | 1.37 | 1.56 | 2.13 |
| 71-3-13 | 30 | 3,545 | 2,399 | 5,423.6 | 1.48 | 1.53 | 2.26 |
| 89-3-13 | 5 | 39 | 397 | 57.8 | 0.10 | 1.48 | 0.15 |
| 61-3-13 | 19 | 2,789 | 2,264 | 4,121.5 | 1.23 | 1.48 | 1.82 |
| 76-3-13 | 14 | 2,301 | 2,194 | 3,380.1 | 1.05 | 1.47 | 1.54 |
| 61-6-13 | 5 | 1,815 | 816 | 2,601.1 | 2.22 | 1.43 | 3.19 |
| 61-5-13 | 7 | 532 | 412 | 746.3 | 1.29 | 1.40 | 1.81 |
| 63-9-34 | 3 | 92 | 108 | 127.4 | 0.85 | 1.38 | 1.18 |
| 80-5-13 | 25 | 2,274 | 1,875 | 3,074.9 | 1.21 | 1.35 | 1.64 |
| 71-5-13 | 3 | 48 | 554 | 64.0 | 0.09 | 1.33 | 0.12 |
| 63-4-13 | 11 | 554 | 992 | 724.5 | 0.56 | 1.31 | 0.73 |
| 71-7-13 | 10 | 1,444 | 922 | 1,865.8 | 1.57 | 1.29 | 2.02 |
| 61-1-13 | 11 | 2,090 | 1,542 | 2,690.1 | 1.36 | 1.29 | 1.74 |

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|---------|----------------------|----------|------------------|----------|-------|-------|-------|
| 80-2-13 | 23 | 1,664 | 1,841 | 2,081.9 | 0.90 | 1.25 | 1.13 |
| 80-3-13 | 20 | 3,452 | 3,017 | 4,237.2 | 1.14 | 1.23 | 1.40 |
| 76-1-13 | 19 | 710 | 1,830 | 784.6 | 0.39 | 1.11 | 0.43 |
| 73-1-13 | 3 | 500 | 1,201 | 538.8 | 0.42 | 1.08 | 0.45 |
| 61-8-13 | 12 | 2,321 | 1,198 | 2,248.3 | 1.94 | 0.97 | 1.88 |
| 80-4-13 | 5 | 487 | 589 | 421.1 | 0.83 | 0.86 | 0.71 |
| 63-3-13 | 6 | 29 | 120 | 18.0 | 0.24 | 0.62 | 0.15 |
| 13-3-13 | 1 | 5 | 50 | 1.3 | 0.10 | 0.25 | 0.03 |
| 71-6-13 | 0 | 0 | 5 | 0.0 | 0.00 | 0.00 | 0.00 |
| 67-2-13 | 0 | 0 | 44 | 0.0 | 0.00 | 0.00 | 0.00 |

Central Division Circuit Analysis

| | | |
|------------------|------|-----|
| Total Circuits | 54 | |
| SAIFI Goal | 1.15 | |
| Meets SAIFI Goal | 36 | 66% |
| CAIDI Goal | 1.75 | |
| Meets CAIDI Goal | 30 | 55% |

Central Division Circuits with less than 100 customers or less than 3 interruptions in 2022

| Circuit | No. of Interruptions | Customers Served |
|----------|----------------------|------------------|
| 71-6-13 | 0 | 5 |
| 68-2-13 | 1 | 17 |
| 91-2-13 | 0 | 18 |
| 67-2-13 | 0 | 44 |
| 13-3-13 | 1 | 50 |
| 89-10-34 | 4 | 95 |
| | | |
| 71-6-13 | 0 | 5 |
| 91-2-13 | 0 | 18 |
| 67-2-13 | 0 | 44 |
| 68-2-13 | 1 | 17 |
| 13-3-13 | 1 | 50 |
| 63-9-34 | 3 | 108 |
| 71-1-13 | 3 | 260 |
| 71-4-13 | 3 | 342 |
| 71-5-13 | 3 | 554 |
| 73-1-13 | 3 | 1,201 |

Western Division 2022 Reliability Data – Excludes storms – Sorted by Frequency

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|----------|----------------------|----------|------------------|----------|-------|-------|-------|
| 10-2-13 | 15 | 5,385 | 664 | 15,710.3 | 8.11 | 2.92 | 23.66 |
| 12-3-13 | 8 | 3,494 | 932 | 5,398.8 | 3.75 | 1.55 | 5.79 |
| 109-4-34 | 25 | 7,110 | 2,010 | 10,821.5 | 3.54 | 1.52 | 5.38 |
| 3-1S-34 | 3 | 1,742 | 535 | 4,639.6 | 3.26 | 2.66 | 8.67 |
| 13-2-13 | 13 | 1,655 | 522 | 5,058.2 | 3.17 | 3.06 | 9.69 |
| 7-3-13 | 14 | 716 | 230 | 1,567.8 | 3.11 | 2.19 | 6.82 |
| 9-2-48 | 4 | 825 | 274 | 1,302.2 | 3.01 | 1.58 | 4.75 |
| 2-1-13 | 18 | 1,832 | 703 | 1,574.7 | 2.61 | 0.86 | 2.24 |
| 9-1-48 | 8 | 4,653 | 1,801 | 9,972.8 | 2.58 | 2.14 | 5.54 |
| 116-2-34 | 3 | 59 | 23 | 72.6 | 2.57 | 1.23 | 3.16 |
| 5-3-34 | 21 | 3,890 | 1,535 | 9,323.2 | 2.53 | 2.40 | 6.07 |
| 102-3-13 | 16 | 1,866 | 851 | 2,060.8 | 2.19 | 1.10 | 2.42 |
| 12-1-13 | 25 | 4,555 | 2,078 | 7,964.2 | 2.19 | 1.75 | 3.83 |
| 116-1-34 | 8 | 1,612 | 758 | 2,951.2 | 2.13 | 1.83 | 3.89 |
| 102-2-13 | 10 | 2,002 | 1,043 | 2,572.9 | 1.92 | 1.29 | 2.47 |
| 7-1-13 | 12 | 1,921 | 1,033 | 3,948.4 | 1.86 | 2.06 | 3.82 |
| 102-1-13 | 7 | 1,219 | 664 | 1,884.8 | 1.84 | 1.55 | 2.84 |
| 116-8-13 | 14 | 3,053 | 1,690 | 1,900.4 | 1.81 | 0.62 | 1.12 |
| 7-2-13 | 13 | 1,964 | 1,176 | 1,945.2 | 1.67 | 0.99 | 1.65 |
| 103-2-13 | 22 | 1,901 | 1,267 | 2,159.5 | 1.50 | 1.14 | 1.70 |
| 13-7-13 | 3 | 917 | 628 | 1,620.0 | 1.46 | 1.77 | 2.58 |
| 11-4-13 | 13 | 2,443 | 1,699 | 7,501.5 | 1.44 | 3.07 | 4.42 |
| 113-8-13 | 8 | 1,459 | 1,089 | 2,960.2 | 1.34 | 2.03 | 2.72 |
| 6-4-13 | 2 | 1,090 | 1,047 | 1,346.3 | 1.04 | 1.24 | 1.29 |
| 109-2-13 | 11 | 1,553 | 1,541 | 875.6 | 1.01 | 0.56 | 0.57 |
| 3-1N-34 | 21 | 1,116 | 1,157 | 2,395.2 | 0.96 | 2.15 | 2.07 |
| 103-4-13 | 28 | 1,533 | 1,641 | 3,045.1 | 0.93 | 1.99 | 1.86 |
| 11-1-13 | 12 | 1,221 | 1,448 | 1,616.1 | 0.84 | 1.32 | 1.12 |
| 103-1-13 | 11 | 530 | 715 | 723.0 | 0.74 | 1.36 | 1.01 |
| 113-4-13 | 5 | 863 | 1,255 | 436.9 | 0.69 | 0.51 | 0.35 |
| 103-3-13 | 9 | 665 | 1,040 | 1,631.2 | 0.64 | 2.45 | 1.57 |
| 109-1-13 | 12 | 1,650 | 2,848 | 4,206.0 | 0.58 | 2.55 | 1.48 |
| 109-3-13 | 8 | 1,191 | 2,615 | 1,841.5 | 0.46 | 1.55 | 0.70 |
| 15-5-13 | 1 | 8 | 18 | 23.2 | 0.44 | 2.90 | 1.29 |
| 15-1-13 | 5 | 151 | 352 | 296.4 | 0.43 | 1.96 | 0.84 |
| 6-1-13 | 5 | 247 | 679 | 402.5 | 0.36 | 1.63 | 0.59 |
| 11-2-13 | 11 | 1,069 | 2,957 | 1,826.2 | 0.36 | 1.71 | 0.62 |
| 6-7-13 | 2 | 393 | 1,098 | 1,211.2 | 0.36 | 3.08 | 1.10 |
| 15-6-13 | 12 | 746 | 2,646 | 3,868.5 | 0.28 | 5.19 | 1.46 |
| 6-2-13 | 8 | 246 | 1,033 | 533.4 | 0.24 | 2.17 | 0.52 |
| 113-7-13 | 5 | 97 | 794 | 167.0 | 0.12 | 1.72 | 0.21 |
| 113-2-13 | 14 | 179 | 1,844 | 453.0 | 0.10 | 2.53 | 0.25 |
| 113-6-13 | 4 | 54 | 563 | 80.4 | 0.10 | 1.49 | 0.14 |
| 113-5-13 | 3 | 119 | 1,273 | 104.7 | 0.09 | 0.88 | 0.08 |

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|----------|----------------------|----------|------------------|----------|-------|-------|-------|
| 113-3-13 | 2 | 24 | 280 | 33.8 | 0.09 | 1.41 | 0.12 |
| 15-3-13 | 3 | 16 | 463 | 20.7 | 0.03 | 1.29 | 0.04 |
| 13-4-13 | 1 | 2 | 144 | 0.7 | 0.01 | 0.33 | 0.00 |
| 11-3-13 | 3 | 19 | 1,762 | 59.7 | 0.01 | 3.14 | 0.03 |
| 1-1-13 | 0 | 0 | 4 | 0.0 | 0.00 | 0.00 | 0.00 |
| 113-1-13 | 0 | 0 | 91 | 0.0 | 0.00 | 0.00 | 0.00 |
| 11-5-13 | 0 | 0 | 2 | 0.0 | 0.00 | 0.00 | 0.00 |
| 15-2-13 | 0 | 0 | 38 | 0.0 | 0.00 | 0.00 | 0.00 |
| 15-4-13 | 0 | 0 | 78 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6-8-13 | 0 | 0 | 527 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6-8-13 | 0 | 0 | 527 | 0.0 | 0.00 | 0.00 | 0.00 |

Western Division 2022 Reliability Data – Excludes storms – Sorted by Restoration

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|----------|----------------------|----------|------------------|----------|-------|-------|-------|
| 15-6-13 | 12 | 746 | 2,646 | 3,868.5 | 0.28 | 5.19 | 1.46 |
| 11-3-13 | 3 | 19 | 1,762 | 59.7 | 0.01 | 3.14 | 0.03 |
| 6-7-13 | 2 | 393 | 1,098 | 1,211.2 | 0.36 | 3.08 | 1.10 |
| 11-4-13 | 13 | 2,443 | 1,699 | 7,501.5 | 1.44 | 3.07 | 4.42 |
| 13-2-13 | 13 | 1,655 | 522 | 5,058.2 | 3.17 | 3.06 | 9.69 |
| 10-2-13 | 15 | 5,385 | 664 | 15,710.3 | 8.11 | 2.92 | 23.66 |
| 15-5-13 | 1 | 8 | 18 | 23.2 | 0.44 | 2.90 | 1.29 |
| 3-1S-34 | 3 | 1,742 | 535 | 4,639.6 | 3.26 | 2.66 | 8.67 |
| 109-1-13 | 12 | 1,650 | 2,848 | 4,206.0 | 0.58 | 2.55 | 1.48 |
| 113-2-13 | 14 | 179 | 1,844 | 453.0 | 0.10 | 2.53 | 0.25 |
| 103-3-13 | 9 | 665 | 1,040 | 1,631.2 | 0.64 | 2.45 | 1.57 |
| 5-3-34 | 21 | 3,890 | 1,535 | 9,323.2 | 2.53 | 2.40 | 6.07 |
| 7-3-13 | 14 | 716 | 230 | 1,567.8 | 3.11 | 2.19 | 6.82 |
| 6-2-13 | 8 | 246 | 1,033 | 533.4 | 0.24 | 2.17 | 0.52 |
| 3-1N-34 | 21 | 1,116 | 1,157 | 2,395.2 | 0.96 | 2.15 | 2.07 |
| 9-1-48 | 8 | 4,653 | 1,801 | 9,972.8 | 2.58 | 2.14 | 5.54 |
| 7-1-13 | 12 | 1,921 | 1,033 | 3,948.4 | 1.86 | 2.06 | 3.82 |
| 113-8-13 | 8 | 1,459 | 1,089 | 2,960.2 | 1.34 | 2.03 | 2.72 |
| 103-4-13 | 28 | 1,533 | 1,641 | 3,045.1 | 0.93 | 1.99 | 1.86 |
| 15-1-13 | 5 | 151 | 352 | 296.4 | 0.43 | 1.96 | 0.84 |
| 116-1-34 | 8 | 1,612 | 758 | 2,951.2 | 2.13 | 1.83 | 3.89 |
| 13-7-13 | 3 | 917 | 628 | 1,620.0 | 1.46 | 1.77 | 2.58 |
| 12-1-13 | 25 | 4,555 | 2,078 | 7,964.2 | 2.19 | 1.75 | 3.83 |
| 113-7-13 | 5 | 97 | 794 | 167.0 | 0.12 | 1.72 | 0.21 |
| 11-2-13 | 11 | 1,069 | 2,957 | 1,826.2 | 0.36 | 1.71 | 0.62 |
| 6-1-13 | 5 | 247 | 679 | 402.5 | 0.36 | 1.63 | 0.59 |
| 9-2-48 | 4 | 825 | 274 | 1,302.2 | 3.01 | 1.58 | 4.75 |
| 102-1-13 | 7 | 1,219 | 664 | 1,884.8 | 1.84 | 1.55 | 2.84 |
| 109-3-13 | 8 | 1,191 | 2,615 | 1,841.5 | 0.46 | 1.55 | 0.70 |
| 12-3-13 | 8 | 3,494 | 932 | 5,398.8 | 3.75 | 1.55 | 5.79 |
| 109-4-34 | 25 | 7,110 | 2,010 | 10,821.5 | 3.54 | 1.52 | 5.38 |
| 113-6-13 | 4 | 54 | 563 | 80.4 | 0.10 | 1.49 | 0.14 |
| 113-3-13 | 2 | 24 | 280 | 33.8 | 0.09 | 1.41 | 0.12 |
| 103-1-13 | 11 | 530 | 715 | 723.0 | 0.74 | 1.36 | 1.01 |
| 11-1-13 | 12 | 1,221 | 1,448 | 1,616.1 | 0.84 | 1.32 | 1.12 |
| 15-3-13 | 3 | 16 | 463 | 20.7 | 0.03 | 1.29 | 0.04 |
| 102-2-13 | 10 | 2,002 | 1,043 | 2,572.9 | 1.92 | 1.29 | 2.47 |
| 6-4-13 | 2 | 1,090 | 1,047 | 1,346.3 | 1.04 | 1.24 | 1.29 |
| 116-2-34 | 3 | 59 | 23 | 72.6 | 2.57 | 1.23 | 3.16 |
| 103-2-13 | 22 | 1,901 | 1,267 | 2,159.5 | 1.50 | 1.14 | 1.70 |
| 102-3-13 | 16 | 1,866 | 851 | 2,060.8 | 2.19 | 1.10 | 2.42 |
| 7-2-13 | 13 | 1,964 | 1,176 | 1,945.2 | 1.67 | 0.99 | 1.65 |
| 113-5-13 | 3 | 119 | 1,273 | 104.7 | 0.09 | 0.88 | 0.08 |
| 2-1-13 | 18 | 1,832 | 703 | 1,574.7 | 2.61 | 0.86 | 2.24 |

| Circuit | No. of Interruptions | Cust Aff | Customers Served | Cust Hrs | SAIFI | CAIDI | SAIDI |
|----------|----------------------|----------|------------------|----------|-------|-------|-------|
| 116-8-13 | 14 | 3,053 | 1,690 | 1,900.4 | 1.81 | 0.62 | 1.12 |
| 109-2-13 | 11 | 1,553 | 1,541 | 875.6 | 1.01 | 0.56 | 0.57 |
| 113-4-13 | 5 | 863 | 1,255 | 436.9 | 0.69 | 0.51 | 0.35 |
| 13-4-13 | 1 | 2 | 144 | 0.7 | 0.01 | 0.33 | 0.00 |
| 1-1-13 | 0 | 0 | 4 | 0.0 | 0.00 | 0.00 | 0.00 |
| 113-1-13 | 0 | 0 | 91 | 0.0 | 0.00 | 0.00 | 0.00 |
| 11-5-13 | 0 | 0 | 2 | 0.0 | 0.00 | 0.00 | 0.00 |
| 15-2-13 | 0 | 0 | 38 | 0.0 | 0.00 | 0.00 | 0.00 |
| 15-4-13 | 0 | 0 | 78 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6-8-13 | 0 | 0 | 527 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6-8-13 | 0 | 0 | 527 | 0.0 | 0.00 | 0.00 | 0.00 |

Western Division Circuit Analysis

| | | |
|------------------|------|-----|
| Total Circuits | 54 | |
| SAIFI Goal | 1.73 | |
| Meets SAIFI Goal | 36 | 67% |
| CAIDI Goal | 2.00 | |
| Meets CAIDI Goal | 36 | 67% |

Western Division Circuits with less than 100 customers or less than 3 interruptions in 2022

| Circuit | No. of Interruptions | Customers Served |
|----------|----------------------|------------------|
| 11-5-13 | 0 | 2 |
| 1-1-13 | 0 | 4 |
| 15-5-13 | 1 | 18 |
| 116-2-34 | 3 | 23 |
| 15-2-13 | 0 | 38 |
| 15-4-13 | 0 | 78 |
| 113-1-13 | 0 | 91 |
| | | |
| 11-5-13 | 0 | 2 |
| 1-1-13 | 0 | 4 |
| 15-2-13 | 0 | 38 |
| 15-4-13 | 0 | 78 |
| 113-1-13 | 0 | 91 |
| 6-8-13 | 0 | 527 |
| 6-8-13 | 0 | 527 |
| 15-5-13 | 1 | 18 |
| 13-4-13 | 1 | 144 |
| 113-3-13 | 2 | 280 |
| 6-4-13 | 2 | 1,047 |
| 6-7-13 | 2 | 1,098 |
| 116-2-34 | 3 | 23 |
| 15-3-13 | 3 | 463 |
| 3-15-34 | 3 | 535 |
| 13-7-13 | 3 | 628 |
| 113-5-13 | 3 | 1,273 |
| 11-3-13 | 3 | 1,762 |

Appendix E

2022 Storm Analysis Table

**2022 Storm Analysis
O&R – Company**

| Major Storm Exclusions – 2022 | | | | | | | | | |
|--------------------------------------|---------------|-------------------------|----------------------|---------------------------|---|------------------------------|-----------------------|--------------------------------------|--------------------------------------|
| Date | Region | Storm Conditions | Interruptions | Customers Affected | Customer Minutes of Interruption | Storm Duration (Hrs.) | 24-Hour Events | 24-Hour Customers Interrupted | Qualification |
| 7/24 - 7/25 | Western | Thunderstorm | 102 | 1,093 | 399,306 | 26 | 1 | 6 | 24 Hours |
| 12/22 - 12/24 | Central/West | Windy | 112 | 10,842 | 655,439 | 35 | 1 | 2 | 24 Hours & 10% of Operating Division |

Appendix F

2022 Service Reliability Program Expenditures

O&R Electric Service Reliability Programs (\$000's)

| | | | Budget | | | | |
|---|---------|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> |
| <u>Transmission Line Maintenance</u> | | | | | | | |
| Aerial Patrol | O&M | | 121.0 | 122.3 | 122.1 | 122.1 | 122.1 |
| Tower Inspection (TIMS) | O&M | | | | | | |
| Transmission Line R.O.W. (Vegetation) | O&M | | 2,330.0 | 2,400.0 | 2,400.0 | 2,400.0 | 2,400.0 |
| Transmission Line Maintenance (TLM) | O&M | | 115.2 | 115.0 | 115.0 | 115.0 | 115.0 |
| | | | | | | | |
| Distribution Tree Trimming | O&M | | 6,424.4 | 7,021.2 | 7,000.2 | 7,000.2 | 8,500.0 |
| Distribution Line Maintenance | O&M | | | - | | | |
| Infrared Thermal Inspection Program | O&M | | 164.5 | 174.3 | 174.3 | 174.3 | 174.3 |
| Stray Voltage Program | O&M | | <u>1,829.0</u> | <u>1,722.3</u> | <u>1,777.3</u> | <u>1,792.6</u> | <u>1,737.6</u> |
| Total O&M | | | 10,984.1 | 11,555.1 | 11,588.9 | 11,604.2 | 13,049.0 |
| | | | | | | | |
| Midpoint Recloser/Sectionalizer Program | Capital | | 5,965.2 | 6,496.50 | 8,399.50 | 8,700.00 | 8,038.0 |
| Underground Gasification/Rehab Program | Capital | | 500.0 | 284.7 | 175.0 | - | - |
| Underground Rebuild Program | Capital | | <u>1,800.0</u> | <u>1,590.0</u> | <u>1,100.1</u> | <u>1,750.0</u> | <u>1,750.0</u> |
| Total Capital | | | 8,265.1 | 8,371.2 | 9,674.6 | 10,450.0 | 9,788.0 |

O&R Electric Service Reliability Programs (\$000's)

| | | | Actuals | | | | |
|---|---------|--|----------------|-----------------|-----------------|-----------------|-----------------|
| | | | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> |
| <u>Transmission Line Maintenance</u> | | | | | | | |
| Aerial Patrol | O&M | | 81.7 | 75.1 | 80.3 | 76.5 | 95.5 |
| Tower Inspection (TIMS) | O&M | | | | | | |
| Transmission Line R.O.W. (Vegetation) | O&M | | 1,828.6 | 2,080.5 | 2,322.1 | 1,745.7 | 1,721.4 |
| Transmission Line Maintenance (TLM) | O&M | | | | | | |
| Distribution Tree Trimming | O&M | | 6,398.3 | 6,226.4 | 7,143.8 | 5,856.9 | 6,346.4 |
| Distribution Line Maintenance | O&M | | | | | | |
| Infrared Thermal Inspection Program | O&M | | 5.2 | 282.3 | (11.0) | 30.4 | 109.9 |
| Stray Voltage Program | O&M | | <u>523.8</u> | <u>1,157.6</u> | <u>1,029.0</u> | <u>1,395.4</u> | <u>1,790.9</u> |
| Total O&M | | | 8,594.4 | 9,821.9 | 10,564.2 | 9,104.9 | 10,064.1 |
| | | | | | | | |
| Midpoint Recloser/Sectionalizer Program | Capital | | 6,020.7 | 6,631.6 | 8,370.1 | 9,093.6 | 8,882.0 |
| Underground Gasification/Rehab Program | Capital | | 306.9 | 1.6 | (10.4) | - | - |
| Underground Rebuild Program | Capital | | <u>3,115.8</u> | <u>3,725.4</u> | <u>1,529.1</u> | <u>1,306.90</u> | <u>1,451.5</u> |
| Total Capital | | | 9,443.4 | 10,358.6 | 9,888.8 | 10,400.5 | 10,333.5 |

Appendix G

2022 Distribution Capital Investment

All Divisions

Project: 2022 Distribution Automation

Budget: \$8,000,000

Actual: \$8,900,000

Completion: Dec 2022

The NY Distribution Automation Program is a multi-year project focused on installing and upgrading field devices with command and control schemes, which will result in improved storm resiliency and system reliability. The installation philosophy uses a three-tiered approach:

- Circuit Optimization
 - Design an efficient system through the use of smart capacitors, phase balancing and power quality monitoring (sensors)
- Field Automation
 - Automatic fault isolation via recloser auto loop schemes which automatically reduce customer outages
- Centralized Automation Control
 - Monitoring and control from the Distribution Control Center (DCC)
 - Motor Operated Air Breaks (MOABs) strategically placed to provide 250 customer segmentation
 - Advanced control systems will allow automatic system healing (ADMS)

In 2022, the Company took advantage of an opportunity to accelerate the installation of field devices on the system. As a result, ten more MOABs were installed in 2022 than originally budgeted.

2022 Statistics:

Auto-loops - 2

Reclosers installed – 12

MOABs installed – 117

Smart CAPs – 6

Eastern Division

Project: Stony Point – Wayne Ave – 4kv conversion

Cost: \$190k (WMS#: 1909005049)

Completion: May 2022

Description:

Distribution system improvement project to complete a single phase 4kV to 13.2kV conversion on Wayne Ave in Stony Point, NY between Bulsontown Road and Crickettown Road. Project replaced existing #4 and #6 cu. primary with 1-4/0 AAC primary (approximately 2100 feet). The existing 100kva step bank is overloaded due to (4) underground subdivisions that have been constructed over the past years and it was difficult to coordinate with proper fuse protection.

Project Description:

Project replaced 2,100 feet of single-phase primary between Bulsontown Road and Crickettown Road. Project addressed aging infrastructure, improved storm resiliency, reduced line losses and improved voltage issues as a result of load operating at 4kV. The installation of an underground distribution system is not cost justified as the area is predominately overhead distribution system.

Project: Spring Valley – Decatur Ave – System Upgrade and Conversion

Cost: \$250k (WMS#: 2104001972)

Completion: August 2022

Description/Background:

As a result of a new business project located on Stephens Place, the project upgraded the conductors on Decatur Avenue and a portion of Stephens Place with three-phase primary (477aac) to serve a new three-phase customer. The project required a small 4kv conversion (Decatur and Stephens) and prepared the area for future second project (Cole Avenue and Church Street) that was also completed in 2022. The 4kV conversion, created a new three-phase distribution circuit tie. A portion of Decatur Avenue and Stephens Place were served from a three-phase step down bank (13.2kv / 4,160kV) located on Church Street (pole# 57763/40571). The new customer will be served with the three-phase 13.2kV pad mount transformer (located at riser pole#57659/40604), fed from Decatur Avenue. In total the Decatur Avenue and Stephens Place project benefits 114 customers. The project addressed aging infrastructure.

Project Description:

The scope of the project was to upgrade single-phase primary with three-phase primary (477aac) along Decatur Avenue and Stephens Place, and complete a small 4kV conversion. The project required the installation of a new three-phase mainline (477AAC) armless construction (approx. 1,700 feet) with 4/0 triplex to serve the secondary distribution and system neutral. The project provided the capacity needed for future load growth.

Project Alternatives

Hendrix construction was not required, as there is minimal vegetation in the area and would provide little benefit to the overall construction and reliability. Undergrounding the project was not considered as the area is predominately an overhead distribution system.

Justification

Notes:

1. Replace non-standard poles, deteriorating poles and/or those deemed necessary to minimum clearance for new three-phase main-line construction.
2. Replace any substandard pole mounted transformers.
3. Replace secondary distribution (#2cu, #4cu, #6cu., etc.) with 4/0 triplex.

Project: Spring Valley – Church Street Conversion and new system tie

Cost: \$550k (WMS#: 2005007206)

Completion: October 2022

Description/Background:

The project completed a 4kV conversion, created a new distribution circuit tie, and transfer load from circuit 19-11-13 to circuit 19-15-13. This is the second of three capital projects located in Spring Valley NY. Circuit 19-11-13 was served from a three-phase step bank, however the neighborhood has been growing with high-density housing currently under construction that would have resulted in overload conditions both on the step bank (3-167kva) and replaced primary conductors (#6cu). The project installed new mainline (477AAC) construction creating a new system tie between Church Street (Circuit 19-11-13) and Decatur Drive (Circuit 19-15-13), the 1 MW of load was transferred from 19-11-13 to the 19-15-13. The project provides the capacity needed for future load growth, supplied by the new converted area to 13.2kV, also assist with phase balancing, increased restoration and eliminated step down transformer losses. This project provides the capacity needed for future load growth.

Project Description:

The project is a 4kV conversion, created a new distribution circuit tie, and transfer load from circuit 19-11-13 to circuit 19-15-13. The three-phase step bank (3-167kva) is located on Church Street (pole# 57763/40571) and served customers on North Cole Ave, Collins Avenue, Stephens Place, and Church Street. The project installed a new three-phase mainline (477AAC) construction (approx. 1,500 feet) and created new 13.2kV distribution tie between Church Street (circuit 19-11-13) and Decatur Drive (circuit 19-15-13), between pole# 57681/40608 and pole# 57701/40574. One MW load was transferred from 19-11-13 to the 19-15-13. The project installed one MOAB (P#57763/40571) and provided the capacity needed for future load growth, converting the area to 13.2kV, assist with phase balancing, increase restoration and eliminate step down transformer losses.

Project Alternatives

Hendrix construction was not required, as there is minimal vegetation in the area and would provide little benefit to the overall construction and reliability. Undergrounding the project was not considered as the area is predominately an overhead distribution system.

Justification

Notes:

4. Replace non-standard poles, deteriorating poles and/or those deemed necessary to minimum clearance for new three-phase main-line construction.
5. Replace any substandard pole mounted transformers.
6. Replace open wire secondary distribution (#2cu, #4cu, #6cu.) with 4/0 triplex.

Project: Stony Point – E. Main Street – Step Bank relocation – BA Mar Trailer Park (150-unit complex)

Cost: \$200k (WMS#: 2108003239)

Completion: December 2022

Description/Background:

The project relocated a 1500kva step bank (13/2kV/4.160kV) located on E Main Street (pole# 59822/44748) to a new pole location on the Grassy Point side of the bridge. Relocation of the step bank converted overhead conductors (approximately 2,000 feet) from 4.16kV to 13.2kV, the conversion project provides three-phase power to serve the new Ba Mar trailer park that was destroyed during Hurricane Sandy (2012). That storm that affected over 150 homes and required tenants and homeowners to be relocated. The Town of Stony Point granted permission to the developer to redevelop the mobile trailer park site with a new development plan. Project added three-phase underground distribution (13.2kV) to serve the homes with multiple single phase pad mount transformers to balance the loading between phases. The park was served by a 13.2Kv overhead single-phase conductor located on Beach Road. The new trailer park redevelopment has increased system load with approximately 40 amps. The previous step-down bank was operating at 75% of its capacity, with the new increase load this would have create an overload condition at the previous installation, as a result of the completed project overload conditions were mitigated.

Project Description:

The project installed a new 1500kva step bank on E Main Street (near Munn Street) and completed a 4kV/13.2kV conversion for approximately 2,000 feet. Project did not require reconductoring as the existing 3/0 Spacer construction has capacity to serve the load. The project required four-hour conversion outage.

Project Alternatives

No alternatives identified as the area along E Main Street is presently served predominantly overhead distribution, a 4kV/13.2kV conversion is all is that needed. Undergrounding the project was not considered as the area is predominately an overhead distribution system.

Justification

Notes:

1. Replace non-standard poles, deteriorating poles and/or those deemed necessary to minimum clearance for new three-phase main-line construction.
2. Replace any substandard pole mounted transformers, verify all pole mounted transformers are dual rated transformers for conversion.

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Central Division

Project: Warwick – Circuit Reliability 80-3-13

Cost: \$250K

Completion: August 2022

Background:

Circuit 80-3-13 out of the Wisner substation serves just under 3,000 customers and is a heavily loaded circuit that peaks around 400 amps. The 80-3-13 is the second longest circuit in the company (9.5 miles), serves the largest number of customers, and consistently is the worst performing circuit in the Central Division. In both 2018 and 2019, outages on this circuit have accounted for over 7,000 customer hours. Over the past three- years, the Company has installed over 15 SCADA control devices on the 80-3-13 with an addition automation equipment (15 MOABS, 1 Recloser) have been installed in YR2021/YR2022 on Ball Road, South Extension Road and Upper Wisner Road and other locations along the circuit.

The tail end of the circuit has been reconstructed (rebuilt) over the past fifteen years, with both Armless and Hendrix construction. However, the first half of the circuit (<3.5 miles) before the mid-point recloser (pole# 49512/45555) this portion of the circuit had much older construction (equipment) and has been breaking down and failing resulting in large scale outages. Some of the equipment include old cut outs, cross arms, tie wires failures have been upgraded. However, the Storm Harden Project did not solve all the issues on the circuit. As a result, a detail circuit patrol was completed, and identified other issues with the circuit. The circuit reliability project resolved some of those reliability concerns, by replacing old poles, old equipment and improving fuse enhancements.

Description:

This overhead circuit reliability project is designed to improve reliability to the 80-3-13 circuit. Distribution Engineering has field reviewed the circuit to identify components associated with the pole line that repaired or replaced defective equipment. In addition, Line Technical Services (LTS) has identified multiple defective poles (WMS -16 Defective Poles) and has issued and design those pole replacements which were done as part of this capital project. Those defective poles were repaired or replaced as designed. This Circuit Reliability concentrated on other equipment not previously identified.

This Circuit Reliability project include:

- 1) (16) defective poles – some of the poles were rotted & split on top;
- 2) Enhance lightning arrestor protection – added additional protection on Rt17A & Upper Wisner;
- 3) 30-40 guys with no strain insulators;
- 4) 3 broken cross arms (rotted out – pin insulator barely hanging on);
- 5) Replace 17 cross arms with epoxy arms (armless);
- 6) Fuse enhancements to protect mainline (6 locations);
- 7) Relocate fusing to the buck pole – reduce exposure on mainline;

- 8) Missing squirrel guards on transformers;
- 9) Multiple transformers with 600volt tap wire between L/A, and transformer bushing, these taps should be 5kV rated and not 600volt rated;
- 10) Porcelain bells; and
- 11) Replace very old cut outs.

Justification

This is Circuit Reliability project designed to reduce exposure and improve reliability to a consistently poor circuit performance.

Alternatives Considered

No alternatives have been identified to replace defective equipment and is the only solution.

Project: Tuxedo Park – Crow’s Nest Road (Hendrix)

Cost: \$400k

Completion: November 2022

Background:

The purpose of this project was to address poor system reliability of the local distribution system, address aging infrastructure, increase capacity and Storm Harden the distribution system. This project upgrade conductor cable on Crow’s Nest Road from East Lake to the top of the hill and will end at the walking path (pole# 53239/43124).

Description:

The project replaced conductor cable of three-phase distribution along Crow’s Nest Road with 477aac three-phase overhead Hendrix construction. The project started at pole# 53312/43226 and ended at pole# 53239/43124, in total 1,700 of Hendrix was installed. The area continues to operate at 2.4kV system voltage.

Justification:

The purpose of this project was to address poor system reliability of the local distribution system, address aging infrastructure, increase conductor capacity and Storm Harden the distribution system. The area consistently experiences multiple outages each year as a result of vegetation contact or equipment failure. The upgrade with Hendrix conductor, storm harden the system and allows for a future 13.2kV conversion.

Alternatives Considered:

Underground distribution on Crow’s Nest Road was not considered, as the area is predominately an overhead distribution system, and due to three-phase secondary banks serving local customers. Armless or cross arm construction was also not considered due to the heavy vegetation in the area, Hendrix Spacer Cable construction was the preferred designed.

Project Notes:

1. All single phase CSP 25 or 50kva transformers associated with the Hendrix conductor upgrade project were replaced with dual rated transformers (2400/4160 x 7620/13200). Class and Stock #'s (25kva – C&S# 1010137, 50kva - C&S # 1010139), to prepare for future conversion.
2. All Delta Banks were converted to Closed Delta Banks (120/240 red-leg banks), replaced with (3) 50kva conventional transformers (dual rated (2400/4160 x 7620/13200), install C/O's. Follow

Construction Std # C-03-196. All red-leg banks shall include grounding C/O. All closed transformer banks 50kva or less shall be fused for 20k.

3. Replaced non-standard poles, deteriorating poles and/or those that were deemed necessary to meet minimum clearances for a three-phase 13.2kV Hendrix construction.
4. Replaced sections of open wire secondary with 4/0 triplex/quadplex.
5. Installed Spacer ratchet type brackets (C&S# 0070099) – 46kv size. Brackets were installed with 25 foot spacing.

Project: Tuxedo Park – Tower Hill Road Conductor Upgrade (Hendrix)
Cost: \$700k
Completion: December 2022

Background:

The project addressed poor system reliability of the local distribution system, addressed aging infrastructure, increase capacity and Storm Harden the distribution system. The project replaced conductor on East Lake and Stable Road with Hendrix three-phase distribution, (approximately 8,500 feet in length, 1.7 miles) and ended on Crow’s Nest Road.

The project converted Tower Hill Road to 13.2kV, with the installation of Hendrix construction between Continental and East Lake Road within the Village. The project is important as it allows East Lake Road to be convert to 13.2kV, which will eventually provide a second 13.2kV source served from Blue Lake Substation (68-4-13) to back up Tuxedo Park and a portion of Sterling Forest circuit 67-1-13 within the Village of Tuxedo Park

Description:

The project replaced three-phase distribution along Tower Hill Road between Continental and East Lake Road in the Village of Tuxedo Park with 477aac three-phase overhead Hendrix construction. The project converted Tower Hill from 2.4kV to 13.2kV, in total 4,500 feet of three-phase Hendrix was installed. The project included the installation of three (3) MOAB’s to assist with isolation/restoration and future 4kV conversion of East Lake Road.

The project began at previous existing step-down bank (P# 53685/43969) located on Tower Hill Road (near Continental Road) and ended on East Lake Road (Pole# 53640/43775), approximately 4,500 feet. Area was converted to 13.2kV. A new temporary “no tie” will be created near the intersection of Tower Hill Road and East Lake and on Clubhouse Road and Circuit Road.

Justification:

The project addressed poor system reliability of the local distribution system, addressed aging infrastructure, increased conductor capacity and Storm Harden the distribution system and created a future distribution tie with Blue Lake circuit 68-4-13. The area consistently experienced multiple outages each year because of vegetation contact or equipment failure. The upgrade with Hendrix conductor, storm harden the system and allowed for a future 13.2kV conversion (East Lake).

Alternatives Considered:

Underground distribution on Tower Hill was not considered, as the area is predominately an overhead distribution system. Armless or cross arm construction was also not considered due to the heavy vegetation in the area, Hendrix Spacer Cable construction was the preferred designed.

Project Notes:

1. All single phase CSP 25 or 50kva transformers associated with the Hendrix upgrade project were replaced 13.2kV transformers to convert area to 13.2kV. Dual rated transformers (2400/4160 x 7620/13200) were used to assist with conversion. Class and Stock #'s (25kva – C&S# 1010137, 50kva - C&S # 1010139).
2. Replaced non-standard poles, deteriorating poles and/or those deemed necessary to meet minimum clearances for a three-phase 13.2kV Hendrix construction.
3. Replaced sections of open wire secondary with 4/0 triplex/quadplex. All 2/0 triplex found pole to pole remained in service, just transferred.
4. Installed Spacer ratchet type brackets (C&S# 0070099) – 46kv size. Brackets were installed every 25-30 feet per Hendrix.

Project: Central Valley – Route 32 – Hendrix Project

Cost: \$600k

Completion: December 2022

Background:

The distribution Storm Hardening project replaced existing open wire (477aac) primary with Hendrix construction (main-line) on Route 32 between Rose Lawn Road and Hunter Street in Central Valley and Highland Mills, New York.

Circuit 71-3-13 consistently ranks in the top five worst performers circuits in the Central Division, during YR2017 and YR2018 circuit was ranked first as the worst performing circuit. The circuit consistently ranks poorly due to vegetation contacts and multiple equipment failures (i.e., cross arm failures) on Route 32 in Central Valley and Highland Mills. Review of those events identified this portion of Route 32 between Roselawn and Hunter Street consistently has the worst performing segments associated with the circuit. Followed by Dunderburg Road which ranks second as the worst performing segment.

Distribution Planning identified two Storm Hardening capital projects to resolve issues associated with the circuit, improve circuit reliability, and enhance existing distribution automation. The first project resolved an on-going reliability issue as result of heavy tree canopy located and equipment failures on Route 32 (between Rose Lawn and Hunter Place). The project replaced existing open wire primary conductor with a new Hendrix (447) design to improve resiliency and reliability to the area. The project area serves Woodbury Police, Ambulance Corps, Woodbury Commons and Woodbury Community Center. In addition, Route 32 is a major thoroughfare between Woodbury Commons (thruway entrance) and Cornwall NY, any event on this stretch of Route 32 such as pole damage, equipment failures or tree contacts creates severe traffic issues between both towns, as there are few options to detour traffic.

The second overhead Storm Hardening project replaced existing open wire primary with Hendrix construction on Dunderberg Road (between the Central Valley High School and Route 32). Both Storm Hardening projects and the enhancements of distribution automation will improve the overall reliability of the circuit.

Description:

The project required the installation of 3,200 feet of new overhead Hendrix Spacer Cable construction on Route 32 between Rose Lawn Road and Hinter Place in Highland Mills. The project addressed aging infrastructure, vegetation issues, and improved storm resiliency. An installation of an underground distribution system cost was not justified as the area is an overhead distribution system with multiple system ties.

Justification:

With the completion of the project and the future Dunderberg Road capital project will improve overall reliability to circuit 71-3-13 that currently serves 2300 customers. The project will be critical during storm conditions as multiple paths of overhead system can be damaged at a time. With both projects completed (Route 32 and Dunderberg Road) will resolve most of the problems on the distribution circuit. Over the years, we have made several improvements to the feeder such as distribution automation, targeted vegetation management and danger tree removal however these two capital projects will have the greatest impact to the reliability of the circuit.

Project notes:

1. Replace existing three-phase primary with 477aac Hendrix with 052 AWA spacer cable messenger between pole# 55730/48672 and end at pole #55650/48975 (3,200 feet).
2. Existing system neutral (1AAC477) will be transferred to the new poles, including secondary distribution.
3. Existing Nova recloser pole# 55701/48763 will be transferred to new Hendrix conductor, replace pole with a 55foot pole to allow easier method (and clearance to install messenger) for the installation of the Hendrix conductor.
4. The 600KVAR capacitor bank on pole# 55651/48949 will be replaced with a SCADA control cap bank (600kvar). Setting: 120v, bandwidth of 5 volts, time delay of 60 seconds.
5. Disconnects on pole# 55730/48632 will be replaced on the YR2020 distribution Automation plan, which should be completed before this project begins.
6. No changes to existing fusing for side spurs along Route 32.

Western Division

Project: Middletown – Silver Lake Scotchtown Road Tie

Cost: \$ 450K

Completion: June 2022

Background:

The Silver Lake Substation is comprised of two 69kV -13.2kV, 25MVA (Bk: 2113) & 35MVA (Bk: 1113) transformers that serve seven (7) distribution circuits with one spare breaker (113-3-2b) position. Circuit 113-2-13 (Bk: 1113) serves 1877 customers and peaks at 4.7 MW's which includes Pratt and Whitney facility located on Tower Road in Middletown. Circuit 113-5-13 (Bk: 2113) serves 1490 customers and peaks at 4.9 MW and serves a few shopping centers and senior citizen complex and Circuit 113-4-13 (Bk: 1113) serves 1500 customers and peaks at 4 MW.

Note: When the substation underground circuit exit is ready to be built for the future 113-3-13 circuit, swap the 113-7-13 and the future 113-3-13 circuits. This will transfer 3MW from Bank 2113 to Bank 1113, which helps defer upgrades to Bank 2113, and allows for better area coverage of distribution circuits.

Description:

The project was the second part of a two-part overhead project designed to create new distribution circuit ties utilizing the spare station breaker (113-3-2B) by upgrading existing single-phase primary to three-phase 477 AAC mainline primary along Silver Lakes Scotchtown Road (approximately 2450 feet). The project began at pole 48362/53146 near the intersection of Silver Lake Scotchtown Road & Maple Lane and continue along Silver Lake Scotchtown Road to junction pole 48490/53349 at the intersection of Bert Crawford Road & Silver Lake Scotchtown Road. The project included the installation of three MOABs, two MOABs along Silver Lake Scotchtown Road & one MOAB along Bert Crawford Road to enhance the overall switching capability. The project converted single phase to three phase main line distribution primary, created a new distribution tie with the circuit 113-2-13 and assist with phase balancing. A new underground station exit was constructed on Rt. 211 to place load on the new circuit from the new station exit. The feeder serves 787 customers to be expanded after completion of other future projects to 1,100 customers. Recently Pratt and Whitney inquired about future potential load requirements that will be needed if the Corporation consolidates some of their facilities (outside our territory) to the Middletown facility. The project provides a mainline path to relieve some of the future loading on circuits 113-2-13 and 113-5-13; enhances our overall switching capabilities between the distribution circuits fed from Silver Lake substation banks and with Washington Heights substation.

Justification

The project upgraded the existing single-phase overhead primary circuit along Silver Lake Scotchtown Rd. to 13.2kV, 477 AAC, mainline construction. The project provides a mainline path to relieve some of the future loading on circuits 113-2-13 and 113-5-13; enhance our overall switching capabilities between the distribution circuits fed from Silver Lake substation banks and with Washington Heights substation. The project allows for 3MW of load to be transferred from Silver Lake Bank 2113 (25MVA rating) to Bank 1113 (35MVA rating), helping to free up capacity and defer future upgrades to Bank 2113.

Alternatives Considered

Open wire horizontal construction versus a Hendrix Spacer Cable system was initially considered. However, due to the lack of tree coverage in the area, and extra expense of a Hendrix Spacer Cable system, the horizontal wire construction was the preferred design. Underground construction was not considered as the area is predominately overhead distribution.

Project Notes

1. The project upgraded the existing single-phase overhead primary circuit along Silver Lake Scotchtown Rd. to 13.2kV, 477 AAC, mainline construction.
2. Replaced all substandard pole mounted distribution transformers as needed.
3. Replaced any non-standard poles, deteriorating poles and/or those deemed necessary to meet minimum clearances for three-phase 13.2kV construction.
4. Replaced any sections of open wire secondary with 4/0 triplex as required.
5. Installed lightning arrestors per engineering standards.

Project: Mongaup – Plank Road & Sackett Lake
Cost: \$775k
Completion: November 2022

Background:

The Mongaup Substation is a single bank station with one (1) – 7.5MVA, 69/13.2kV transformer that supplies one 13.2kV distribution circuit 2-1-13. Circuit 2-1-13 serves approximately 823 customers in Towns of Forestburgh, Lumberland, and Deerpark. This area is at the edge of the service territory with approximately 117 customers supplied on a radial from a fused single-phase 13.2/2.4kV, 250kva delta step bank. The outage history on the Circuit 2-1-13 was reviewed from 2019-2020 and was deemed to reroute upgrade the area conductor cable.

Project Description:

The area is served on a radial from a 250kVA, 13.2/2.4kV overhead step transformer. The first 6,500 feet was constructed with #4Cu. & #6Cu., 2.4kV single-phase overhead delta primary. At the intersection of North Road & Sackett Lake Road (County RT 44) the primary splits in three directions to supply fused spurs on Plank Road and north/south on Sackett Lake Road.

An alternate path was created along Plank Road / Sackett Lake Road from County Route 43 to the North Road intersection which was clear from a tree/clearance perspective and is approximately the same length as the current path along North Road. Construction of a new three phase spacer-cable system along Plank Road significantly improved reliability to the area and provides backup to North Road and associated side spurs.

Project Details

1. Installation of approximately 6,300 feet of three-phase Hendrix on Plank Road between Cty Rt. 43 & North Road (Pole# 38306/56728 & Pole# 38174/57249).
2. Benefits – fill in the gap – reduced vegetation removal – road is approximately 35 feet wide with extended wide shoulders
3. Installation of 3 Phase splits load between phases 1, 2, & 3, so that future outages will be minimized
4. Installation of (3) new Step banks
Plank Road - provides capacity to serve our customers that are presently served from NYSEG and future load growth. Currently NYSEG serves 23 O&R customers on a portion of Plank Road and Rod and Gun Club Road. With the completed project, we now have the capacity to serve our customers fed from NYSEG. We improved customer service with our customers as they must rely on NYSEG to repair their own feed before we can restore our customers. This is especially a concern during storm events and restoration.
5. North Road – split load on North Road so that it minimizes future outages and provides back up for existing step bank
6. Sackett Lake – serves 75 customers – including customer in question

7. Project improved fuse coordination and low voltage conditions.

Project Notes:

- 1) Replaced all poles with Class 2 – 50 ft. poles, including new pole installations.
- 2) Replaced all defective transformers as needed
- 3) LTS reviewed tree trimming requirements with vegetation department.

Project: Glen Spey – Mohican Lake (Part 4)

Cost: \$1.505M

Completion: December 2022

Background:

Rio circuit 3-1N-34 is fed from a 5MVA bank that serves 1,200 customers in Glen Spey / Lumberland, NY. The Mohican Lake area is a community in Lumberland consisting of 547 customers (46% of the circuit) supplied by a radial feed served from (3) 500kVA, 13.2kV/4.8kV step transformers located on County Rt 42 in Glen Spey, NY. Due to the length (8.3 miles) and vegetation exposure, the Glen Spey / Mohican Lake area has historically experienced poor system reliability and has no outside distribution ties with other substations - which currently fails the Distribution Planning criteria. The 3-1N-35 circuit consistently ranks in the top ten worst performing circuits in the Western Division per the Western Division Worst Performing Circuit analysis, averaging about (2) interruptions per year - totaling over 6,200 customer hours per year. During severe weather events, these customers may have extended outages that may last a few days.

The project completed the final Storm Hardening circuit tie between Rio (3-1N-34) and Mongaup (2-1-13) Substations and converted the area to 13.2kV along Mohican Lake Road and County Rt. 42 in Glen Spey, NY. The project improved system reliability and provides an alternate source (Mongaup Circuit 2-1-13) during a system contingency to restore 550 customers in Lumberland and Glen Spey during an event. This project required the installation of 2.4 miles (13,500 feet) of 477AAC Hendrix spacer conductor between Leers Road and County Route 31 in Glen Spey. The upgraded distribution pole line was relocated closer to the road to eliminate off-road construction, improve fuse protection, and upgraded aging infrastructure. The project involved the installation of additional distribution automation (i.e. MOABs) that assist with restoration.

Description:

The overhead distribution project was the final part of a four-part project designed to construct a new three-phase mainline distribution circuit tie between Rio 3-1N-34 and Mongaup 2-1-13. The four-part project ultimately upgraded the Rio 3-1N-34 mainline circuit to 13.2kV and provides for alternate sources for backup in the Mohican Lake area in order to improve reliability. The project included the addition of switching devices to assist with isolating faults, reducing customer counts during outages, and assist with restoration.

The project began on Mohican Lake Road (pole 36761/55091) and continued along Mohican Lake Road and down to High Road (CR-41) at junction pole 36815/53905. The scope of the fourth project upgraded this circuit section by replacing the existing three-phase primary along Mohican Lake Road and High Road (CR-41) with approximately 13,300 feet of three-phase, 13.2kV, (3) – 477 AAC Hendrix Spacer Cable along with (1) – 052 AWA messenger cable. The project required the addition of MOAB switches along Mohican Lake Rd and Leers Road to allow the circuit to be put in the final configuration to provide switching

capabilities to isolate faults and minimize customer outages, and to keep the new mainline within the designed criteria.

Justification

The 3-1N-34 has been consistently in the top-ten worst performing circuits in the Western Division - due to the absence of any outside distribution circuit ties. The project constructed a new three-phase mainline distribution circuit to provide backup, in the event of a contingency on Rio circuit 3-1N-34, to roughly 547 customers (46% of 3-1N-34) which were fed from a radial in the Mohican Lake area in Lumberland, NY. The project will address aging infrastructure and required the replacement of substandard poles. The project also included the addition of multiple distribution automation devices that will assist with restoration and fault isolation.

Alternatives Considered

Armless wire construction versus a Hendrix Spacer Cable system was initially considered. However, due to the extensive tree coverage along Forestburgh Road (CR-43), and the extra expense of clearing vegetation to install an armless wire system, the Hendrix Spacer Cable system was the preferred design. Underground construction was not considered due to the area being primarily overhead distribution and additional cost.

Project Notes

1. This overhead distribution project was the fourth and final part of a four-part project, designed to construct a new three-phase mainline distribution circuit path along Forestburgh Road (CR-43) from the Swinging Bridge Access Road to High Road (CR-41) in Glen Spey, NY.
2. The project was constructed within/near a protected wildlife management, and flood plain area. Consult with the New York State Department of Environmental Conservation was done for proper permitting approval before starting any work.
3. LTS consulted with Vegetation to determine the tree trimming costs for this project.
4. Bond the Hendrix messenger cable to a down lead connected to a driven ground rod at every utility pole along Leers Road, Mohican Lake Road, & High Road (CR-41) for this project.
5. Installed Spacer Brackets every 25 feet.
6. Verified that all mainline pole mounted transformers between poles 36761/55091 & 36746/55126 along Mohican Lake Road and High Road are dual rated. If not, replaced transformers and converted area from 4.8kV to 13.2kV.
7. GOAB at pole 37179/55526 is the new “normally open” tie point between 2-1-13 and 3-1N-34. This tie is to be a “break and make” due to phase angle issues.
8. Separate work orders were issued to SCADA commission devices (MOABS):

- a. 36746/55126
 - b. 37025/54418
 - c. 36824/53957
9. Upgraded all open wire secondary with 4/0 triplex
10. Replaced non-standard poles, deteriorating poles and/or those deemed necessary to meet minimum clearances for distribution standards.