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E-FILE

February 1, 2024

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

**Re: PPL Electric Utilities Corporation
Quarterly Reliability Report for the
Period Ended December 31, 2023 M-2023-3039027 ydd/sec 2/1/2024
Docket No. M-2016-2522508**

Dear Ms. Chiavetta:

Enclosed for filing on behalf of PPL Electric Utilities Corporation ("PPL Electric") is the **NON-CONFIDENTIAL** version of PPL Electric's Quarterly Reliability Report for the Period Ended December 31, 2023. The report is being filed pursuant to 52 Pa. Code § 57.195(d).

Pursuant to 52 Pa. Code § 1.11, the enclosed document is to be deemed filed on February 1, 2024, which is the date it was filed electronically with the Commission's E-Filing System.

A proprietary and confidential version of this report has also been filed with the Commission on this date via overnight delivery.

If you have any questions regarding this document, please call me at (610) 774-5696.

Respectfully submitted,

A handwritten signature in blue ink that reads "Kimberly A. Klock". The signature is fluid and cursive, with the first name being the most prominent.

Kimberly A. Klock

Enclosures

cc via email: Patrick Cicero, Esquire
NazAarah Sabree

Mr. Daniel Searfoorce
Mr. Harry Bidelspach



PPL Electric Utilities Corporation
Quarterly Reliability Report
to the
Pennsylvania Public Utility Commission

January 2023

- 1) A description of each major event that occurred during the preceding quarter, including the time and duration of the event, the number of customers affected, the cause of the event and any modified procedures adopted in order to avoid or minimize the impact of similar events in the future.***

No major events occurred during the fourth quarter of 2023.

2) **Rolling 12-month reliability index values (SAIFI, CAIDI, SAIDI, and if available, MAIFI) for the EDC's service territory for the preceding quarter. The report shall include the data used in calculating the indices, namely the average number of customers served, the number of sustained customer interruptions, the number of customers affected, and the customer minutes of interruption. If MAIFI values are provided, the report shall also include the number of customer momentary interruptions.**

The following table provides data for the 12 months ending December 31, 2023.

| | | |
|--|----------|-------------|
| SAIFI | BM 0.98 | 0.78 |
| | STD 1.18 | 0.78 |
| CAIDI (Benchmark = 145; Rolling 12-month Std. = 174) | BM 145 | 189 |
| | STD 174 | 189 |
| SAIDI (Benchmark = 142; Rolling 12-month Std. = 205) | BM 142 | 147 |
| | STD 205 | 147 |
| MAIFI ¹ | | 0.32 |
| Average Number of Customers Served ² | | 1,456,541 |
| Number of Sustained Customer Interruptions (Trouble Cases) | | 23,083 |
| Number of Customers Affected | | 1,134,940 |
| Customer Minutes of Interruptions (CMI) | | 214,267,891 |
| Number of Customer Momentary Interruptions | | 470,327 |

¹ Issues with the interface between PPL Electric's Meter software and Outage Management System have caused MAIFI to be understated. This issue does not affect SAIFI, SAIDI, or CAIDI. Beginning in 2024, MAIFI results will be obtained directly from meter data.

² PPL Electric calculates the annual indices using customers served at the end of period. This is consistent with the method used to calculate PPL Electric's benchmarks.

During the fourth quarter, there were no (0) PUC major events, two (2) PUC reportable events, and four (4) other storms that required the opening of one or more area emergency centers to manage restoration efforts.

For the rolling four quarters ending on 12/31/2023, storm impacts remain highly elevated by historical standards. PPL Electric saw a record forty-five storms (PUC and non-PUC) during 2023.

PPL Electric’s fourth-quarter reliability performance saw SAIFI within the PUC standard and benchmark, and 10% improved versus third quarter results. SAIDI was within the PUC standard but 4% above the benchmark, and 14% improved from third-quarter results. CAIDI was above both the standard and the benchmark, but 4% improved from third-quarter results. Elevated SAIDI and CAIDI values are largely attributable to ongoing elevated storm frequency. Smart Grid technology and automation benefit SAIFI and SAIDI but have a negative impact on CAIDI. Additionally, the third quarter of 2023 was the stormiest on record with nineteen total storms, of which six were PUC reportable.

Because weather has a significant impact on volatility in reliability metrics, PPL Electric’s IEEE Metrics are shown below. The IEEE 1366 standard is a widely used methodology that allows for weather normalized performance evaluation that better reflects system performance during non-major storm events. The table below lists PPL Electric’s IEEE performance metrics compared to the 2022 performance quartiles for large utilities nationally, as issued by the IEEE annual reliability survey. This survey comprises some 100 utilities serving 85 million customers across the country.

| | IEEE CAIDI | IEEE SAIFI | IEEE SAIDI |
|------------------------------|------------|------------|------------|
| 2019 | 113 | 0.66 | 74 |
| 2020 | 100 | 0.69 | 69 |
| 2021 | 124 | 0.68 | 85 |
| 2022 | 121 | 0.74 | 89 |
| 2023 | 148 | 0.62 | 91 |
| IEEE First Quartile Ceiling | 101 | 0.82 | 85 |
| IEEE Second Quartile Ceiling | 120 | 1.02 | 115 |

PPL Electric has been a top quartile IEEE SAIFI performer since 2014.

3) Rolling 12-month reliability index values (SAIFI, CAIDI, SAIDI, CMI, and if available, MAIFI) and other pertinent information such as customers served, number of interruptions, customer minutes interrupted, number of lockouts, and so forth, for the worst performing 5% of the circuits in the system. An explanation of how the EDC defines its worst performing circuits shall be included.

The following table provides PUC reliability values for the worst performing 5% of the circuits in the system for the 12 months ended at the current quarter. An explanation of how PPL Electric defines its worst performing circuits is included in Appendix A.

| WPC Rank | Feeder ID | SAIDI | SAIFI | CAIDI | Customers | Cases of Trouble | Customer Minutes Interrupted (CMI) | Customer Interruptions (CI) |
|----------|-----------|---------------------|--------|-------|-----------|------------------|------------------------------------|-----------------------------|
| 1 | 22803 | 628 | 1.80 | 349.6 | 2,463 | 18 | 1,545,543 | 4,425 |
| 2 | 20401 | 873 | 2.93 | 298.2 | 1,308 | 71 | 1,141,620 | 3,829 |
| 3 | 46802 | 791 | 2.01 | 393.9 | 1,949 | 81 | 1,542,511 | 3,914 |
| 4 | 25801 | 459 | 3.02 | 151.8 | 1,845 | 83 | 846,075 | 5,580 |
| 5 | 11506 | 15,768 ³ | 103.71 | 152.0 | 31 | 53 | 488,796 | 3,215 |
| 6 | 10601 | 526 | 2.53 | 207.5 | 1,700 | 80 | 893,590 | 4,309 |
| 7 | 13901 | 443 | 3.72 | 119.1 | 1,453 | 19 | 644,067 | 5,403 |
| 8 | 21601 | 393 | 3.25 | 120.9 | 1,718 | 45 | 674,968 | 5,585 |
| 9 | 26401 | 379 | 2.63 | 144.1 | 2,244 | 86 | 850,333 | 5,901 |
| 10 | 16802 | 801 | 3.27 | 244.7 | 884 | 47 | 707,719 | 2,894 |
| 11 | 10904 | 483 | 1.92 | 251.9 | 1,745 | 118 | 842,356 | 3,346 |
| 12 | 25402 | 383 | 2.46 | 155.9 | 1,803 | 68 | 690,691 | 4,429 |
| 13 | 13501 | 521 | 1.99 | 261.2 | 1,552 | 36 | 808,778 | 3,096 |
| 14 | 23401 | 358 | 2.54 | 140.8 | 1,743 | 65 | 624,836 | 4,433 |
| 15 | 40101 | 369 | 1.91 | 193.4 | 2,166 | 50 | 798,277 | 4,133 |
| 16 | 25501 | 380 | 2.15 | 176.4 | 1,708 | 70 | 649,198 | 3,680 |
| 17 | 67702 | 597 | 3.34 | 179.0 | 758 | 40 | 452,795 | 2,528 |
| 18 | 46302 | 556 | 2.33 | 238.1 | 1,108 | 67 | 615,964 | 2,587 |
| 19 | 65904 | 329 | 2.67 | 123.1 | 1,438 | 16 | 473,049 | 3,842 |
| 20 | 14403 | 290 | 2.12 | 136.7 | 2,594 | 82 | 752,245 | 5,503 |
| 21 | 58402 | 358 | 1.84 | 194.9 | 1,774 | 55 | 634,600 | 3,258 |
| 22 | 15001 | 408 | 1.94 | 209.8 | 1,399 | 59 | 570,411 | 2,721 |
| 23 | 54101 | 274 | 3.48 | 78.8 | 1,706 | 52 | 466,884 | 5,933 |
| 24 | 43101 | 733 | 2.95 | 248.6 | 760 | 29 | 556,881 | 2,241 |

³ Prior to be reconfigured, the 11506 carried over 1,300 customers. The current metric values are calculated using the current customer count of 31. Under the prior count the values would be SAIDI 373.4, SAIFI 2.5, CAIDI 152.

| WPC Rank | Feeder ID | SAIDI | SAIFI | CAIDI | Customers | Cases of Trouble | Customer Minutes Interrupted (CMI) | Customer Interruptions (CI) |
|----------|-----------|-------|-------|-------|-----------|------------------|------------------------------------|-----------------------------|
| 25 | 28303 | 342 | 1.52 | 225.2 | 1,954 | 88 | 667,667 | 2,967 |
| 26 | 42902 | 389 | 2.17 | 179.3 | 1,212 | 38 | 471,362 | 2,630 |
| 27 | 24602 | 410 | 1.78 | 230.8 | 1,432 | 67 | 587,120 | 2,544 |
| 28 | 43401 | 410 | 2.48 | 165.6 | 995 | 54 | 408,056 | 2,464 |
| 29 | 49804 | 307 | 2.39 | 128.5 | 1,332 | 70 | 409,453 | 3,183 |
| 30 | 15701 | 276 | 3.44 | 80.2 | 1,187 | 43 | 327,450 | 4,084 |
| 31 | 45402 | 308 | 1.86 | 165.4 | 1,645 | 75 | 507,119 | 3,064 |
| 32 | 24101 | 261 | 2.09 | 125.0 | 1,997 | 32 | 520,367 | 4,169 |
| 33 | 11103 | 620 | 1.31 | 473.4 | 1,586 | 10 | 984,070 | 2,077 |
| 34 | 27101 | 271 | 1.90 | 143.0 | 1,848 | 82 | 500,502 | 3,502 |
| 35 | 47002 | 251 | 2.16 | 116.0 | 2,019 | 59 | 506,151 | 4,367 |
| 36 | 53901 | 447 | 1.63 | 274.3 | 1,332 | 38 | 595,483 | 2,171 |
| 37 | 42401 | 422 | 3.06 | 137.9 | 714 | 39 | 301,261 | 2,185 |
| 38 | 28102 | 512 | 1.81 | 282.7 | 1,081 | 53 | 553,499 | 1,958 |
| 39 | 15603 | 324 | 2.14 | 151.5 | 1,128 | 26 | 365,079 | 2,412 |
| 40 | 18603 | 410 | 1.90 | 216.3 | 1,112 | 34 | 456,184 | 2,108 |
| 41 | 17902 | 335 | 2.33 | 143.9 | 978 | 49 | 327,454 | 2,277 |
| 42 | 13601 | 481 | 1.71 | 280.9 | 1,133 | 48 | 544,570 | 1,940 |
| 43 | 20403 | 278 | 1.35 | 205.7 | 1,962 | 98 | 545,822 | 2,652 |
| 44 | 14008 | 587 | 2.30 | 255.2 | 802 | 46 | 470,424 | 1,845 |
| 45 | 23102 | 337 | 1.23 | 274.5 | 1,818 | 35 | 612,014 | 2,232 |
| 46 | 45002 | 253 | 2.10 | 120.2 | 1,460 | 27 | 369,940 | 3,072 |
| 47 | 50105 | 257 | 1.83 | 140.3 | 1,596 | 12 | 410,010 | 2,923 |
| 48 | 23902 | 229 | 2.36 | 97.1 | 1,497 | 46 | 342,538 | 3,531 |
| 49 | 41902 | 317 | 1.61 | 197.5 | 1,394 | 70 | 441,269 | 2,238 |
| 50 | 46004 | 232 | 1.57 | 147.5 | 2,072 | 42 | 480,192 | 3,259 |
| 51 | 15604 | 291 | 1.73 | 168.0 | 1,389 | 61 | 403,632 | 2,406 |
| 52 | 46301 | 300 | 2.15 | 139.8 | 1,066 | 66 | 319,888 | 2,288 |
| 53 | 64904 | 192 | 2.06 | 93.1 | 3,211 | 11 | 616,450 | 6,624 |
| 54 | 40901 | 322 | 1.93 | 166.6 | 1,145 | 55 | 369,051 | 2,213 |
| 55 | 41802 | 995 | 3.32 | 299.9 | 519 | 35 | 516,509 | 1,722 |
| 56 | 56504 | 267 | 1.23 | 216.7 | 1,981 | 67 | 528,804 | 2,441 |
| 57 | 45602 | 197 | 1.76 | 112.2 | 2,454 | 52 | 482,255 | 4,309 |
| 58 | 27102 | 295 | 2.47 | 119.2 | 897 | 47 | 264,944 | 2,220 |
| 59 | 12402 | 422 | 3.28 | 128.6 | 560 | 37 | 236,358 | 1,838 |
| 60 | 41701 | 325 | 2.10 | 154.7 | 977 | 44 | 317,084 | 2,053 |
| 61 | 45001 | 215 | 1.73 | 124.0 | 1,803 | 52 | 388,025 | 3,126 |
| 62 | 46702 | 372 | 1.49 | 249.5 | 1,252 | 55 | 465,739 | 1,867 |
| 63 | 67803 | 238 | 1.30 | 182.8 | 2,002 | 26 | 477,213 | 2,606 |

Specific remedial efforts taken and planned for the worst performing 5% of the circuits identified in paragraph (3).

01 Circuit 22803 -- HAUTO 28-03

Performance Analysis

The HAUTO 28-03 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On August 18, 2023, a tree contacted an overhead switch causing a recloser to trip to lockout. This outage affected 1,682 customers for up to 229 minutes resulting in 378,747 CMI.

On September 23, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,143 customers for up to 507 minutes resulting in 1,074,664 CMI.

In total, the HAUTO 28-03 circuit had 18 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: equipment failure (9); tree related (6); other (2); animal contacts (1).

Remedial Actions

- In 2023, an additional sectionalizing device was installed.
- In 2024, an additional recloser will be installed.
- In 2024, a new tie line will be evaluated.
- In 2024, reconductoring a section of this circuit will be evaluated.
- In 2024, proactive fault sensors will be installed.
- In 2025, full circuit trimming will be performed.

02 Circuit 20401 -- ASHFIELD 04-01

Performance Analysis

The ASHFIELD 04-01 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On January 25, 2023, during a period of ice/sleet/snow, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,252 customers for up to 550 minutes resulting in 366,783 CMI.

On June 2, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,247 customers for up to 484 minutes resulting in 485,378 CMI.

In total, the ASHFIELD 04-01 circuit had 71 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (37); equipment failure (16); animal contacts (9); nothing found (6); vehicles (3).

Remedial Actions

- In 2023, remotely operable tie devices were commissioned.
- In 2023, a remotely operable device was reprogrammed.
- In 2024, single-phase fuse coordination will be optimized.
- In 2024, two additional Smart Grid devices will be installed.
- In 2024, ten additional fuses will be installed.
- In 2024, proactive fault sensors will be installed.
- In 2025, a single-phase tie to the ASHFIELD 04-03 circuit will be re-evaluated.

03 Circuit 46802 -- HEPBURN 68-02

Performance Analysis

The HEPBURN 68-02 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On August 30, 2023, during a period of strong wind, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,958 customers for up to 1,162 minutes resulting in 1,202,488 CMI.

In total, the HEPBURN 68-02 circuit had 81 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (48); equipment failure (24); animal contacts (5); nothing found (2); vehicles (2).

Remedial Actions

- In 2024, additional animal guarding will be installed.
- In 2024, additional fusing will be installed.
- In 2024, a section of single-phase in a difficult-to-access location will be relocated.
- In 2024, a single-phase recloser will be replaced.

04 Circuit 25801 -- SULLIVAN TRAIL 58-01

Performance Analysis

The SULLIVAN TRAIL 58-01 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On June 7, 2023, an unidentified issue occurred with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,733 customers for up to 162 minutes resulting in 18,757 CMI.

In total, the SULLIVAN TRAIL 58-01 circuit had 83 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (49); animal contacts (19); equipment failure (12); nothing found (2); other (1).

Remedial Actions

- In 2023, settings on an existing recloser were optimized.
- In 2023, additional fusing was installed.
- In 2023, two additional single-phase reclosers were installed.
- In 2024, additional hazard tree removal will be evaluated.
- In 2024, a single-phase tap will be evaluated for additional protective devices.
- In 2024, a section of single-phase will be extended.
- In 2024, two sections of single-phase conductor in a heavily wooded area will be relocated.
- In 2024, single-phase ties will be evaluated.
- In 2024, proactive fault sensors will be installed.
- In 2024, a section of this circuit will be transferred to a neighboring circuit.

05 Circuit 11506 -- FREEMANSBURG 15-06

Performance Analysis

The FREEMANSBURG 15-06 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On April 9, 2023, an unidentified issue occurred causing a circuit breaker to trip to lockout. This outage affected 1,306 customers for up to 66 minutes resulting in 85,108 CMI.

On June 27, 2023, during a period of strong wind, a tree contacted an overhead conductor causing an interruption. This outage affected 414 customers for up to 600 minutes resulting in 134,980 CMI.

In total, the FREEMANSBURG 15-06 circuit had 53 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (37); equipment failure (7); animal contacts (4); nothing found (2); contact or dig in (1); other (1); vehicles (1).

Remedial Actions

- In 2023, two additional single-phase reclosers were installed.
- In 2023, additional fusing was installed.
- In 2024, additional fusing will be installed.
- In 2024, additional single-phase reclosers will be installed.
- In 2024, an additional tie will be evaluated.
- In 2025, a new substation will be constructed.

06 Circuit 10601 -- BLOOMING GLEN 06-01

Performance Analysis

The BLOOMING GLEN 06-01 circuit experienced four outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On July 9, 2023, during a period of heavy rain, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 767 customers for up to 408 minutes resulting in 145,465 CMI.

On July 10, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a load break fuse to operate. This outage affected 407 customers for up to 1,420 minutes resulting in 120,656 CMI.

On November 17, 2023, an equipment failure occurred on an overhead splice causing a circuit breaker to trip to lockout. This outage affected 1,104 customers for up to 178 minutes resulting in 62,858 CMI.

On November 18, 2023, a tree contacted a pole or pole arm causing a recloser to trip to lockout. This outage affected 364 customers for up to 867 minutes resulting in 136,932 CMI.

In total, the BLOOMING GLEN 06-01 circuit had 80 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (62); animal contacts (9); equipment failure (7); nothing found (2).

Remedial Actions

- In 2023, an additional single-phase recloser was installed.
- In 2023, additional animal guarding was installed.
- In 2023, additional fusing was installed.
- In 2023, proactive fault sensors were installed.
- In 2024, an additional Smart Grid device will be evaluated for this circuit.
- In 2024, additional single-phase reclosers will be installed.
- In 2024, additional fusing will be installed.

07 Circuit 13901 -- SEIDERSVILLE 39-01

Performance Analysis

The SEIDERSVILLE 39-01 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On August 13, 2023, an equipment failure occurred on an overhead switch causing a circuit breaker to trip to lockout. This outage affected 3,501 customers for up to 388 minutes resulting in 414,462 CMI.

On August 21, 2023, an equipment failure occurred on an overhead splice causing a circuit breaker to trip to lockout. This outage affected 1,777 customers for up to 155 minutes resulting in 198,277 CMI.

In total, the SEIDERSVILLE 39-01 circuit had 19 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: equipment failure (11); tree related (5); nothing found (2); animal contacts (1).

Remedial Actions

- In 2023, full circuit trimming was performed.
- In 2023, a section of conductor was undergrounded.
- In 2023, a neighboring circuit was replaced reducing tie exposure on this circuit.
- In 2023, a section of this circuit in a heavily wooded area was removed and the customers re-sourced.
- In 2023 several poles and cross-arms were replaced.
- In 2024, load balancing will be performed on this circuit.

08 Circuit 21601 -- EYNON 16-01

Performance Analysis

The EYNON 16-01 circuit experienced three outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 4, 2023, during a period of strong wind, an unidentified issue occurred with a pole or pole arm causing an interruption. This outage affected 328 customers for up to 555 minutes resulting in 148,839 CMI.

On July 10, 2023, during a period of strong wind, a tree contacted an overhead conductor causing an interruption. This outage affected 1,537 customers for up to 225 minutes resulting in 95,740 CMI.

On July 13, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 1,536 customers for up to 369 minutes resulting in 71,248 CMI.

In total, the EYNON 16-01 circuit had 45 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (22); equipment failure (12); animal contacts (6); nothing found (2); vehicles (2); other (1).

Remedial Actions

- In 2023, proactive sensors were installed on this circuit.
- In 2023, additional animal guarding was installed.
- In 2023, numerous porcelain cutouts were replaced.
- In 2024, additional fusing will be installed.

- In 2024, an additional single-phase recloser will be installed.
- In 2024, a Smart Grid device will be upgraded.
- In 2024, a section of this circuit will be relocated.
- In 2024, a new tie line for this circuit will be evaluated.
- In 2024, an additional Smart Grid device will be installed.
- In 2024, a section of difficult-to-access conductor will be relocated.

09 Circuit 26401 -- INDIAN ORCHARD 64-01

Performance Analysis

The INDIAN ORCHARD 64-01 circuit experienced four outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 11, 2023, during a period of ice/sleet/snow, an improper operation occurred causing a recloser to trip to lockout. This outage affected 1,468 customers for up to 312 minutes resulting in 185,184 CMI.

On May 19, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 617 customers for up to 195 minutes resulting in 83,952 CMI.

On September 16, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 616 customers for up to 141 minutes resulting in 86,732 CMI.

On September 24, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a load break disconnect switch to be interrupted. This outage affected 722 customers for up to 345 minutes resulting in 37,250 CMI.

In total, the INDIAN ORCHARD 64-01 circuit had 86 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (42); animal contacts (25); equipment failure (12); nothing found (6); Improper Design (1).

Remedial Actions

- In 2023, a section of difficult-to-access conductor was relocated.
- In 2024, additional animal guarding will be installed.
- In 2024, four single-phase reclosers will be installed.
- In 2024, proactive fault sensors will be installed.
- In 2024, a section of difficult-to-access conductor will be relocated.
- In 2025, full circuit trimming will be performed.

10 Circuit 16802 -- WAGNERS 68-02

Performance Analysis

The WAGNERS 68-02 circuit experienced three outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On February 24, 2023, a tree contacted a pole or pole arm causing a recloser to trip to lockout. This outage affected 300 customers for up to 467 minutes resulting in 139,932 CMI.

On March 14, 2023, during a period of strong wind, a tree contacted a pole or pole arm causing a recloser to trip to lockout. This outage affected 300 customers for up to 791 minutes resulting in 137,885 CMI.

On October 18, 2023, a vehicle contact caused an interruption. This outage affected 308 customers for up to 346 minutes resulting in 106,497 CMI.

In total, the WAGNERS 68-02 circuit had 47 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (33); animal contacts (7); equipment failure (3); vehicles (3); nothing found (1).

Remedial Actions

- In 2023, an existing recloser was replaced.
- In 2023, several poles were replaced or reinforced.
- In 2024, additional animal guarding will be installed.
- In 2024, an existing recloser will be replaced.
- In 2024, an additional sectionalizing device will be installed.

11 Circuit 10904 -- COOPERSBURG 09-04

Performance Analysis

The COOPERSBURG 09-04 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On July 29, 2023, an equipment failure occurred on a pole or pole arm causing a recloser to trip to lockout. This outage affected 510 customers for up to 324 minutes resulting in 22,648 CMI.

In total, the COOPERSBURG 09-04 circuit had 118 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (93); equipment failure (11); animal contacts (8); vehicles (3); other (2); nothing found (1).

Remedial Actions

- In 2023, additional fusing was installed.
- In 2023, a cross-arm was replaced.
- In 2023, proactive fault sensors were installed.
- In 2024, several poles will be replaced.
- In 2024, an additional Smart Grid device will be installed.
- In 2024, two existing reclosers will be replaced.
- In 2024, additional animal guarding will be installed.
- In 2024, additional single-phase reclosers will be evaluated.
- In 2024, additional fusing will be installed.
- In 2025, the substation will be relocated outside of the flood zone.

12 Circuit 25402 -- LAKE HARMONY 54-02

Performance Analysis

The LAKE HARMONY 54-02 circuit experienced six outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 5, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 507 customers for up to 169 minutes resulting in 85,485 CMI.

On March 19, 2023, during a period of strong wind, an equipment failure occurred on a pole or pole arm causing a recloser to trip to lockout. This outage affected 535 customers for up to 6 minutes resulting in 3,097 CMI.

On May 24, 2023, a vehicle contact caused a recloser to trip to lockout. This outage affected 885 customers for up to 65 minutes resulting in 48,577 CMI.

On November 15, 2023, an animal interfered with an overhead conductor causing a recloser to trip to lockout. This outage affected 504 customers for up to 123 minutes resulting in 61,992 CMI.

On December 3, 2023, during a period of heavy rain, a vehicle contacted a pole causing a recloser to trip to lockout. This outage affected 354 customers for up to 314 minutes resulting in 110,957 CMI.

On December 3, 2023, during a period of heavy rain, an equipment failure occurred on an overhead transformer causing a recloser to trip to lockout. This outage affected 511 customers for up to 438 minutes resulting in 169,222 CMI.

In total, the LAKE HARMONY 54-02 circuit had 68 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (38); animal contacts (14); equipment failure (8); vehicles (6); nothing found (2).

Remedial Actions

- In 2024, additional fusing will be installed.
- In 2023, a section of conductor will be evaluated for relocation.
- In 2024, additional Smart Grid devices will be evaluated.
- In 2024, proactive fault sensors will be installed on this circuit.
- In 2026, full circuit trimming will be performed.

13 Circuit 13501 -- MC MICHAELS 35-01

Performance Analysis

The MC MICHAELS 35-01 circuit experienced four outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On April 30, 2023, during a period of heavy rain, a tree contacted an overhead conductor causing an interruption. This outage affected 1,046 customers for up to 168 minutes resulting in 117,712 CMI.

On September 8, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 131 customers for up to 830 minutes resulting in 108,602 CMI.

On November 25, 2023, an equipment failure occurred on an overhead splice causing an interruption. This outage affected 718 customers for up to 280 minutes resulting in 68,542 CMI.

On December 30, 2023, a vehicle contacted a pole arm causing a recloser to trip to lockout. This outage affected 573 customers for up to 1,023 minutes resulting in 450,204 CMI.

In total, the MC MICHAELS 35-01 circuit had 36 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (12); animal contacts (11); equipment failure (9); vehicles (2); contact or dig in (1); other (1).

Remedial Actions

- In 2024, full circuit trimming will be performed.
- In 2024, additional animal guarding will be installed.
- In 2024, an additional Smart Grid device will be installed.
- In 2024, a section of this circuit will be undergrounded.
- In 2024, numerous porcelain cutouts will be replaced.
- In 2024, proactive fault sensors will be installed on this circuit.

14 Circuit 23401 -- HONESDALE 34-01

Performance Analysis

The HONESDALE 34-01 circuit experienced four outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On June 21, 2023, a vehicle contacted a pole causing a circuit breaker to trip to lockout. This outage affected 497 customers for up to 459 minutes resulting in 111,130 CMI.

On October 10, 2023, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 504 customers for up to 92 minutes resulting in 46,368 CMI.

On December 11, 2023, an unidentified issue occurred with an overhead conductor causing a recloser to trip to lockout. This outage affected 848 customers for up to 467 minutes resulting in 119,107 CMI.

On December 18, 2023, during a period of heavy rain, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 681 customers for up to 213 minutes resulting in 67,236 CMI.

In total, the HONESDALE 34-01 circuit had 65 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (30); animal contacts (13); equipment failure (11); nothing found (5); vehicles (5); other (1).

Remedial Actions

- In 2023, several poles were replaced.
- In 2023, a section of underground conductor was replaced.
- In 2023, additional animal guarding was installed.
- In 2024, numerous porcelain cutouts will be replaced.
- In 2024, additional fusing will be installed.
- In 2024, a single-phase recloser will be installed.
- In 2024, proactive fault sensors will be installed on this circuit.

15 Circuit 40101 -- HUNTER 01-01

Performance Analysis

The HUNTER 01-01 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 17, 2023, a vehicle contacted a pole causing a recloser to trip to lockout. This outage affected 683 customers for up to 94 minutes resulting in 64,133 CMI.

On December 19, 2023, a vehicle contacted a pole causing a circuit breaker to trip to lockout. This outage affected 925 customers for up to 448 minutes resulting in 380,719 CMI.

In total, the HUNTER 01-01 circuit had 50 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (27); equipment failure (9); animal contacts (7); nothing found (4); vehicles (3).

Remedial Actions

- In 2023, a pole was replaced.
- In 2024, a single-phase recloser will be installed.
- In 2024, a section of this circuit will be storm hardened.
- In 2024, proactive fault sensors will be installed on this circuit.
- In 2024, additional fusing will be installed.
- In 2024, several cross-arms will be replaced.
- In 2025, full circuit trimming will be performed.
- In 2026, a new tie line will be constructed.

16 Circuit 25501 -- MADISONVILLE 55-01

Performance Analysis

The MADISONVILLE 55-01 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On January 29, 2023, a vehicle contacted a pole causing an interruption. This outage affected 820 customers for up to 408 minutes resulting in 129,664 CMI.

In total, the MADISONVILLE 55-01 circuit had 70 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (44); equipment failure (11); animal contacts (9); nothing found (4); other (1); vehicles (1).

Remedial Actions

- In 2023, a section of underground conductor was replaced.
- In 2024, additional animal guarding will be installed.
- In 2024, proactive fault sensors will be installed on this circuit.
- In 2024, a section of difficult-to-access conductor will be relocated.

17 Circuit 67702 -- WERNERSVILLE 77-02

Performance Analysis

The WERNERSVILLE 77-02 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On January 3, 2023, during a period of heavy rain, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 514 customers for up to 279 minutes resulting in 23,812 CMI.

On July 7, 2023, a tree contacted an overhead conductor causing an interruption. This outage affected 513 customers for up to 368 minutes resulting in 109,720 CMI.

In total, the WERNERSVILLE 77-02 circuit had 40 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (30); equipment failure (5); animal contacts (4); vehicles (1).

Remedial Actions

- In 2023, an additional fuse was installed.
- In 2024, additional fusing will be installed.
- In 2024, several sections of single-phase will be evaluated for reconductoring.
- In 2026, full circuit trimming will be performed.

18 Circuit 46302 -- ROHRSBURG 63-02

Performance Analysis

The ROHRSBURG 63-02 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On November 22, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 247 customers for up to 1,534 minutes resulting in 248,289 CMI.

In total, the ROHRSBURG 63-02 circuit had 67 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (44); animal contacts (11); equipment failure (6); nothing found (5); other (1).

Remedial Actions

- In 2024, additional fusing will be installed.
- In 2024, a section of difficult-to-access conductor will be relocated.
- In 2024, proactive fault sensors will be installed on this circuit.
- In 2025, full circuit trimming will be performed.

19 Circuit 65904 -- SOUTH AKRON 59-04

Performance Analysis

The SOUTH AKRON 59-04 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On July 28, 2023, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 3,389 customers for up to 416 minutes resulting in 454,557 CMI.

In total, the SOUTH AKRON 59-04 circuit had 16 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: equipment failure (9); animal contacts (5); nothing found (1); tree related (1).

Remedial Actions

- In 2023, this circuit was infrared scanned for vulnerabilities when carrying higher load. Several remediations were performed including replacing crimps.
- In 2023, additional fusing was installed.
- In 2024, additional animal guarding will be installed.

20 Circuit 14403 -- SO SLATINGTON 44-03

Performance Analysis

The SO SLATINGTON 44-03 circuit experienced three outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On April 28, 2023, during a period of heavy rain, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 1,629 customers for up to 584 minutes resulting in 28,751 CMI.

On August 16, 2023, an equipment failure occurred on an overhead splice causing an interruption. This outage affected 555 customers for up to 134 minutes resulting in 35,820 CMI.

On August 18, 2023, during a period of heavy rain, an equipment failure occurred on an overhead conductor causing an interruption. This outage affected 908 customers for up to 399 minutes resulting in 270,781 CMI.

In total, the SO SLATINGTON 44-03 circuit had 82 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (44); equipment failure (18); animal contacts (12); other (3); vehicles (3); nothing found (2).

Remedial Actions

- In 2023, multiple poles were replaced.
- In 2023, a cross-arm and insulator were replaced.
- In 2023, proactive fault sensors were installed.
- In 2023, an existing recloser was replaced with a Smart Grid device.
- In 2023, several dissimilar metal connections were remediated.
- In 2024, two additional Smart Grid devices will be installed.
- In 2024, a section of single-phase will be re-sourced.
- In 2024, several sections of conductor will be replaced.
- In 2024, protection settings for this circuit will be reviewed.

21 Circuit 58402 -- MOUNT ROCK 84-02

Performance Analysis

The MOUNT ROCK 84-02 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On January 13, 2023, an equipment failure occurred on an overhead transformer causing a circuit breaker to trip to lockout. This outage affected 1,125 customers for up to 208 minutes resulting in 217,943 CMI.

On June 23, 2023, during a period of heavy rain, a vehicle contacted a pole causing a recloser to trip to lockout. This outage affected 383 customers for up to 392 minutes resulting in 128,880 CMI.

In total, the MOUNT ROCK 84-02 circuit had 55 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (20); equipment failure (13); animal contacts (11); nothing found (4); other (3); vehicles (3); contact or dig in (1).

Remedial Actions

- In 2023, additional fusing was installed.
- In 2024 full circuit trimming will be performed.
- In 2024, a new tie line will be installed.
- In 2024, a three-phase tie line will be evaluated for remote operability.
- In 2024, six additional fuses will be installed.

22 Circuit 15001 -- BLUE MOUNTAIN 50-01

Performance Analysis

The BLUE MOUNTAIN 50-01 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On June 28, 2023, during a period of strong wind, a tree contacted a pole or pole arm causing a recloser to trip to lockout. This outage affected 654 customers for up to 403 minutes resulting in 187,976 CMI.

In total, the BLUE MOUNTAIN 50-01 circuit had 59 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (32); animal contacts (13); equipment failure (6); nothing found (6); vehicles (2).

Remedial Actions

- In 2023, several poles were replaced.
- In 2023, additional fusing will be installed.
- In 2024, coordination settings will be optimized.
- In 2024, a section of single-phase conductor will be reconfigured.
- In 2024, several single-phase reclosers will be replaced.
- In 2024, an additional single-phase recloser will be installed.
- In 2024, a Proactive Circuit Analysis will be performed.
- In 2024, a section of this circuit will be reconductored.
- In 2024, additional storm hardening will be evaluated.

23 Circuit 54101 – S SHERMANSDALE 41-01

Performance Analysis

The S SHERMANSDALE 41-01 circuit experienced three outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 27, 2023, an unidentified issue occurred with an overhead transmission component causing a recloser to trip to lockout. This outage affected 1,701 customers for up to 12 minutes resulting in 19,255 CMI.

On July 18, 2023, an equipment failure occurred on an overhead switch causing a recloser to trip to lockout. This outage affected 265 customers for up to 466 minutes resulting in 113,786 CMI.

On August 22, 2023, a tree contacted an overhead conductor causing an interruption. This outage affected 1,702 customers for up to 214 minutes resulting in 117,351 CMI.

In total, the S SHERMANSDALE 41-01 circuit had 52 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (24); equipment failure (14); animal contacts (11); nothing found (2); other (1).

Remedial Actions

- In 2023, proactive fault sensors were installed on this circuit.
- In 2024, five additional fuses will be installed.
- In 2024, converting an existing recloser to remote operability will be evaluated.
- In 2024, full circuit trimming will be performed.

24 Circuit 43101 – SOUTH MILTON 31-01

Performance Analysis

The SOUTH MILTON 31-01 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 29, 2023, during a period of strong wind, an equipment failure occurred on a pole or pole arm causing a sectionalizing device to be interrupted. This outage affected 733 customers for up to 154 minutes resulting in 112,874 CMI.

On September 24, 2023, during a period of heavy rain, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 333 customers for up to 675 minutes resulting in 224,521 CMI.

In total, the SOUTH MILTON 31-01 circuit had 29 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (14); animal contacts (6); vehicles (4); equipment failure (3); nothing found (2).

Remedial Actions

- In 2023, several cross-arms were replaced.
- In 2024, proactive fault sensors will be installed.
- In 2025, an additional single-phase sectionalizing device will be installed.
- In 2025, a Smart Grid device will be relocated.
- In 2025, a section of single-phase will be re-sourced.
- In 2025, a proactive Circuit Review will be performed.
- In 2026, full circuit trimming will be performed.

25 Circuit 28303 – NEWFOUNDLAND 28-03

Performance Analysis

The NEWFOUNDLAND 83-03 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On December 11, 2023, during a period of ice/sleet/snow, an unidentified issue occurred with an overhead switch causing a recloser to trip to lockout. This outage affected 1,484 customers for up to 613 minutes resulting in 324,680 CMI.

In total, the NEWFOUNDLAND 83-03 circuit had 88 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (50); animal contacts (23); equipment failure (11); nothing found (3); other (1).

Remedial Actions

- In 2024, full circuit trimming will be performed.
- In 2024, a single-phase recloser will be installed.
- In 2024, proactive fault sensors will be installed.
- In 2024, additional animal guarding will be installed.

26 Circuit 42902 – MIDDLEBURG 29-02

Performance Analysis

The MIDDLEBURG 29-02 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On February 9, 2023, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,200 customers for up to 20 minutes resulting in 23,016 CMI.

On July 17, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 689 customers for up to 648 minutes resulting in 338,531 CMI.

In total, the MIDDLEBURG 29-02 circuit had 38 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (28); equipment failure (5); animal contacts (3); nothing found (1); vehicles (1).

Remedial Actions

- In 2023, a switch was upgraded to remote operability.
- In 2023, additional fusing was installed.
- In 2024, additional fusing will be installed.
- In 2024, a section of this circuit will be re-sourced.
- In 2024, a Proactive Circuit Analysis will be performed.
- In 2025, tree-shielding cable will be installed.
- In 2026, full circuit trimming will be performed.

27 Circuit 24602 – VARDEN 46-02

Performance Analysis

The VARDEN 46-02 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On July 30, 2023, during a period of strong wind, a tree contacted an overhead conductor causing an interruption. This outage affected 351 customers for up to 608 minutes resulting in 213,337 CMI.

In total, the VARDEN 46-02 circuit had 67 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (46); equipment failure (9); animal contacts (6); nothing found (3); vehicles (2); other (1).

Remedial Actions

- In 2023, two single-phase reclosers were installed.
- In 2024, additional animal guarding will be installed.
- In 2024, full circuit trimming will be performed.
- In 2024, proactive fault sensors will be installed on this circuit.
- In 2025, a new Smart Grid device will be installed.

28 Circuit 43401 – BENTON 34-01

Performance Analysis

The BENTON 34-01 circuit experienced no outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

In total, the BENTON 34-01 circuit had 54 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (43); equipment failure (4); animal contacts (3); nothing found (3); other (1).

Remedial Actions

- In 2023, a Proactive Circuit Analysis was performed with several minor remediations implemented.
- In 2024, a section of difficult-to-access single-phase conductor will be relocated.
- In 2024, multiple sections of single-phase conductor will be evaluated for re-sourcing.
- In 2024, multiple cross-arms will be replaced.
- In 2024, additional fusing will be installed.
- In 2024, a section of three-phase will be evaluated for storm hardening.
- In 2024, an additional three-phase sectionalizing device will be evaluated.

29 Circuit 49804 – UNIVERSITY 98-04

Performance Analysis

The UNIVERSITY 98-04 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On July 12, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 694 customers for up to 90 minutes resulting in 62,237 CMI.

In total, the UNIVERSITY 98-04 circuit had 70 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (39); animal contacts (16); equipment failure (9); nothing found (6).

Remedial Actions

- In 2023, a three-phase sectionalizing device was installed.
- In 2023, a section of single-phase line was relocated underground.
- In 2023, several single-phase sectionalizing devices were installed.
- In 2024, a three-phase tie line will be constructed.
- In 2024, several single-phase reclosers will be upgraded to Smart grid devices.

30 Circuit 15701 – TANNERSVILLE 57-01

Performance Analysis

The TANNERSVILLE 57-01 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On May 17, 2023, a vehicle contacted a pole causing a sectionalizing device to be interrupted. This outage affected 533 customers for up to 15 minutes resulting in 7,995 CMI.

In total, the TANNERSVILLE 57-01 circuit had 43 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (21); equipment failure (10); animal contacts (7); contact or dig in (2); other (2); vehicles (1).

Remedial Actions

- In 2024, additional animal guarding will be installed.
- In 2024, a section of three-phase will be extended.
- In 2024, a single-phase recloser will be installed.
- In 2024, a section of this circuit in a difficult-to-access location will be relocated.
- In 2024, additional fusing will be installed.

31 Circuit 45402 – WEST BLOOMSBURG 54-02

Performance Analysis

The WEST BLOOMSBURG 54-02 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On August 9, 2023, during a period of strong wind, a tree contacted an overhead conductor causing an interruption. This outage affected 291 customers for up to 405 minutes resulting in 117,648 CMI.

On December 10, 2023, during a period of heavy rain, an animal interfered with an overhead transformer causing a recloser to trip to lockout. This outage affected 538 customers for up to 123 minutes resulting in 60,976 CMI.

In total, the WEST BLOOMSBURG 54-02 circuit had 75 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (52); animal contacts (7); equipment failure (7); nothing found (5); vehicles (2); contact or dig in (1); other (1).

Remedial Actions

- In 2023, the protection settings on this circuit were reviewed.
- In 2023, a Proactive Circuit Analysis was performed with several minor remediations implemented.
- In 2024, hot spot trimming will be performed.
- In 2024, multiple sections of three-phase line will be evaluated for storm hardening.

32 Circuit 24101 – EAST HAZLETON 41-01

Performance Analysis

The EAST HAZLETON 41-01 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 3, 2023, during a period of strong wind, an equipment failure occurred on an overhead switch. This outage affected 2,007 customers for up to 317 minutes resulting in 299,816 CMI.

On April 3, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,001 customers for up to 121 minutes resulting in 58,154 CMI.

In total, the EAST HAZLETON 41-01 circuit had 32 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (12); equipment failure (9); animal contacts (7); other (2); nothing found (1); vehicles (1).

Remedial Actions

- In 2022, a Proactive Circuit Review was performed with several minor remediations implemented.
- In 2022, full circuit trimming was performed.
- In 2023, a single-phase recloser was replaced and relocated.
- In 2023, an existing three-phase recloser was replaced.

33 Circuit 11103 – EGYPT 11-03

Performance Analysis

The EGYPT 11-03 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On September 24, 2023, during a period of heavy rain, a vehicle contact caused a circuit breaker to trip to lockout. This outage affected 1,296 customers for up to 11 minutes resulting in 14,217 CMI.

On October 14, 2023, during a period of heavy rain, a vehicle contacted a pole. This outage affected 652 customers for up to 1,476 minutes resulting in 961,281 CMI.

In total, the EGYPT 11-03 circuit had 10 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: vehicles (4); animal contacts (3); equipment failure (1); nothing found (1); tree related (1).

Remedial Actions

- In 2023, a pole was replaced.
- In 2023, load balancing was performed on this circuit.
- In 2025, full circuit trimming will be performed.

34 Circuit 27101 -- GREENFIELD 71-01

Performance Analysis

The GREENFIELD 71-01 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On January 25, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,100 customers for up to 43 minutes resulting in 12,708 CMI.

In total, the GREENFIELD 71-01 circuit had 82 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (46); animal contacts (17); equipment failure (15); nothing found (2); vehicles (2).

Remedial Actions

- In 2024, numerous porcelain cutouts will be replaced.
- In 2024, additional animal guarding will be installed.
- In 2024, several poles will be replaced.
- In 2024, proactive fault sensors will be installed.
- In 2024, additional fusing will be installed.
- In 2024, a new Smart Grid tie device will be evaluated.

35 Circuit 47002 -- HUGHESVILLE 70-02

Performance Analysis

The HUGHESVILLE 70-02 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On August 15, 2023, during a period of heavy rain, a tree contacted an overhead conductor causing an interruption. This outage affected 2,030 customers for up to 128 minutes resulting in 91,014 CMI.

In total, the HUGHESVILLE 70-02 circuit had 59 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (36); equipment failure (11); animal contacts (8); nothing found (2); vehicles (2).

Remedial Actions

- In 2024, additional animal guarding will be installed.
- In 2024, a section of single-phase will be evaluated for relocation.
- In 2025, two sections of single-phase will be relocated underground or reconductored.

36 Circuit 53901 -- HALIFAX 39-01

Performance Analysis

The HALIFAX 39-01 circuit experienced four outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On July 17, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 264 customers for up to 568 minutes resulting in 141,336 CMI.

On July 24, 2023, during a period of heavy rain, an equipment failure occurred on a pole or pole arm causing a recloser to trip to lockout. This outage affected 239 customers for up to 1,864 minutes resulting in 202,990 CMI.

On July 25, 2023, during a period of heavy rain, a tree contacted a pole or pole arm causing a recloser to trip to lockout. This outage affected 435 customers for up to 233 minutes resulting in 100,819 CMI.

On December 26, 2023, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 717 customers for up to 272 minutes resulting in 45,344 CMI.

In total, the HALIFAX 39-01 circuit had 38 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (19); equipment failure (9); animal contacts (6); nothing found (2); other (1); vehicles (1).

Remedial Actions

- In 2023, two single-phase reclosers were installed.
- In 2023, additional fusing was installed.
- In 2024, hazard tree removal will be evaluated.
- In 2024, additional fusing will be installed.
- In 2024, a new Smart Grid device will be installed.

37 Circuit 42401 -- GIRARD MANOR 24-01

Performance Analysis

The GIRARD MANOR 24-01 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On July 17, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 347 customers for up to 385 minutes resulting in 132,947 CMI.

On August 16, 2023, an animal interfered with an overhead transmission component causing a recloser to trip to lockout. This outage affected 717 customers for up to 8 minutes resulting in 5,191 CMI.

In total, the GIRARD MANOR 24-01 circuit had 39 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (28); equipment failure (5); animal contacts (4); nothing found (2).

Remedial Actions

- In 2024, an additional sectionalizing device will be evaluated.
- In 2024, hot spot trimming will be evaluated.
- In 2024, additional fusing will be installed at several locations.
- In 2024, an existing pole will be replaced.
- In 2024, a cross-arm will be replaced.

38 Circuit 28102 -- TWIN LAKES 81-02

Performance Analysis

The TWIN LAKES 81-02 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 14, 2023, during a period of strong wind, a tree contacted a pole or pole arm causing a recloser to trip to lockout. This outage affected 542 customers for up to 251 minutes resulting in 135,543 CMI.

On July 14, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 212 customers for up to 1,318 minutes resulting in 153,538 CMI.

In total, the TWIN LAKES 81-02 circuit had 53 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (34); animal contacts (12); equipment failure (7).

Remedial Actions

- In 2023, a single-phase recloser was installed.
- In 2023, proactive fault sensors were installed.
- In 2023, several poles were replaced.
- In 2024, a new Smart Grid device will be evaluated.
- In 2024, numerous porcelain cutouts will be replaced.
- In 2024, a single-phase recloser will be installed.
- In 2024, additional animal guarding will be installed.

39 Circuit 15603 -- NO STROUDSBURG 56-03

Performance Analysis

The NO STROUDSBURG 56-03 circuit experienced three outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On January 15, 2023, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 1,066 customers for up to 203 minutes resulting in 141,932 CMI.

On June 28, 2023, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 548 customers for up to 23 minutes resulting in 12,428 CMI.

On September 24, 2023, during a period of heavy rain, an equipment failure occurred on a pole or pole arm causing a recloser to trip to lockout. This outage affected 548 customers for up to 334 minutes resulting in 182,577 CMI.

In total, the NO STROUDSBURG 56-03 circuit had 26 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (18); animal contacts (5); equipment failure (3).

Remedial Actions

- In 2024, additional animal guarding will be installed.
- In 2024, three single-phase reclosers will be installed.
- In 2024, a three-phase tie will be evaluated.
- In 2024, proactive fault sensors will be installed on this circuit.
- In 2024, full circuit trimming will be performed.

40 Circuit 18603 -- LAKE NAOMI 86-03

Performance Analysis

The LAKE NAOMI 86-03 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 4, 2023, during a period of strong wind, a tree contacted an overhead conductor causing an interruption. This outage affected 275 customers for up to 687 minutes resulting in 188,746 CMI.

On August 9, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 322 customers for up to 687 minutes resulting in 166,824 CMI.

In total, the LAKE NAOMI 86-03 circuit had 34 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (24); equipment failure (6); nothing found (3); animal contacts (1).

Remedial Actions

- In 2023, a single-phase recloser was installed.
- In 2023, several sections of underground conductor were replaced.
- In 2024, additional animal guarding will be installed.
- In 2024, three single-phase reclosers will be installed.

41 Circuit 17902 -- BARTONSVILLE 79-02

Performance Analysis

The BARTONSVILLE 79-02 circuit experienced no outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

In total, the BARTONSVILLE 79-02 circuit had 49 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (31); animal contacts (11); equipment failure (5); nothing found (1); other (1).

Remedial Actions

- In 2023, a section of three-phase was reconductored.
- In 2023, two single-phase reclosers were installed.
- In 2023, a section of conductor was relocated underground.
- In 2024, additional animal guarding will be installed.
- In 2024, several poles will be replaced.
- In 2024, full circuit trimming will be performed.
- In 2025, additional single-phase reclosers will be installed.

- In 2025, a single-phase tie will be constructed.

42 Circuit 13601 -- RICHLAND 36-01

Performance Analysis

The RICHLAND 36-01 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 3, 2023, during a period of strong wind, a tree contacted an overhead fuse causing an interruption. This outage affected 105 customers for up to 958 minutes resulting in 100,590 CMI.

On March 3, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 221 customers for up to 926 minutes resulting in 106,626 CMI.

In total, the RICHLAND 36-01 circuit had 48 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (30); equipment failure (6); nothing found (5); animal contacts (4); vehicles (2); contact or dig in (1).

Remedial Actions

- In 2023, additional fusing was installed.
- In 2023, several poles were replaced.
- In 2023, proactive fault sensors were installed on this circuit.
- In 2024, coordination of protective devices will be evaluated.
- In 2024, additional animal guarding will be installed.
- In 2024, additional fusing will be installed.
- In 2024, an additional single-phase recloser will be installed and another relocated.

43 Circuit 20403 -- ASHFIELD 04-03

Performance Analysis

The ASHFIELD 04-03 circuit experienced no outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

In total, the ASHFIELD 04-03 circuit had 98 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (54); animal contacts (17); equipment failure (17); nothing found (6); vehicles (3); other (1).

Remedial Actions

- In 2023, ten single-phase reclosers were installed.
- In 2024, a single-phase tie will be constructed to the ASHFIELD 01 circuit.
- In 2024, a section of conductor will be evaluated for relocation.

- In 2024, additional fusing will be installed.
- In 2024, two sections of difficult-to-access conductor will be relocated.
- In 2024, full circuit trimming will be performed.

44 Circuit 14008 -- SELLERSVILLE 40-08

Performance Analysis

The SELLERSVILLE 40-08 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On July 19, 2023, a vehicle contacted a pole causing a transformer to be interrupted. This outage affected 690 customers for up to 676 minutes resulting in 87,347 CMI.

In total, the SELLERSVILLE 40-08 circuit had 46 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (35); equipment failure (3); nothing found (3); animal contacts (2); vehicles (2); other (1).

Remedial Actions

- In 2023, a section of single-phase line was extended.
- In 2023, proactive fault sensors were installed.
- In 2024, additional animal guarding will be installed.
- In 2024, additional fusing will be installed.
- In 2024, two single-phase reclosers will be installed.
- In 2024, an additional Smart Grid device will be installed.
- In 2024, additional fusing will be installed.

45 Circuit 23102 -- MOSCOW 31-02

Performance Analysis

The MOSCOW 31-02 circuit experienced three outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On January 13, 2023, an equipment failure occurred on an overhead splice causing an interruption. This outage affected 514 customers for up to 368 minutes resulting in 144,062 CMI.

On May 1, 2023, during a period of strong wind, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 380 customers for up to 279 minutes resulting in 105,731 CMI.

On December 11, 2023, during a period of ice/sleet/snow, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 502 customers for up to 437 minutes resulting in 219,293 CMI.

In total, the MOSCOW 31-02 circuit had 35 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (19); equipment failure (10); animal contacts (4); nothing found (1); vehicles (1).

Remedial Actions

- In 2024, full circuit trimming will be performed.
- In 2024, proactive sensors will be installed.
- In 2024, additional animal guarding will be installed.

46 Circuit 45002 -- LIMESTONE 50-02

Performance Analysis

The LIMESTONE 50-02 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On February 1, 2023, a vehicle contacted a pole causing an interruption. This outage affected 1,009 customers for up to 278 minutes resulting in 165,276 CMI.

On November 10, 2023, a tree contacted a pole or pole arm causing a recloser to trip to lockout. This outage affected 1,384 customers for up to 79 minutes resulting in 109,336 CMI.

In total, the LIMESTONE 50-02 circuit had 27 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (15); equipment failure (6); vehicles (3); animal contacts (2); contact or dig in (1).

Remedial Actions

- In 2023, additional fusing was installed.
- In 2023, a Proactive Circuit Analysis was performed.
- In 2023, 18 distribution poles were replaced.
- In 2024, proactive fault sensors will be installed.
- In 2024, additional fusing will be installed.
- In 2024, a three-phase tie line will be evaluated.
- In 2026, full circuit trimming will be performed.

47 Circuit 50105 -- HARRISBURG 69 KV LINE 01-05

Performance Analysis

The HARRISBURG 69 KV LINE 01-05 circuit experienced three outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On May 6, 2023, a vehicle contacted a pole causing an interruption. This outage affected 561 customers for up to 370 minutes resulting in 193,548 CMI.

On November 11, 2023, a vehicle contact caused a circuit breaker to trip to lockout. This outage affected 1,598 customers for up to 540 minutes resulting in 145,087 CMI.

On November 22, 2023, an equipment failure occurred on a pole or pole arm causing a recloser to trip to lockout. This outage affected 592 customers for up to 84 minutes resulting in 49,728 CMI.

In total, the HARRISBURG 69 KV LINE 01-05 circuit had 12 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: equipment failure (3); tree related (3); other (2); vehicles (2); animal contacts (1); nothing found (1).

Remedial Actions

- In 2023, full circuit trimming was performed.
- In 2023, additional fusing was installed.
- In 2024, three cross-arms will be replaced.
- In 2024, additional fusing will be installed.
- In 2024, a new substation will be commissioned with upgraded circuit breakers.

48 Circuit 23902 -- EFFORT MOUNTAIN 39-02

Performance Analysis

The EFFORT MOUNTAIN 39-02 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On December 29, 2023, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 1,252 customers for up to 202 minutes resulting in 32,808 CMI.

In total, the EFFORT MOUNTAIN 39-02 circuit had 46 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (24); animal contacts (9); equipment failure (8); nothing found (2); vehicles (2); other (1).

Remedial Actions

- In 2023, several poles were replaced.
- In 2023, a single-phase recloser was installed and another was replaced.
- In 2023, a section of multi-phase conductor was extended.
- In 2023, a section of single-phase conductor was relocated.
- In 2024, additional animal guarding was installed.
- In 2024, numerous porcelain cutouts will be replaced.
- In 2024, a capacitor bank will be replaced.
- In 2024, additional single-phase reclosers will be evaluated.
- In 2025, full circuit trimming will be performed.

49 Circuit 41902 -- REED 19-02

Performance Analysis

The REED 19-02 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On September 21, 2023, a tree contacted an overhead conductor causing an interruption. This outage affected 295 customers for up to 486 minutes resulting in 130,769 CMI.

In total, the REED 19-02 circuit had 70 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (34); animal contacts (18); equipment failure (12); nothing found (4); other (1); vehicles (1).

Remedial Actions

- In 2023, an existing recloser was replaced with a Smart Grid device.
- In 2024, proactive fault sensors will be installed.
- In 2024, a section of single-phase conductor will be upgraded to multi-phase.
- In 2024, a single-phase recloser will be replaced with a Smart Grid device.
- In 2024, additional animal guarding will be installed.
- In 2024, a pole will be replaced.

50 Circuit 46004 -- BERWICK 60-04

Performance Analysis

The BERWICK 60-04 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On February 10, 2023, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 796 customers for up to 59 minutes resulting in 16,234 CMI.

On July 21, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 1,173 customers for up to 140 minutes resulting in 164,220 CMI.

In total, the BERWICK 60-04 circuit had 42 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (24); animal contacts (8); equipment failure (5); nothing found (3); vehicles (2).

Remedial Actions

- In 2023, the protection/coordination settings on this circuit were reviewed and optimized.
- In 2023, an additional single-phase Smart Grid device was installed.
- In 2024, full circuit trimming will be performed.
- In 2024, additional fusing will be installed.
- In 2024, three single-phase reclosers will be installed.

51 Circuit 15604 -- NO STROUDSBURG 56-04

Performance Analysis

The NO STROUDSBURG 56-04 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On June 2, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 322 customers for up to 780 minutes resulting in 180,691 CMI.

On September 8, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 559 customers for up to 483 minutes resulting in 32,628 CMI.

In total, the NO STROUDSBURG 56-04 circuit had 61 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (34); animal contacts (16); equipment failure (6); nothing found (2); vehicles (2); other (1).

Remedial Actions

- In 2024, additional animal guarding will be installed.
- In 2024, an existing recloser will be relocated.
- In 2024, single-phase tie lines will be evaluated.
- In 2024, proactive fault sensors will be installed.
- In 2024, additional fusing will be installed.

52 Circuit 46301 -- ROHRSBURG 63-01

Performance Analysis

The ROHRSBURG 63-01 circuit experienced no outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

In total, the ROHRSBURG 63-01 circuit had 66 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (48); equipment failure (9); animal contacts (6); nothing found (3).

Remedial Actions

- In 2023, a section of difficult-to-access conductor was relocated.
- In 2024, full circuit trimming will be performed.
- In 2024, a section of single-phase will be evaluated for storm hardening.
- In 2024, a section of single-phase will be evaluated for relocation.

53 Circuit 64904 -- MILLERSVILLE 49-04

Performance Analysis

The MILLERSVILLE 49-04 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On April 30, 2023, during a period of heavy rain, an equipment failure occurred on an overhead switch causing a circuit breaker to trip to lockout. This outage affected 3,180 customers for up to 81 minutes resulting in 97,556 CMI.

On June 27, 2023, during a period of heavy rain, a tree contacted an overhead conductor causing an interruption. This outage affected 2,956 customers for up to 827 minutes resulting in 416,697 CMI.

In total, the MILLERSVILLE 49-04 circuit had 11 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (6); equipment failure (3); contact or dig in (1); vehicles (1).

Remedial Actions

- In 2024, a three-phase tap in a heavily wooded area will be evaluated for relocation and potential reconfiguration.
- In 2024, additional fusing will be installed.
- In 2024, additional animal guarding will be installed.
- In 2025, a single-phase recloser will be installed.
- In 2025, a single-phase tap will be reconducted.
- In 2026, full circuit trimming will be performed.

54 Circuit 40901 -- JERSEY SHORE 09-01

Performance Analysis

The JERSEY SHORE 09-01 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On May 9, 2023, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 554 customers for up to 422 minutes resulting in 173,002 CMI.

On May 12, 2023, an equipment failure occurred on an overhead switch causing an interruption. This outage affected 768 customers for up to 19 minutes resulting in 14,330 CMI.

In total, the JERSEY SHORE 09-01 circuit had 55 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (33); equipment failure (12); animal contacts (7); nothing found (2); vehicles (1).

Remedial Actions

- In 2024, an additional Smart Grid device will be evaluated.
- In 2024, tree guarding cable will be evaluated.
- In 2024, four porcelain cutouts will be replaced.
- In 2024, animal guarding will be installed.

55 Circuit 41802 -- GOWEN CITY 18-02

Performance Analysis

The GOWEN CITY 18-02 circuit experienced three outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 10, 2023, an equipment failure occurred on a pole or pole arm causing a recloser to trip to lockout. This outage affected 519 customers for up to 129 minutes resulting in 66,951 CMI.

On November 21, 2023, during a period of heavy rain, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 311 customers for up to 571 minutes resulting in 177,581 CMI.

On December 11, 2023, during a period of ice/sleet/snow, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 519 customers for up to 420 minutes resulting in 159,372 CMI.

In total, the GOWEN CITY 18-02 circuit had 35 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (27); equipment failure (3); animal contacts (2); nothing found (2); vehicles (1).

Remedial Actions

- In 2024, tree shielding cable will be installed.
- In 2024, a section of difficult-to-access conductor will be relocated.
- In 2024, a section of three-phase conductor will be storm hardened.
- In 2024, additional animal guarding will be installed.
- In 2024, remote fault sensors will be installed.
- In 2025, a section of difficult-to-access conductor will be relocated.

56 Circuit 56504 -- ROCKVILLE 65-04

Performance Analysis

The ROCKVILLE 65-04 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On June 24, 2023, during a period of heavy rain, a tree contacted an overhead conductor causing an interruption. This outage affected 333 customers for up to 527 minutes resulting in 175,201 CMI.

On November 13, 2023, a vehicle contact caused an interruption. This outage affected 673 customers for up to 211 minutes resulting in 62,347 CMI.

In total, the ROCKVILLE 65-04 circuit had 67 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (40); animal contacts (10); equipment failure (10); nothing found (3); other (2); vehicles (2).

Remedial Actions

- In 2023, full circuit trimming was performed.
- In 2023, a single-phase recloser was installed.
- In 2024, a section of single-phase will be resourced.
- In 2024, a multi-phase recloser upgrade will be evaluated.
- In 2024, seven additional fuses will be installed.

57 Circuit 45602 -- WOOLRICH 56-02

Performance Analysis

The WOOLRICH 56-02 circuit experienced three outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On February 10, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a load break fuse to operate. This outage affected 729 customers for up to 124 minutes resulting in 28,708 CMI.

On March 8, 2023, during a period of ice/sleet/snow, an equipment failure occurred on an overhead switch causing a recloser to trip to lockout. This outage affected 1,426 customers for up to 1,099 minutes resulting in 125,785 CMI.

On July 2, 2023, during a period of strong wind, a tree contacted an overhead conductor causing an interruption. This outage affected 729 customers for up to 273 minutes resulting in 38,041 CMI.

In total, the WOOLRICH 56-02 circuit had 52 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (32); animal contacts (9); equipment failure (9); nothing found (2).

Remedial Actions

- In 2023, additional animal guarding was installed.
- In 2023, two additional single-phase reclosers were installed.
- In 2023, proactive fault sensors were installed.
- In 2023, full circuit trimming was performed.
- In 2024, a section of three-phase will be storm hardened.
- In 2024, an existing three-phase recloser will be upgraded to a Smart Grid device.
- In 2025, a section of difficult-to-access three-phase line will be relocated.

58 Circuit 27102 -- GREENFIELD 71-02

Performance Analysis

The GREENFIELD 71-02 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On April 14, 2023, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 896 customers for up to 287 minutes resulting in 34,725 CMI.

In total, the GREENFIELD 71-02 circuit had 47 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (23); animal contacts (10); equipment failure (6); vehicles (5); nothing found (2); other (1).

Remedial Actions

- In 2023, three single-phase reclosers were installed.
- In 2023, additional animal guarding was installed.
- In 2023, several porcelain cutouts were replaced.
- In 2024, several poles will be replaced.
- In 2024, a section of this circuit will be reconductored or relocated.
- In 2024, four single-phase reclosers will be installed.
- In 2024, proactive fault sensors will be installed on this circuit.
- In 2024, some customers on this circuit will be transferred to a neighboring circuit.
- In 2025, a section of this circuit will be reconductored.

59 Circuit 12402 -- MILFORD 24-02

Performance Analysis

The MILFORD 24-02 circuit experienced two outages of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On May 17, 2023, an animal interfered with a substation component causing a circuit breaker to trip to lockout. This outage affected 558 customers for up to 6 minutes resulting in 3,348 CMI.

On August 18, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 556 customers for up to 90 minutes resulting in 48,276 CMI.

In total, the MILFORD 24-02 circuit had 37 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (29); nothing found (4); animal contacts (2); contact or dig in (2).

Remedial Actions

- In 2023, additional fusing was installed.
- In 2024, additional animal guarding will be installed.
- In 2024, full circuit trimming will be performed.
- In 2024, three single-phase reclosers will be installed.
- In 2024, an additional Smart Grid device will be installed.
- In 2024, additional fusing will be installed.

60 Circuit 41701 -- LOGANTON 17-01

Performance Analysis

The LOGANTON 17-01 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On February 24, 2023, during a period of strong wind, a tree contacted an overhead conductor causing an interruption. This outage affected 984 customers for up to 284 minutes resulting in 58,638 CMI.

In total, the LOGANTON 17-01 circuit had 44 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (30); equipment failure (7); animal contacts (6); vehicles (1).

Remedial Actions

- In 2023, two Smart Grid devices were installed.
- In 2023, several multi-phase reclosers were upgraded to Smart Grid devices.
- In 2024, a section of difficult-to-access single-phase conductor will be relocated.
- In 2024, additional animal guarding will be evaluated.
- In 2026, full circuit tree trimming will be performed.

61 Circuit 45001 -- LIMESTONE 50-01

Performance Analysis

The LIMESTONE 50-01 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On September 26, 2023, a vehicle contacted a pole causing a recloser to trip to lockout. This outage affected 439 customers for up to 491 minutes resulting in 120,332 CMI.

In total, the LIMESTONE 50-01 circuit had 52 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (25); equipment failure (11); animal contacts (9); vehicles (4); nothing found (3).

Remedial Actions

- In 2023, an additional single-phase recloser was installed.
- In 2023, a Proactive Circuit Analysis was performed.
- In 2023, fusing was installed at five locations.
- In 2024, fusing will be installed in six locations.
- In 2024, a section of difficult-to-access single-phase conductor will be relocated.
- In 2025, a section of difficult-to-access three-phase conductor will be relocated.
- In 2026, full circuit trimming will be performed.

62 Circuit 46702 -- RENOVO 67-02

Performance Analysis

The RENOVO 67-02 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On March 6, 2023, during a period of ice/sleet/snow, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 49 customers for up to 2,240 minutes resulting in 104,799 CMI.

In total, the RENOVO 67-02 circuit had 55 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: tree related (47); nothing found (5); animal contacts (2); equipment failure (1).

Remedial Actions

- In 2024, full circuit trimming will be performed.
- In 2025, a section of single-phase will be rebuilt using protective tree cable or undergrounding.

63 Circuit 67803 -- WEST LANCASTER 78-03

Performance Analysis

The WEST LANCASTER 78-03 circuit experienced one outage of over 100,000 CMI or 500 CI between January 2023 and December 2023.

On November 26, 2023, an equipment failure occurred on an overhead switch causing an interruption. This outage affected 1,552 customers for up to 237 minutes resulting in 367,824 CMI.

In total, the WEST LANCASTER 78-03 circuit had 26 unscheduled outages between January 2023 and December 2023, with the causes breaking down as follows: equipment failure (10); tree related (10); animal contacts (5); nothing found (1).

Remedial Actions

- In 2024, additional animal guarding will be installed.
- In 2024, full circuit trimming will be performed.
- In 2024, additional fusing will be installed.

5) *A rolling 12-month breakdown and analysis of outage causes during the preceding quarter, including the number and percentage of service outages, the number of customers interrupted, and customer interruption minutes categorized by outage cause such as equipment failure, animal contact, tree related, and so forth. Proposed solutions to identified service problems shall be reported.*

The following table shows a breakdown of service interruption causes for the 12 months ended at the current quarter.

| Cause Description | Trouble Cases | Percent of Trouble Cases | Customer Interruptions | Percent of Customer Interruptions | Customer Minutes | Percent of Customer Minutes |
|--------------------------------------|---------------|--------------------------|------------------------|-----------------------------------|--------------------|-----------------------------|
| Animals | 4,436 | 19.2% | 60,705 | 5.3% | 4,534,738 | 2.1% |
| Contact / Dig-In | 164 | 0.7% | 6,932 | 0.6% | 774,661 | 0.4% |
| Directed by Non-PPL Authority | 67 | 0.3% | 7,515 | 0.7% | 919,394 | 0.4% |
| Equipment Failures | 4,757 | 20.6% | 249,232 | 22.0% | 30,981,054 | 14.5% |
| Improper Design | 3 | 0.0% | 1,746 | 0.2% | 199,430 | 0.1% |
| Improper Installation | 4 | 0.0% | 692 | 0.1% | 80,712 | 0.0% |
| Improper Operation | 4 | 0.0% | 2,315 | 0.2% | 72,143 | 0.0% |
| Nothing Found | 1,045 | 4.5% | 67,220 | 5.9% | 6,911,429 | 3.2% |
| Other Controllable | 54 | 0.2% | 4,816 | 0.4% | 205,449 | 0.1% |
| Other Non-Control | 348 | 1.5% | 43,014 | 3.8% | 5,556,786 | 2.6% |
| Other Public | 31 | 0.1% | 3,306 | 0.3% | 165,281 | 0.1% |
| Tree Related | 11,403 | 49.4% | 593,674 | 52.3% | 149,545,081 | 69.8% |
| Unknown | 1 | 0.0% | 5 | 0.0% | 547 | 0.0% |
| Vehicles | 766 | 3.3% | 93,768 | 8.3% | 14,321,187 | 6.7% |
| Total | 23,083 | 100.0% | 1,134,940 | 100.0% | 214,267,891 | 100.0% |

Analysis of causes contributing to the majority of service interruptions:

Weather Conditions: PPL Electric records weather conditions, such as wind or lightning, as contributing factors to service interruptions, but does not code them as direct interruption causes. Therefore, some fluctuations in cause categories, especially tree- and equipment-related causes, are attributable to weather variations. For the current reporting period, weather was considered a significant contributing cause in 49% of cases, 59% of customer interruptions, and 77% of CMI.

Tree Related: Vegetation is one of the largest single contributors to the number of cases of trouble, customer interruptions and customer minutes. For the current reporting period, approximately 79% of the cases of trouble, 82% of the customer interruptions and 91% of the customer minutes attributed to tree related outages were weather-related.

Animals: Animals accounted for approximately 19% of PPL Electric's cases of trouble. Although this represents a significant number of cases, the effect on SAIFI and CAIDI is small because approximately 74% of the number of cases of trouble were associated with individual distribution transformers. However, when animal contacts affect substation equipment, the effect may be widespread and potentially can interrupt thousands of customers on multiple circuits. In addition to guarding new distribution transformers and substations, PPL Electric initiated distribution and substation animal guarding programs in 2009 to focus systematically on protecting existing facilities most at risk of incurring animal-caused interruptions. A complete effectiveness review of this strategy is being evaluated.

Vehicles: Although vehicles cause a small percentage of the number of cases of trouble, they can account for a larger percentage of customer interruptions and customer minutes, because main distribution lines generally are located along major thoroughfares with higher traffic densities. In addition, vehicle-related cases often result in extended repair times to replace broken poles. PPL Electric has a program to identify and relocate poles that are subject to multiple vehicle hits.

Equipment Failure: Equipment failure is one of the largest single contributors to the number of cases of trouble, customer interruptions and customer minutes. However, approximately 31% of the cases of trouble, 39% of the customer interruptions and 52% of the customer minutes attributed to equipment failure were weather-related and, as such, are not considered to be strong indicators of equipment condition or performance.

Nothing Found: This description is recorded when the responding crew can find no cause for the interruption. That is, when there is no evidence of equipment failure, damage, or contact after a line patrol is completed. For example, during heavy thunderstorms, when a line fuse blows or a single-phase OCR locks open and when closed for test, the fuse holds, or the OCR remains closed, and a patrol reveals nothing.

6) *Quarterly and year-to-date information on progress toward meeting transmission and distribution inspection and maintenance goals/objectives. (For first, second and third quarter reports only.)*

| Inspection & Maintenance Goals/Objectives | Annual Budget (units) | 4th Quarter | | Year-to-date | |
|---|-----------------------|-------------|--------|--------------|--------|
| | | Budget | Actual | Budget | Actual |
| Transmission | | | | | |
| Transmission C-tag poles (# of poles) | 30 | 15 | 15 | 30 | 30 |
| Transmission arm replacements (# of arms) | 19 | 9 | 9 | 19 | 19 |
| Transmission air break switch inspections (# of switches) | 3 | 0 | 0 | 3 | 3 |
| Transmission surge arrester installations (# of sets) | 72 | 0 | 0 | 72 | 72 |
| Transmission structure inspections (# of activities) | 11,970 | 1,601 | 1,601 | 11,970 | 11,970 |
| Transmission tree side trim-Bulk Power (linear feet) | N/A | | | | |
| Transmission herbicide-Bulk Power (# of acres) | N/A | | | | |
| Transmission reclearing (# of miles) BES Only | 553 | 6 | 6 | 553 | 553 |
| Transmission reclearing (# of miles) 69 kV | 861 | 101 | 101 | 861 | 861 |
| Transmission reclearing (# of miles) 138 kV | 119 | 40 | 40 | 119 | 119 |
| Transmission danger tree removals-Bulk Power (# of trees) | N/A | | | | |
| Substation | | | | | |
| Substation batteries (# of activities) | 406 | 17 | 8 | 406 | 442 |
| Circuit breakers (# of activities) | 4 | 4 | 2 | 4 | 25 |
| Substation inspections (# of activities) | 1,311 | 314 | 281 | 1,311 | 1,189 |
| Transformer maintenance (# of activities) | 659 | 159 | 117 | 659 | 207 |

| Inspection & Maintenance Goals/Objectives | Annual Budget (units) | 4th Quarter | | Year-to-date | |
|--|-----------------------|-------------|--------|--------------|--------|
| | | Budget | Actual | Budget | Actual |
| Distribution | | | | | |
| Distribution C-tag poles replaced (# of poles) | 1,238 | 310 | 253 | 1,238 | 1,418 |
| C-truss distribution poles (# of poles) | 2,400 | 400 | 425 | 2,400 | 675 |
| Capacitor (MVAR added) | N/A | | | | |
| OCR Replacements (# of) | 33 | 29 | 7 | 33 | 11 |
| Distribution pole inspections (# of poles) | 80,000 | 25,000 | 2,9321 | 80,000 | 51,896 |
| Distribution line inspections (miles) | 400 | 0 | 0 | 0 | 0 |
| Group re-lamping (# of lamps) | 0 | 0 | 0 | 0 | 0 |
| Test sections of underground distribution cable | N/A | N/A | 40 | N/A | 227 |
| Distribution tree trimming (# of miles) | 3,449 | 710 | 710 | 3,449 | 3,449 |
| Distribution herbicide (# of acres) | N/A | | 269 | | 1,174 |
| Distribution >18" removals within R/W (# of trees) | N/A | | 319 | | 2,404 |
| Distribution hazard tree removals outside R/W (# of trees) | N/A | | 1,198 | | 7,891 |
| LTN manhole inspections (# of) | 0 | 0 | 0 | 0 | 0 |
| LTN vault inspections (# of) | 70 | 23 | 26 | 46 | 27 |
| LTN network protector overhauls (# of) | 48 | 16 | 5 | 32 | 5 |
| LTN reverse power trip testing (# of) | 33 | 11 | 19 | 22 | 20 |

7) *Quarterly and year-to-date information on budgeted versus actual transmission and distribution operation and maintenance expenditures in total and detailed by the EDC's own functional account code or FERC account code as available.*

The following table provides the operation and maintenance (O&M) expenses for PPL Electric which includes the work identified in response to Item (6).

| Activity | 4th Quarter | | | Year-to-date | |
|-------------------------------|-------------------------|-------------------|-------------------|-------------------|-------------------|
| | Annual Budget (000s) | Budget (\$000) | Actual (\$000) | Budget (\$000) | Actual (\$000) |
| Provide Electric Service | 4,867 | 1,295 | 1,731 | 4,867 | 6,935 |
| Vegetation Management | 32,144 | 6,837 | 6,023 | 32,144 | 30,475 |
| Customer Response | 55,137 | 14,061 | 11,187 | 55,137 | 68,302 |
| Reliability Maintenance | 16,632 | 1,072 | (4,624) | 16,632 | 14,870 |
| System Upgrade | 2,144 | 481 | 116 | 2,144 | 1,503 |
| Customer Service/Accounts | 100,417 | 27,287 | 40,222 | 100,417 | 157,250 |
| Others | 64,476 | 16,266 | 15,541 | 64,476 | 62,008 |
| Total O&M Expenses | 275,818 | 67,298 | 70,197 | 275,818 | 341,343 |

- 8) *Quarterly and year-to-date information on budgeted versus actual transmission and distribution capital expenditures in total and detailed by the EDC's own functional account code or FERC account code as available.*

The following table provides the capital expenditures for PPL Electric which includes transmission and distribution (“T&D”) activities.

| Activity | 4th Quarter | | | Year-to-date | |
|------------------------------|-------------------------|-------------------|-------------------|-------------------|-------------------|
| | Annual Budget (000s) | Budget (\$000) | Actual (\$000) | Budget (\$000) | Actual (\$000) |
| New Service/Revenue | 81,753 | 20,174 | 23,129 | 81,753 | 116,807 |
| System Upgrade | 255,756 | 91,293 | 64,016 | 255,756 | 248,746 |
| Reliability & Maintenance | 365,545 | 78,963 | 93,295 | 365,545 | 393,361 |
| Customer Response | 44,107 | 9,681 | 9,673 | 44,107 | 65,220 |
| Other | 22,024 | 4,848 | 4,597 | 22,024 | 40,239 |
| Total | 769,185 | 204,959 | 194,711 | 769,185 | 864,374 |

PPL Electric Utilities Corporation

Worst Performing Circuit Definition

PPL Electric uses an equal weighting of circuit SAIDI and system SAIFI contribution over the previous four quarters to define the worst performing circuits on its system. IEEE Major Event days are excluded. This ranking system was put in place as of the first quarter of 2020, for the following reasons:

- Increased targeting of problem areas versus circuits that may be reasonable performers but are simply long circuits that have been in storms.
- It prioritizes the circuits contributing the most toward system SAIFI.
- It is less biased towards long, rural circuits and more reflective of the customer experience.

PPL Electric Utilities Corporation

Job Descriptions

Transmission and Distribution

| | |
|----------------------------|--|
| Groundhand | <ul style="list-style-type: none">• Performs manual labor and assists employees in higher job classifications. |
| Helper | <ul style="list-style-type: none">• Performs semi-skilled labor at any work location on de-energized overhead and underground transmission, and distribution facilities to prepare the employee for entrance into the Journeyman Lineman Apprenticeship Program. |
| Journeyman Lineman | <ul style="list-style-type: none">• Works alone or as part of a crew on the maintenance, operation, and construction activities of the transmission and distribution systems associated with, but not limited to, PPL Electric facilities. |
| Journeyman Lineman-Trainee | <ul style="list-style-type: none">• Works alone or as part of a crew on the maintenance, operation, and construction activities of the transmission and distribution systems associated with, but not limited to, PPL Electric facilities. |
| Lineman Leader | <ul style="list-style-type: none">• Responsible for completing assigned work by directing one or multiple groups of employees involved in the maintenance, operation, and construction activities of the transmission and distribution systems associated with, but not limited to, PPL Electric facilities.• Engage in and perform work along with providing the necessary leadership, all-around knowledge, program, judgment, and experience to produce a quality job.• Performs all the direct duties of the Journeyman Lineman when not acting as a Lineman Leader. |
| Troubleman | <ul style="list-style-type: none">• Investigates and resolves trouble calls, voltage abnormalities on transmission and distribution systems associated with, but not limited to, PPL Electric facilities. |

Electrical

| | |
|--|--|
| Electrician Leader - Substation - Network - Underground | <ul style="list-style-type: none">• Responsible for completing assigned work by directing one or multiple groups of employees involved in the construction and maintenance activities of the transmission and distribution systems associated with, but not limited to, PPL Electric facilities.• Engage in and perform work along with providing the necessary leadership, all-around knowledge, program, judgment, and experience to produce a quality job.• Performs all direct duties of the Journeyman Electrician when not acting as a leader. |
| Helper - Substation - Network - Underground | <ul style="list-style-type: none">• Performs manual labor at any work location including those areas containing non-exposed energized electrical equipment, and to prepare the employee for entrance into the Apprenticeship Program. |
| Laborer - Substation - Network - Underground | <ul style="list-style-type: none">• Performs manual labor and assists employees in higher job classifications. |
| Journeyman Electrician - Substation - Network - Underground | <ul style="list-style-type: none">• Normally under limited supervision performs and is responsible for work associated with, but not limited to, PPL Electric facilities involving the highest degree of skill in construction and maintenance work associated with substations, LTN or underground distribution and transmission.• Uses microprocessor-based equipment for troubleshooting and revising relay logic and its control systems related to the field services electrical discipline. |

Appendix B

| | |
|--|--|
| <p>Journeyman Electrician - Trainee</p> <ul style="list-style-type: none">- Substation- Network- Underground | <ul style="list-style-type: none">• Normally under limited supervision performs and is responsible for work associated with, but not limited to, PPL Electric facilities involving the highest degree of skill in construction and maintenance work associated with substations, LTN or underground distribution and transmission.• Uses microprocessor-based equipment for troubleshooting and revising relay logic and its control systems related to the field services electrical discipline. |
|--|--|