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E-FILE

October 31, 2023

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

M-2023-3039027-AEL-10/31/23

**Re: PPL Electric Utilities Corporation
Quarterly Reliability Report for the
Period Ended September 30, 2023
Docket No. M-2023-3039027-AEL-10/31/23**

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 September 30, 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 October 31, 2023, 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 or 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

October 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 third 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 September 30, 2023.

SAIFI	BM 0.98	0.87
	STD 1.18	087
CAIDI (Benchmark = 145; Rolling 12-month Std. = 174)	BM 145	197
	STD 174	197
SAIDI (Benchmark = 142; Rolling 12-month Std. = 205)	BM 142	172
	STD 205	172
MAIFI ¹		0.35
Average Number of Customers Served ²		1,453,920
Number of Sustained Customer Interruptions (Trouble Cases)		24,141
Number of Customers Affected ³		1,271,296
Customer Minutes of Interruptions (CMI)		250,167,969
Number of Customer Momentary Interruptions		506,791

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.

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.

³ The data reflects the number of customers interrupted for each interruption event summed for all events, also known as customer interruptions. If a customer is affected by three separate cases of trouble, that customer represents three customer interruptions, but only one customer interrupted.

During the third quarter, there were no (0) PUC major events, six (6) PUC reportable events, and thirteen (13) other storms that required the opening of one or more area emergency centers to manage restoration efforts.

For the rolling four quarters ending on 9/30/2023, storm impacts remain highly elevated by historical standards. PPL Electric has seen 39 storms (PUC and non-PUC) during the first nine months of 2023. This is the most storms recorded from January through September for any year on record.

PPL Electric’s third quarter reliability performance saw SAIFI within the PUC standard and benchmark. SAIDI was within the PUC standard but above the benchmark, and CAIDI was above both the standard and the benchmark. 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.

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	99	0.69	69
2021	124	0.68	85
2022	136	0.67	90
R4Q ending 9/30/2023	136	0.67	90
IEEE First Quartile Ceiling	101	0.82	85
IEEE Second Quartile Ceiling	120	1.02	115

PPL Electric has been a top quartile 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	CAIDI	SAIFI	Customers	Cases of Trouble	Customer Minutes Interrupted (CMI)	Customer Interruptions (CI)
1	25801	500	162	3.07	1848	80	924,429	5,673
2	58402	476	136	3.5	1575	61	749,936	5,510
3	13901	469	111	4.22	1453	18	681,783	6,131
4	22803	627	361	1.74	2456	23	1,541,985	4,262
5	10904	476	156	3.03	1741	138	828,820	5,281
6	20401	825	300	2.75	1309	64	1,080,271	3,599
7	46802	759	451	1.68	1955	78	1,485,779	3,292
8	21601	375	122	3.07	1735	37	652,032	5,327
9	14403	354	146	2.41	2595	94	918,920	6,263
10	11506	449	161	2.79	1305	67	586,944	3,637
11	25501	381	149	2.55	1698	49	648,083	4,335
12	15001	429	178	2.41	1395	53	599,452	3,365
13	63201	328	104	3.14	1517	39	498,057	4,761
14	16802	603	203	2.96	884	45	533,178	2,619
15	20403	353	179	1.97	1959	96	692,729	3,856
16	17902	388	116	3.33	982	50	381,734	3,266
17	26401	307	136	2.26	2242	72	690,252	5,066
18	46302	491	204	2.41	1107	65	543,993	2,664
19	14008	680	215	3.15	801	53	544,959	2,525
20	47002	312	149	2.09	2030	59	634,961	4,252
21	65904	327	123	2.66	1439	13	470,639	3,825
22	54101	289	89	3.24	1700	54	491,624	5,514
23	15603	357	137	2.6	1127	22	402,968	2,929
24	40901	379	161	2.36	1144	54	434,363	2,697

WPC Rank	Feeder ID	SAIDI	CAIDI	SAIFI	Customers	Cases of Trouble	Customer Minutes Interrupted (CMI)	Customer Interruptions (CI)
25	13601	797	389	2.05	1136	49	906,323	2,329
26	16101	364	206	1.76	1567	68	571,217	2,761
27	17002	278	60	4.62	1079	44	300,207	4,986
28	40201	281	122	2.3	1674	81	470,675	3,847
29	42902	393	184	2.13	1209	40	476,252	2,575
30	46702	399	196	2.03	1255	58	501,983	2,552
31	45402	312	180	1.73	1643	82	513,594	2,841
32	24101	255	124	2.05	1998	36	511,015	4,093
33	18603	475	233	2.03	1113	34	529,373	2,264
34	22406	402	165	2.43	955	31	384,121	2,319
35	23902	300	168	1.79	1498	38	450,464	2,676
36	10601	350	253	1.38	1705	77	597,792	2,359
37	11502	537	133	4.03	500	18	268,947	2,013
38	45602	232	120	1.94	2445	54	569,379	4,743
39	27102	353	133	2.65	896	43	316,892	2,376
40	53501	251	153	1.63	2173	75	545,851	3,547
41	46004	235	121	1.94	2070	45	488,029	4,007
42	24602	298	169	1.77	1427	61	426,361	2,521
43	40101	227	127	1.78	2164	53	492,086	3,858
44	42701	250	134	1.86	1468	65	367,996	2,728
45	45001	229	118	1.93	1803	54	414,504	3,487
46	42401	440	157	2.8	714	40	314,235	2,001
47	52401	226	80	2.82	1307	69	296,548	3,691
48	25602	527	377	1.4	1321	26	696,840	1,844
49	53601	349	181	1.93	1120	38	391,901	2,161
50	13606	311	230	1.35	1644	31	511,778	2,220
51	64904	194	93	2.09	3207	13	624,591	6,713
52	43202	277	137	2.02	1161	63	321,723	2,340
53	17802	286	251	1.14	1976	67	566,818	2,253
54	41701	300	134	2.24	980	52	294,524	2,193
55	41902	305	197	1.55	1390	64	424,971	2,150
56	43401	328	157	2.08	990	57	325,659	2,063
57	43101	593	274	2.17	759	23	450,828	1,645
58	41602	242	82	2.93	844	56	204,937	2,477
59	12402	376	114	3.29	558	37	209,974	1,836
60	14306	184	96	1.91	2595	12	477,959	4,957
61	23401	230	160	1.43	1740	52	400,845	2,494
62	29402	196	99	1.97	1725	55	338,990	3,399
63	25402	190	110	1.73	1800	68	343,231	3,119

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

01 Circuit 25801 -- SULLIVAN TRAIL 58-01

Performance Analysis

The SULLIVAN TRAIL 58-01 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On December 16, 2022, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 165 customers for up to 814 minutes resulting in 134,184 CMI.

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 80 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (52); animal contacts (12); equipment failure (11); nothing found (2); other (2); vehicles (1).

Remedial Actions

- In 2023, settings on an existing recloser were optimized.
- In 2023, additional fusing will be installed.
- In 2023, additional hazard tree removal will be evaluated.
- In 2023, two additional single-phase reclosers will be installed.
- In 2023, a single-phase tap will be evaluated for additional protective devices.
- In 2024, two sections of single-phase conductor in a heavily wooded area will be relocated.

02 Circuit 58402 -- MOUNT ROCK 84-02

Performance Analysis

The MOUNT ROCK 84-02 circuit experienced three outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On November 3, 2022, an equipment failure occurred on a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 1,565 customers for up to 273 minutes resulting in 75,052 CMI.

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 61 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (24); equipment failure (19); animal contacts (8); vehicles (4); nothing found (3); other (2); contact or dig in (1).

Remedial Actions

- In 2023, additional fusing was installed.
- In 2023, full circuit trimming will be performed.
- In 2023, a new tie line will be installed.
- In 2023, a three-phase device will be evaluated for upgrade to remote operability.
- In 2023, an additional three-phase sectionalizing device will be evaluated.

03 Circuit 13901 -- SEIDERSVILLE 39-01

Performance Analysis

The SEIDERSVILLE 39-01 circuit experienced three outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On December 6, 2022, an equipment failure occurred on an overhead switch causing a circuit breaker to trip to lockout. This outage affected 735 customers for up to 52 minutes resulting in 38,220 CMI.

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 18 outages between October 2022 and September 2023, with the causes breaking down as follows: equipment failure (12); tree related (4); nothing found (2).

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 will be removed and the customers re-sourced.
- In 2023 several poles and cross arms will be replaced.

04 Circuit 22803 -- HAUTO 28-03

Performance Analysis

The HAUTO 28-03 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 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 23 outages between October 2022 and September 2023, with the causes breaking down as follows: equipment failure (10); tree related (8); other (3); animal contacts (1); vehicles (1).

Remedial Actions

- In 2023, an additional sectionalizing device will be installed.
- In 2023, reconductoring a tie line will be evaluated.
- In 2023, an additional recloser will be evaluated.
- In 2023, a new line and terminal will be evaluated.

05 Circuit 10904 -- COOPERSBURG 09-04

Performance Analysis

The COOPERSBURG 09-04 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On October 27, 2022, a tree contacted a pole or pole arm causing an interruption. This outage affected 1,732 customers for up to 187 minutes resulting in 41,814 CMI.

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 138 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (110); equipment failure (15); animal contacts (6); other (3); vehicles (3); nothing found (1).

Remedial Actions

- In 2023, a section of conductor in a heavily wooded area will be evaluated for reconductoring with covered conductor.
- In 2023, a section of this circuit will be evaluated for reconfiguration.
- In 2023, settings on a protective device will be optimized.
- In 2023, additional fusing will be installed.
- In 2023, additional single-phase reclosers will be evaluated.
- In 2023, a cross arm will be replaced.
- In 2023, an existing recloser will be evaluated for replacement with a Smart Grid device.
- In 2023, additional single-phase tie capability will be evaluated.
- In 2024, additional fuses will be installed.
- In 2025, the substation will be relocated outside of the flood zone.

06 Circuit 20401 -- ASHFIELD 04-01

Performance Analysis

The ASHFIELD 04-01 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 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 64 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (32); equipment failure (12); animal contacts (10); nothing found (7); vehicles (3).

Remedial Actions

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

07 Circuit 46802 -- HEPBURN 68-02

Performance Analysis

The HEPBURN 68-02 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 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 78 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (51); equipment failure (20); animal contacts (3); nothing found (3); vehicles (1).

Remedial Actions

- In 2023, additional animal guarding will be installed.
- In 2024, additional fusing will be installed.
- In 2025, a section of single-phase in a difficult-to-access location will be relocated.

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 October 2022 and September 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 37 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (17); equipment failure (11); animal contacts (5); nothing found (2); other (1); vehicles (1).

Remedial Actions

- In 2023, additional animal guarding will be installed.
- In 2023, additional fusing will be installed.
- In 2023, numerous porcelain cutouts will be replaced.
- In 2023, a section of difficult-to-access conductor will be evaluated for relocation.
- In 2024, an additional Smart Grid device will be installed.
- In 2024, a section of difficult-to-access conductor will be relocated.

09 Circuit 14403 -- SO SLATINGTON 44-03

Performance Analysis

The SO SLATINGTON 44-03 circuit experienced four outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On November 20, 2022, during a period of strong wind, a tree contacted an overhead conductor causing an interruption. This outage affected 699 customers for up to 296 minutes resulting in 127,969 CMI.

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 94 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (55); equipment failure (19); animal contacts (11); vehicles (4); other (3); nothing found (2).

Remedial Actions

- In 2023, multiple poles were replaced.
- In 2023, a crossarm and insulator were replaced.
- In 2023, an existing recloser was replaced with a Smart Grid device.
- In 2023, a single-phase recloser will be installed.
- In 2023, an additional single-phase recloser will be evaluated.
- In 2024, several sections of conductor will be replaced.
- In 2024, an existing recloser will be evaluated for replacement with a Smart Grid device.

10 Circuit 11506 -- FREEMANSBURG 15-06

Performance Analysis

The FREEMANSBURG 15-06 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 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 67 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (46); equipment failure (10); animal contacts (6); nothing found (2); contact or dig in (1); other (1); vehicles (1).

Remedial Actions

- In 2023, an additional single-phase recloser will be installed.
- In 2023, additional fusing will be installed.
- In 2023, coordination of protective devices will be evaluated.
- In 2023, two additional single-phase reclosers will be evaluated.
- In 2023, additional single-phase looping will be evaluated.
- In 2025, a new substation will be constructed.

11 Circuit 25501 -- MADISONVILLE 55-01

Performance Analysis

The MADISONVILLE 55-01 circuit experienced three outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On December 1, 2022, during a period of strong wind, a tree contacted an unknown component causing a circuit breaker to trip to lockout. This outage affected 1,692 customers for up to 400 minutes resulting in 289,076 CMI.

On December 1, 2022, during a period of strong wind, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 537 customers for up to 245 minutes resulting in 31,600 CMI.

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 49 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (27); animal contacts (9); equipment failure (8); nothing found (2); vehicles (2); other (1).

Remedial Actions

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

12 Circuit 15001 -- BLUE MOUNTAIN 50-01

Performance Analysis

The BLUE MOUNTAIN 50-01 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On November 26, 2022, a vehicle contacted a pole. This outage affected 1,092 customers for up to 10 minutes resulting in 10,909 CMI.

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 53 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (33); animal contacts (8); nothing found (5); equipment failure (4); vehicles (3).

Remedial Actions

- In 2023, several poles were replaced.
- In 2023, additional fusing will be installed.
- In 2023, additional animal guarding will be installed.
- In 2023, settings will be optimized on a three-phase protective device.
- In 2024, an additional single-phase recloser will be installed.
- In 2024, a section of single-phase conductor will be reconfigured.
- In 2024, a Proactive Circuit Analysis will be performed.

13 Circuit 63201 -- MORGANTOWN 32-01

Performance Analysis

The MORGANTOWN 32-01 circuit experienced three outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On March 30, 2023, during a period of heavy rain, an equipment failure occurred on a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 780 customers for up to 301 minutes resulting in 148,043 CMI.

On July 21, 2023, during a period of lightning, an equipment failure occurred on an overhead switch causing a circuit breaker to trip to lockout. This outage affected 2,070 customers for up to 238 minutes resulting in 83,280 CMI.

On December 20, 2022, a vehicle contacted a pole causing a recloser to trip to lockout. This outage affected 746 customers for up to 111 minutes resulting in 65,521 CMI.

In total, the MORGANTOWN 32-01 circuit had 39 outages between October 2022 and September 2023, with the causes breaking down as follows: equipment failure (18); tree related (9); nothing found (5); animal contacts (3); vehicles (3); contact or dig in (1).

Remedial Actions

- In 2022, additional fusing was installed.
- In 2023, a section of single-phase was reconnected.
- In 2023, additional fusing will be installed.
- In 2023, a section of line will be evaluated for relocation.
- In 2024, additional fusing will be installed.
- In 2026, full circuit trimming will be performed.
- In 2026, a section of three-phase will be relocated.

14 Circuit 16802 – WAGNERS 68-02

Performance Analysis

The WAGNERS 68-02 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 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.

In total, the WAGNERS 68-02 circuit had 45 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (32); animal contacts (6); equipment failure (4); vehicles (2); nothing found (1).

Remedial Actions

- In 2022, full circuit trimming was performed.
- In 2023, an existing recloser was replaced with another replacement planned.
- In 2023, several poles were replaced or reinforced.
- In 2023, additional animal guarding will be installed.

15 Circuit 20403 -- ASHFIELD 04-03

Performance Analysis

The ASHFIELD 04-03 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On October 27, 2022, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 533 customers for up to 177 minutes resulting in 48,475 CMI.

In total, the ASHFIELD 04-03 circuit had 96 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (55); equipment failure (16); animal contacts (11); nothing found (8); vehicles (5); other (1).

Remedial Actions

- In 2023, ten single-phase reclosers were installed.
- In 2023, a single-phase tie will be constructed to the ASHFIELD 01 circuit.
- In 2023, a section of conductor will be evaluated for relocation.
- In 2023, additional fusing will be evaluated.
- In 2024, two sections of difficult-to-access conductor will be relocated.
- In 2024, full circuit trimming will be performed.

16 Circuit 17902 -- BARTONSVILLE 79-02

Performance Analysis

The BARTONSVILLE 79-02 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On November 28, 2022, a tree contacted an overhead conductor. This outage affected 824 customers for up to 126 minutes resulting in 50,760 CMI.

In total, the BARTONSVILLE 79-02 circuit had 50 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (32); animal contacts (12); equipment failure (3); contact or dig in (1); nothing found (1); other (1).

Remedial Actions

- In 2023, a section of three-phase was reconducted.
- In 2023, two single-phase reclosers were installed.
- In 2023, additional animal guarding will be installed.
- In 2023, several poles will be replaced.
- In 2023, a section of conductor will be relocated underground.
- 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.

17 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 October 2022 and September 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 72 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (36); animal contacts (16); equipment failure (12); nothing found (7); Improper Design (1).

Remedial Actions

- In 2023, a section of difficult-to-access conductor was relocated.
- In 2023, additional animal guarding will be installed.
- In 2025, a section of difficult-to-access conductor will be relocated.

- In 2025, full circuit trimming will be performed.
- In 2025, four single-phase reclosers will be installed.

18 Circuit 46302 -- ROHRSBURG 63-02

Performance Analysis

The ROHRSBURG 63-02 circuit experienced no outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

In total, the ROHRSBURG 63-02 circuit had 65 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (46); animal contacts (9); nothing found (5); equipment failure (4); other (1).

Remedial Actions

- In 2022, additional fusing was installed.
- In 2022, a section of difficult-to-access conductor was relocated.
- In 2023, additional fusing will be installed.
- In 2025, a section of difficult-to-access conductor will be relocated.
- In 2025, full circuit trimming will be performed.

19 Circuit 14008 -- SELLERSVILLE 40-08

Performance Analysis

The SELLERSVILLE 40-08 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 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 53 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (39); nothing found (4); vehicles (4); equipment failure (3); other (2); animal contacts (1).

Remedial Actions

- In 2023, a section of single-phase line was extended.
- In 2023, proactive fault sensors were installed.
- In 2023, additional animal guarding will be installed.
- In 2024, additional fusing will be installed.
- In 2024, a single-phase recloser will be installed.

20 Circuit 47002 -- HUGHESVILLE 70-02

Performance Analysis

The HUGHESVILLE 70-02 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 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 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (42); equipment failure (7); animal contacts (5); vehicles (4); nothing found (1).

Remedial Actions

- In 2023, a section of difficult-to-access single-phase will be evaluated for relocation.
- In 2023, two sections of single-phase will be evaluated for undergrounding or reconductoring.
- In 2023, additional animal guarding will be installed.
- In 2024, several sections of this circuit will be storm hardened.

21 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 October 2022 and September 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 417 minutes resulting in 455,220 CMI. This was the only significant outage on this circuit, which was carrying another circuit at the time.

In total, the SOUTH AKRON 59-04 circuit had 13 outages between October 2022 and September 2023, with the causes breaking down as follows: equipment failure (8); animal contacts (3); tree related (2).

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 will be installed.

22 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 October 2022 and September 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 523 minutes resulting in 127,772 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 54 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (30); equipment failure (15); animal contacts (6); nothing found (2); other (1).

Remedial Actions

- In 2023, additional fusing will be installed.
- In 2023, a single-phase recloser will be evaluated.
- In 2023, additional fusing will be evaluated.
- In 2023, converting three existing reclosers to remote operability will be evaluated.
- In 2024, full circuit trimming will be performed.

23 Circuit 15603 -- NO STROUDSBURG 56-03

Performance Analysis

The NO STROUDSBURG 56-03 circuit experienced four outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On October 27, 2022, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 552 customers for up to 82 minutes resulting in 45,258 CMI.

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 22 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (15); equipment failure (4); animal contacts (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 2025, full circuit trimming will be performed.

24 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 October 2022 and September 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 a motor operated switch to be interrupted. This outage affected 768 customers for up to 19 minutes resulting in 14,330 CMI.

In total, the JERSEY SHORE 09-01 circuit had 54 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (37); equipment failure (10); animal contacts (5); nothing found (1); vehicles (1).

Remedial Actions

- In 2023, an additional Smart Grid device will be evaluated.
- In 2023, tree guarding cable will be evaluated.
- In 2023, four porcelain cutouts will be replaced.
- In 2023, additional animal guarding will be evaluated.

25 Circuit 13601 -- RICHLAND 36-01

Performance Analysis

The RICHLAND 36-01 circuit experienced four outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On November 12, 2022, during a period of strong wind, a tree contacted a pole or pole arm causing a recloser to trip to lockout. This outage affected 222 customers for up to 817 minutes resulting in 177,011 CMI.

On December 24, 2022, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 164 customers for up to 970 minutes resulting in 130,734 CMI.

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 49 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (37); nothing found (4); equipment failure (3); vehicles (3); animal contacts (1); contact or dig in (1).

Remedial Actions

- In 2023, additional fusing was installed.
- In 2023, several poles will be replaced.
- In 2023, proactive fault sensors will be installed on this circuit.
- In 2023, coordination of protective devices will be evaluated.
- In 2023, additional animal guarding will be installed.
- In 2024, additional fusing will be installed.
- In 2024, a new tie line will be evaluated.

26 Circuit 16101 -- BINGEN 61-01

Performance Analysis

The BINGEN 61-01 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On January 5, 2023, a tree contacted an overhead conductor causing an interruption. This outage affected 428 customers for up to 482 minutes resulting in 206,107 CMI.

On July 15, 2023, during a period of strong wind, a tree contacted an overhead splice causing a recloser to trip to lockout. This outage affected 538 customers for up to 219 minutes resulting in 21,347 CMI.

In total, the BINGEN 61-01 circuit had 68 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (55); animal contacts (6); equipment failure (5); vehicles (2).

Remedial Actions

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

27 Circuit 17002 -- RIDGE ROAD 70-02

Performance Analysis

The RIDGE ROAD 70-02 circuit experienced three outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On October 1, 2022, an equipment failure occurred on a substation component causing a circuit breaker to trip to lockout. This outage affected 1,072 customers for up to 21 minutes resulting in 10,542 CMI.

On March 14, 2023, during a period of strong wind, a tree contacted an overhead splice causing a circuit breaker to trip to lockout. This outage affected 1,078 customers for up to 269 minutes resulting in 37,939 CMI.

On August 13, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,073 customers for up to 162 minutes resulting in 25,626 CMI.

In total, the RIDGE ROAD 70-02 circuit had 44 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (29); equipment failure (10); nothing found (3); animal contacts (1); other (1).

Remedial Actions

- In 2023, additional animal guarding was installed.
- In 2023, additional fusing was installed.
- In 2023, the protection settings on this circuit will be re-evaluated.
- In 2023, a pole will be replaced.
- In 2023, a single-phase recloser will be installed.
- In 2024, a three-phase recloser will be upgraded.

- In 2024, a new tie line will be evaluated.
- In 2025, full circuit trimming will be performed.

28 Circuit 40201 -- BEAR GAP 02-01

Performance Analysis

The BEAR GAP 02-01 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On December 22, 2022, during a period of heavy rain, an equipment failure occurred on an overhead switch causing a recloser to trip to lockout. This outage affected 1,675 customers for up to 161 minutes resulting in 65,742 CMI.

In total, the BEAR GAP 02-01 circuit had 81 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (56); equipment failure (14); animal contacts (7); nothing found (3); vehicles (1).

Remedial Actions

- In 2022, a section of conductor in a heavily wooded area was undergrounded.
- In 2022, a section of single-phase conductor was relocated.
- In 2022, approximately 150 hazard trees were removed.
- In 2023, a three-phase recloser was replaced.
- In 2024, additional fusing will be installed.

29 Circuit 42902 -- MIDDLEBURG 29-02

Performance Analysis

The MIDDLEBURG 29-02 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 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 40 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (31); equipment failure (6); animal contacts (2); nothing found (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.

30 Circuit 46702 -- RENOVO 67-02

Performance Analysis

The RENOVO 67-02 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On October 13, 2022, during a period of strong wind, a tree contacted a pole or pole arm causing a recloser to trip to lockout. This outage affected 846 customers for up to 49 minutes resulting in 41,454 CMI.

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 58 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (51); nothing found (5); animal contacts (1); equipment failure (1).

Remedial Actions

- In 2022, an additional sectionalizing device was installed.
- In 2022, an additional single-phase recloser was installed.
- In 2023, additional single-phase reclosers will be evaluated for this circuit.
- In 2023, protective tree cable or undergrounding will be evaluated for this circuit.
- In 2024, full circuit trimming will be performed.

31 Circuit 45402 -- WEST BLOOMSBURG 54-02

Performance Analysis

The WEST BLOOMSBURG 54-02 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 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.

In total, the WEST BLOOMSBURG 54-02 circuit had 82 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (61); equipment failure (9); animal contacts (5); nothing found (4); vehicles (2); other (1).

Remedial Actions

- In 2022, additional fusing was installed.
- In 2023, a circuit review will be performed.
- In 2023, hot spot trimming will be performed.
- In 2023, the protection settings on this circuit will be reviewed.

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 October 2022 and September 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 36 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (12); animal contacts (10); equipment failure (9); nothing found (2); other (2); 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 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 October 2022 and September 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 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (25); equipment failure (7); nothing found (2).

Remedial Actions

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

34 Circuit 22406 -- MORGAN 24-06

Performance Analysis

The MORGAN 24-06 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On December 16, 2022, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 148 customers for up to 955 minutes resulting in 141,322 CMI.

On December 16, 2022, during a period of heavy rain, a tree contacted a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 994 customers for up to 2,086 minutes resulting in 50,459 CMI.

In total, the MORGAN 24-06 circuit had 31 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (20); animal contacts (7); equipment failure (3); contact or dig in (1).

Remedial Actions

- In 2023, additional fusing was installed.
- In 2023 a section of underground cable was installed.
- In 2023, numerous porcelain cutouts were replaced.
- In 2023, an additional single-phase recloser will be installed.
- In 2024, a new Smart Grid device will be installed.
- In 2024, four single-phase reclosers will be installed.

35 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 October 2022 and September 2023.

On December 17, 2022, a vehicle contact occurred causing a recloser to trip to lockout. This outage affected 779 customers for up to 637 minutes resulting in 214,246 CMI.

In total, the EFFORT MOUNTAIN 39-02 circuit had 38 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (20); animal contacts (8); equipment failure (6); vehicles (2); nothing found (1); other (1).

Remedial Actions

- In 2023, several poles were replaced with more to be performed.
- 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 2023, additional animal guarding was installed.
- In 2023, numerous porcelain cutouts will be replaced.

36 Circuit 10601 -- BLOOMING GLEN 06-01

Performance Analysis

The BLOOMING GLEN 06-01 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 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.

In total, the BLOOMING GLEN 06-01 circuit had 77 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (61); equipment failure (8); animal contacts (6); nothing found (2).

Remedial Actions

- In 2023, an additional single-phase recloser was installed.
- In 2023, additional animal guarding will be installed.
- In 2023, additional fusing will be installed.
- In 2023, proactive fault sensors will be installed.

- In 2024, an additional Smart Grid device will be evaluated for this circuit.

37 Circuit 11502 -- FREEMANSBURG 15-02

Performance Analysis

The FREEMANSBURG 15-02 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On November 28, 2022, during a period of heavy rain, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,296 customers for up to 596 minutes resulting in 132,635 CMI.

In total, the FREEMANSBURG 15-02 circuit had 18 outages between October 2022 and September 2023, with the causes breaking down as follows: equipment failure (7); animal contacts (5); tree related (5); nothing found (1).

Remedial Actions

- In 2023, a new tie point was constructed.
- In 2023, full circuit trimming will be performed.
- In 2023, several sections of secondary will be replaced.

38 Circuit 45602 -- WOOLRICH 56-02

Performance Analysis

The WOOLRICH 56-02 circuit experienced three outages of over 100,000 CMI or 500 CI between October 2022 and September 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 54 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (39); equipment failure (8); animal contacts (5); nothing found (2).

Remedial Actions

- In 2023, additional animal guarding was installed.
- In 2023, two additional single-phase reclosers were installed.
- In 2023, a section of difficult-to-access three-phase conductor will be evaluated for undergrounding or tree cable.
- In 2023, a section of three-phase conductor will be evaluated for relocation.
- In 2023, full circuit trimming will be performed.
- In 2024, predictive fault sensors will be installed on a section of this circuit.
- In 2024, an existing recloser will be upgraded to a Smart Grid device.

39 Circuit 27102 -- GREENFIELD 71-02

Performance Analysis

The GREENFIELD 71-02 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On December 16, 2022, during a period of ice/sleet/snow, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 73 customers for up to 1,501 minutes resulting in 106,526 CMI.

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 43 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (24); animal contacts (7); equipment failure (6); other (3); nothing found (2); vehicles (1).

Remedial Actions

- In 2023, one single-phase recloser was installed with two more to be installed this year.
- In 2023, additional animal guarding will be installed.
- In 2023, several porcelain cutouts will be replaced.
- In 2023, 16 poles will be replaced.
- In 2023, an additional Smart Grid device will be evaluated for this circuit.
- In 2024, a section of this circuit will be reconducted or relocated.
- In 2024, three single-phase reclosers will be installed.
- In 2024, proactive fault sensors will be installed on this circuit.

40 Circuit 53501 -- ELIZABETHVILLE 35-01

Performance Analysis

The ELIZABETHVILLE 35-01 circuit experienced four outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On October 3, 2022, during a period of heavy rain, a tree contacted a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 575 customers for up to 164 minutes resulting in 93,937 CMI.

On December 22, 2022, during a period of strong wind, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 563 customers for up to 129 minutes resulting in 72,627 CMI.

On December 22, 2022, during a period of strong wind, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 563 customers for up to 241 minutes resulting in 135,683 CMI.

On May 31, 2023, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 805 customers for up to 58 minutes resulting in 46,690 CMI.

In total, the ELIZABETHVILLE 35-01 circuit had 75 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (42); animal contacts (11); equipment failure (10); nothing found (5); vehicles (5); other (2).

Remedial Actions

- In 2023, a single-phase recloser was installed.
- In 2023, fusing was installed at two locations.
- In 2023, additional fusing will be installed.
- In 2023, the circuit coordination and protection settings will be reviewed.
- In 2024, an additional fuse will be installed.
- In 2025, full circuit trimming will occur.

41 Circuit 46004 -- BERWICK 60-04

Performance Analysis

The BERWICK 60-04 circuit experienced three outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On December 6, 2022, during a period of heavy rain, an equipment failure occurred on an overhead conductor. This outage affected 795 customers for up to 13 minutes resulting in 10,335 CMI.

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 45 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (25); animal contacts (8); equipment failure (8); nothing found (2); 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, a single-phase recloser will be 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.

42 Circuit 24602 -- VARDEN 46-02

Performance Analysis

The VARDEN 46-02 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 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 61 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (41); equipment failure (9); animal contacts (6); nothing found (3); other (1); vehicles (1).

Remedial Actions

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

43 Circuit 40101 -- HUNTER 01-01

Performance Analysis

The HUNTER 01-01 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On October 3, 2022, a tree contacted an overhead conductor causing an interruption. This outage affected 682 customers for up to 125 minutes resulting in 73,696 CMI.

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.

In total, the HUNTER 01-01 circuit had 53 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (29); equipment failure (9); animal contacts (8); nothing found (4); vehicles (2); contact or dig in (1).

Remedial Actions

- In 2023, tree shielding cable will be evaluated for this circuit.
- In 2023, a pole will be replaced.
- In 2023, a single-phase recloser will be installed.
- In 2025, full circuit trimming will be performed.
- In 2026, a new tie line will be constructed.

44 Circuit 42701 -- AUGUSTAVILLE 27-01

Performance Analysis

The AUGUSTAVILLE 27-01 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On November 8, 2022, a tree contacted an overhead conductor. This outage affected 547 customers for up to 139 minutes resulting in 32,697 CMI.

In total, the AUGUSTAVILLE 27-01 circuit had 65 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (43); equipment failure (11); animal contacts (9); nothing found (1); Unknown (1).

Remedial Actions

- In 2023, fuses were installed at four locations.
- In 2023, a Smart Grid device was installed.
- In 2023, a section of single-phase will be evaluated for reconductoring and relocation.
- In 2023, undergrounding will be evaluated for a section of single-phase conductor.
- In 2022, a section of difficult-to-access conductor was relocated.

- In 2024, fuses will be installed at nine locations.
- In 2025, a section of single-phase will be undergrounded.
- In 2025, a section of difficult-to-access conductor will be relocated.

45 Circuit 45001 -- LIMESTONE 50-01

Performance Analysis

The LIMESTONE 50-01 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 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 54 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (30); equipment failure (11); animal contacts (8); vehicles (4); nothing found (1).

Remedial Actions

- In 2023, an additional single-phase recloser was installed.
- In 2023, a Proactive Circuit Analysis will be performed.
- In 2024, fusing will be installed at eleven 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.

46 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 October 2022 and September 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 40 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (28); animal contacts (5); equipment failure (5); nothing found (2).

Remedial Actions

- In 2023, an additional sectionalizing device will be evaluated.
- In 2023, hot spot trimming will be evaluated.
- In 2024, additional fusing will be installed at several locations.
- In 2024, an existing pole will be replaced.

47 Circuit 52401 -- GREEN PARK 24-01

Performance Analysis

The GREEN PARK 24-01 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On March 27, 2023, an unidentified issue occurred with an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,318 customers for up to 12 minutes resulting in 14,919 CMI.

On April 16, 2023, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 562 customers for up to 84 minutes resulting in 47,118 CMI.

In total, the GREEN PARK 24-01 circuit had 69 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (52); equipment failure (9); animal contacts (3); nothing found (2); vehicles (2); other (1).

Remedial Actions

- In 2023, an additional sectionalizing device was installed.
- In 2023, full circuit trimming will be performed.
- In 2024, a new battery storage installation will be installed.
- In 2025, a section of single-phase will be relocated.
- In 2025, a section of single-phase will be relocated and undergrounded.
- In 2025, an additional sectionalizing device will be installed.

48 Circuit 25602 -- ARROWHEAD 56-02

Performance Analysis

The ARROWHEAD 56-02 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On December 16, 2022, during a period of ice/sleet/snow, a tree contacted a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 613 customers for up to 764 minutes resulting in 468,338 CMI.

On February 22, 2023, during a period of strong wind, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 197 customers for up to 617 minutes resulting in 121,207 CMI.

In total, the ARROWHEAD 56-02 circuit had 26 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (19); equipment failure (6); animal contacts (1).

Remedial Actions

- In 2022, a new three-phase tie line was constructed.
- In 2023, additional fusing will be evaluated.
- In 2023, splitting a large, single-phase tap will be evaluated.
- In 2024, full circuit trimming will be performed.

49 Circuit 53601 -- DALMATIA 36-01

Performance Analysis

The DALMATIA 36-01 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On October 15, 2022, a vehicle contacted a pole causing a recloser to trip to lockout. This outage affected 322 customers for up to 361 minutes resulting in 116,045 CMI.

On June 12, 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 746 customers for up to 122 minutes resulting in 82,234 CMI.

In total, the DALMATIA 36-01 circuit had 38 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (21); equipment failure (6); nothing found (5); animal contacts (3); vehicles (3).

Remedial Actions

- In 2023, additional fusing was installed.
- In 2023, a three-phase device will be upgraded to remote operability.
- In 2025, a three-phase tie will be constructed to the HUNTER circuit.

50 Circuit 13606 -- RICHLAND 36-06

Performance Analysis

The RICHLAND 36-06 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On September 12, 2023, a vehicle contacted a pole causing an interruption. This outage affected 511 customers for up to 615 minutes resulting in 60,117 CMI.

In total, the RICHLAND 36-06 circuit had 31 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (22); equipment failure (6); nothing found (2); vehicles (1).

Remedial Actions

- In 2023, additional animal guarding was installed.
- In 2023, additional fusing was installed.
- In 2023, coordination of protective devices will be reviewed.
- In 2024, additional single-phase reclosers will be installed.
- In 2024, full circuit trimming will be performed.

51 Circuit 64904 -- MILLERSVILLE 49-04

Performance Analysis

The MILLERSVILLE 49-04 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 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 13 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (5); equipment failure (4); contact or dig in (2); animal contacts (1); vehicles (1).

Remedial Actions

- In 2023 a three-phase tap in a heavily wooded area will be evaluated for relocation and potential reconfiguration.
- In 2023 a single-phase tap in a heavily wooded area will be evaluated for reconductoring.
- In 2024 additional fusing will be installed.
- In 2025 a single-phase recloser will be installed.
- In 2025 additional fusing will be installed.
- In 2026, full circuit trimming will be performed.

52 Circuit 43202 -- MILLVILLE 32-02

Performance Analysis

The MILLVILLE 32-02 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On November 15, 2022, during a period of ice/sleet/snow, a tree contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 998 customers for up to 420 minutes resulting in 58,458 CMI.

In total, the MILLVILLE 32-02 circuit had 63 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (50); nothing found (4); animal contacts (3); equipment failure (3); vehicles (3).

Remedial Actions

- In 2023, full circuit trimming will be performed.
- In 2023, a section of single-phase will be evaluated for undergrounding.
- In 2023, a section of single-phase will be evaluated for relocation.
- In 2024, multiple cross-arms will be replaced.

53 Circuit 17802 -- GILBERT 78-02

Performance Analysis

The GILBERT 78-02 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On April 29, 2023, during a period of heavy rain, a tree contacted a pole or pole arm causing an interruption. This outage affected 240 customers for up to 774 minutes resulting in 109,384 CMI.

In total, the GILBERT 78-02 circuit had 67 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (50); animal contacts (8); equipment failure (5); vehicles (3); nothing found (1).

Remedial Actions

- In 2023, additional animal guarding will be installed.
- In 2023, several poles will be replaced.
- In 2023, proactive fault sensors will be installed on this circuit.
- In 2024, a new Smart Grid device will be installed.
- In 2024, three single-phase reclosers will be installed.
- In 2024, two sections of difficult-to-access single-phase will be relocated.
- In 2024, two existing reclosers will be replaced with Smart Grid devices.
- In 2024, numerous porcelain cutouts will be replaced.

54 Circuit 41701 -- LOGANTON 17-01

Performance Analysis

The LOGANTON 17-01 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 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 52 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (36); equipment failure (9); animal contacts (6); vehicles (1).

Remedial Actions

- In 2023, two Smart Grid devices were installed.
- In 2023, a section of single-phase conductor will be evaluated for relocation and partial undergrounding.
- In 2023, additional animal guarding will be evaluated.
- In 2023, additional fusing will be evaluated.

55 Circuit 41902 -- REED 19-02

Performance Analysis

The REED 19-02 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 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 64 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (37); equipment failure (11); animal contacts (10); nothing found (4); other (1); vehicles (1).

Remedial Actions

- In 2023, an existing recloser will be replaced with a Smart Grid device.
- In 2023, a section of single-phase will be evaluated for re-sourcing.
- In 2023, hazard tree removal will be evaluated for this circuit.
- In 2026, a section of single-phase conductor will be upgraded to multi-phase.

56 Circuit 43401 -- BENTON 34-01

Performance Analysis

The BENTON 34-01 circuit experienced no outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

In total, the BENTON 34-01 circuit had 57 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (45); nothing found (5); animal contacts (3); equipment failure (3); other (1).

Remedial Actions

- In 2023, a Proactive Circuit Analysis will be performed.
- In 2023, a section of difficult-to-access single-phase conductor will be relocated.
- In 2023, a section 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.

57 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 October 2022 and September 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 23 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (10); animal contacts (4); equipment failure (4); vehicles (3); nothing found (2).

Remedial Actions

- In 2023, several cross-arms will be replaced.
- 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.

58 Circuit 41602 -- CLEVELAND 16-02

Performance Analysis

The CLEVELAND 16-02 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On October 4, 2022, during a period of heavy rain, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 765 customers for up to 94 minutes resulting in 27,384 CMI.

On March 15, 2023, during a period of strong wind, the circuit was taken out of service at the direction of a non-PPL authority. This outage affected 845 customers for up to 230 minutes resulting in 15,765 CMI.

In total, the CLEVELAND 16-02 circuit had 56 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (44); animal contacts (7); equipment failure (2); nothing found (2); other (1).

Remedial Actions

- In 2023, a pole was replaced.
- In 2023, a section of this circuit will be evaluated for re-sourcing.
- In 2023, undergrounding will be evaluated for a section of conductor.
- In 2023, hazard tree removal will be evaluated.
- In 2024, a new Smart Grid device will be installed.
- In 2024, additional fusing will be installed.

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 October 2022 and September 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 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (30); nothing found (4); animal contacts (2); contact or dig in (1).

Remedial Actions

- In 2023, additional fusing was installed.
- In 2023, additional animal guarding will be installed.
- In 2024, full circuit trimming will be performed.
- In 2024, additional fusing will be installed.
- In 2024, a section of this circuit will be evaluated for reconfiguration.

60 Circuit 14306 -- SUMNER 43-06

Performance Analysis

The SUMNER 43-06 circuit experienced two outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On November 7, 2022, an animal interfered with a substation component causing a circuit breaker to trip to lockout. This outage affected 2,600 customers for up to 23 minutes resulting in 58,734 CMI.

On March 24, 2023, a vehicle contact occurred causing an interruption. This outage affected 2,098 customers for up to 649 minutes resulting in 353,478 CMI.

In total, the SUMNER 43-06 circuit had 12 outages between October 2022 and September 2023, with the causes breaking down as follows: other (4); equipment failure (3); animal contacts (2); tree related (2); vehicles (1).

Remedial Actions

- In 2023, full circuit trimming will be performed.
- In 2023, additional fusing will be installed.
- In 2023, new tie devices will be evaluated.
- In 2024, substation animal guarding will be installed.
- In 2024, protective devices on the transmission line will be upgraded to telemetric devices.
- In 2025, all transformer protectors in the substation will be replaced.

61 Circuit 23401 -- HONESDALE 34-01

Performance Analysis

The HONESDALE 34-01 circuit experienced one outage of over 100,000 CMI or 500 CI between October 2022 and September 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.

In total, the HONESDALE 34-01 circuit had 52 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (23); equipment failure (10); nothing found (7); animal contacts (6); 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 will be installed.
- In 2023, numerous porcelain cutouts will be replaced.
- In 2024, additional fusing will be installed.
- In 2024, a single-phase recloser 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.

62 Circuit 29402 -- BELTZVILLE 69/12 KV 94-02

Performance Analysis

The BELTZVILLE 69/12 KV 94-02 circuit experienced three outages of over 100,000 CMI or 500 CI between October 2022 and September 2023.

On November 18, 2022, a tree contacted an overhead conductor causing a recloser to trip to lockout. This outage affected 309 customers for up to 330 minutes resulting in 101,837 CMI.

On January 3, 2023, an unidentified issue occurred causing a recloser to trip to lockout. This outage affected 666 customers for up to 21 minutes resulting in 13,986 CMI.

On May 13, 2023, an unidentified issue occurred with an overhead conductor causing a recloser to trip to lockout. This outage affected 911 customers for up to 21 minutes resulting in 18,520 CMI.

In total, the BELTZVILLE 69/12 KV 94-02 circuit had 55 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (27); animal contacts (11); equipment failure (10); nothing found (4); vehicles (2); other (1).

Remedial Actions

- In 2023, three single-phase reclosers were installed.
- In 2023, full circuit trimming was performed.
- In 2023, an existing Smart Grid device was proactively replaced.
- In 2023, an existing recloser will be replaced with a Smart grid device.
- In 2023, transferring a section of this feeder to another circuit will be evaluated.
- In 2026, a section of difficult-to-access conductor will be relocated.
- In 2026, an existing recloser will be upgraded to a Smart Grid device.

63 Circuit 25402 -- LAKE HARMONY 54-02

Performance Analysis

The LAKE HARMONY 54-02 circuit experienced three outages of over 100,000 CMI or 500 CI between October 2022 and September 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 occurred causing a recloser to trip to lockout. This outage affected 885 customers for up to 65 minutes resulting in 48,577 CMI.

In total, the LAKE HARMONY 54-02 circuit had 68 outages between October 2022 and September 2023, with the causes breaking down as follows: tree related (44); equipment failure (8); animal contacts (7); vehicles (6); other (2); nothing found (1).

Remedial Actions

- In 2023, additional fusing will be evaluated.
- In 2023, a section of conductor will be evaluated for relocation.
- In 2026, full circuit trimming will be performed.

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	3,678	15.2%	81,780	6.4%	4,917,369	2.0%
Contact / Dig-In	146	0.6%	7,696	0.6%	662,133	0.3%
Directed by Non-PPL Authority	68	0.3%	8,176	0.6%	922,925	0.4%
Equipment Failures	4,940	20.5%	261,758	20.6%	34,975,026	14.0%
Improper Design	3	0.0%	1,746	0.1%	199,430	0.1%
Improper Installation	6	0.0%	734	0.1%	81,174	0.0%
Improper Operation	-	0.0%	-	0.0%	-	0.0%
Nothing Found	1,080	4.5%	71,309	5.6%	7,922,807	3.2%
Other Controllable	56	0.2%	8,019	0.6%	401,093	0.2%
Other Non Control	352	1.5%	43,832	3.4%	4,340,068	1.7%
Other Public	34	0.1%	3,120	0.2%	129,451	0.1%
Tree Related	12,982	53.8%	683,531	53.8%	182,284,941	72.9%
Unknown	1	0.0%	5	0.0%	547	0.0%
Vehicles	795	3.3%	99,590	7.8%	13,331,005	5.3%
Total	24,141	100.0%	1,271,296	100.0%	250,167,969	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 55% of cases, 62% of customer interruptions, and 80% 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 82% of the cases of trouble, 84% of the customer interruptions and 929% of the customer minutes attributed to tree related outages were weather-related.

Animals: Animals accounted for approximately 15% 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 72% 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 35% of the cases of trouble, 42% of the customer interruptions and 55% 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)	2nd Quarter		Year-to-date	
		Budget	Actual	Budget	Actual
Transmission					
Transmission C-tag poles (# of poles)	50	11	11	15	15
Transmission arm replacements (# of arms)	18	2	2	10	10
Transmission air break switch inspections (# of switches)	3	1	1	3	3
Transmission surge arrester installations (# of sets)	72	72	72	72	72
Transmission structure inspections (# of activities)	14,524	3,662	3,662	10,369	10,369
Transmission tree side trim-Bulk Power (linear feet)	N/A				
Transmission herbicide-Bulk Power (# of acres)	N/A				
Transmission reclearing (# of miles) BES Only	901	172	172	695	547
Transmission reclearing (# of miles) 69 kV	1,651	440	440	811	760
Transmission reclearing (# of miles) 138 kV	65	28	28	65	79
Transmission danger tree removals-Bulk Power (# of trees)	N/A				
Substation					
Substation batteries (# of activities)	457	367	267	430	436
Circuit breakers (# of activities)	223	2	10	2	23
Substation inspections (# of activities)	1,391	363	247	1,098	896
Transformer maintenance (# of activities)	789	208	30	564	128

Inspection & Maintenance Goals/Objectives	Annual Budget (units)	2nd Quarter		Year-to-date	
		Budget	Actual	Budget	Actual
Distribution					
Distribution C-tag poles replaced (# of poles)	1,238	310	298	1,210	1,154
C-truss distribution poles (# of poles)	2,400	400	0	400	250
Capacitor (MVAR added)	N/A				
OCR Replacements (# of)	33	4	4	33	4
Distribution pole inspections (# of poles)	80,000	25,000	23,171	48,000	46,375
Distribution line inspections (miles)	400	0	0	400	0
Group re-lamping (# of lamps)	0	0	0	0	0
Test sections of underground distribution cable	N/A	N/A	69	N/A	187
Distribution tree trimming (# of miles)	3,921	983	864	2,850	2,739
Distribution herbicide (# of acres)	N/A		444		912
Distribution >18" removals within R/W (# of trees)	N/A		605		2,087
Distribution hazard tree removals outside R/W (# of trees)	N/A		1977		6,693
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	3rd Quarter			Year-to-date	
	Annual Budget (000s)	Budget (\$000)	Actual (\$000)	Budget (\$000)	Actual (\$000)
Provide Electric Service	4,867	1,277	1,299	3,572	5,203
Vegetation Management	32,144	9,323	8,497	25,308	24,451
Customer Response	55,137	14,928	17,972	41,077	57,116
Reliability Maintenance	16,632	2,890	7,535	15,560	19,494
System Upgrade	2,144	464	256	1,663	1,388
Customer Service/Accounts	100,417	28,310	34,464	73,130	117,028
Others	64,476	15,777	17,412	48,210	46,467
Total O&M Expenses	275,818	72,970	87,435	208,520	271,146

- 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	2nd Quarter			Year-to-date	
	Annual Budget (000s)	Budget (\$000)	Actual (\$000)	Budget (\$000)	Actual (\$000)
New Service/Revenue	81,753	21,661	24,117	61,579	93,678
System Upgrade	255,756	69,280	69,746	164,463	184,731
Reliability & Maintenance	365,545	105,111	98,871	286,582	300,065
Customer Response	44,107	13,185	22,751	34,426	55,546
Other	22,024	7,499	24,200	17,176	35,642
Total	769,185	216,736	239,685	564,226	669,663

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.

Appendix B

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.
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