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FEDERAL EXPRESS

July 31, 2018

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

Re: PPL Electric Utilities Corporation
Quarterly Reliability Report for the
Period Ended June 30, 2018
Docket No. L-00030161

M-2016-2522508

Dear Ms. Chiavetta:

Enclosed for filing on behalf of PPL Electric Utilities Corporation ("PPL Electric") is an original of PPL Electric's Quarterly Reliability Report for the Period Ended June 30, 2018. Also enclosed, in a sealed envelope, is a copy of the report containing competitively sensitive and proprietary information. The Company hereby requests that the Commission treat that information, and the report containing the information, as privileged and confidential. 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 July 31, 2018, which is the date it was deposited with an overnight express delivery service as shown on the delivery receipt attached to the mailing envelope.

In addition, please date and time-stamp the enclosed extra copy of this letter and return it to me in the envelope provided.

If you have any questions regarding this document, please call me or B. Kathryn Frazier, PPL Electric's Regulatory Affairs Manager at (610) 774-3372.

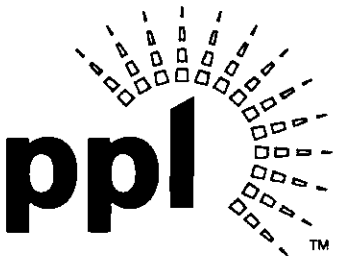
Very truly yours,

Amy E. Hirakis

Amy E. Hirakis

Enclosures

cc: Tanya J. McCloskey, Esquire
Mr. Daniel Searfoorce
Mr. John R. Evans



PPL Electric Utilities

PPL Electric Utilities Corporation

Quarterly Reliability Report

to the

Pennsylvania Public Utility Commission

July 2018

RECEIVED

JUL 31 2018

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

*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 second quarter of 2018.

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 June 30, 2018.

SAIFI (Benchmark = 0.98; Rolling 12-month Std. = 1.18)	0.78
CAIDI (Benchmark = 145; Rolling 12-month Std. = 174)	185
SAIDI (Benchmark = 142; Rolling 12-month Std. = 205)	145
MAIFI[1]	7.6
Average Number of Customers Served[2]	1,422,560
Number of Sustained Customer Interruptions (Trouble Cases)	20,052
Number of Customers Affected[3]	1,112,121
Customer Minutes of Interruptions (CMI)	206,495,562
Number of Customer Momentary Interruptions	10,852,874

During the second quarter, there were no (0) PUC major events, three (3) PUC reportable events, and four (4) other storms that required the opening of one or more area emergency centers to manage restoration efforts. The PUC reportable storm of May 15 approached major event status, with 8.6% of the customer base interrupted. At over 1,500 trouble cases, this was a top 15 all-time storm as measured by cases. However, recent investments in reducing customer blocks and automated sectionalizing kept the customer interruption count below the major event threshold. Had this event been excludable, the reliability index values would have been 0.70 for SAIFI; 130 for CAIDI; and 91 for SAIDI.

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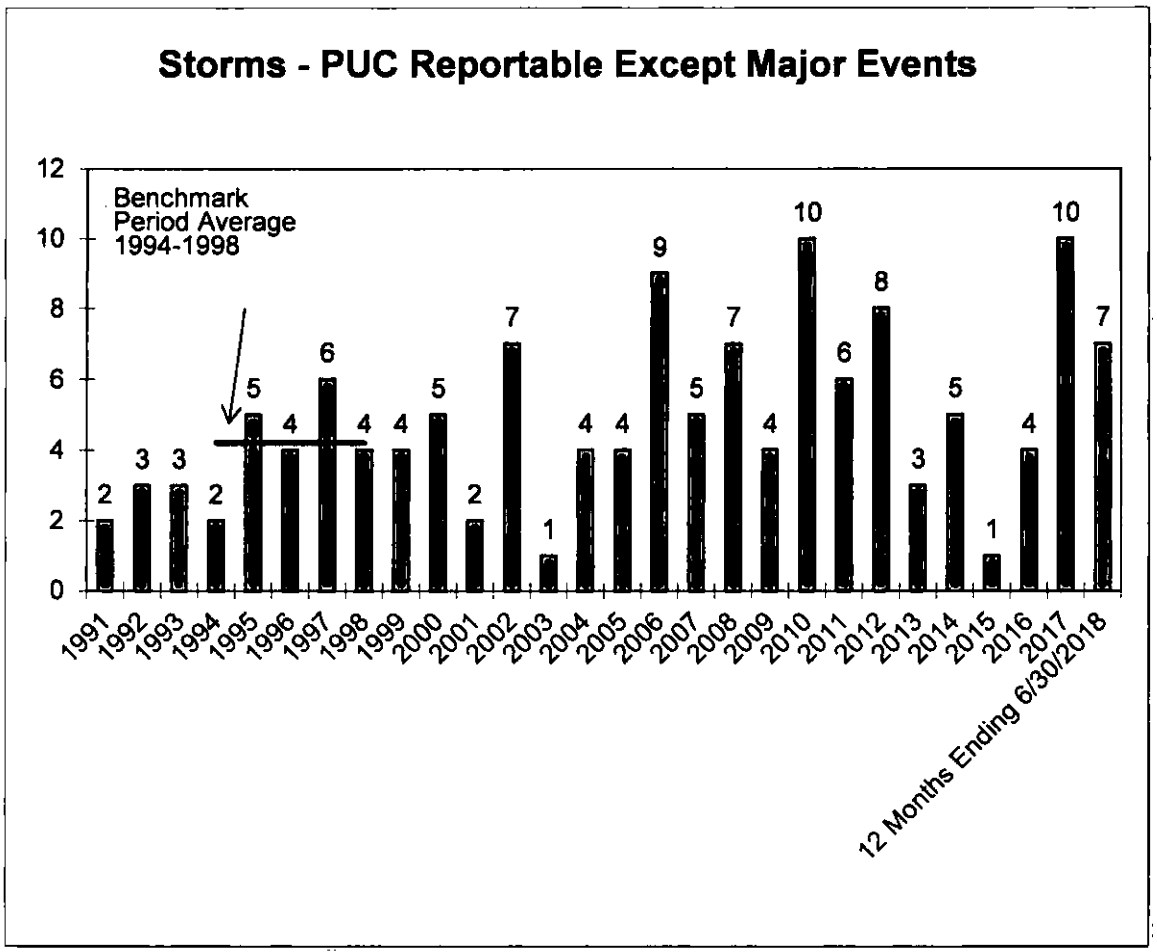
[1] MAIFI data is obtained at the substation breaker level and at certain reclosers. Because PPL Electric is enhancing its ability to identify momentaries, this metric is expected to increase in the near term.

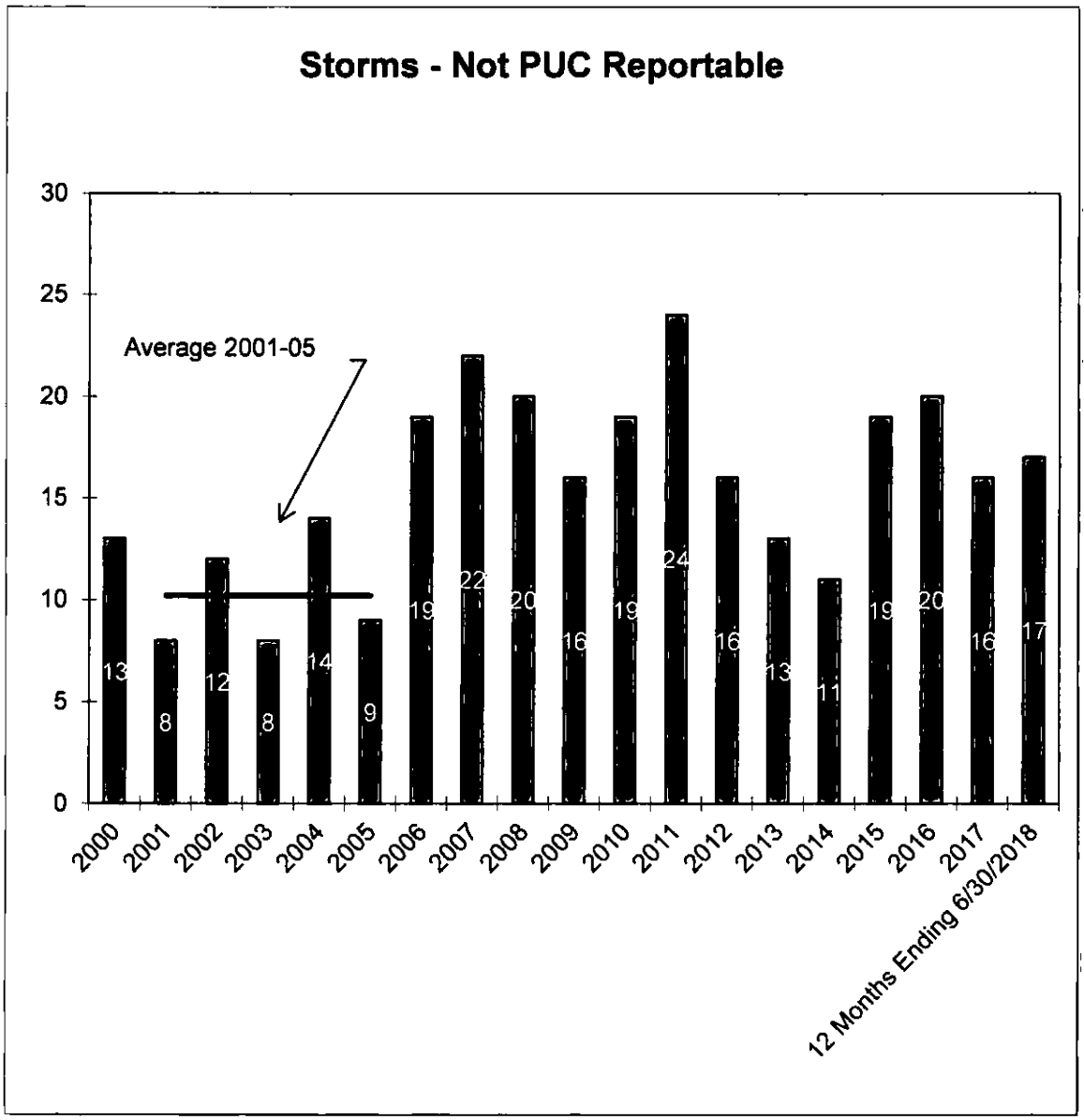
[2] PPL Electric calculates the annual indices using customers served at the end of period. This is consistent with the method used to calculate PPL Electric's benchmarks.

[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 12-month reporting period, there was one (1) PUC major events and seven (7) PUC-reportable storms other than major events.



In addition, there were seventeen (17) storms that were not reportable, but which did require the opening of one or more area emergency centers to manage restoration efforts.



*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 reliability index 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	MAIFI	Customers	Cases of Trouble	Customer Minutes Interrupted (CMI)
1	26401	2420	1352	1.8	43.5	2,180	132	5,275,436
2	23401	1915	530	3.6	14.7	1,722	94	3,296,810
3	15601	2827	1927	1.5	23.5	1,097	43	3,100,944
4	16402	2265	713	3.2	20.8	1,264	90	2,862,768
5	15604	1962	1100	1.8	23.2	1,372	57	2,692,466
6	17802	1009	807	1.3	30.2	2,485	64	2,508,414
7	46302	2067	809	2.6	3.9	1,098	74	2,269,680
8	28602	1146	368	3.1	3.2	1,937	39	2,220,729
9	26402	1924	966	2.0	24.7	1,083	49	2,083,164
10	40603	1378	394	3.5	9.1	1,409	53	1,941,430
11	56501	794	246	3.2	7.8	2,388	63	1,896,176
12	16504	835	347	2.4	21.9	2,208	37	1,843,591
13	26604	726	300	2.4	6.9	2,417	74	1,755,755
14	18502	943	742	1.3	11.6	1,849	102	1,742,839
15	15704	1306	470	2.8	25.4	1,268	34	1,656,303
16	46602	1054	585	1.8	7.7	1,465	83	1,543,885
17	17902	1460	951	1.5	5.5	1,004	29	1,465,786
18	24901	638	280	2.3	11.3	2,278	75	1,452,662
19	20402	768	260	2.9	4.7	1,891	39	1,451,951
20	22003	1021	235	4.3	8.9	1,377	66	1,406,524
21	16802	1559	1229	1.3	17.1	871	45	1,358,199
22	24603	860	338	2.5	18.3	1,574	59	1,353,179
23	16801	814	410	2.0	8.0	1,631	73	1,328,270
24	26603	1148	346	3.3	8.8	1,123	57	1,289,585
25	26601	956	566	1.7	8.1	1,329	40	1,270,817

WPC Rank	Feeder ID	SAIDI	CAIDI	SAIFI	MAIFI	Customers	Cases of Trouble	Customer Minutes Interrupted (CMI)
26	53501	584	185	3.2	17.3	2,143	66	1,252,270
27	53602	567	208	2.7	36.0	2,200	131	1,247,730
28	65802	653	266	2.5	18.9	1,902	38	1,242,066
29	23902	842	513	1.6	35.9	1,464	51	1,232,619
30	22001	751	427	1.8	18.8	1,571	83	1,180,434
31	45302	945	607	1.6	6.8	1,214	36	1,146,918
32	21203	894	295	3.0	18.4	1,248	45	1,115,520
33	24602	729	442	1.6	7.9	1,528	50	1,113,517
34	23403	604	318	1.9	6.3	1,786	33	1,078,850
35	45002	548	237	2.3	18.7	1,963	70	1,076,466
36	17801	493	345	1.4	28.2	2,141	50	1,054,703
37	15702	653	518	1.3	11.6	1,613	34	1,053,457
38	25801	556	329	1.7	4.9	1,824	41	1,014,243
39	52004	849	262	3.2	16.9	1,165	71	988,636
40	54504	675	109	6.2	11.6	1,432	5	966,878
41	22805	401	198	2.0	6.2	2,412	10	966,598
42	46206	524	382	1.4	3.2	1,822	59	954,864
43	45303	699	746	0.9	14.0	1,349	51	943,386
44	52402	529	223	2.4	24.6	1,694	89	896,038
45	26602	1252	395	3.2	19.1	693	21	867,842
46	44203	447	149	3.0	3.2	1,875	26	838,244
47	22002	1000	678	1.5	40.3	835	27	834,999
48	43401	821	367	2.2	25.6	1,002	65	822,893
49	28805	676	216	3.1	3.4	1,209	29	817,007
50	40201	485	400	1.2	11.9	1,659	87	803,942
51	25601	699	439	1.6	12.9	1,141	37	797,517
52	28301	347	257	1.3	3.2	2,280	87	790,278
53	55103	700	343	2.0	20.9	1,124	16	786,280
54	24902	545	239	2.3	6.2	1,436	43	783,118
55	26001	539	434	1.2	19.7	1,426	79	769,079
56	54001	672	258	2.6	8.1	1,130	35	759,359
57	46702	598	257	2.3	11.0	1,268	47	758,806
58	16501	1136	501	2.3	21.4	665	22	755,672
59	47704	545	198	2.8	10.6	1,383	57	754,352
60	56801	445	214	2.1	19.3	1,663	55	740,053
61	45402	447	159	2.8	22.0	1,645	60	735,413
62	59202	425	116	3.6	15.9	1,722	68	731,835

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

01 Circuit 26401 -- INDIAN ORCHARD 64-01

Performance Analysis

The INDIAN ORCHARD 64-01 circuit experienced more than ten outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,116 customers for up to 5,499 minutes resulting in 1,155,857 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 37 customers for up to 4,350 minutes resulting in 155,397 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 79 customers resulting in 285,976 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 122 customers for up to 4,352 minutes resulting in 453,133 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 78 customers for up to 1,511 minutes resulting in 117,830 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break disconnect switch to be interrupted. This outage affected 38 customers resulting in 235,113 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 47 customers resulting in 147,054 CMI.

On May 15, 2018, during a period of heavy rain, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 64 customers resulting in 260,250 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a transformer to be interrupted. This outage affected 92 customers resulting in 261,790 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break disconnect switch to be interrupted. This outage affected 274 customers for up to 5,143 minutes resulting in 1,073,188 CMI.

On May 17, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 52 customers for up to 2,806 minutes resulting in 111,673 CMI.

In total, the INDIAN ORCHARD 64-01 circuit had 132 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (87); animal contacts (20); equipment failure (12); nothing found (10); other (2); contact or dig in (1).

Remedial Actions

- In 2018, several sections of difficult-to-access single-phase line will be evaluated for relocation.
- In 2018, ten locations will receive animal guarding; the remainder of the circuit will be patrolled for additional animal guarding opportunities.
- In 2018, a three-phase terminal will be evaluated for rebuild.
- In 2019, an existing recloser will be evaluated for replacement.
- In 2019, hazard tree removal will be performed.

02 Circuit 23401 -- HONESDALE 34-01

Performance Analysis

The HONESDALE 34-01 circuit experienced seven outages of over 100,000 CMI between July 2017 and June 2018.

On May 4, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 745 customers for up to 346 minutes resulting in 257,576 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 887 customers for up to 752 minutes resulting in 640,096 CMI.

On May 15, 2018, during a period of heavy rain, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 384 customers for up to 1,775 minutes resulting in 654,276 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a temporary open point to be interrupted. This outage affected 387 customers for up to 2,423 minutes resulting in 435,651 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 59 customers for up to 3,450 minutes resulting in 166,478 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 113 customers for up to 2,263 minutes resulting in 146,298 CMI.

On May 17, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 78 customers for up to 1,689 minutes resulting in 131,695 CMI.

In total, the HONESDALE 34-01 circuit had 94 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (58); equipment failure (13); nothing found (12); animal contacts (8); contact or dig in (2); vehicles (1).

Remedial Actions

- In 2018, an additional load break disconnect switch will be evaluated for this circuit.
- In 2018, additional tie line opportunities will be evaluated.
- In 2018, a full circuit patrol will be conducted.

- In 2018, a new reliability substation will be evaluated.
- In 2019, hazard tree removal will be performed.

03 Circuit 15601 -- NO STROUDSBURG 56-01

Performance Analysis

The NO STROUDSBURG 56-01 circuit experienced seven outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 114 customers for up to 1,452 minutes resulting in 157,002 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break disconnect switch to be interrupted. This outage affected 195 customers for up to 2,542 minutes resulting in 495,102 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 52 customers resulting in 163,277 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 36 customers resulting in 100,505 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 133 customers for up to 2,998 minutes resulting in 381,319 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with a pole or pole arm causing a load break disconnect switch to be interrupted. This outage affected 39 customers resulting in 170,091 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break disconnect switch to be interrupted. This outage affected 438 customers for up to 4,486 minutes resulting in 1,432,740 CMI.

In total, the NO STROUDSBURG 56-01 circuit had 43 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (22); animal contacts (11); equipment failure (6); nothing found (3); vehicles (1).

Remedial Actions

- In 2018, two sections of difficult-to-access single-phase will be evaluated for relocation.
- In 2018, additional single-phase fusing will be installed.
- In 2018, hazard tree trimming will be evaluated.
- In 2018, animal guarding will be installed at several locations.
- In 2018, several sectionalizing devices will be replaced or upgraded.
- In 2018, several capacitor banks will be upgraded.

04 Circuit 16402 -- MOUNT POCONO 64-02

Performance Analysis

The MOUNT POCONO 64-02 circuit experienced four outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 897 customers for up to 2,599 minutes resulting in 1,438,140 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing an air break to be interrupted. This outage affected 110 customers resulting in 307,004 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 26 customers resulting in 114,773 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 70 customers for up to 4,260 minutes resulting in 298,200 CMI.

In total, the MOUNT POCONO 64-02 circuit had 90 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (68); equipment failure (11); animal contacts (6); nothing found (3); vehicles (2).

Remedial Actions

- In 2018, installation of two single-phase ties will be evaluated.
- In 2018, off-cycle hazard tree trimming will be evaluated.
- In 2018, animal guarding will be installed.
- In 2018, a section of difficult-to-access single-phase will be evaluated for relocation.
- In 2018, constructing a reliability substation will be evaluated
- In 2019, several sections of three-phase will be relocated.
- In 2019, additional single-phase fusing will be installed at multiple locations.

05 Circuit 15604 -- NO STROUDSBURG 56-04

Performance Analysis

The NO STROUDSBURG 56-04 circuit experienced eight outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 36 customers for up to 4,220 minutes resulting in 149,596 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead component causing a recloser to trip to lockout. This outage affected 549 customers for up to 3,957 minutes resulting in 140,724 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an underground conductor causing a recloser to trip to lockout. This outage affected 53 customers for up to 3,865 minutes resulting in 204,828 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 28 customers resulting in 131,768 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 26 customers resulting in 113,890 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 530 customers for up to 2.678 minutes resulting in 1,255,063 CMI.

On May 17, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 129 customers for up to 1,164 minutes resulting in 139,806 CMI.

On May 17, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 113 customers for up to 1,441 minutes resulting in 149,593 CMI.

In total, the NO STROUDSBURG 56-04 circuit had 58 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (36); equipment failure (15); animal contacts (2); nothing found (2); vehicles (2); other (1).

Remedial Actions

- In 2018, a new single-phase tie line will be evaluated for this circuit
- In 2018, additional animal guarding will be installed.
- In 2020, a section of single-phase conductor will be extended and re-sourced.

06 Circuit 17802 -- GILBERT 78-02

Performance Analysis

The GILBERT 78-02 circuit experienced six outages of over 100,000 CMI between July 2017 and June 2018.

On January 12, 2018, during a period of strong wind, a tree made contact with an overhead splice causing a recloser to trip to lockout. This outage affected 235 customers for up to 658 minutes resulting in 110,869 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,466 customers for up to 750 minutes resulting in 879,183 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead fuse causing a recloser to trip to lockout. This outage affected 173 customers for up to 2,357 minutes resulting in 226,188 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 233 customers for up to 3,613 minutes resulting in 727,252 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 73 customers for up to 3,405 minutes resulting in 248,534 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 60 customers for up to 1,880 minutes resulting in 112,783 CMI.

In total, the GILBERT 78-02 circuit had 64 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (37); equipment failure (15); animal contacts (9); vehicles (2); nothing found (1).

Remedial Actions

- In 2018, additional animal guarding will be installed.
- In 2018, hazard tree removal will be evaluated for this circuit.
- In 2018, several porcelain cutouts with be replaced with polymer cutouts.
- In 2018, the addition of a reliability substation will be evaluated.
- In 2019, a section of difficult-to-access single-phase conductor will be relocated.

07 Circuit 46302 – ROHRSBURG 63-02

Performance Analysis

The ROHRSBURG 63-02 circuit experienced four outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 149 customers for up to 1,647 minutes resulting in 245,403 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 321 customers for up to 3,227 minutes resulting in 617,175 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 192 customers for up to 2,703 minutes resulting in 379,937 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 404 customers for up to 1,839 minutes resulting in 585,341 CMI.

In total, the ROHRSBURG 63-02 circuit had 74 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (55); animal contacts (6); equipment failure (6); nothing found (6); other (1).

Remedial Actions

- In 2018, full circuit trimming will be performed.
- In 2018, several sections of difficult-to-access conductor will be evaluated for relocation.
- In 2018, the trim cycle length will be re-evaluated for this circuit.
- In 2018, additional hazard tree removal will be evaluated for this circuit.
- In 2018, additional trimming right-of-way will be sought in areas with high tree outage concentrations.

08 Circuit 28602 – BLYTHEBURN 86-02

Performance Analysis

The BLYTHEBURN 86-02 circuit experienced four outages of over 100,000 CMI between July 2017 and June 2018.

On July 24, 2017, during a period of heavy rain, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 345 customers for up to 609 minutes resulting in 166,436 CMI.

On March 23, 2018, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 767 customers for up to 263 minutes resulting in 201,721 CMI.

On April 4, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing an interruption. This outage affected 385 customers for up to 1,349 minutes resulting in 384,816 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,934 customers for up to 2,932 minutes resulting in 1,176,216 CMI.

In total, the BLYTHEBURN 86-02 circuit had 39 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (25); equipment failure (7); vehicles (3); animal contacts (2); contact or dig in (1); nothing found (1).

Remedial Actions

- In 2018, a three-phase recloser was installed as part of the Smart Grid program.
- In 2018, multiple porcelain cutout fuses were replaced.
- In 2018, three additional switches will be installed.
- In 2018, a single-phase tap fuse will be installed.
- In 2018, a tie line to the BLYTHEBURN 86-04 will be evaluated.
- In 2018, a tie line to the WRIGHT 36-04 will be evaluated.
- In 2018, the location and protection settings of an existing recloser will be re-evaluated.
- In 2018, an additional Smart Grid device will be evaluated for this circuit.
- In 2019, an additional Smart Grid device will be installed.
- In 2019, full circuit trimming will be performed.

09 Circuit 26402 – INDIAN ORCHARD 64-02

Performance Analysis

The INDIAN ORCHARD 64-02 circuit experienced five outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing an interruption. This outage affected 186 customers for up to 1,288 minutes resulting in 239,422 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 41 customers for up to 3,302 minutes resulting in 135,365 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 54 customers for up to 5,540 minutes resulting in 177,886 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 160 customers for up to 5,679 minutes resulting in 420,795 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 160 customers for up to 4,859 minutes resulting in 777,360 CMI.

In total, the INDIAN ORCHARD 64-02 circuit had 49 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (34); animal contacts (6); nothing found (5); equipment failure (3); other (1).

Remedial Actions

- In 2018, a section of difficult-to-access single-phase conductor will be evaluated for relocation and potential re-sourcing.
- In 2018, a remotely operable single-phase tie will be evaluated.
- In 2019, hazard tree removal will be performed.

10 Circuit 40603 – PINE GROVE 06-03

Performance Analysis

The PINE GROVE 06-03 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On October 29, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 348 customers for up to 927 minutes resulting in 214,067 CMI.

On November 8, 2017, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 3,691 customers for up to 469 minutes resulting in 1,557,570 CMI.

In total, the PINE GROVE 06-03 circuit had 53 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (29); equipment failure (10); animal contacts (7); other (5); contact or dig in (1); vehicles (1).

Remedial Actions

- In 2018, new Smart fault indicators were installed.
- In 2018, a tie line to the FRAILEY 21-02 will be evaluated.
- In 2018, rebuilding a section of two-phase to three-phase, and resourcing a section of single-phase will be evaluated.
- In 2018, locations capable of connecting a generator will be identified.
- In 2018, a new tie line to the CRESSONA substation will be evaluated.

11 Circuit 56501 – ROCKVILLE 65-01

Performance Analysis

The ROCKVILLE 65-01 circuit experienced six outages of over 100,000 CMI between July 2017 and June 2018.

On August 19, 2017, during a period of heavy rain, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 342 customers for up to 495 minutes resulting in 168,954 CMI.

On December 6, 2017, during a period of heavy rain, an equipment failure occurred on an overhead switch causing a recloser to trip to lockout. This outage affected 633 customers for up to 213 minutes resulting in 134,309 CMI.

On January 3, 2018, an equipment failure occurred on an underground conductor causing a circuit breaker to trip to lockout. This outage affected 2,375 customers for up to 215 minutes resulting in 414,106 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor. This outage affected 642 customers for up to 1,643 minutes resulting in 352,397 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 642 customers for up to 364 minutes resulting in 231,548 CMI.

On May 15, 2018, during a period of strong wind, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 795 customers for up to 596 minutes resulting in 229,380 CMI.

In total, the ROCKVILLE 65-01 circuit had 63 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (36); equipment failure (13); animal contacts (12); vehicles (2).

Remedial Actions

- In 2018, infrared scanning was performed. As a result, several minor repairs were completed.
- In 2018, full circuit tree trimming will be performed.
- In 2018, two additional single-phase fuses will be installed.
- In 2018, an additional tie point on the western half of the circuit is being evaluated.
- In 2019, additional Smart Grid devices will be evaluated for this circuit.

12 Circuit 16504 – STROUDSBURG 65-04

Performance Analysis

The STROUDSBURG 65-04 circuit experienced three outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of lightning, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,326 customers for up to 957 minutes resulting in 407,639 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a temporary open point to be interrupted. This outage affected 421 customers for up to 3,435 minutes resulting in 1,117,105 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 68 customers for up to 2,446 minutes resulting in 166,281 CMI.

In total, the STROUDSBURG 65-04 circuit had 37 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (20); equipment failure (13); nothing found (2); animal contacts (1); vehicles (1).

Remedial Actions

- In 2018, full circuit tree trimming will be performed.
- In 2018, additional single-phase fusing will be installed.
- In 2018, additional animal guarding will be installed.
- In 2018, an existing sectionalizing device was upgraded to s Smart Grid device.
- In 2019, an existing sectionalizing device will be upgraded to s Smart Grid device.

13 Circuit 26604 – BROOKSIDE 66-04

Performance Analysis

The BROOKSIDE 66-04 circuit experienced three outages of over 100,000 CMI between July 2017 and June 2018.

On July 24, 2017, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,422 customers for up to 977 minutes resulting in 887,484 CMI.

On March 10, 2018, during a period of strong wind, an equipment failure occurred on an overhead conductor causing a temporary open point to be interrupted. This outage affected 726 customers for up to 237 minutes resulting in 138,015 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 119 customers for up to 1,180 minutes resulting in 140,328 CMI.

In total, the BROOKSIDE 66-04 circuit had 74 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (39); equipment failure (18); animal contacts (13); other (2); nothing found (1); vehicles (1).

Remedial Actions

- In 2018, a motor operated air break was replaced with a recloser as part of the Smart Grid Program.
- In 2018, 105 poles will be replaced.
- In 2018, hazard tree removal will be performed.
- In 2018, two fuses will be installed.
- In 2018, several porcelain cutouts will be replaced with polymer cutouts.
- In 2018, a set of Smart fault indicators will be installed.
- In 2018, a new reliability substation will be evaluated.
- In 2018, 38 additional locations will receive animal guarding.
- In 2019, a section of single-phase will be extended and re-sourced.

14 Circuit 18502 – CANADENSIS 85-02

Performance Analysis

The CANADENSIS 85-02 circuit experienced five outages of over 100,000 CMI between July 2017 and June 2018.

On November 2, 2017, a tree made contact with an overhead splice causing an interruption. This outage affected 315 customers for up to 387 minutes resulting in 121,864 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 90 customers for up to 2,656 minutes resulting in 238,953 CMI.

On May 15, 2018, during a period of strong wind, an equipment failure occurred on an overhead conductor causing a temporary open point to be interrupted. This outage affected 71 customers for up to 2,637 minutes resulting in 187,227 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 58 customers for up to 2,860 minutes resulting in 165,868 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 43 customers for up to 2,795 minutes resulting in 120,175 CMI.

In total, the CANADENSIS 85-02 circuit had 102 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (56); animal contacts (29); equipment failure (15); nothing found (2).

Remedial Actions

- In 2018, hazard tree removal will be evaluated.
- In 2018, additional animal guarding will be installed.
- In 2018, a substation conversion will be evaluated.
- In 2018, multiple single-phase ties will be evaluated.
- In 2018, several sections of conductor will be evaluated for reconductoring.

15 Circuit 15704 – TANNERSVILLE 57-04

Performance Analysis

The TANNERSVILLE 57-04 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On July 31, 2017, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,217 customers for up to 248 minutes resulting in 236,688 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing an interruption. This outage affected 647 customers for up to 1,739 minutes resulting in 1,060,903 CMI.

In total, the TANNERSVILLE 57-04 circuit had 34 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (23); equipment failure (7); animal contacts (1); nothing found (1); other (1); vehicles (1).

Remedial Actions

- In 2018, additional animal guarding will be installed on this circuit.
- In 2018, a capacitor bank will be upgraded.
- In 2018, full circuit tree trimming will be performed.
- In 2018, a single-phase tie will be evaluated.
- In 2018, a section of difficult-to-access conductor will be evaluated for relocation.

16 Circuit 46602 -- LARRYS CREEK 66-02

Performance Analysis

The LARRYS CREEK 66-02 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On August 4, 2017, during a period of strong wind, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 842 customers for up to 1,909 minutes resulting in 1,133,615 CMI.

In total, the LARRYS CREEK 66-02 circuit had 83 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (44); equipment failure (20); animal contacts (10); nothing found (7); other (1); vehicles (1).

Remedial Actions

- In 2018, two switches were replaced with Smart Grid devices.
- In 2018, eleven spans of difficult-to-access conductor were relocated.
- In 2018, a new tie line to the JERSEY SHORE 09-01 will be evaluated.
- In 2018, additional animal guarding will be installed.
- In 2018, eight poles will be replaced.
- In 2018, an existing solid blade disconnect will be replaced with a fuse.
- In 2018, an existing three-phase recloser will be replaced as part of the Smart Grid Program.
- In 2018, over 25 porcelain cutouts will be replaced with polymer cutouts.
- In 2018, resourcing a section of single-phase line will be investigated.
- In 2018, locations capable of connecting a generator will be identified.
- In 2019, full circuit tree trimming will be performed.

17 Circuit 17902 -- BARTONSVILLE 79-02

Performance Analysis

The BARTONSVILLE 79-02 circuit experienced four outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 415 customers for up to 1,611 minutes resulting in 531,985 CMI.

On May 15, 2018, during a period of heavy rain, an equipment failure occurred on an overhead conductor causing a load break fuse to operate. This outage affected 42 customers resulting in 128,025 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 105 customers resulting in 281,293 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 96 customers resulting in 255,405 CMI.

In total, the BARTONSVILLE 79-02 circuit had 29 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (16); equipment failure (9); animal contacts (3); nothing found (1).

Remedial Actions

- In 2018, full circuit tree trimming will be performed.
- In 2018, a section of difficult-to-access conductor will be evaluated for relocation.
- In 2018, the addition of a single-phase tie will be evaluated.
- In 2018, additional animal guarding will be installed.

18 Circuit 24901 – WHITE HAVEN 49-01

Performance Analysis

The WHITE HAVEN 49-01 circuit experienced six outages of over 100,000 CMI between July 2017 and June 2018.

On July 20, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a sectionalizing device to be interrupted. This outage affected 589 customers for up to 577 minutes resulting in 251,021 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 66 customers for up to 1,969 minutes resulting in 115,951 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 103 customers for up to 1,273 minutes resulting in 122,369 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 152 customers for up to 662 minutes resulting in 199,542 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 180 customers for up to 1,370 minutes resulting in 246,580 CMI.

On May 16, 2018, during a period of strong wind, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 142 customers for up to 1,557 minutes resulting in 129,819 CMI.

In total, the WHITE HAVEN 49-01 circuit had 75 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (47); equipment failure (16); animal contacts (8); vehicles (2); nothing found (1); other (1).

Remedial Actions

- In 2017, infrared scanning was performed. As a result, several minor items were identified and remediated.
- In 2018, an existing switch was upgraded to a Smart Grid device.

- In 2018, a new line and terminal will be evaluated.
- In 2018, animal guarding will be installed at four locations.
- In 2018, additional fusing will be installed.
- In 2019, a section of three-phase line will be extended and made more accessible.
- In 2019, a section of three-phase line will be evaluated for relocation and reconductoring.

19 Circuit 20402 – ASHFIELD 04-02

Performance Analysis

The ASHFIELD 04-02 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,886 customers for up to 1,081 minutes resulting in 1,309,814 CMI.

In total, the ASHFIELD 04-02 circuit had 39 outages between July 2017 and June 2018, with the causes breaking down as follows: equipment failure (16); tree related (14); animal contacts (6); contact or dig in (1); nothing found (1); vehicles (1).

Remedial Actions

- In 2018, an existing three-phase recloser was reprogrammed to single-phase operation.
- In 2018, six additional fuses will be added to this circuit, and further fusing will be evaluated.
- In 2018, an Expanded Operation Review will be performed.
- In 2018, a section of difficult-to-access conductor will be relocated.
- In 2018, two additional Smart Grid devices will be added to this circuit.
- In 2018, 36 porcelain cutouts will be replaced.
- In 2018, a tie to the PALMERTON 32-01 will be evaluated.

20 Circuit 22003 – BOHEMIA 20-03

Performance Analysis

The BOHEMIA 20-03 circuit experienced four outages of over 100,000 CMI between July 2017 and June 2018.

On November 18, 2017, a vehicle made contact with a pole causing a recloser to trip to lockout. This outage affected 348 customers for up to 320 minutes resulting in 111,499 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 169 customers for up to 2,801 minutes resulting in 473,203 CMI.

On May 18, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 549 customers for up to 533 minutes resulting in 275,701 CMI.

On June 14, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 565 customers for up to 254 minutes resulting in 105,064 CMI.

In total, the BOHEMIA 20-03 circuit had 66 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (29); animal contacts (16); equipment failure (12); nothing found (6); other (2); vehicles (1).

Remedial Actions

- In 2018, an existing capacitor was upgraded.
- In 2018, full circuit trimming will be performed.
- In 2018, an Expanded Operation Review will be performed.
- In 2018, a single-phase tie will be evaluated.
- In 2018, a section of difficult-to-access single-phase conductor will be evaluated for relocation.
- In 2018, a new line and terminal will be evaluated.
- In 2019, additional animal guarding will be installed at several locations.
- In 2019 a section of difficult-to-access single-phase conductor will be relocated.
- In 2019, 10 locations will receive fusing.
- In 2019, and existing recloser will be replaced.

21 Circuit 16802 – WAGNERS 68-02

Performance Analysis

The WAGNERS 68-02 circuit experienced three outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing an interruption. This outage affected 156 customers for up to 3,014 minutes resulting in 429,819 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 80 customers for up to 1,500 minutes resulting in 107,118 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 84 customers for up to 4,196 minutes resulting in 329,662 CMI.

In total, the WAGNERS 68-02 circuit had 45 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (33); animal contacts (6); equipment failure (6).

Remedial Actions

- In 2018, an existing sectionalizing device was upgraded to a Smart Grid device.
- In 2018, additional animal guarding will be installed.
- In 2018, a section of single-phase we be evaluated for reconductoring.
- In 2018, two potential single-phase ties will be evaluated.

22 Circuit 24603 -- VARDEN 46-03

Performance Analysis

The VARDEN 46-03 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On November 19, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,559 customers for up to 363 minutes resulting in 268,130 CMI.

On May 15, 2018, during a period of strong wind, an equipment failure occurred on an overhead conductor causing an interruption. This outage affected 195 customers for up to 5,891 minutes resulting in 648,225 CMI.

In total, the VARDEN 46-03 circuit had 59 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (39); animal contacts (12); equipment failure (5); nothing found (2); vehicles (1).

Remedial Actions

- In 2018, a single-phase tie line will be evaluated.
- In 2018, two sections of difficult-to-access single-phase conductor will be evaluated for relocation.
- In 2019, a tie line will be constructed for this circuit.
- In 2019, full circuit trimming will be performed.

23 Circuit 16801 – WAGNERS 68-01

Performance Analysis

The WAGNERS 68-01 circuit experienced three outages of over 100,000 CMI between July 2017 and June 2018.

On April 4, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 253 customers resulting in 108,790 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,461 customers for up to 381 minutes resulting in 350,479 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing an interruption. This outage affected 269 customers for up to 1,386 minutes resulting in 372,586 CMI.

In total, the WAGNERS 68-01 circuit had 73 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (55); equipment failure (8); animal contacts (7); nothing found (2); vehicles (1).

Remedial Actions

- In 2018, additional animal guarding will be installed on this circuit.
- In 2018, a new sectionalizing device will be installed.
- In 2018, a new voltage regulating device will be installed.
- In 2018, a single-phase tie will be evaluated for this circuit.
- In 2018, multiple capacitor banks will be upgraded.

24 Circuit 26603 – BROOKSIDE 66-03

Performance Analysis

The BROOKSIDE 66-03 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On July 24, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 984 customers for up to 1,536 minutes resulting in 431,166 CMI.

On April 16, 2018, during a period of strong wind, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 676 customers for up to 939 minutes resulting in 347,849 CMI.

In total, the BROOKSIDE 66-03 circuit had 57 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (37); equipment failure (11); animal contacts (6); improper operation (1); nothing found (1); other (1).

Remedial Actions

- In 2018, a motor operated air break switch was replaced with a recloser as part of the Smart Grid Program.
- In 2018, additional fusing will be added to this circuit as a result of an Expanded Operational Review performed in 2017.
- In 2018, a section of three-phase conductor will be replaced.
- In 2018, several porcelain cutouts will be replaced with polymer cutouts.
- In 2018, additional animal guarding locations will be evaluated.
- In 2018, 16 fuses will be installed.
- In 2018, 15 poles will be replaced.
- In 2018, hazard tree removal will be performed.
- In 2018, a full-circuit protection review will be performed.
- In 2018, the addition of a reliability substation will be evaluated.
- In 2019, full circuit tree trimming will be performed.

25 Circuit 26601 – BROOKSIDE 66-01

Performance Analysis

The BROOKSIDE 66-01 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On August 4, 2017, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 566 customers for up to 1,588 minutes resulting in 268,724 CMI.

On May 15, 2018, during a period of strong wind, an unidentified issue occurred with an overhead conductor causing a recloser to trip to lockout. This outage affected 854 customers for up to 1,265 minutes resulting in 671,660 CMI.

In total, the BROOKSIDE 66-01 circuit had 40 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (27); animal contacts (5); nothing found (4); equipment failure (3); vehicles (1).

Remedial Actions

- In 2018, hazard tree removal will be performed.
- In 2018, addition animal guarding will be evaluated for this circuit.
- In 2018, fusing will be installed at five locations.
- In 2018, 21 poles will be replaced.
- In 2018, several porcelain cutouts will be replaced with polymer.
- In 2018, the addition of a three-phase tie will be evaluated.

26 Circuit 53501 – ELIZABETHVILLE 35-01

Performance Analysis

The ELIZABETHVILLE 35-01 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On October 29, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,120 customers for up to 571 minutes resulting in 698,588 CMI.

On April 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,181 customers for up to 745 minutes resulting in 315,588 CMI.

In total, the ELIZABETHVILLE 35-01 circuit had 66 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (33); equipment failure (21); animal contacts (7); nothing found (3); other (1); vehicles (1).

Remedial Actions

- In 2018, 16 single-phase fuses will be installed.
- In 2018, two motor operated air break switches will receive Smart fault indication.
- In 2018, additional hazard tree removal will be performed.
- In 2018, two additional protection reviews will be performed.
- In 2019, full circuit tree trimming will be performed.
- In 2019, infrared scanning will be performed.

27 Circuit 53602 – DALMATIA 36-02

Performance Analysis

The DALMATIA 36-02 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 354 customers for up to 16 minutes resulting in 285,442 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 178 customers for up to 1,132 minutes resulting in 154,096 CMI.

In total, the DALMATIA 36-02 circuit had 131 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (84); equipment failure (14); animal contacts (13); nothing found (12); other (3); vehicles (3); contact or dig in (2).

Remedial Actions

- In 2017, right-of-way was expanded for a section of this circuit to allow for more effective tree trimming.
- In 2017, hazard tree trimming was performed.
- In 2018, the MEISERVILLE substation will be built to provide load support for this circuit.
- In 2018, full circuit tree trimming will be performed.
- In 2018, two single-phase fuses will be installed.
- In 2018, infrared scanning will be performed.
- In 2018, a section of single-phase line will be relocated and re-sourced.

28 Circuit 65802 – ROHRERSTOWN 58-02

Performance Analysis

The ROHRERSTOWN 58-02 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On September 5, 2017, during a period of heavy rain, a tree made contact with a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 1,882 customers for up to 1,915 minutes resulting in 762,240 CMI.

On December 3, 2017, a vehicle made contact with a pole causing a recloser to trip to lockout. This outage affected 459 customers for up to 555 minutes resulting in 122,583 CMI.

In total, the ROHRERSTOWN 58-02 circuit had 38 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (18); animal contacts (7); equipment failure (6); vehicles (4); nothing found (2); other (1).

Remedial Actions

- In 2018, additional fusing was installed at three locations.
- In 2018, a primary pole was replaced
- In 2018, 117 hazard trees were removed from this circuit.
- In 2018, full circuit tree trimming will be performed.
- In 2018, an existing three-phase switch will be converted to a telemetered protective device, and the circuit will be reconfigured.
- In 2018, two additional poles will be replaced.
- In 2018, a single-phase recloser will be installed.
- In 2018, two additional load break switches will be installed.
- In 2018, re-conductoring will be evaluated.
- In 2019, a new telemetered recloser will be installed as part of the Smart Grid program.
- In 2019, a section of difficult-to-access conductor will be relocated.

29 Circuit 23902 – EFFORT MOUNTAIN 39-02

Performance Analysis

The EFFORT MOUNTAIN 39-02 circuit experienced three outages of over 100,000 CMI between July 2017 and June 2018.

On January 13, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 725 customers for up to 454 minutes resulting in 168,016 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break disconnect switch to be interrupted. This outage affected 194 customers for up to 1,523 minutes resulting in 283,786 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 147 customers for up to 2,902 minutes resulting in 391,046 CMI.

In total, the EFFORT MOUNTAIN 39-02 circuit had 51 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (33); equipment failure (10); animal contacts (5); nothing found (1); other (1); vehicles (1).

Remedial Actions

- In 2018, additional animal guarding will be installed.
- In 2018, several porcelain cut outs will be replaced with polymer.
- In 2018, hazard tree removal will be evaluated for this circuit.
- In 2018, rebuilding and reconductoring a section of this circuit will be evaluated.

30 Circuit 22001 – BOHEMIA 20-01

Performance Analysis

The BOHEMIA 20-01 circuit experienced three outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 54 customers for up to 3,066 minutes resulting in 165,547 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a sectionalizing device to be interrupted. This outage affected 162 customers for up to 2,649 minutes resulting in 428,980 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 54 customers for up to 4,502 minutes resulting in 243,063 CMI.

In total, the BOHEMIA 20-01 circuit had 83 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (32); animal contacts (21); nothing found (17); equipment failure (11); other (1); vehicles (1).

Remedial Actions

- In 2018, an existing recloser was replaced.
- In 2018, full circuit trimming will be performed.
- In 2018, three potential single-phase ties will be evaluated.
- In 2018, 20 locations will be animal guarded.

31 Circuit 45302 -- WEST BERWICK 53-02

Performance Analysis

The WEST BERWICK 53-02 circuit experienced four outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 319 customers for up to 1,427 minutes resulting in 450,101 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 123 customers resulting in 198,828 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 119 customers for up to 1,059 minutes resulting in 125,969 CMI.

On May 22, 2018, during a period of heavy rain, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 434 customers for up to 608 minutes resulting in 140,866 CMI.

In total, the WEST BERWICK 53-02 circuit had 36 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (25); equipment failure (5); animal contacts (3); nothing found (2); vehicles (1).

Remedial Actions

- In 2018, a tie to the BERWICK 60-02 will be evaluated.
- In 2018, a two mile section of copper conductor will be evaluated for reconductoring.
- In 2018, three sections of difficult-to-access conductor will be evaluated for relocation.

32 Circuit 21203 -- EAST CARBONDALE 12-03

Performance Analysis

The EAST CARBONDALE 12-03 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On May 3, 2018, during a period of strong wind, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 884 customers for up to 29 minutes resulting in 160,153 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 886 customers for up to 615 minutes resulting in 528,092 CMI.

In total, the EAST CARBONDALE 12-03 circuit had 45 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (23); equipment failure (13); animal contacts (5); nothing found (3); contact or dig in (1).

Remedial Actions

- In 2018, additional animal guarding will be installed.
- In 2018, several porcelain cutouts will be replaced with polymer.
- In 2018, a three-phase tie and reconductoring will be evaluated.
- In 2019, full circuit tree trimming will be performed.
- In 2019, a section of three-phase line will be reconductored.

33 Circuit 24602 -- VARDEN 46-02

Performance Analysis

The VARDEN 46-02 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On July 20, 2017, during a period of strong wind, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 345 customers for up to 1,699 minutes resulting in 482,867 CMI.

In total, the VARDEN 46-02 circuit had 50 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (25); equipment failure (12); animal contacts (8); nothing found (2); contact or dig in (1); other (1); vehicles (1).

Remedial Actions

- In 2018, a new load break disconnect switch will be installed.
- In 2018, a motor operated air break switch will have Smart fault indicators installed.
- In 2018, sections of single and two-phase conductor will be reviewed for protection strategy.
- In 2018, full circuit tree trimming will be performed.
- In 2018, a tie line to the HAMLIN 87-02 will be evaluated.
- In 2018, five locations will receive fusing.
- In 2018, nine additional locations will receive animal guarding.
- In 2019, an existing recloser will be upgraded.

34 Circuit 23403 -- HONESDALE 34-03

Performance Analysis

The HONESDALE 34-03 circuit experienced four outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,795 customers for up to 120 minutes resulting in 415,362 CMI.

On May 15, 2018, an unidentified issue occurred with an overhead conductor causing a recloser to trip to lockout. This outage affected 597 customers for up to 195 minutes resulting in 116,295 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 93 customers for up to 1,563 minutes resulting in 109,064 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a temporary open point to be interrupted. This outage affected 97 customers for up to 2,837 minutes resulting in 275,189 CMI.

In total, the HONESDALE 34-03 circuit had 33 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (23); animal contacts (4); equipment failure (2); nothing found (2); other (1); vehicles (1).

Remedial Actions

- In 2018, a section of single-phase conductor will be evaluated for relocation.
- In 2018, a three-phase tie line will be evaluated.
- In 2018, a tie line to the HONESDALE 34-01 will be evaluated.

35 Circuit 45002 -- LIMESTONE 50-02

Performance Analysis

The LIMESTONE 50-02 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On January 3, 2018, during a period of extreme temperatures, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,441 customers for up to 456 minutes resulting in 422,378 CMI.

On May 22, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,374 customers for up to 106 minutes resulting in 145,326 CMI.

In total, the LIMESTONE 50-02 circuit had 70 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (37); equipment failure (16); animal contacts (15); nothing found (1); other (1).

Remedial Actions

- In 2018, an infrared scan was performed; several minor items were identified and remediated.
- In 2018, a section of difficult-to-access conductor was relocated.
- In 2018, hot spot tree trimming was performed.
- In 2018, extending a section of three-phase conductor will be evaluated.
- In 2018, three additional fuses will be installed on this circuit.
- In 2018, load balancing will be performed.
- In 2018, several sections of difficult-to-access conductor will be evaluated for relocation.
- In 2019, a new Smart Grid device will be added to this circuit.
- In 2019, seven spans of difficult-to-access conductor will be relocated.

36 Circuit 17801 -- GILBERT 78-01

Performance Analysis

The GILBERT 78-01 circuit experienced three outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,499 customers for up to 21 minutes resulting in 364,257 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 122 customers for up to 1,320 minutes resulting in 160,983 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a sectionalizing device to be interrupted. This outage affected 127 customers for up to 1,200 minutes resulting in 152,393 CMI.

In total, the GILBERT 78-01 circuit had 50 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (27); equipment failure (11); animal contacts (7); vehicles (5).

Remedial Actions

- In 2018, additional animal guarding will be installed.
- In 2018, a single-phase tie line will be evaluated.
- In 2018, multiple porcelain cut outs will be replaced with polymer.
- In 2019, a difficult-to-access section of single-phase conductor will be relocated.
- In 2019, a new line and terminal will be constructed.

37 Circuit 15702 -- TANNERSVILLE 57-02

Performance Analysis

The TANNERSVILLE 57-02 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 824 customers for up to 985 minutes resulting in 811,640 CMI.

In total, the TANNERSVILLE 57-02 circuit had 34 outages between July 2017 and June 2018, with the causes breaking down as follows: equipment failure (13); tree related (9); animal contacts (8); nothing found (2); other (1); vehicles (1).

Remedial Actions

- In 2018, additional animal guarding will be installed.
- In 2019, a new three-phase tie will be constructed.
- In 2018, the circuit protection settings will be reviewed and optimized.
- In 2018, the installation of fault indicators and load break disconnect switches will be evaluated.

38 Circuit 25801 -- SULLIVAN TRAIL 58-01

Performance Analysis

The SULLIVAN TRAIL 58-01 circuit experienced three outages of over 100,000 CMI between July 2017 and June 2018.

On December 25, 2017, during a period of ice/sleet/snow, a tree made contact with an overhead conductor causing an interruption. This outage affected 244 customers for up to 498 minutes resulting in 121,621 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 392 customers for up to 745 minutes resulting in 286,585 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing an interruption. This outage affected 246 customers for up to 516 minutes resulting in 126,876 CMI.

In total, the SULLIVAN TRAIL 58-01 circuit had 41 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (26); equipment failure (9); animal contacts (4); other (1); vehicles (1).

Remedial Actions

- In 2018, an Expanded Operational Review will be performed.
- In 2018, a tie to the EXETER 14-02 will be evaluated.
- In 2018, a section of this circuit will be evaluated for transfer to the EXETER 14-02.
- In 2018, additional fusing will be evaluated for this circuit.

39 Circuit 52004 -- LINGLESTOWN 20-04

Performance Analysis

The LINGLESTOWN 20-04 circuit experienced four outages of over 100,000 CMI between July 2017 and June 2018.

On October 29, 2017, during a period of strong wind, a tree made contact with an overhead fuse causing a circuit breaker to trip to lockout. This outage affected 1,647 customers for up to 757 minutes resulting in 147,269 CMI.

On October 29, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 215 customers for up to 1,983 minutes resulting in 235,932 CMI.

On June 28, 2018, during a period of lightning, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 830 customers for up to 696 minutes resulting in 163,018 CMI.

On June 28, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 220 customers for up to 552 minutes resulting in 118,446 CMI.

In total, the LINGLESTOWN 20-04 circuit had 76 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (50); animal contacts (12); equipment failure (9); vehicles (3); nothing found (2).

Remedial Actions

- In 2018, two additional single-phase fuses will be installed.
- In 2018, additional hazard tree removal will be performed.
- In 2018, a protection review was completed.
- In 2019, full circuit tree trimming will be performed.

40 Circuit 54504 -- ENOLA 45-04

Performance Analysis

The ENOLA 45-04 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On August 4, 2017, during a period of lightning, an equipment failure occurred on a substation component causing a circuit breaker to trip to lockout. This outage affected 8,195 customers for up to 637 minutes resulting in 913,677 CMI.

In total, the ENOLA 45-04 circuit had 5 outages between July 2017 and June 2018, with the causes breaking down as follows: equipment failure (3); tree related (2).

Remedial Actions

- In 2017, the circuit breakers at the ENOLA substation were overhauled and repaired.
- In 2018, the getaway for this circuit was replaced.
- In 2018, infrared scanning was performed with no emergent repairs noted.
- In 2018, a single-phase fuse installation will be evaluated.
- In 2019, full circuit tree trimming will be performed.

41 Circuit 22805 -- HAUTO 28-05

Performance Analysis

The HAUTO 28-05 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On June 14, 2018, an unidentified issue occurred with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 4,727 customers for up to 1,353 minutes resulting in 934,520 CMI.

In total, the HAUTO 28-05 circuit had 10 outages between July 2017 and June 2018, with the causes breaking down as follows: equipment failure (6); nothing found (2); tree related (1); vehicles (1).

Remedial Actions

- In 2018, a drone patrol identified several minor items, which were remediated.
- In 2018, an Expanded Operation Review will be performed.
- In 2018, an existing Smart Grid device will be replaced.
- In 2018, six additional fuses will be installed.
- In 2018, a section of difficult-to-access conductor will be evaluated for relocation.
- In 2018, a section of this circuit will be evaluated for transfer to another circuit.
- In 2019, full circuit trimming will be performed.

42 Circuit 46206 -- DANVILLE 62-06

Performance Analysis

The DANVILLE 62-06 circuit experienced three outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 112 customers for up to 1,226 minutes resulting in 115,292 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 83 customers for up to 1,548 minutes resulting in 111,618 CMI.

On June 18, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 425 customers for up to 264 minutes resulting in 112,008 CMI.

In total, the DANVILLE 62-06 circuit had 59 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (41); equipment failure (11); animal contacts (5); nothing found (2).

Remedial Actions

- In 2018, a one mile section of difficult-to-access conductor was relocated.
- In 2018, a tie to the DANVILLE 62-04 will be evaluated.
- In 2018, hot spot trimming will be evaluated for this circuit.
- In 2018, a reliability substation will be evaluated.

43 Circuit 45303 -- WEST BERWICK 53-03

Performance Analysis

The WEST BERWICK 53-03 circuit experienced three outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with a pole or pole arm causing a load break fuse to operate. This outage affected 63 customers for up to 3,011 minutes resulting in 124,681 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 117 customers for up to 2.780 minutes resulting in 317,868 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 55 customers for up to 3,084 minutes resulting in 128,192 CMI.

In total, the WEST BERWICK 53-03 circuit had 51 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (33); nothing found (7); equipment failure (6); animal contacts (5).

Remedial Actions

- In 2018, hazard tree removal was performed on this circuit.
- In 2018, a section of difficult-to-access conductor will be evaluated for relocation.

- In 2018, a section of overhead conductor in a heavily wooded area will be evaluated for relocation to underground.

44 Circuit 52402 -- GREEN PARK 24-02

Performance Analysis

The GREEN PARK 24-02 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 253 customers for up to 1,563 minutes resulting in 245,836 CMI.

In total, the GREEN PARK 24-02 circuit had 89 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (53); equipment failure (23); animal contacts (6); nothing found (5); vehicles (2).

Remedial Actions

- In 2018, additional hazard tree removal was performed.
- In 2018, several single-phase fuses will be installed.
- In 2018, enabling triple-single operation at three automated reclosers will be evaluated.
- In 2018, a section of three-phase conductor will be replaced.
- In 2018, the protection scheme for a single-phase recloser will be reviewed and optimized.
- In 2019, a second transmission source into the distribution substation will be constructed.
- In 2019, a section of singe phase conductor will be sectionalized.
- In 2019, a section of single-phase conductor will be relocated.

45 Circuit 26602 -- BROOKSIDE 66-02

Performance Analysis

The BROOKSIDE 66-02 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On July 24, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,468 customers for up to 1,682 minutes resulting in 743,686 CMI.

In total, the BROOKSIDE 66-02 circuit had 21 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (17); equipment failure (4).

Remedial Actions

- In 2017, several porcelain cutouts were replaced with polymer cutouts.
- In 2018, an additional Smart Grid device was installed.
- In 2018, 65 poles will be replaced.
- In 2018, several porcelain cutouts will be replaced with polymer cutouts.
- In 2019, a section of conductor will be re-sourced.
- In 2019, full circuit tree trimming will be performed.

46 Circuit 44203 -- POINT 42-03

Performance Analysis

The POINT 42-03 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On August 4, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,879 customers for up to 210 minutes resulting in 393,575 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 167 customers for up to 1,227 minutes resulting in 204,848 CMI.

In total, the POINT 42-03 circuit had 26 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (15); equipment failure (5); animal contacts (4); vehicles (2).

Remedial Actions

- In 2017, three-phase fusing was installed.
- In 2017, full circuit tree trimming was performed.
- In 2017, two existing devices were upgraded to Smart Grid devices.
- In 2017, an additional Smart Grid device was added to this circuit.
- In 2018, an additional Smart Grid device was added to this circuit.
- In 2018, a tie line to the DANVILLE 62-04 will be evaluated.
- In 2018, an Expanded Operation Review will be performed on this circuit.

47 Circuit 22002 -- BOHEMIA 20-02

Performance Analysis

The BOHEMIA 20-02 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 208 customers for up to 1,971 minutes resulting in 414,128 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 628 customers for up to 1,967 minutes resulting in 299,409 CMI.

In total, the BOHEMIA 20-02 circuit had 27 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (17); animal contacts (7); equipment failure (2); other (1).

Remedial Actions

- In 2018, a new VCR switch installation will be evaluated.
- In 2018, the protection settings for a section of single-phase line will be reviewed and optimized.
- In 2018, 20 locations will receive animal guarding.

48 Circuit 43401 -- BENTON 34-01

Performance Analysis

The BENTON 34-01 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On April 4, 2018, 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 97 customers for up to 1,173 minutes resulting in 105,807 CMI.

In total, the BENTON 34-01 circuit had 65 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (41); equipment failure (9); nothing found (9); animal contacts (6).

Remedial Actions

- In 2017, full circuit trimming was performed.
- In 2018, a section of difficult-to-access conductor was relocated.
- In 2019, an Expanded Operational Review will be performed on this circuit.

49 Circuit 28805 -- LAKEVILLE 88-05

Performance Analysis

The LAKEVILLE 88-05 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 402 customers for up to 1,819 minutes resulting in 637,210 CMI.

In total, the LAKEVILLE 88-05 circuit had 29 outages between July 2017 and June 2018, with the causes breaking down as follows: animal contacts (9); equipment failure (7); tree related (6); nothing found (2); other (2); vehicles (2); contact or dig in (1).

Remedial Actions

- In 2018, the protection settings for four sections of single-phase will be reviewed and optimized.
- In 2018, a single-phase tie is being evaluated.
- In 2018, a section of line will be evaluated for re-sourcing and dividing into sections.
- In 2018, a section of three-phase line will be evaluated for extension.
- In 2018, a three-phase tie will be evaluated.

50 Circuit 40201 -- BEAR GAP 02-01

Performance Analysis

The BEAR GAP 02-01 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 79 customers for up to 1,491 minutes resulting in 117,733 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 109 customers for up to 1,330 minutes resulting in 144,877 CMI.

In total, the BEAR GAP 02-01 circuit had 87 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (62); animal contacts (9); nothing found (8); equipment failure (7); vehicles (1).

Remedial Actions

- In 2017, an Expanded Operational Review was performed on this circuit. Several items were identified and remediated, including a pole replacement and 13 cross arm replacements.
- In 2018, additional fusing will be evaluated for this circuit.
- In 2019, a section of existing conductor will be relocated and reconductored.

51 Circuit 25601 -- ARROWHEAD 56-01

Performance Analysis

The ARROWHEAD 56-01 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On December 25, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 550 customers for up to 742 minutes resulting in 408,100 CMI.

On April 4, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 108 customers for up to 1,339 minutes resulting in 144,591 CMI.

In total, the ARROWHEAD 56-01 circuit had 37 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (27); equipment failure (5); animal contacts (2); nothing found (2); vehicles (1).

Remedial Actions

- In 2018, an Expanded Operational Review was performed; several minor items were remediated as a result.
- In 2019, a tie to the ARROWHEAD 56-02 will be constructed.
- In 2019, two single-phase reclosers will be installed.
- In 2019, three single-phase tap fuses will be installed.

52 Circuit 28301 -- NEWFOUNDLAND 83-01

Performance Analysis

The NEWFOUNDLAND 83-01 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On April 4, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 883 customers for up to 394 minutes resulting in 190,214 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 360 customers for up to 379 minutes resulting in 136,231 CMI.

In total, the NEWFOUNDLAND 83-01 circuit had 87 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (49); animal contacts (15); equipment failure (13); nothing found (8); vehicles (2).

Remedial Actions

- In 2018, a new reliability substation will be evaluated.
- In 2018, splitting a long segment of this circuit will be evaluated.
- In 2018, a full circuit patrol will be performed; animal guarding will be evaluated at all locations.
- In 2018, the addition of single-phase Hendrix cable will be evaluated.
- In 2018, hazard tree removal will be evaluated.
- In 2018, a two-phase line extension will be evaluated.
- In 2018, a new line and terminal will be evaluated.
- In 2018, a section of difficult-to-access single-phase will be evaluated for relocation.

53 Circuit 55103 -- WERTZVILLE 51-03

Performance Analysis

The WERTZVILLE 51-03 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On October 29, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,047 customers for up to 955 minutes resulting in 413,404 CMI.

On January 13, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,050 customers for up to 348 minutes resulting in 303,576 CMI.

In total, the WERTZVILLE 51-03 circuit had 16 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (8); equipment failure (4); animal contacts (3); vehicles (1).

Remedial Actions

- In 2018, a three-phase recloser was replaced.
- In 2018, full circuit tree trimming will be performed.
- In 2018, hazard tree removal will be performed.
- In 2018, a single-phase fuse will be installed.
- In 2018, a new tie line with the KINGSTON 81-02 line will be evaluated.

54 Circuit 24902 -- WHITE HAVEN 49-02

Performance Analysis

The WHITE HAVEN 49-02 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 120 customers for up to 1,251 minutes resulting in 150,120 CMI.

In total, the WHITE HAVEN 49-02 circuit had 43 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (26); equipment failure (11); animal contacts (4); other (1); vehicles (1).

Remedial Actions

- In 2018, an existing air break switch will be upgraded to a Smart Grid device.
- In 2018, hazard tree removal will be evaluated.
- In 2018, the transmission tap to the WHITE HAVEN substation will be rebuilt.
- In 2018, an existing Smart Grid device will be evaluated for single-phase operation.

55 Circuit 26001 -- WEST DAMASCUS 60-01

Performance Analysis

The WEST DAMASCUS 60-01 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 239 customers for up to 1,275 minutes resulting in 274,834 CMI.

In total, the WEST DAMASCUS 60-01 circuit had 79 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (38); equipment failure (19); animal contacts (13); nothing found (6); vehicles (2); other (1).

Remedial Actions

- In 2018, two new reliability substations will be evaluated.
- In 2018, animal guarding for three locations will be evaluated.
- In 2018, a section of single-phase will be evaluated for extension and re-sourcing.
- In 2018, an additional single-phase tie will be evaluated
- In 2019, the installation of a Smart Grid device is being evaluated.

56 Circuit 54001 -- SHERMANSDALE 40-01

Performance Analysis

The SHERMANSDALE 40-01 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 488 customers for up to 548 minutes resulting in 267,204 CMI.

On May 16, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 158 customers for up to 1,172 minutes resulting in 132,312 CMI.

In total, the SHERMANSDALE 40-01 circuit had 35 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (23); equipment failure (10); nothing found (1); vehicles (1).

Remedial Actions

- In 2018, three additional single-phase fuses will be evaluated.
- In 2018, a protection review will be performed to evaluate feasibility of slot fuses and new reclosers.
- In 2018, a single-phase automatic transfer tie with the BENEVENUE 68-01 will be evaluated.
- In 2019, an Expanded Operational Review will be performed.

57 Circuit 46702 -- RENOVO 67-02

Performance Analysis

The RENOVO 67-02 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On August 4, 2017, during a period of strong wind, a tree made contact with an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,273 customers for up to 1,725 minutes resulting in 426,141 CMI.

In total, the RENOVO 67-02 circuit had 47 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (32); animal contacts (8); equipment failure (6); vehicles (1).

Remedial Actions

- In 2017, an existing recloser was upgraded to a Smart Grid device.
- In 2017, a solid blade disconnect was installed.
- In 2017, additional fusing was installed.
- In 2017, a line patrol was performed with several minor remediations identified to be performed in 2018.
- In 2018, a section of three-phase conductor will be relocated.
- In 2018, two Smart Grid devices will be installed.
- In 2018, full circuit trimming will be performed.
- In 2018, three additional fuses will be installed.
- In 2018, hazard tree trimming will be evaluated for this circuit.

58 Circuit 16501 -- STROUDSBURG 65-01

Performance Analysis

The STROUDSBURG 65-01 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead switch causing a load break fuse to operate. This outage affected 163 customers for up to 3,290 minutes resulting in 536,266 CMI.

In total, the STROUDSBURG 65-01 circuit had 22 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (9); equipment failure (8); animal contacts (5).

Remedial Actions

- In 2018, additional animal guarding will be installed.
- In 2018, a sectionalizing device will be upgraded.
- In 2018, full circuit tree trimming will be performed.

59 Circuit 47704 -- BLOOMSBURG 77-04

Performance Analysis

The BLOOMSBURG 77-04 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On April 4, 2018, during a period of strong wind, an equipment failure occurred on a substation component causing a circuit breaker to trip to lockout. This outage affected 1,373 customers for up to 103 minutes resulting in 138,691 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 155 customers for up to 2,804 minutes resulting in 138,292 CMI.

In total, the BLOOMSBURG 77-04 circuit had 57 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (29); equipment failure (16); animal contacts (8); nothing found (2); vehicles (2).

Remedial Actions

- In 2017, maintenance was performed on the circuit breaker.
- In 2017, additional fault indicators and disconnect switches were added to this circuit.
- In 2017, hazard tree removal was performed.
- In 2018, the circuit breaker was replaced.
- In 2018, line reconfiguration will be performed on a section of single-phase line.
- In 2019, full circuit tree trimming will be performed.

60 Circuit 56801 -- BENVENUE 68-01

Performance Analysis

The BENVENUE 68-01 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an unknown component causing a recloser to trip to lockout. This outage affected 114 customers for up to 1,114 minutes resulting in 126,920 CMI.

In total, the BENVENUE 68-01 circuit had 55 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (36); equipment failure (9); animal contacts (6); nothing found (3); vehicles (1).

Remedial Actions

- In 2018, several single-phase fuse locations will be evaluated.
- In 2018, the circuit breaker will be replaced.
- In 2018, the circuit breaker relays will be upgraded.
- In 2019, an Expanded Operational Review will be performed.

61 Circuit 45402 -- WEST BLOOMSBURG 54-02

Performance Analysis

The WEST BLOOMSBURG 54-02 circuit experienced two outages of over 100,000 CMI between July 2017 and June 2018.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 72 customers for up to 1,489 minutes resulting in 102,644 CMI.

On May 15, 2018, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 88 customers for up to 1,335 minutes resulting in 117,429 CMI.

In total, the WEST BLOOMSBURG 54-02 circuit had 60 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (33); equipment failure (9); animal contacts (7); nothing found (7); other (2); vehicles (2).

Remedial Actions

- In 2018, hot spot trimming will be evaluated for this circuit.
- In 2018, several sections of difficult-to-access single-phase will be evaluated for relocation.

62 Circuit 59202 -- THOMPSONTOWN 92-02

Performance Analysis

The THOMPSONTOWN 92-02 circuit experienced one outage of over 100,000 CMI between July 2017 and June 2018.

On October 30, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 83 customers for up to 2,097 minutes resulting in 163,583 CMI.

In total, the THOMPSONTOWN 92-02 circuit had 68 outages between July 2017 and June 2018, with the causes breaking down as follows: tree related (39); equipment failure (21); animal contacts (4); nothing found (2); other (1); vehicles (1).

Remedial Actions

- In 2017, an underground dip was replaced.
- In 2018, several single-phase fuses will be installed.
- In 2018, an additional recloser will be evaluated.
- In 2018, a section of single-phase line will be relocated.
- In 2018, a motor operated air break switch will receive Smart fault indication.

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. PPL Electric's maintenance programs focus on corrective actions to address controllable service interruptions (e.g., trees and equipment failure).

Cause Description	Trouble Cases	Percent of Trouble Cases	Customer Interruptions	Percent of Customer Interruptions	Customer Minutes	Percent of Customer Minutes
Animals	3,897	19.4%	42,249	3.8%	2,802,858	1.4%
Contact / Dig-In	145	0.7%	14,536	1.3%	1,067,961	0.5%
Directed by Non-PPL Authority	102	0.5%	41,288	3.7%	1,992,743	1.0%
Equipment Failures	5,498	27.4%	330,721	29.7%	34,337,578	16.6%
Improper Design	2	0.0%	136	0.0%	2,040	0.0%
Improper Installation	6	0.0%	1,861	0.2%	200,393	0.1%
Improper Operation	4	0.0%	272	0.0%	24,795	0.0%
Nothing Found	1,172	5.8%	62,905	5.7%	6,787,073	3.3%
Other Controllable	112	0.6%	13,630	1.2%	586,674	0.3%
Other Non Control	274	1.4%	25,872	2.3%	2,338,354	1.1%
Other Public	36	0.2%	9,367	0.8%	475,023	0.2%
Tree Related	8,033	40.1%	463,998	41.7%	144,861,703	70.2%
Unknown	-	0.0%	-	0.0%	-	0.0%
Vehicles	771	3.8%	105,286	9.5%	11,018,367	5.3%
Total	20,052	100.0%	1,112,121	100.0%	206,495,562	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 59% of cases, 50% of customer interruptions, and 81% of CMI.

Tree Related: PPL Electric has recently increased funding to more aggressively address outside of the right-of-way danger trees. For trees within the right-of-way, PPL Electric has implemented a more aggressive trimming strategy.

Animals: Animals accounted for approximately 19% of PPL Electric's cases of trouble. Although this represents a significant number of cases, the effect on SAIFI and CAIDI is small because approximately 76% of the number of cases of trouble was 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, in 2009, PPL Electric initiated distribution and substation animal guarding programs to focus systematically on protecting existing facilities most at risk of incurring animal-caused interruptions. All substations are scheduled to be animal guarded by 2018.

Vehicles: Although vehicles cause a small percentage of the number of cases of trouble, they accounted for a large 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. Service interruptions due to vehicles are on the rise as a result of an increasing number of drivers and vehicles on the road. 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 41% of the cases of trouble, 51% of the customer interruptions and 62% 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	2nd Quarter		Year-to-date	
		Budget	Actual	Budget	Actual
Transmission					
Transmission C-tag poles (# of poles)	563	141	59	176	114
Transmission arm replacements (# of sets)	147	37	23	62	49
Transmission air break switch inspections (# of switches)	0	0	0	0	0
Transmission surge arrester installations (# of sets)	0	0	0	0	0
Transmission structure inspections (# of activities)	33,291	8,323	4,281	16,646	6,774
Transmission tree side trim-Bulk Power (linear feet)	N/A				
Transmission herbicide-Bulk Power (# of acres)	N/A				
Transmission reclearing (# of miles) BES Only	913	228	267	456	531
Transmission reclearing (# of miles) 69 kV	1,550	388	373	776	630
Transmission reclearing (# of miles) 138 kV	89	22	63	44	63
Transmission danger tree removals-Bulk Power (# of trees)	N/A				
Substation					
Substation batteries (# of activities)	673	66	69	497	501
Circuit breakers (# of activities)	639	251	177	301	301
Substation inspections (# of activities)	1,797	371	373	1,056	1,047
Transformer maintenance (# of activities)	175	66	44	86	70

Inspection & Maintenance Goals/Objectives	Annual Budget	4th Quarter		Year-to-date	
		Budget	Actual	Budget	Actual
Distribution					
Distribution C-tag poles replaced (# of poles)	3,490	1,227	949	1,943	1,410
C-truss distribution poles (# of poles)	3,377	728	872	1,829	1,973
Capacitor (MVAR added)	0	0	3	0	28
OCR Replacements (# of)	40	14	7	30	31
Distribution pole inspections (# of poles)	60,055	17,313	17,634	31,320	31,641
Distribution line inspections (hours)	9,742	3,583	1,413	4,567	2,406
Group re-lamping (# of lamps)	13,152	5,200	4,328	5,200	4,328
Test sections of underground distribution cable	N/A	261	261	391	391
Distribution tree trimming (# of miles)	4,420	1,151	1,085	2,134	1,778
Distribution herbicide (# of acres)	N/A				
Distribution >18" removals within R/W (# of trees)	N/A				
Distribution hazard tree removals outside R/W (# of trees)	N/A				
LTN manhole inspections (# of)	300	129	84	156	221
LTN vault inspections (# of)	637	204	248	381	536
LTN network protector overhauls (# of)	65	29	22	38	37
LTN reverse power trip testing (# of)	23	9	5	12	15

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, as a whole, which includes the work identified in response to Item (6).

Activity	2nd Quarter		Year-to-date	
	Budget ($000)	Actual ($000)	Budget ($000)	Actual ($000)
Provide Electric Service	1,822	1,532	3,608	2,896
Vegetation Management	11,874	9,536	20,617	17,107
Customer Response	13,618	17,919	22,160	37,743
Reliability Maintenance	9,655	6,656	18,714	13,698
System Upgrade	2,612	2,841	4,838	5,215
Customer Service/Accounts	28,535	25,634	57,544	53,244
Others	8,021	15,228	15,541	24,624
Total O&M Expenses	**76,138**	**79,344**	**143,022**	**154,527**

*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, as a whole, which includes transmission and distribution ("T&D") activities.

Activity	2nd Quarter		Year-to-date	
	Budget ($000)	Actual ($000)	Budget ($000)	Actual ($000)
New Service/Revenue	21,669	19,202	42,451	42,845
System Upgrade	169,735	162,647	321,855	281,550
Reliability & Maintenance	113,070	102,861	216,182	202,540
Customer Response	4,320	12,735	6,340	31,628
Other	5,292	4,272	10,671	6,836
Total	**314,085**	**301,717**	**597,500**	**565,398**

9) Quarterly and year-to-date information on distribution substation inspections and reliability metrics.

(a) The Number of Corrective Work Orders by Type (Low-Priority, Mid-Priority, Urgent)

During the second quarter of 2018, 104 corrective work orders were created with the following breakdown by priority.

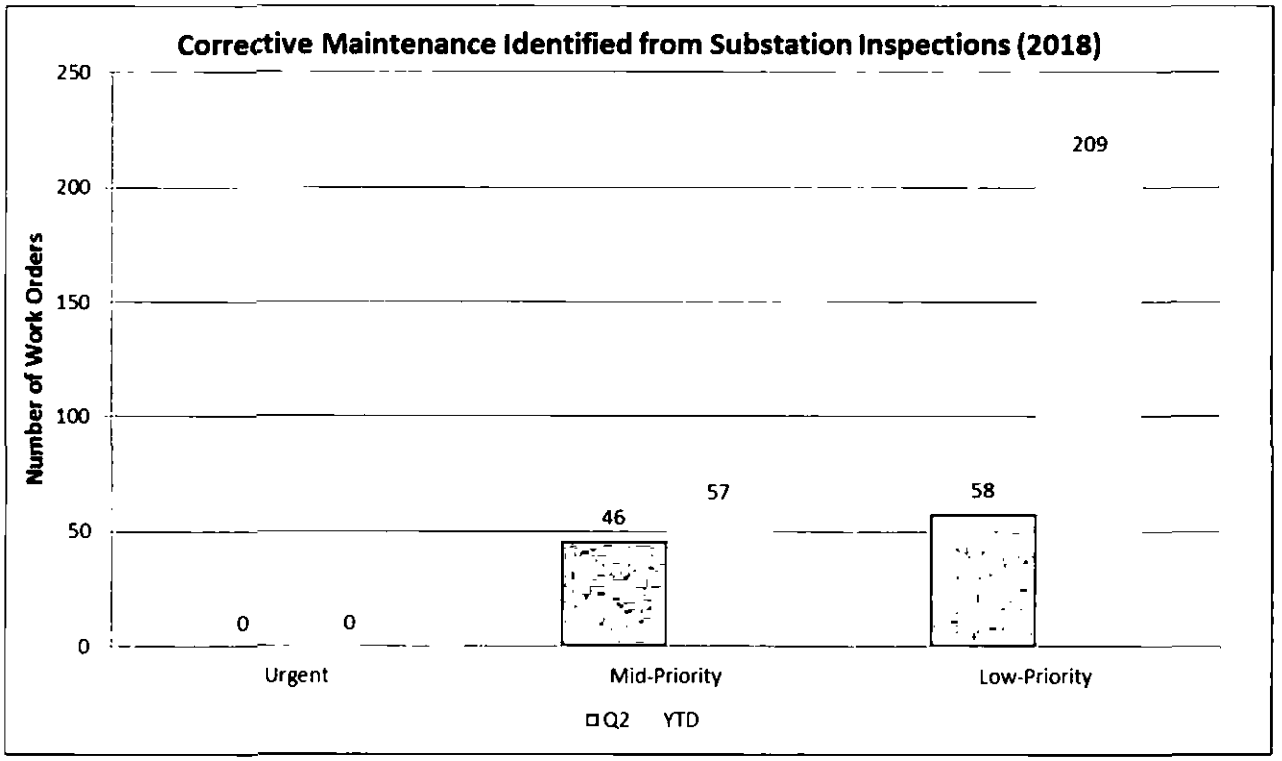


Figure 1: Corrective Maintenance Work Orders by Priority Level for second quarter and year-to-date 2018

(b) The Amount Spent on Substation Inspections

During the second quarter of 2018, PPL Electric spent approximately $114,000 on substation inspections.

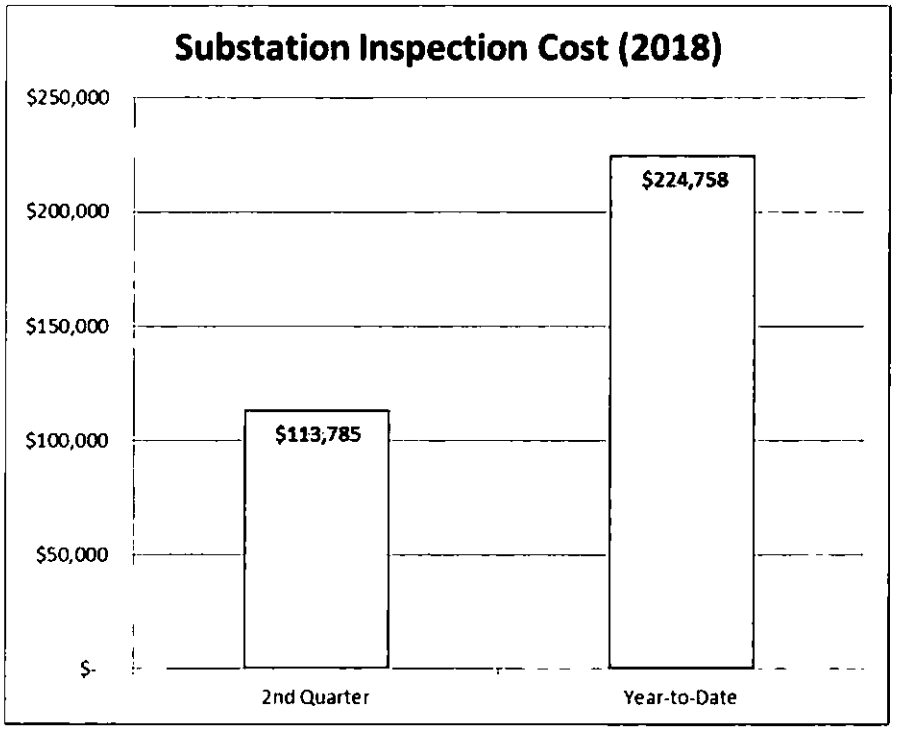


Figure 2: Substation Inspection Costs for second quarter and year-to-date 2018.

(c) The Amount Spent on Vegetation Management

Please refer to Section 7 for vegetation management expenses, for the second quarter and year-to-date.

(d) The Projected CMI Avoidance Due to Substation Inspections

The figure below shows the amount of CMI avoidance that PPL Electric has estimated for the second quarter and year-to-date. During second quarter of 2018, PPL Electric avoided a projected 205,000 CMI.

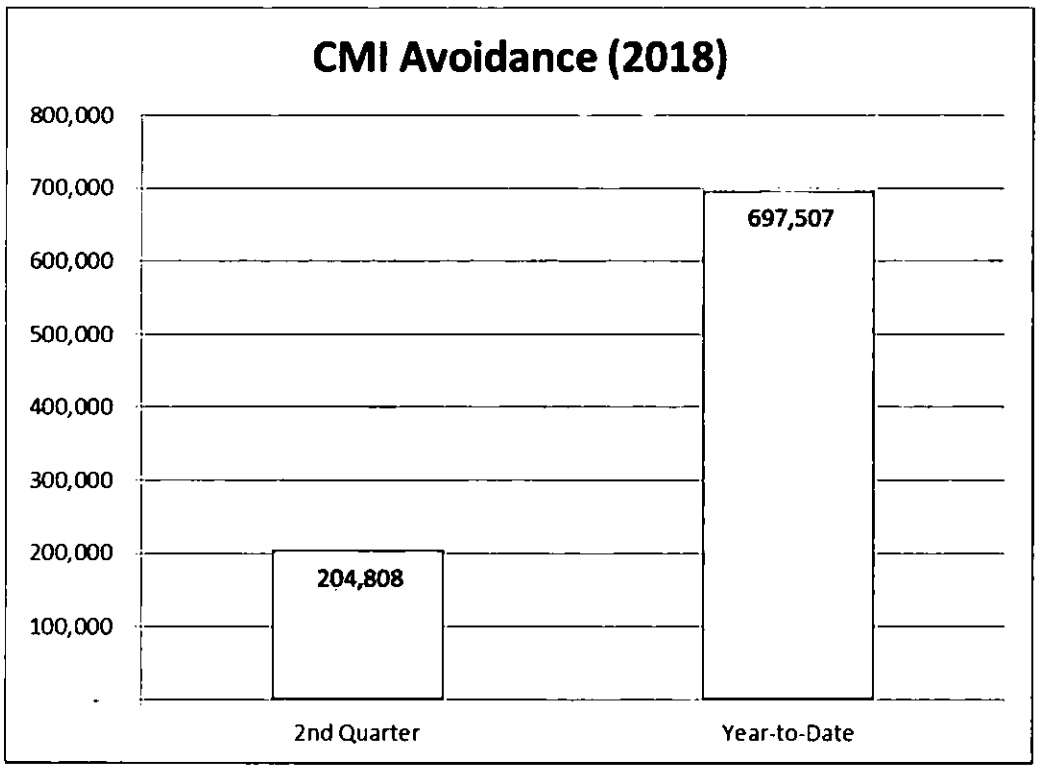


Figure 3: CMI Avoidance Due to Inspections for second quarter and year-to-date 2018

(e) Customer Minutes and Number of Customers Affected Due to Substation Sustained Outages

In the past three years, distribution substations have contributed a small amount toward the reliability metrics. During the second quarter of 2018, the Company interrupted about 8,615 customers for a total of approximately 258,000 CMI. The figures below show these results for the number of customers interrupted and CMI experienced, respectively.

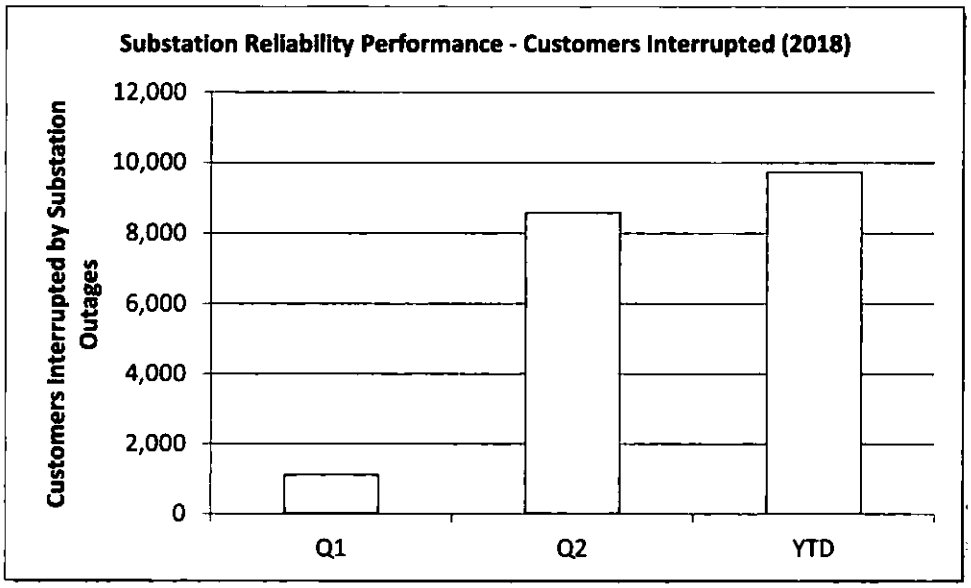


Figure 4: Substation Customers Interrupted for second quarter and year-to-date 2018

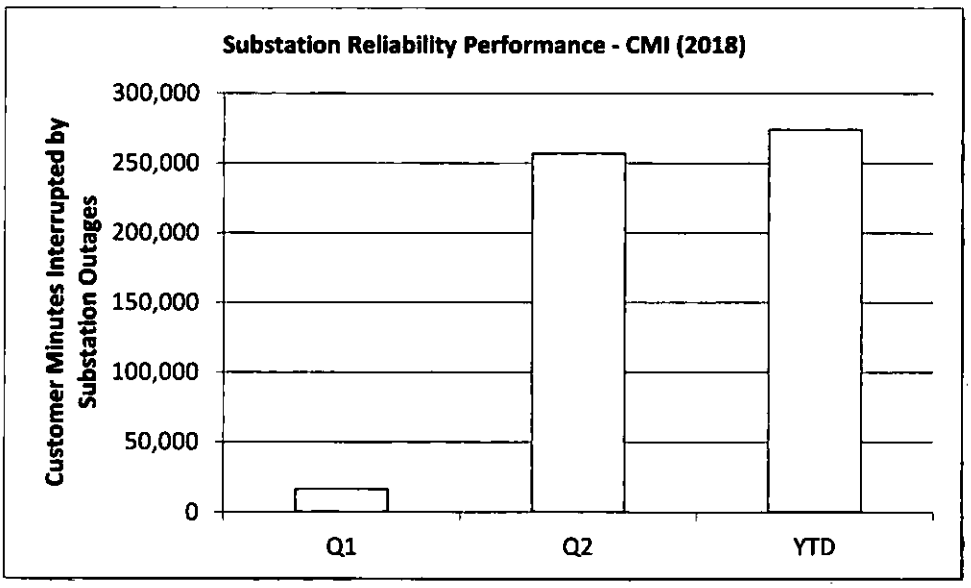


Figure 5: Substation Customer Minutes of Interruption for second quarter and year-to-date 2018

(f) Substation SAIFI Contribution

Overall, substation outages contributed approximately 2% of the total SAIFI experienced by PPL Electric customers in the second quarter of 2018. Historically, PPL Electric has ranked in the first quartile for Substation SAIFI performance on the Southeastern Electric Exchange (SEE) Survey, and is on-track to maintain its ranking among other electric utilities.

(g) Number of Substations with Remote Monitoring and Communication Technologies

PPL Electric has the capability of remotely monitoring its distribution substations through SCADA installations and through other telemetered equipment. This equipment allows PPL Electric to closely track the performance of its substation assets and respond to any trouble that is experienced on the distribution system. The table below shows the number of distribution substations that have this functionality.

	2nd Quarter	Year-to-Date
Substations with Remote Monitoring	352	352
Total Number of Substations	354	354[4]

PPL Electric has launched a project to install smart relaying onto all 12kV circuit breakers at its Distribution substations. These relays will allow the company to quickly perform automated switching for lesser system impact during an outage event, and better-estimate fault locations for quicker system restoration. By 2022, the Company expects all 12kV circuit breakers to have these functionalities in order to enhance reliability performance.

[4] In preparing the instant report, PPL Electric identified an error in the Quarterly Report filed April 30, 2018 (Quarterly Reliability Report for the Period ended March 31, 2018). The April 30, 2018 Quarterly Report has the total number of substations reported as 353, and the number of substations with remote monitoring as 351. The correct numbers are 354 and 352, respectively, as reflected above. All other data points in the April 30, 2018 Quarterly Report are correct.

10) ***Dedicated staffing levels for transmission and distribution operation and maintenance at the end of the quarter, in total and by specific category (for example, linemen, technician and electrician).***

The following table shows the dedicated staffing levels as of the end of the quarter. Job descriptions are provided in Appendix B.

Transmission and Distribution (T&D)	
Lineman Leader	59
Journeyman Lineman	208
Journeyman Lineman-Trainee	27
Helper	12
Groundhand	1
Troubleman	49
T&D Total	**356**
Electrical	
Elect Leaders-UG	2
Elect Leaders-Net	10
Elect Leaders-Sub	23
Journeyman Elect-UG	15
Journeyman Elect-Net	32
Journeyman Elect-Sub	60
Journeyman Elect Trainee-UG	0
Journeyman Elect Trainee-Net	0
Journeyman Elect Trainee-Sub	12
Helper	0
Laborer-Network	0
Laborer-Substation	0
Electrical Total	**154**
Overall Total	**510**

Appendix A

PPL Electric Utilities Corporation

Worst Performing Circuit Definition / Comparison under old and new Circuit Performance Index (CPI) formulas.

PPL Electric uses total Customer Minutes Interrupted (CMI) during the previous four quarters to define the worst performing circuits on its system. Major events and pre-arranged outages are excluded. This ranking system was put in place as of the second quarter of 2013, for the following reasons:

- It focuses remediation efforts where they will have the greatest customer impact. Small pockets of customers with multiple interruptions are addressed under the CEMI (Customers Experiencing Multiple Interruptions) program, which is adequately funded to remediate these smaller customer groups.
- It identifies the circuits contributing the most to system SAIDI.
- It is simple and transparent, therefore allowing WPCs to be identified and remediated on a short timetable.

Appendix B

PPL Electric Utilities Corporation

Job Descriptions

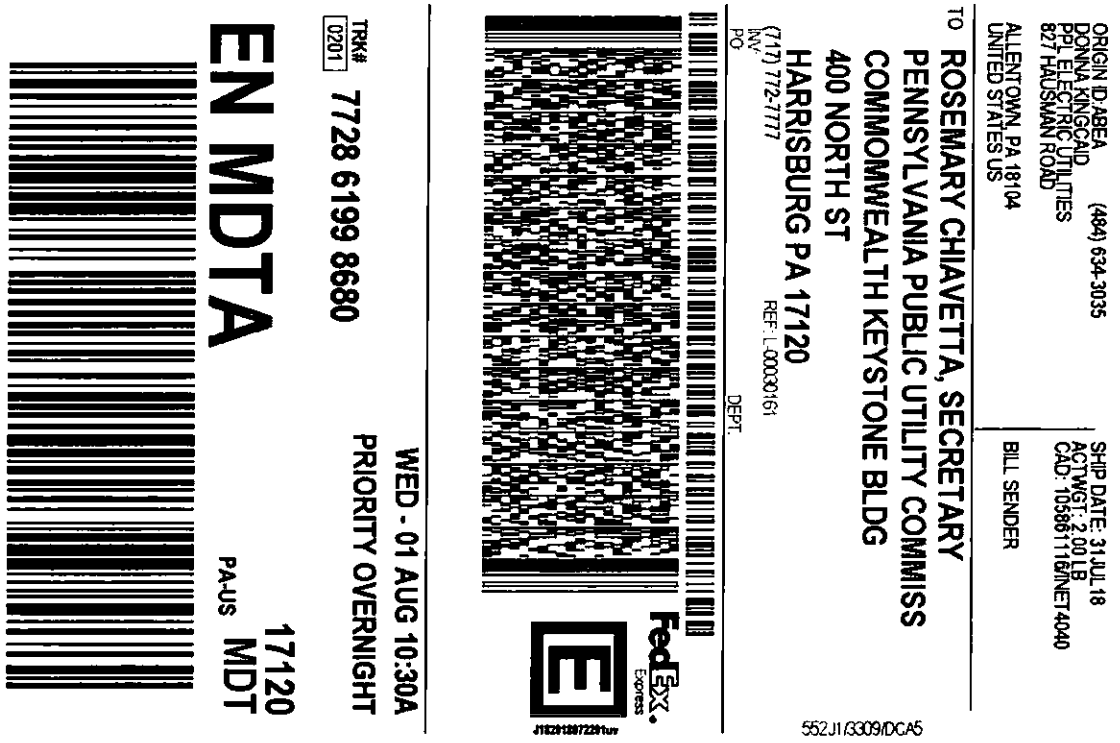
Transmission and Distribution

Groundhand	• Performs manual labor and assists employees in higher job classifications.
Helper	• 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	• 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	• 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	• 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	• Investigates and resolves trouble calls, voltage abnormalities on transmission and distribution systems associated with, but not limited to, PPL Electric facilities.

Electrical

Electrician Leader - Substation - Network - Underground	• 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	• 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	• Performs manual labor and assists employees in higher job classifications.
Journeyman Electrician - Substation - Network - Underground	• 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.

Journeyman Electrician - Trainee - Substation - Network - Underground	• 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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