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FEDERAL EXPRESS

July 31, 2017

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JUL 31 2017

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

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, 2017
Docket No. L-00030161

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 March 31, 2017. 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, 2017, 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,

Kimberly A. Klock

Kimberly A. Klock

Enclosures

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

bc: G. N. Dudkin - Email
K. Frazier - Email
S. Raymond - Email
B. Dainauski - Email
D. Bonenberger - Email
C. Lauver - Email
S. Gelatko - Email

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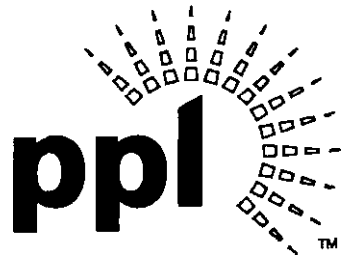

PPL Electric Utilities

PPL Electric Utilities Corporation

Quarterly Reliability Report

to the

Pennsylvania Public Utility Commission

July 2017

*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.***

There were no major events during the second quarter of 2017.

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, 2017.

SAIFI (Benchmark = 0.98; Rolling 12-month Std. = 1.18)	0.78
CAIDI (Benchmark = 145; Rolling 12-month Std. = 174)	127
SAIDI (Benchmark = 142; Rolling 12-month Std. = 205)	98
MAIFI[1]	7.0
Average Number of Customers Served[2]	1,409,838
Number of Sustained Customer Interruptions (Trouble Cases)	16,863
Number of Customers Affected[3]	1,092,723
Customer Minutes of Interruptions (CMI)	138,644,217
Number of Customer Momentary Interruptions	9,935,228

During the second quarter, there were no (0) PUC major events, two (2) PUC reportable events, and three (3) other storms that required the opening of one or more area emergency centers to manage restoration efforts.

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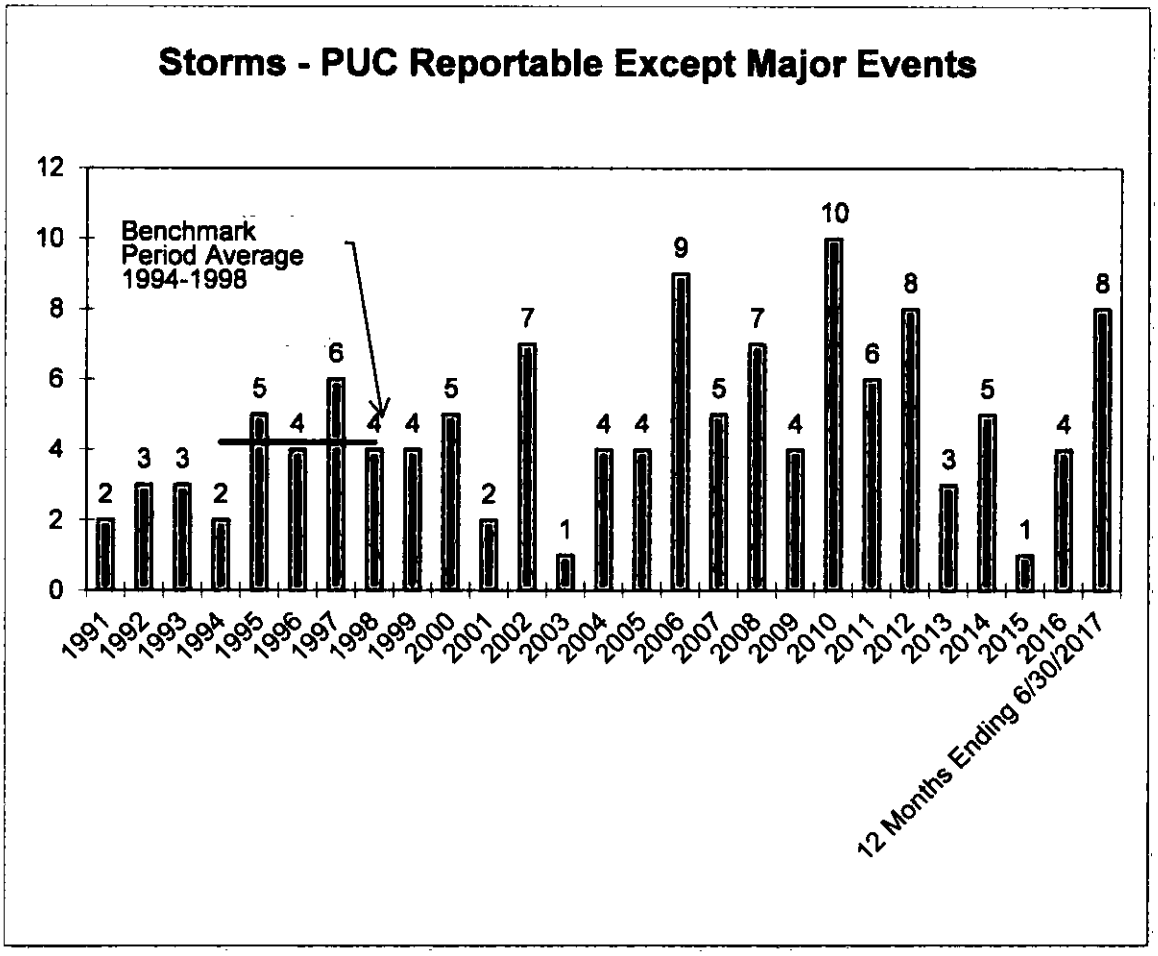
[1] MAIFI data is obtained at the substation breaker level and at certain reclosers. Because PPL Electric is enhancing its ability to identify momentaries, this metric is expected to increase in the near term.

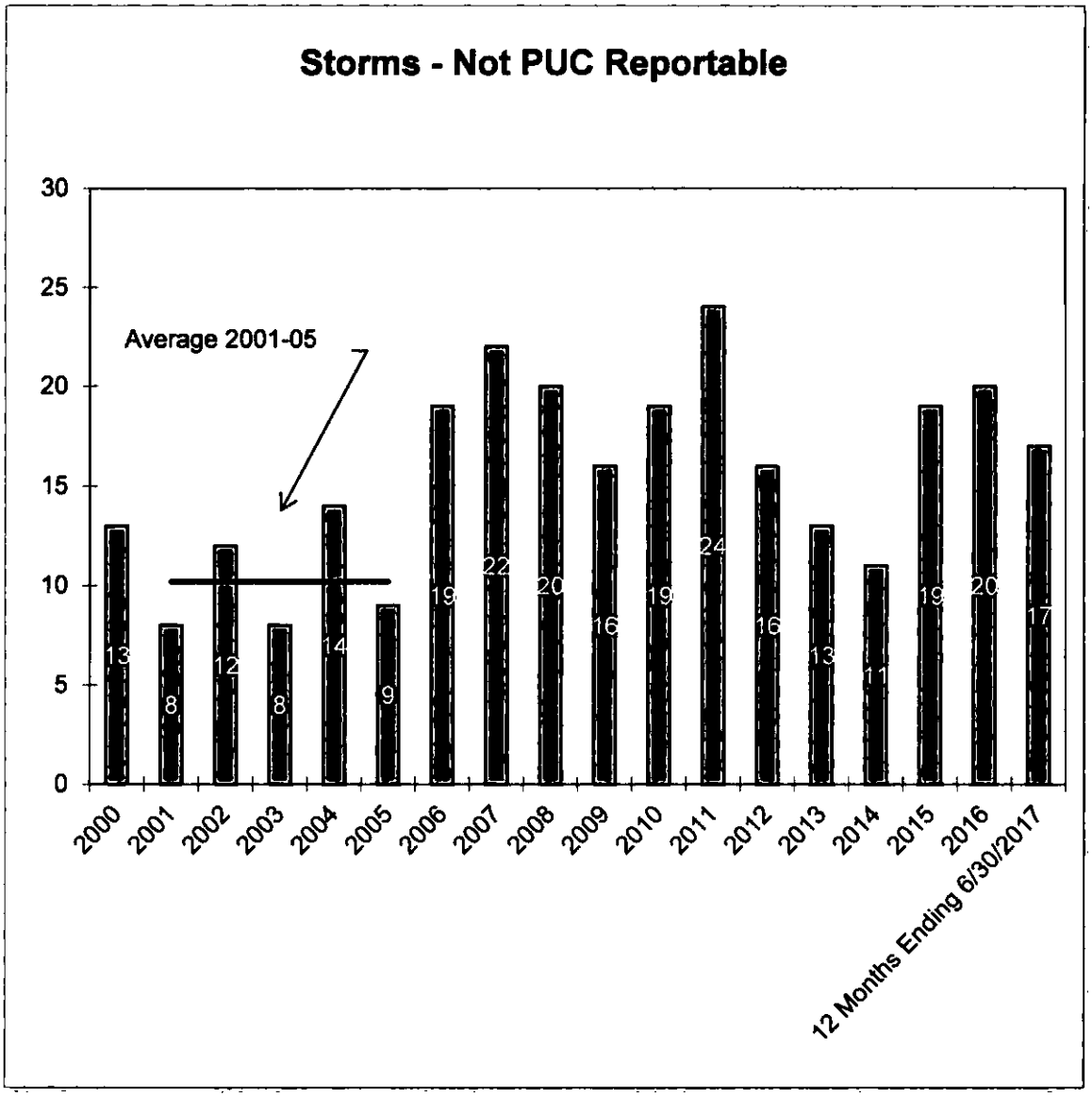
[2] PPL Electric calculates the annual indices using customers served at the end of period. This is consistent with the method used to calculate PPL Electric's benchmarks.

[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.

Specifically, during the 12-month reporting period, there were no (0) PUC major events and eight (8) PUC-reportable storms (≥ 2,500 customers interrupted for ≥ 6 hours) 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	28301	1024	234	4.4	18.7	2,278	93	2,331,570
2	40902	915	440	2.1	26.8	2,309	64	2,113,147
3	47001	584	366	1.6	15.4	2,493	73	1,455,624
4	42201	796	285	2.8	6.2	1,722	32	1,370,398
5	46702	981	339	2.9	13.6	1,274	44	1,250,159
6	46602	849	453	1.9	13.5	1,461	72	1,240,928
7	45702	662	456	1.5	32.6	1,744	62	1,155,394
8	44703	637	750	0.8	29.1	1,782	58	1,135,862
9	64304	844	584	1.4	16.9	1,341	26	1,132,018
10	52402	680	213	3.2	13.5	1,635	57	1,111,612
11	42001	662	539	1.2	13.2	1,658	50	1,097,692
12	54101	691	166	4.2	13.0	1,561	55	1,077,939
13	26604	410	105	3.9	23.4	2,416	58	989,433
14	52401	771	193	4.0	8.2	1,283	74	989,364
15	52403	722	226	3.2	13.2	1,242	49	897,249
16	43108	879	431	2.0	20.6	992	25	872,075
17	46801	761	186	4.1	16.0	1,108	38	842,769
18	12601	383	256	1.5	3.8	2,174	33	832,064
19	46903	548	112	4.9	17.6	1,517	27	831,415
20	43103	361	152	2.4	16.5	2,273	40	819,817
21	67702	901	371	2.4	12.3	866	21	780,212
22	26602	1129	389	2.9	3.4	690	13	778,970
23	45402	469	329	1.4	26.8	1,632	59	765,765
24	43504	367	349	1.1	1.4	2,011	21	737,108
25	26402	685	183	3.8	17.4	1,073	51	734,982

WPC Rank	Feeder ID	SAIDI	CAIDI	SAIFI	MAIFI	Customers	Cases of Trouble	Customer Minutes Interrupted (CMI)
26	24502	644	208	3.1	16.2	1,109	33	713,778
27	46504	368	136	2.7	4.1	1,898	46	698,441
28	26702	659	172	3.8	14.0	1,033	18	680,489
29	40702	665	227	2.9	19.2	1,013	19	674,072
30	47704	469	132	3.5	4.2	1,380	44	647,414
31	26002	529	158	3.3	18.5	1,217	37	643,672
32	60903	502	454	1.1	3.0	1,261	11	632,729
33	11502	250	114	2.2	1.6	2,515	33	627,971
34	26703	327	289	1.1	4.0	1,895	46	619,331
35	41202	419	187	2.2	7.7	1,459	57	611,815
36	47002	303	187	1.6	8.9	1,988	80	602,151
37	24401	471	150	3.1	26.4	1,270	62	597,842
38	46203	277	267	1.0	8.2	2,150	45	596,397
39	40901	309	232	1.3	25.3	1,892	46	585,140
40	59002	260	169	1.5	9.0	2,250	52	584,803
41	25503	426	483	0.9	12.3	1,366	34	581,744
42	56802	382	96	4.0	19.2	1,521	50	580,585
43	67605	365	591	0.6	18.9	1,575	28	574,699
44	29503	495	188	2.6	5.6	1,158	40	573,128
45	25501	342	264	1.3	14.9	1,651	49	564,192
46	26001	398	207	1.9	3.8	1,416	60	563,648
47	28602	291	238	1.2	6.3	1,932	12	562,592
48	51502	299	163	1.8	7.6	1,840	13	550,336
49	43101	382	227	1.7	8.7	1,439	42	549,932
50	18502	297	141	2.1	11.8	1,841	80	546,803
51	29701	482	310	1.6	5.2	1,133	23	545,771
52	41002	430	94	4.6	3.1	1,258	52	541,045
53	12605	271	124	2.2	7.9	1,974	25	534,770
54	26401	243	136	1.8	31.2	2,177	72	529,526
55	22101	200	170	1.2	10.3	2,610	20	521,776
56	46506	318	303	1.1	16.7	1,630	39	518,316
57	10903	300	158	1.9	4.8	1,722	28	516,454
58	46001	216	84	2.6	4.8	2,356	30	509,552
59	28101	320	58	5.5	17.7	1,583	53	506,837
60	11506	380	137	2.8	5.6	1,304	44	496,120
61	23401	285	147	1.9	7.3	1,718	41	488,913
62	64302	458	981	0.5	6.4	1,055	18	482,784

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

01 Circuit 28301 -- NEWFOUNDLAND 83-01

Performance Analysis

The NEWFOUNDLAND 83-01 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On November 20, 2016, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,858 customers for up to 1,506 minutes resulting in 1,592,438 CMI.

On December 18, 2016, during a period of heavy rain, an equipment failure occurred on a pole or pole arm causing a temporary open point to be interrupted. This outage affected 1,021 customers for up to 356 minutes resulting in 128,399 CMI.

In total, the NEWFOUNDLAND 83-01 circuit had 93 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (59); equipment failure (16); animal contacts (7); nothing found (6); contact or dig in (3); other (1); vehicles (1).

Remedial Actions

- In 2017, several additional locations will be animal guarded.
- In 2017, additional fusing will be installed on this circuit.
- In 2017, the circuit breaker and the getaway will be replaced.
- In 2017, a section of three-phase section of conductor will be relocated on this circuit.
- In 2017, two vacuum reclosers were converted to triple-single operation.
- In 2017, full circuit trimming was performed.

02 Circuit 40902 -- JERSEY SHORE 09-02

Performance Analysis

The JERSEY SHORE 09-02 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On July 25, 2016, 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 2,310 customers for up to 140 minutes resulting in 189,220 CMI.

On May 1, 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 1,678 customers for up to 3,517 minutes resulting in 1,782,473 CMI.

In total, the JERSEY SHORE 09-02 circuit had 64 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (36); equipment failure (12); animal contacts (8); nothing found (5); vehicles (2); other (1).

Remedial Actions

- In 2017, full circuit trimming will be performed.
- In 2017, an Expanded Operational Review will be performed on this circuit.
- In 2017, additional animal guarding will be installed on this circuit.
- In 2017, additional fusing locations are being evaluated for this circuit.
- In 2017, a section of single-phase is being evaluated for splitting into two separate sections.

03 Circuit 47001 -- HUGHESVILLE 70-01

Performance Analysis

The HUGHESVILLE 70-01 circuit experienced three outages of over 100,000 CMI between July 2016 and June 2017.

On August 15, 2016, an equipment failure occurred on a pole or pole arm causing a recloser to trip to lockout. This outage affected 1,112 customers for up to 183 minutes resulting in 202,662 CMI.

On May 1, 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 1,105 customers for up to 2,621 minutes resulting in 371,749 CMI.

On May 5, 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 823 customers for up to 1,863 minutes resulting in 615,887 CMI.

In total, the HUGHESVILLE 70-01 circuit had 73 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (39); equipment failure (17); animal contacts (8); nothing found (6); other (3).

Remedial Actions

- In 2016, full circuit trimming was performed.
- In 2017, several devices will be upgraded to remote operability to expedite sectionalizing capability.
- In 2017, additional fusing will be installed.

04 Circuit 42201 -- SHENANDOAH 22-01

Performance Analysis

The SHENANDOAH 22-01 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On January 23, 2017, during a period of strong wind, an equipment failure occurred on a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 1,730 customers for up to 536 minutes resulting in 471,587 CMI.

On May 31, 2017, during a period of heavy rain, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,723 customers for up to 654 minutes resulting in 752,188 CMI.

In total, the SHENANDOAH 22-01 circuit had 32 outages between July 2016 and June 2017, with the causes breaking down as follows: equipment failure (13); tree related (9); animal contacts (4); nothing found (2); other (2); vehicles (2).

Remedial Actions

- In 2017, a hydraulic circuit recloser was replaced.
- In 2017, an Expanded Operational Review was performed.
- In 2017, after a large outage, a targeted circuit line patrol was performed. As a result, several remedial actions were completed, including additional hot spot tree trimming.
- In 2017, full circuit trimming will be performed.
- In 2017, an existing hydraulic recloser is being upgraded and a new hydraulic recloser will be installed downstream.
- In 2017, three off-cycle pole reviews were completed and identified for replacement.
- In 2017, aerial cable or Hendrix cable will be evaluated for a stretch of difficult-to-access line that runs through a heavily wooded area.

- In 2018, five additional fusing jobs will be completed.

05 Circuit 46702 -- RENOVO 67-02

Performance Analysis

The RENOVO 67-02 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On July 31, 2016, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 613 customers for up to 1,231 minutes resulting in 411,655 CMI.

On August 13, 2016, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 849 customers for up to 1,652 minutes resulting in 495,705 CMI.

In total, the RENOVO 67-02 circuit had 44 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (32); equipment failure (7); nothing found (3); animal contacts (2).

Remedial Actions

- In 2016, hot spot tree trimming was performed.
- In 2017, an existing recloser was upgraded to a Smart Grid device.
- In 2017, a solid blade disconnect will be installed.
- In 2017, additional fusing will be installed on this circuit.
- In 2017, a section of three-phase conductor that is susceptible to tree outages is scheduled for relocation.
- In 2018, full circuit trimming will be performed.

06 Circuit 46602 -- LARRYS CREEK 66-02

Performance Analysis

The LARRYS CREEK 66-02 circuit experienced three outages of over 100,000 CMI between July 2016 and June 2017.

On April 22, 2017, a vehicle made contact with a pole causing a recloser to trip to lockout. This outage affected 845 customers for up to 348 minutes resulting in 278,593 CMI.

On May 1, 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 67 customers for up to 1,820 minutes resulting in 121,898 CMI.

On May 1, 2017, during a period of heavy rain, a tree made contact with a pole or pole arm causing a motor operated switch to be interrupted. This outage affected 312 customers for up to 3,902 minutes resulting in 624,942 CMI.

In total, the LARRYS CREEK 66-02 circuit had 72 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (42); animal contacts (12); nothing found (9); equipment failure (6); vehicles (2); contact or dig in (1).

Remedial Actions

- In 2017, a section of difficult-to-access conductor will be relocated to a more accessible location.
- In 2017, additional fusing will be installed on this circuit.
- In 2017, several porcelain cutouts will be replaced on this circuit.

07 Circuit 45702 -- LINDEN 57-02

Performance Analysis

The LINDEN 57-02 circuit experienced five outages of over 100,000 CMI between July 2016 and June 2017.

On May 1, 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 99 customers for up to 2,088 minutes resulting in 123,237 CMI.

On May 1, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 65 customers for up to 1,928 minutes resulting in 118,249 CMI.

On May 1, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 40 customers for up to 3,389 minutes resulting in 110,647 CMI.

On May 1, 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 110 customers for up to 1,371 minutes resulting in 138,447 CMI.

On May 1, 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 226 customers for up to 2,623 minutes resulting in 364,403 CMI.

In total, the LINDEN 57-02 circuit had 62 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (42); equipment failure (11); animal contacts (4); nothing found (3); other (2).

Remedial Actions

- In 2017, additional animal guarding will be installed at several locations.
- In 2017, additional fusing will be installed at five locations.
- In 2018, full circuit trimming will be performed.

08 Circuit 44703 -- MUNCY 47-03

Performance Analysis

The MUNCY 47-03 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On September 18, 2016, during a period of strong wind, a tree made contact with a pole or pole arm causing an outage that affected 627 customers for up to 2,041 minutes resulting in 808,663 CMI.

In total, the MUNCY 47-03 circuit had 58 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (44); equipment failure (7); other (4); animal contacts (3).

Remedial Actions

- In 2016, three switches had settings changed to support additional sectionalizing capability.
- In 2016, an Expanded Operational Review was performed.
- In 2016, full circuit trimming was performed.
- In 2017, additional fusing will be installed at six locations.
- In 2017, two three-phase reclosers on this circuit were converted to single-phase operation.

09 Circuit 64304 -- LINCOLN 43-04

Performance Analysis

The LINCOLN 43-04 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On February 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 682 customers for up to 2,718 minutes resulting in 453,725 CMI.

On February 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 681 customers for up to 2,852 minutes resulting in 578,743 CMI.

In total, the LINCOLN 43-04 circuit had 27 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (17); equipment failure (5); animal contacts (3); other (1); vehicles (1).

Remedial Actions

- In 2016, full circuit trimming was performed.
- In 2017, an Expanded Operational Review was performed, with eight additional fusing locations and one recloser identified for installation this year.
- In 2017, a new triple-single recloser was installed.
- In 2017, a section of single-phase line will be transferred to a more reliable source.
- In 2017, a project to break up a section of single-phase to reduce exposure to customer will be evaluated.
- In 2017, two underground cable residential developments will receive cable curing.

10 Circuit 52402 -- GREEN PARK 24-02

Performance Analysis

The GREEN PARK 24-02 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On September 18, 2016, during a period of heavy rain, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,672 customers for up to 341 minutes resulting in 570,168 CMI.

On February 12, 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 1,670 customers for up to 119 minutes resulting in 198,997 CMI.

In total, the GREEN PARK 24-02 circuit had 57 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (37); equipment failure (19); vehicles (1).

Remedial Actions

- In 2016, full circuit trimming was performed.
- In 2016, fusing control logic was analyzed and adjusted.
- In 2016, an additional Smart Grid device was installed.
- In 2016, a section of difficult-to-access three-phase was moved to a more accessible location.
- In 2016, transmission arms and braces supporting this circuit were replaced.
- In 2017, four Smart Grid devices were installed, one with triple-single capability.
- In 2017, the installation of a single-phase recloser will be investigated.
- In 2017, additional fusing will be investigated.
- In 2017, three additional triple-single locations will be investigated.
- In 2017, circuit breaker relays will be upgraded at the substation.

11 Circuit 42001 -- MONTOURSVILLE 20-01

Performance Analysis

The MONTOURSVILLE 20-01 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On May 1, 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 1,658 customers for up to 2,871 minutes resulting in 1,047,841 CMI.

In total, the MONTOURSVILLE 20-01 circuit had 50 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (23); animal contacts (14); equipment failure (8); nothing found (4); contact or dig in (1).

Remedial Actions

- In 2017, an Expanded Operational Review was performed on this circuit.
- In 2017, additional fusing will be installed on this circuit at six locations.
- In 2017, several fuse cutouts will be replaced on this circuit.
- In 2017, full circuit trimming will be performed.
- In 2017, additional animal guarding will be installed on this circuit.

12 Circuit 54101 -- S SHERMANSDALE 41-01

Performance Analysis

The S SHERMANSDALE 41-01 circuit experienced three outages of over 100,000 CMI between July 2016 and June 2017.

On September 18, 2016, during a period of heavy rain, an equipment failure occurred on an overhead transmission component causing a recloser to trip to lockout. This outage affected 1,574 customers for up to 84 minutes resulting in 132,216 CMI.

On February 12, 2017, during a period of strong wind, a tree made contact with an overhead transmission component causing a recloser to trip to lockout. This outage affected 1,578 customers for up to 110 minutes resulting in 173,580 CMI.

On February 12, 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 1,577 customers for up to 1,165 minutes resulting in 504,959 CMI.

In total, the S SHERMANSDALE 41-01 circuit had 55 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (24); equipment failure (20); animal contacts (6); contact or dig in (3); nothing found (2).

Remedial Actions

- In 2016, the transmission line servicing this circuit was patrolled by helicopter.
- In 2016, the transmission line access roads were rebuilt.
- In 2016, the transmission arms and braces were replaced.
- In 2017, two single-phase reclosers were replaced.
- In 2017, one three-phase recloser was upgraded to a Smart Grid device.
- In 2017, additional series fusing will be evaluated.
- In 2017, an Expanded Operational Review will be performed.

- In 2017, full circuit trimming will be performed.
- In 2017, a new single-phase recloser will be installed.

13 Circuit 26604 -- BROOKSIDE 66-04

Performance Analysis

The BROOKSIDE 66-04 circuit experienced three outages of over 100,000 CMI between July 2016 and June 2017.

On November 19, 2016, during a period of ice/sleet/snow, an equipment failure occurred on an underground conductor causing a recloser to trip to lockout. This outage affected 1,207 customers for up to 432 minutes resulting in 332,934 CMI.

On March 10, 2017, an equipment failure occurred on an overhead switch causing a circuit breaker to trip to lockout. This outage affected 2,432 customers for up to 31 minutes resulting in 282,479 CMI.

On June 19, 2017, a tree made contact with a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 2,419 customers for up to 61 minutes resulting in 139,481 CMI.

In total, the BROOKSIDE 66-04 circuit had 58 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (20); equipment failure (16); animal contacts (11); nothing found (5); other (3); vehicles (3).

Remedial Actions

- In 2016, the substation was upgraded and all getaways were replaced.
- In 2017, an existing three-phase recloser will be reprogrammed to single-phase operation.
- In 2017, two fuses will be installed on this circuit.
- In 2017, multiple animal guarding locations will be evaluated.

- In 2017, a section of conductor will be investigated for resourcing.
- In 2017, voltage automation will be installed on this circuit.
- In 2017, a project to construct a new tie line will be evaluated.

14 Circuit 52401 -- GREEN PARK 24-01

Performance Analysis

The GREEN PARK 24-01 circuit experienced three outages of over 100,000 CMI between July 2016 and June 2017.

On September 18, 2016, during a period of heavy rain, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,321 customers for up to 347 minutes resulting in 325,466 CMI.

On October 11, 2016, a vehicle made contact with a pole causing an interruption. This outage affected 433 customers for up to 325 minutes resulting in 136,027 CMI.

On February 12, 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 1,324 customers for up to 122 minutes resulting in 161,528 CMI.

In total, the GREEN PARK 24-01 circuit had 74 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (45); equipment failure (15); animal contacts (9); nothing found (3); contact or dig in (1); vehicles (1).

Remedial Actions

- In 2016, an Expanded Operational Review was performed. As a result, several switches, cross-arms, and arrestors were replaced.
- In 2016, a recloser was replaced for improved protection coordination.
- In 2016, the transmission arms and braces were replaced.

- In 2017, full circuit trimming was performed.
- In 2017, the removal of a difficult-to-access section will be investigated.
- In 2017, fusing will be installed in multiple locations.
- In 2017, an additional new protective device will be evaluated for this circuit.
- In 2017, additional reclosers and fusing will be evaluated.
- In 2017, circuit breaker relays will be upgraded at the substation.

15 Circuit 52403 -- GREEN PARK 24-03

Performance Analysis

The GREEN PARK 24-03 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On September 18, 2016, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,256 customers for up to 341 minutes resulting in 428,773 CMI.

On February 12, 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 1,257 customers for up to 121 minutes resulting in 152,210 CMI.

In total, the GREEN PARK 24-03 circuit had 49 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (34); equipment failure (9); animal contacts (3); vehicles (2); contact or dig in (1).

Remedial Actions

- In 2016, an infrared scan was conducted.
- In 2016, two Smart Grid devices were installed.
- In 2016, the transmission line was patrolled by helicopter.
- In 2017, relocating a section of difficult-to-access single-phase will be evaluated.
- In 2017, circuit breaker relays will be upgraded at the GREEN PARK substation.
- In 2017, additional fusing will be installed at multiple locations.

16 Circuit 43108 -- SOUTH MILTON 31-08

Performance Analysis

The SOUTH MILTON 31-08 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On March 27, 2017, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 987 customers for up to 624 minutes resulting in 615,888 CMI.

In total, the SOUTH MILTON 31-08 circuit had 25 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (14); equipment failure (5); animal contacts (3); nothing found (1); other (1); vehicles (1).

Remedial Actions

- In 2017, as a result of a large outage, a targeted circuit patrol was performed, resulting in several lightning arrestors being replaced.
- In 2017, several protective settings at the circuit breaker and several downstream reclosers were changed.
- In 2017, a recloser was upgraded to a Smart Grid device.

- In 2017, a single-phase recloser will be installed.
- In 2017, an Expanded Operational Review will be performed.
- In 2017, a new single-phase recloser will be installed on this circuit.
- In 2018, full circuit trimming will be performed.
- In 2018, a section of single-phase tap will be relocated.

17 Circuit 46801 -- HEPBURN 68-01

Performance Analysis

The HEPBURN 68-01 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On May 1, 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 374 customers for up to 2,822 minutes resulting in 497,892 CMI.

In total, the HEPBURN 68-01 circuit had 38 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (16); animal contacts (10); equipment failure (8); nothing found (3); other (1).

Remedial Actions

- In 2017, animal guarding will be added at two locations.
- In 2017, fusing will be installed at three locations on this circuit.
- In 2019, a new line and terminal will split this circuit into smaller customer blocks.

18 Circuit 12601 -- MACADA 26-01

Performance Analysis

The MACADA 26-01 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On July 25, 2016, 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 436 customers for up to 637 minutes resulting in 277,579 CMI.

On July 25, 2016, during a period of lightning, a tree made contact with a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 1,729 customers for up to 719 minutes resulting in 357,749 CMI.

In total, the MACADA 26-01 circuit had 33 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (16); animal contacts (11); equipment failure (5); nothing found (1).

Remedial Actions

- In 2017, an additional automated recloser will be installed as part of the Smart Grid Initiative.
- In 2017, a three-phase recloser was converted to single-phase operation.
- In 2017, additional animal guarding will be installed at 21 locations.
- In 2018, a project to install a new tie line to the WESTGATE 58-01 line, affecting 440 radial customers is planned for construction.
- In 2019, an additional automated recloser will be installed as part of the Smart Grid Initiative.
- In 2019, transformers at WESTGATE Substation will be replaced, and a new line and terminal will be constructed to support load transfers.

19 Circuit 46903 -- MONTGOMERY 69-03

Performance Analysis

The MONTGOMERY 69-03 circuit experienced three outages of over 100,000 CMI between July 2016 and June 2017.

On August 1, 2016, during a period of strong wind, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,421 customers for up to 685 minutes resulting in 223,414 CMI.

On September 13, 2016, an animal interfered with a substation component causing a circuit breaker to trip to lockout. This outage affected 1,418 customers for up to 98 minutes resulting in 138,978 CMI.

On September 18, 2016, 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 1,419 customers for up to 1,309 minutes resulting in 252,218 CMI.

In total, the MONTGOMERY 69-03 circuit had 27 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (13); equipment failure (8); animal contacts (3); nothing found (2); vehicles (1).

Remedial Actions

- In 2016, concrete barriers were installed to protect the substation from vehicle hits.
- In 2016, the MONTGOMERY substation was animal guarded.
- In 2016, additional fusing was installed at five locations.
- In 2017, additional fusing will be installed at four locations.
- In 2017, additional hazard tree removal will be performed.

20 Circuit 43103 -- SOUTH MILTON 31-03

Performance Analysis

The SOUTH MILTON 31-03 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On March 27, 2017, during a period of heavy rain, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 2,272 customers for up to 73 minutes resulting in 107,014 CMI.

On March 27, 2017, during a period of heavy rain, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 988 customers for up to 628 minutes resulting in 354,802 CMI.

In total, the SOUTH MILTON 31-03 circuit had 40 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (14); equipment failure (13); animal contacts (8); other (3); vehicles (2).

Remedial Actions

- In 2017, a new transmission switching strategy will be evaluated.
- In 2017, three locations were identified for additional fusing.
- In 2017, two additional Smart Grid devices will be added to this circuit.

21 Circuit 67702 -- WERNERSVILLE 77-02

Performance Analysis

The WERNERSVILLE 77-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On February 25, 2017, during a period of strong wind, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 626 customers for up to 1,365 minutes resulting in 605,193 CMI.

In total, the WERNERSVILLE 77-02 circuit had 21 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (17); animal contacts (2); equipment failure (2).

Remedial Actions

- In 2017, the protection scheme for this circuit will be evaluated for potential improvement.
- In 2017, a motor operated air break switch will be reviewed for fault indication technology.
- In 2017, several single-phase fusing locations will be reviewed and completed.
- In 2017, replacing two solid blade disconnects with fuses will be evaluated.
- In 2018, full circuit trimming will be performed.

22 Circuit 26602 -- BROOKSIDE 66-02

Performance Analysis

The BROOKSIDE 66-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On November 20, 2016, during a period of strong wind, an equipment failure occurred on a pole or pole arm. This outage affected 1,205 customers for up to 1,221 minutes resulting in 671,065 CMI.

In total, the BROOKSIDE 66-02 circuit had 13 outages between July 2016 and June 2017, with the causes breaking down as follows: equipment failure (6); nothing found (3); tree related (3); other (1).

Remedial Actions

- In 2016, a recloser was replaced with a remotely operable recloser.
- In 2016, the BROOKSIDE substation was upgraded and all getaways were replaced.
- In 2017, a tie to the BROOKSIDE 66-03 will be constructed.
- In 2017, a three-phase recloser will be evaluated for single-phase operation.
- In 2017, two additional switches and one additional fusing location will be evaluated.
- In 2018, full circuit trimming will be performed.

23 Circuit 45402 -- WEST BLOOMSBURG 54-02

Performance Analysis

The WEST BLOOMSBURG 54-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On July 25, 2016, 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 530 customers for up to 837 minutes resulting in 443,991 CMI.

In total, the WEST BLOOMSBURG 54-02 circuit had 59 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (32); equipment failure (11); nothing found (11); animal contacts (2); other (2); vehicles (1).

Remedial Actions

- In 2016, full circuit trimming and hazard tree removal were performed.
- In 2016, infrared scanning was performed.
- In 2017, a section of difficult-to-access conductor will be relocated to a more accessible location.

24 Circuit 43504 -- W WILLIAMSPORT 35-04

Performance Analysis

The W WILLIAMSPORT 35-04 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On May 1, 2017, during a period of strong wind, a tree made contact with a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 1,594 customers for up to 2,788 minutes resulting in 508,903 CMI.

In total, the W WILLIAMSPORT 35-04 circuit had 21 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (9); equipment failure (6); animal contacts (4); nothing found (2).

Remedial Actions

- In 2017, animal guarding was installed at 17 locations.
- In 2017, an additional recloser was installed on this circuit.
- In 2017, additional fusing was installed on this circuit.
- In 2017, three additional locations will be animal guarded.

25 Circuit 26402 -- INDIAN ORCHARD 64-02

Performance Analysis

The INDIAN ORCHARD 64-02 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On February 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 406 customers for up to 539 minutes resulting in 218,586 CMI.

On February 25, 2017, during a period of strong wind, an unidentified issue occurred with an overhead switch causing a recloser to trip to lockout. This outage affected 374 customers for up to 296 minutes resulting in 110,928 CMI.

In total, the INDIAN ORCHARD 64-02 circuit had 51 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (22); animal contacts (13); equipment failure (8); nothing found (5); vehicles (2); other (1).

Remedial Actions

- In 2017, coordination between single-phase and three-phase reclosers was completed for this circuit.
- In 2017, a section of single-phase will be relocated to another circuit.
- In 2017, a section of difficult-to-access single-phase line will be relocated to a more accessible location.
- In 2017, a solid blade disconnect will be installed on this circuit.
- In 2017, an additional span of a single-phase conductor will be evaluated for this circuit.
- In 2017, hot-spot trimming will be evaluated for this circuit.
- In 2018 and 2019, two reclosers will be replaced on this circuit.
- In 2018, a new sectionalizing device will be installed.

26 Circuit 24502 -- GOULDSBORO 45-02

Performance Analysis

The GOULDSBORO 45-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On July 25, 2016, during a period of strong wind, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 240 customers for up to 1,042 minutes resulting in 250,262 CMI.

In total, the GOULDSBORO 45-02 circuit had 33 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (18); equipment failure (10); animal contacts (2); nothing found (2); vehicles (1).

Remedial Actions

- In 2017, a large section of two-phase was relocated and reconfigured to alleviate coordination issues and improve accessibility.
- In 2017, a new two-phase hydraulic recloser was installed.
- In 2017, a tie-point will be developed for this circuit.
- In 2017, additional fusing will be installed.
- In 2018, full circuit trimming will be performed.

27 Circuit 46504 -- LOCK HAVEN 65-04

Performance Analysis

The LOCK HAVEN 65-04 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On May 2, 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 243 customers for up to 671 minutes resulting in 140,203 CMI.

In total, the LOCK HAVEN 65-04 circuit had 46 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (26); equipment failure (7); animal contacts (5); nothing found (4); other (2); vehicles (2).

Remedial Actions

- In 2016, hot spot tree trimming was performed.
- In 2016, an Expanded Operational Review was performed and three additional fusing locations and two animal guarding locations were identified. These remediations will be completed in 2017.
- In 2017, additional single-phase load break disconnects were installed.
- In 2017, an additional Smart Grid device was installed.
- In 2017, full circuit trimming will be performed.

28 Circuit 26702 -- HEMLOCK FARMS 67-02

Performance Analysis

The HEMLOCK FARMS 67-02 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On August 13, 2016, during a period of lightning, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 290 customers for up to 793 minutes resulting in 184,405 CMI.

On August 15, 2016, an equipment failure occurred on a substation component causing a circuit breaker to trip to lockout. This outage affected 2,917 customers for up to 135 minutes resulting in 395,982 CMI.

In total, the HEMLOCK FARMS 67-02 circuit had 18 outages between July 2016 and June 2017, with the causes breaking down as follows: equipment failure (10); animal contacts (5); nothing found (1); other (1); tree related (1).

Remedial Actions

- In 2016, an Expanded Operational Review was performed.
- In 2016, full circuit trimming was performed.
- In 2017, additional animal guarding was installed.
- In 2017, an automated tie device was installed.
- In 2017, a circuit breaker will be replaced at the transmission substation source.

29 Circuit 40702 -- FAIRFIELD 07-02

Performance Analysis

The FAIRFIELD 07-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On May 1, 2017, during a period of heavy rain, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,016 customers for up to 3,022 minutes resulting in 525,586 CMI.

In total, the FAIRFIELD 07-02 circuit had 19 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (11); equipment failure (4); animal contacts (2); nothing found (1); other (1).

Remedial Actions

- In 2017, full circuit trimming was performed.
- In 2017, a section of difficult-to-access conductor will be evaluated for relocation to a more accessible location.
- In 2018, an additional Smart Grid device will be installed on this circuit.

30 Circuit 47704 -- BLOOMSBURG 77-04

Performance Analysis

The BLOOMSBURG 77-04 circuit experienced three outages of over 100,000 CMI between July 2016 and June 2017.

On January 26, 2017, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 983 customers for up to 256 minutes resulting in 119,482 CMI.

On April 11, 2017, a tree contractor performing work contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,374 customers for up to 360 minutes resulting in 151,674 CMI.

On April 19, 2017, a tree contractor performing work contacted an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,243 customers for up to 345 minutes resulting in 203,623 CMI.

In total, the BLOOMSBURG 77-04 circuit had 44 outages between July 2016 and June 2017, with the causes breaking down as follows: equipment failure (15); tree related (15); animal contacts (6); nothing found (4); other (2); vehicles (2).

Remedial Actions

- In 2016, a section of difficult-to-access conductor was relocated to a more accessible location.
- In 2016, an additional tie line was added to this circuit to improve sectionalizing capability.
- In 2017, maintenance was performed on the circuit breaker which had failed to reclose properly on one of the outages.

31 Circuit 26002 -- WEST DAMASCUS 60-02

Performance Analysis

The WEST DAMASCUS 60-02 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On September 24, 2016, a vehicle made contact with a pole causing a recloser to trip to lockout. This outage affected 763 customers for up to 771 minutes resulting in 169,854 CMI.

On December 18, 2016, 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 1,392 customers for up to 97 minutes resulting in 101,404 CMI.

In total, the WEST DAMASCUS 60-02 circuit had 37 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (23); equipment failure (4); animal contacts (3); other (3); nothing found (2); vehicles (2).

Remedial Actions

- In 2016, full circuit trimming was performed.
- In 2016, a large section of three-phase was reconductored.
- In 2017, a recloser was converted to triple-single operation.
- In 2017, additional fusing will be evaluated at several locations.
- In 2017, several additional locations will be animal guarded.

32 Circuit 60903 -- DONEGAL 09-03

Performance Analysis

The DONEGAL 09-03 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On August 16, 2016, during a period of lightning, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,241 customers for up to 616 minutes resulting in 613,267 CMI.

In total, the DONEGAL 09-03 circuit had 11 outages between July 2016 and June 2017, with the causes breaking down as follows: equipment failure (5); tree related (3); animal contacts (2); vehicles (1).

Remedial Actions

- In 2016, all capacitors on this circuit were inspected and one control was replaced.
- In 2016, an Expanded Operational Review was performed.
- In 2016, full circuit trimming and hazard tree removal were performed.
- In 2017, additional fusing will be installed at several locations.
- In 2017, three underground cable residential developments will receive cable curing.

33 Circuit 11502 -- FREEMANSBURG 15-02

Performance Analysis

The FREEMANSBURG 15-02 circuit experienced three outages of over 100,000 CMI between July 2016 and June 2017.

On July 18, 2016, 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 1,694 customers for up to 256 minutes resulting in 116,336 CMI.

On July 18, 2016, 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 1,177 customers for up to 255 minutes resulting in 176,641 CMI.

On July 18, 2016, during a period of heavy rain, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,279 customers for up to 174 minutes resulting in 222,111 CMI.

In total, the FREEMANSBURG 15-02 circuit had 33 outages between July 2016 and June 2017, with the causes breaking down as follows: animal contacts (14); equipment failure (8); tree related (7); nothing found (2); other (1); vehicles (1).

Remedial Actions

- In 2016, an Expanded Operational Review was performed.
- In 2017, fourteen single-phase fuses were installed.
- In 2017, animal guarding will be installed at the FREEMANSBURG substation.
- In 2017, an automated switch will be evaluated for upgrading to an automated recloser.
- In 2017, additional animal guarding will be installed.
- In 2018, full circuit trimming will be performed.
- In 2018, additional hot spot full circuit trimming will be performed.

34 Circuit 26703 -- HEMLOCK FARMS 67-03

Performance Analysis

The HEMLOCK FARMS 67-03 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On January 23, 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 141 customers for up to 967 minutes resulting in 121,275 CMI.

On January 24, 2017, during a period of ice/sleet/snow, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 867 customers for up to 777 minutes resulting in 151,226 CMI.

In total, the HEMLOCK FARMS 67-03 circuit had 46 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (24); animal contacts (13); nothing found (4); equipment failure (3); vehicles (2).

Remedial Actions

- In 2017 an additional Smart Grid device will be added to this circuit.
- In 2017, multiple locations will be evaluated for fusing.
- In 2017, additional disconnect switches will be evaluated for this circuit.
- In 2017, additional animal guarding will be evaluated for this circuit.

35 Circuit 41202 -- KENMAR 12-02

Performance Analysis

The KENMAR 12-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On May 1, 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 124 customers for up to 1,453 minutes resulting in 130,184 CMI.

In total, the KENMAR 12-02 circuit had 57 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (33); equipment failure (10); animal contacts (9); nothing found (4); Improper Operation (1).

Remedial Actions

- In 2017, full circuit trimming was performed.
- In 2017, an Expanded Operational Review will be performed on this circuit.
- In 2017, animal guarding will be installed at six locations on this circuit.

36 Circuit 47002 -- HUGHESVILLE 70-02

Performance Analysis

The HUGHESVILLE 70-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On September 30, 2016, during a period of heavy rain, a vehicle made contact with a pole causing an interruption. This outage affected 448 customers for up to 386 minutes resulting in 122,110 CMI.

In total, the HUGHESVILLE 70-02 circuit had 80 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (49); equipment failure (14); animal contacts (9); vehicles (4); nothing found (3); other (1).

Remedial Actions

- In 2017, additional fusing will be installed at four locations.
- In 2017, additional animal guarding will be installed at one location.
- In 2017, multiple line segments will be evaluated for relocation to more accessible locations.
- In 2018, full circuit trimming will be performed.

37 Circuit 24401 -- TINKER 44-01

Performance Analysis

The TINKER 44-01 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On February 9, 2017, an equipment failure occurred on a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 1,260 customers for up to 278 minutes resulting in 143,975 CMI.

On February 13, 2017, during a period of strong wind, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,261 customers for up to 147 minutes resulting in 185,165 CMI.

In total, the TINKER 44-01 circuit had 62 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (30); equipment failure (25); animal contacts (3); nothing found (2); other (2).

Remedial Actions

- In 2017, an Expanded Operational Review will be performed.
- In 2017, fusing will be installed at multiple locations.
- In 2017, a section of difficult-to-access conductor will be moved to a more accessible location.
- In 2017, an additional section of difficult-to-access conductor will be evaluated for relocation.
- In 2018, animal guarding will be installed at multiple locations.

38 Circuit 46203 -- DANVILLE 62-03

Performance Analysis

The DANVILLE 62-03 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On December 18, 2016, during a period of heavy rain, a vehicle made contact with a pole causing a recloser to trip to lockout. This outage affected 676 customers for up to 528 minutes resulting in 243,899 CMI.

In total, the DANVILLE 62-03 circuit had 45 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (17); equipment failure (10); animal contacts (7); nothing found (5); vehicles (5); other (1).

Remedial Actions

- In 2016, full circuit trimming was performed.
- In 2016, two automated reclosers were installed as part of the Smart Grid Initiative.
- In 2016, an Expanded Operational Review was performed.
- In 2017, several hazard trees were removed.
- In 2017, an additional recloser and an additional tie will be evaluated.

39 Circuit 40901 -- JERSEY SHORE 09-01

Performance Analysis

The JERSEY SHORE 09-01 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On May 1, 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 62 customers for up to 2,067 minutes resulting in 128,111 CMI.

In total, the JERSEY SHORE 09-01 circuit had 46 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (32); equipment failure (8); animal contacts (3); nothing found (2); other (1).

Remedial Actions

- In 2017, full circuit trimming will be performed.
- In 2017, an Expanded Operational Review will be performed on this circuit.
- In 2017, additional fusing will be installed on this circuit.

40 Circuit 59002 -- MIFFLINTOWN 90-02

Performance Analysis

The MIFFLINTOWN 90-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On December 11, 2016, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,262 customers for up to 265 minutes resulting in 305,250 CMI.

In total, the MIFFLINTOWN 90-02 circuit had 52 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (31); equipment failure (9); animal contacts (6); nothing found (3); contact or dig in (2); other (1).

Remedial Actions

- In 2016, a single-phase fuse was installed.
- In 2016, full circuit trimming was performed.
- In 2017, a fuse will be replaced with a recloser and additional downstream fusing will be evaluated.
- In 2017, replacing another recloser will be investigated.
- In 2017, reconfiguring single-phase fusing will be investigated.
- In 2017, an additional Smart Grid device will be installed.
- In 2019, an additional Smart Grid device will be installed.

41 Circuit 25503 -- MADISONVILLE 55-03

Performance Analysis

The MADISONVILLE 55-03 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On November 20, 2016, during a period of ice/sleet/snow, a tree made contact with an overhead splice causing a recloser to trip to lockout. This outage affected 256 customers for up to 806 minutes resulting in 197,740 CMI.

On May 1, 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 411 customers for up to 823 minutes resulting in 300,015 CMI.

In total, the MADISONVILLE 55-03 circuit had 34 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (18); equipment failure (8); animal contacts (4); nothing found (3); other (1).

Remedial Actions

- In 2017, upgraded relays will be installed at this substation for improved fault indication.
- In 2018, full circuit trimming will be performed.
- In 2018, a new Smart Grid device location will be evaluated for this circuit.

42 Circuit 56802 -- BENVENUE 68-02

Performance Analysis

The BENVENUE 68-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On February 12, 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 1,512 customers for up to 325 minutes resulting in 199,969 CMI.

In total, the BENVENUE 68-02 circuit had 51 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (21); equipment failure (15); animal contacts (12); nothing found (1); other (1); vehicles (1).

Remedial Actions

- In 2016, the transmission line servicing this circuit was patrolled by helicopter.
- In 2016, the transmission line access roads were rebuilt.
- In 2016, the transmission arms and braces were replaced.
- In 2017, animal guarding installation will be evaluated.

- In 2017, a hydraulic recloser will be evaluated for upgrading to a Smart Grid device.

43 Circuit 67605 -- WARWICK 76-05

Performance Analysis

The WARWICK 76-05 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On February 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 579 customers for up to 491 minutes resulting in 149,811 CMI.

On February 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 209 customers for up to 2,841 minutes resulting in 326,871 CMI.

In total, the WARWICK 76-05 circuit had 28 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (14); equipment failure (7); animal contacts (4); nothing found (1); other (1); vehicles (1).

Remedial Actions

- In 2017, a post-storm patrol was performed on this circuit. Several minor items were identified and will be corrected in 2017.
- In 2017, fusing will be installed at several locations.
- In 2017, two solid blade disconnect switches will be evaluated for replacing with single-phase reclosers.
- In 2018, full circuit trimming will be performed.

44 Circuit 29503 -- LEDGEDALE 95-01

Performance Analysis

The LEDGEDALE 95-01 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On November 20, 2016, 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 1,089 customers for up to 1,021 minutes resulting in 290,045 CMI.

In total, the LEDGEDALE 95-01 circuit had 40 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (20); equipment failure (8); animal contacts (7); other (3); nothing found (2).

Remedial Actions

- In 2017, full circuit trimming will be performed.
- In 2017, additional fusing will be installed.
- In 2017, a new recloser will be investigated for a single-phase tap.
- In 2017, several locations will be evaluated for animal guarding.
- In 2017, several locations will be evaluated for fusing.
- In 2019, a new recloser will be installed for additional sectionalizing capabilities.

45 Circuit 25501 -- MADISONVILLE 55-01

Performance Analysis

The MADISONVILLE 55-01 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On March 2, 2017, during a period of strong wind, a tree made contact with an overhead conductor. This outage affected 468 customers for up to 568 minutes resulting in 139,531 CMI.

In total, the MADISONVILLE 55-01 circuit had 49 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (26); nothing found (8); equipment failure (6); animal contacts (4); other (3); contact or dig in (1); vehicles (1).

Remedial Actions

- In 2017, an Expanded Operational Review will be performed.
- In 2017, multiple locations will be animal guarded.
- In 2017, a section of difficult-to-access single-phase will be relocated.
- In 2017, upgraded relays will be installed at this substation for enhanced fault indication.
- In 2017, fusing will be evaluated for multiple locations.
- In 2017, additional hot spot trimming will be evaluated.

46 Circuit 26001 -- WEST DAMASCUS 60-01

Performance Analysis

The WEST DAMASCUS 60-01 circuit experienced no outages of over 100,000 CMI between July 2016 and June 2017.

In total, the WEST DAMASCUS 60-01 circuit had 60 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (36); equipment failure (11); animal contacts (9); nothing found (3); other (1).

Remedial Actions

- In 2017, an additional Smart Grid device was installed.
- In 2017, full circuit trimming will be performed.
- In 2017, a new manual switch will be installed on a section of three-phase line to improve sectionalizing capabilities.
- In 2017, an additional Smart Grid device will be installed.
- In 2017, one device was converted to triple-single operation.
- In 2017, a three-phase section of conductor will be evaluated for relocation.
- In 2017, several animal guarding locations will be evaluated.
- In 2018, several cross-arms, switches, and lightning arrestors will be replaced.
- In 2018, a new recloser will be installed.

47 Circuit 28602 -- BLYTHEBURN 86-02

Performance Analysis

The BLYTHEBURN 86-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On January 22, 2017, during a period of heavy rain, a vehicle made contact with a pole causing a circuit breaker to trip to lockout. This outage affected 1,933 customers for up to 581 minutes resulting in 516,687 CMI.

In total, the BLYTHEBURN 86-02 circuit had 12 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (6); equipment failure (5); vehicles (1).

Remedial Actions

- In 2017, five additional taps will be fused.
- In 2017, an existing three-phase recloser was upgraded to a telemetric recloser.
- In 2018, a three-phase automatic recloser will be installed as part of the Smart Grid Initiative.
- In 2018, full circuit trimming will be performed.

48 Circuit 51502 -- SWATARA 15-02

Performance Analysis

The SWATARA 15-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On December 28, 2016, an equipment failure occurred on an overhead conductor causing a temporary open point to be interrupted. This outage affected 3,099 customers for up to 625 minutes resulting in 507,177 CMI.

In total, the SWATARA 15-02 circuit had 13 outages between July 2016 and June 2017, with the causes breaking down as follows: animal contacts (4); equipment failure (4); tree related (4); vehicles (1).

Remedial Actions

- In 2016, a set of disconnect switches were replaced.
- In 2016, full circuit trimming was performed.
- In 2016, a new Smart Grid device was installed.
- In 2017, four Smart Grid devices were installed, one additional will be installed, along with one replacement in 2018.
- In 2017, a section of this circuit will be reconductored.
- In 2018, one additional Smart Grid device will be installed.

49 Circuit 43101 -- SOUTH MILTON 31-01

Performance Analysis

The SOUTH MILTON 31-01 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On March 27, 2017, during a period of heavy rain, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,448 customers for up to 397 minutes resulting in 275,087 CMI.

In total, the SOUTH MILTON 31-01 circuit had 42 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (27); animal contacts (5); equipment failure (4); other (3); nothing found (2); vehicles (1).

Remedial Actions

- In 2017, transmission switching strategy will be evaluated.
- In 2017, a new Smart Grid device will be added to this circuit.
- In 2017, a section of difficult-to-access conductor will be relocated to a more accessible location.
- In 2017, an Expanded Operational Review will be performed on this circuit.

50 Circuit 18502 -- CANADENSIS 85-02

Performance Analysis

The CANADENSIS 85-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On December 27, 2016, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,456 customers for up to 288 minutes resulting in 117,362 CMI.

In total, the CANADENSIS 85-02 circuit had 80 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (39); animal contacts (18); equipment failure (17); nothing found (4); vehicles (2).

Remedial Actions

- In 2016, several switches and fault indicators were installed.
- In 2016, full circuit trimming was performed.
- In 2016, an Expanded Operational Review was performed.
- In 2017, two sections of single-phase will be relocated to more accessible locations.
- In 2017, several additional locations will receive animal guarding.
- In 2017, hazard tree removal was performed on this circuit.
- In 2017, an upgraded conversion is being evaluated for the substation.

51 Circuit 29701 -- ANGELS 97-01

Performance Analysis

The ANGELS 91-01 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On March 2, 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 562 customers for up to 832 minutes resulting in 436,784 CMI.

In total, the ANGELS 91-01 circuit had 23 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (13); equipment failure (5); animal contacts (3); nothing found (1); vehicles (1).

Remedial Actions

- In 2017, hot spot trimming will be evaluated.
- In 2017, an additional three-phase switch will be evaluated.
- In 2017, one recloser will be evaluated for replacement.
- In 2017, additional animal guarding locations are being evaluated.

52 Circuit 41002 -- LAURELTON 10-02

Performance Analysis

The LAURELTON 10-02 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On August 8, 2016, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,656 customers for up to 251 minutes resulting in 116,806 CMI.

In total, the LAURELTON 10-02 circuit had 52 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (32); equipment failure (12); animal contacts (6); nothing found (1); vehicles (1).

Remedial Actions

- In 2016, hazard trimming was performed on this circuit.
- In 2017, three additional switches will be installed on this circuit.
- In 2017, obtaining additional trimming right-of-way is being pursued.
- In 2017, an additional Smart Grid device is being evaluated for this circuit.

53 Circuit 12605 -- MACADA 26-05

Performance Analysis

The MACADA 26-05 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On July 25, 2016, during a period of lightning, an unidentified issue occurred with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,967 customers for up to 381 minutes resulting in 440,816 CMI.

In total, the MACADA 26-05 circuit had 25 outages between July 2016 and June 2017, with the causes breaking down as follows: animal contacts (10); equipment failure (9); nothing found (2); other (2); tree related (2).

Remedial Actions

- In 2016, the substation was converted to a more reliable configuration and had communication capability upgraded.
- In 2017, three manual switches were upgraded to automated switches as part of the Smart Grid initiative.
- In 2017, an Expanded Operational Review was performed.
- In 2017, full circuit trimming will be performed.
- In 2017, several three-phase and single-phase fuses will be installed.
- In 2017, additional animal guarding will be installed at 34 locations.

54 Circuit 26401 -- INDIAN ORCHARD 64-01

Performance Analysis

The INDIAN ORCHARD 64-01 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On February 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 185 customers for up to 846 minutes resulting in 145,280 CMI.

In total, the INDIAN ORCHARD 64-01 circuit had 72 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (43); animal contacts (11); equipment failure (11); nothing found (5); other (1); vehicles (1).

Remedial Actions

- In 2016, substation animal guarding was completed.
- In 2017, additional animal guarding will be added to this circuit.
- In 2017, a three-phase section of conductor will be evaluated for this circuit.

- In 2017, one recloser will be evaluated for triple-single operation.
- In 2017, hot-spot circuit trimming will be evaluated for this circuit.

55 Circuit 22101 -- EDELLA 21-01

Performance Analysis

The EDELLA 21-01 circuit experienced three outages of over 100,000 CMI between July 2016 and June 2017.

On November 11, 2016, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,110 customers for up to 253 minutes resulting in 126,813 CMI.

On February 25, 2017, during a period of strong wind, an equipment failure occurred on an overhead switch causing a temporary open point to be interrupted. This outage affected 361 customers for up to 500 minutes resulting in 180,370 CMI.

On April 30, 2017, an equipment failure occurred on a substation component causing a circuit breaker to trip to lockout. This outage affected 1,124 customers for up to 110 minutes resulting in 122,605 CMI.

In total, the EDELLA 21-01 circuit had 20 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (11); equipment failure (4); animal contacts (3); nothing found (1); other (1).

Remedial Actions

- In 2017, full circuit trimming will be performed.
- In 2017, two devices will be converted to triple-single operation.
- In 2017, several fusing locations will be evaluated.

56 Circuit 46506 -- LOCK HAVEN 65-06

Performance Analysis

The LOCK HAVEN 65-06 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On May 1, 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 399 customers for up to 784 minutes resulting in 311,798 CMI.

In total, the LOCK HAVEN 65-06 circuit had 39 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (14); animal contacts (12); equipment failure (10); nothing found (1); other (1); vehicles (1).

Remedial Actions

- In 2017, additional fusing will be installed at 14 locations on this circuit.
- In 2017, two fuse cutouts will be replaced.
- In 2018, full circuit trimming will be performed.

57 Circuit 10903 -- COOPERSBURG 09-03

Performance Analysis

The COOPERSBURG 09-03 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On August 12, 2016, during a period of heavy rain, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 2,135 customers for up to 262 minutes resulting in 399,098 CMI.

In total, the COOPERSBURG 09-03 circuit had 28 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (11); animal contacts (6); equipment failure (4); vehicles (4); nothing found (3).

Remedial Actions

- In 2016, single-phase fusing was installed.
- In 2016, three locations received three-phase fusing or disconnect switch installations.
- In 2017, additional three-phase fusing is being evaluated.
- In 2018, a hydraulic recloser will be automated as part of the Smart Grid Initiative.

58 Circuit 46001 -- BERWICK 60-01

Performance Analysis

The BERWICK 60-01 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On August 28, 2016, a vehicle made contact with a pole causing a circuit breaker to trip to lockout. This outage affected 2,077 customers for up to 254 minutes resulting in 161,458 CMI.

In total, the BERWICK 60-01 circuit had 30 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (12); equipment failure (9); nothing found (4); vehicles (3); animal contacts (2).

Remedial Actions

- In 2016, full circuit trimming was performed.
- In 2017, a section of difficult-to-access conductor was relocated to a more accessible location.
- In 2017, additional tie is being evaluated for this circuit.

59 Circuit 28101 -- TWIN LAKES 81-01

Performance Analysis

The TWIN LAKES 81-01 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On March 3, 2017, a vehicle made contact with a pole causing a circuit breaker to trip to lockout. This outage affected 2,662 customers for up to 392 minutes resulting in 188,577 CMI.

In total, the TWIN LAKES 81-01 circuit had 53 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (24); equipment failure (12); animal contacts (10); nothing found (4); vehicles (3).

Remedial Actions

- In 2016, hot spot trimming was performed.
- In 2017, the substation was upgraded and fully animal guarded.
- In 2017, the circuit breaker and getaway were replaced on this circuit.
- In 2017, SCADA was installed at this substation.
- In 2017, additional animal guarding will be installed on this circuit.
- In 2017, additional fusing will be installed on this circuit.
- In 2019, a tie-line will be constructed to the BOHEMIA 03 circuit.

60 Circuit 11506 -- FREEMANSBURG 15-06

Performance Analysis

The FREEMANSBURG 15-06 circuit experienced one outage of over 100,000 CMI between July 2016 and June 2017.

On July 18, 2016, 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 1,301 customers for up to 195 minutes resulting in 252,615 CMI.

In total, the FREEMANSBURG 15-06 circuit had 44 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (25); equipment failure (8); nothing found (4); animal contacts (2); other (2); vehicles (2); contact or dig in (1).

Remedial Actions

- In 2016, two single-phase fuses were installed.
- In 2017, a project to remove fuses and install load break disconnect switches will be completed.
- In 2017, one single-phase fuse was installed.
- In 2017, a single-phase recloser was installed.
- In 2017, a section of single-phase line will be evaluated for relocation.
- In 2017, an Expanded Operational Review will be performed.
- In 2018, hot spot tree trimming will be performed.
- In 2018, full circuit trimming will be performed.

61 Circuit 23401 -- HONESDALE 34-01

Performance Analysis

The HONESDALE 34-01 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On October 27, 2016, during a period of lightning, a contact occurred on an overhead conductor causing a load break fuse to operate. This outage affected 490 customers for up to 1,202 minutes resulting in 111,594 CMI.

On February 25, 2017, during a period of strong wind, an equipment failure occurred on an overhead transformer causing a recloser to trip to lockout. This outage affected 488 customers for up to 266 minutes resulting in 119,378 CMI.

In total, the HONESDALE 34-01 circuit had 41 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (13); equipment failure (12); animal contacts (10); other (5); contact or dig in (1).

Remedial Actions

- In 2016, a section of difficult-to-access single-phase conductor was relocated to a more accessible location.
- In 2017, an automated tie point was installed.
- In 2017, new three-phase voltage regulators will be installed.
- In 2017, an existing switch will be replaced with a Smart Grid device.
- In 2017, an additional fuse will be installed on this circuit.
- In 2017, a section of single-phase conductor will be moved to a more accessible location.
- In 2018, full circuit trimming will be performed.

62 Circuit 64302 -- LINCOLN 43-02

Performance Analysis

The LINCOLN 43-02 circuit experienced two outages of over 100,000 CMI between July 2016 and June 2017.

On February 25, 2017, during a period of strong wind, a tree made contact with an overhead conductor causing an interruption. This outage affected 161 customers for up to 2,699 minutes resulting in 310,906 CMI.

On February 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 90 customers for up to 1,390 minutes resulting in 113,204 CMI.

In total, the LINCOLN 43-02 circuit had 18 outages between July 2016 and June 2017, with the causes breaking down as follows: tree related (12); equipment failure (4); animal contacts (1); other (1).

Remedial Actions

- In 2017, an Expanded Operational Review will be performed on this circuit.
- In 2017, several locations will be evaluated for fusing.
- In 2017, a section of difficult-to-access conductor will be evaluated for relocation.

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	3,229	19.1%	48,236	4.4%	2,914,706	2.1%
Contact / Dig-In	165	1.0%	13,989	1.3%	1,009,325	0.7%
Directed by Non-PPL Authority	106	0.6%	13,762	1.3%	933,467	0.7%
Equipment Failures	4,948	29.3%	347,217	31.8%	37,333,382	26.9%
Improper Design	-	0.0%	-	0.0%	-	0.0%
Improper Installation	20	0.1%	22,411	2.1%	340,231	0.2%
Improper Operation	7	0.0%	7,320	0.7%	139,856	0.1%
Nothing Found	987	5.9%	51,814	4.7%	4,037,857	2.9%
Other Controllable	124	0.7%	30,584	2.8%	1,133,724	0.8%
Other Non Control	266	1.6%	29,682	2.7%	2,136,157	1.5%
Other Public	44	0.3%	5,787	0.5%	497,152	0.4%
Tree Related	6,293	37.3%	402,419	36.8%	77,462,100	55.9%
Unknown	1	0.0%	1,240	0.1%	118,383	0.1%
Vehicles	673	4.0%	118,262	10.8%	10,587,877	7.6%
Total	16,863	100.0%	1,092,723	100.0%	138,644,217	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 50% of cases, 54% of customer interruptions, and 72% 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. We are in year four of a five year cycle for the new standard.

Animals: Animals accounted for approximately 20% 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 78% 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 2017.

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 43% of the cases of trouble, 45% of the customer interruptions and 56% 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)	422	59	59	88	88
Transmission arm replacements (# of sets)	191	81	81	99	99
Transmission air break switch inspections (# of switches)	0	0	0	0	3
Transmission lightning arrester installations (# of sets)	0	0	0	0	0
Transmission structure inspections (# of activities)	33,291	16,645	6,951	33,291	15,389
Transmission tree side trim-Bulk Power (linear feet)	0	0	0	0	0
Transmission herbicide-Bulk Power (# of acres)	0	0	0	0	0
Transmission reclearing (# of miles) BES Only	634	232	150	485	427
Transmission reclearing (# of miles) 69 kV	1476	437	397	603	634
Transmission reclearing (# of miles) 138 kV	192	51	64	110	82
Transmission danger tree removals-Bulk Power (# of trees)	0	0	0	0	0
Substation					
Substation batteries (# of activities)	660	78	85	319	492
Circuit breakers (# of activities)	980	327	249	404	419
Substation inspections (# of activities)	3,953	956	1050	1,774	2,407
Transformer maintenance (# of activities)	169	60	33	82	72

Inspection & Maintenance Goals/Objectives	Annual Budget	4th Quarter		Year-to-date	
		Budget	Actual	Budget	Actual
Distribution					
Distribution C-tag poles replaced (# of poles)	1,480	380	385	657	658
C-truss distribution poles (# of poles)	3,136	1,043	1,121	1,043	1,121
Capacitor (MVAR added)	404	149	151	497	390
OCR Replacements (# of)	78	31	32	92	76
Distribution pole inspections (# of poles)	60,080	33,893	35,954	34,461	36,426
Distribution line inspections (hours)	6,761	2,326	2,714	4,356	4,803
Group re-lamping (# of lamps)	13,994	5,514	3,218	5,514	3,218
Test sections of underground distribution cable	N/A	300	300	607	607
Distribution tree trimming (# of miles)	4,049	1,088	1,260	2,220	2,626
Distribution herbicide (# of acres)	0	0	0	0	0
Distribution >18" removals within R/W (# of trees)	0	0	0	0	0
Distribution hazard tree removals outside R/W (# of trees)	0	0	0	0	0
LTN manhole inspections (# of)	426	134	74	239	306
LTN vault inspections (# of)	767	215	164	335	381
LTN network protector overhauls (# of)	50	32	2	34	11
LTN reverse power trip testing (# of)	35	12	11	18	16

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	1,245	1,791	2,342	3,507
Vegetation Management	13,271	14,411	25,777	27,186
Customer Response	15,474	13,605	25,875	32,181
Reliability Maintenance	8,769	9,812	17,670	20,908
System Upgrade	798	2,174	(1,925)	4,309
Customer Service/Accounts	31,880	23,806	62,616	49,656
Others	10,040	10,206	19,217	21,082
Total O&M Expenses	**81,476**	**75,805**	**151,571**	**158,828**

*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	1st Quarter		Year-to-date	
	Budget ($000)	Actual ($000)	Budget ($000)	Actual ($000)
New Service/Revenue	18,753	18,446	35,562	42,486
System Upgrade	170,960	171,477	306,686	300,912
Reliability & Maintenance	116,104	112,703	216,364	206,238
Customer Response	2,902	4,132	4,108	7,378
Other	4,268	4,506	8,741	8,035
Total	312,986	311,263	571,461	565,048

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 2017, 187 corrective work orders were created with the following breakdown by priority.

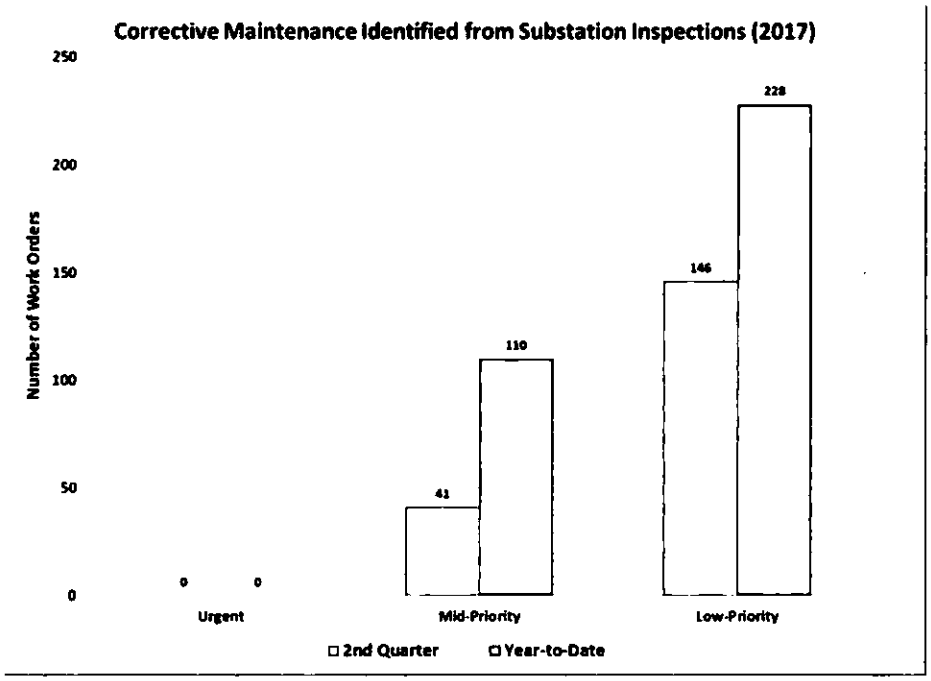


Figure 1: Corrective Maintenance Work Orders by Priority Level for second quarter and year-to-date 2017

(b) The Amount Spent on Substation Inspections

During the second quarter of 2017, PPL Electric spent approximately $350,000 on substation inspections. This amount also represents the year-to-date total, as shown in the figure below.

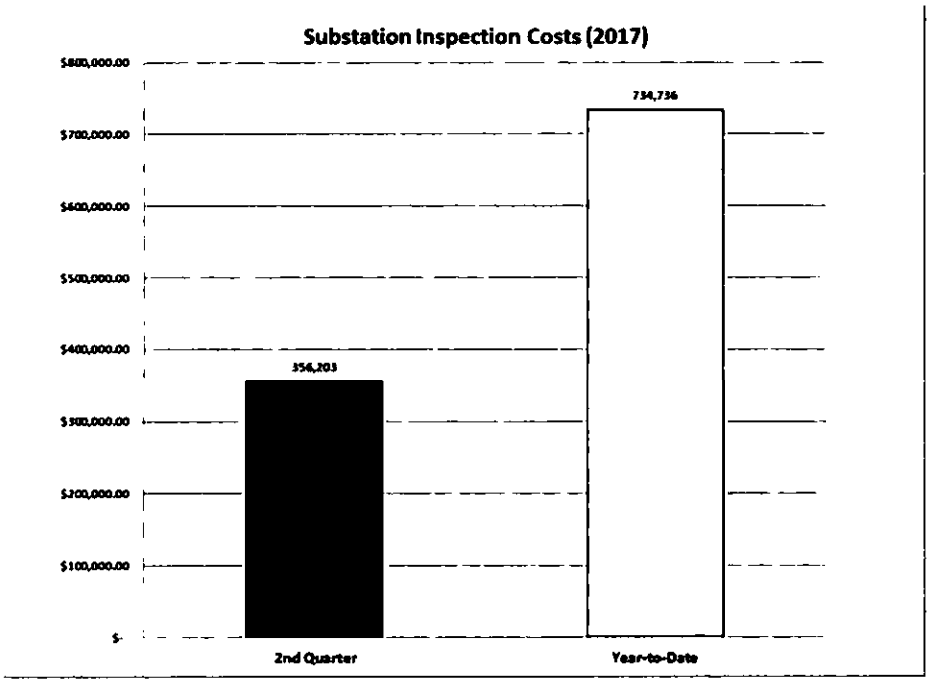


Figure 2: Substation Inspection Costs for second quarter and year-to-date 2017.

(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 that PPL Electric has the estimated CMI avoidance, for the second quarter and year-to-date. During second quarter of 2017, PPL Electric has potentially avoided approximately 138,000 CMI.

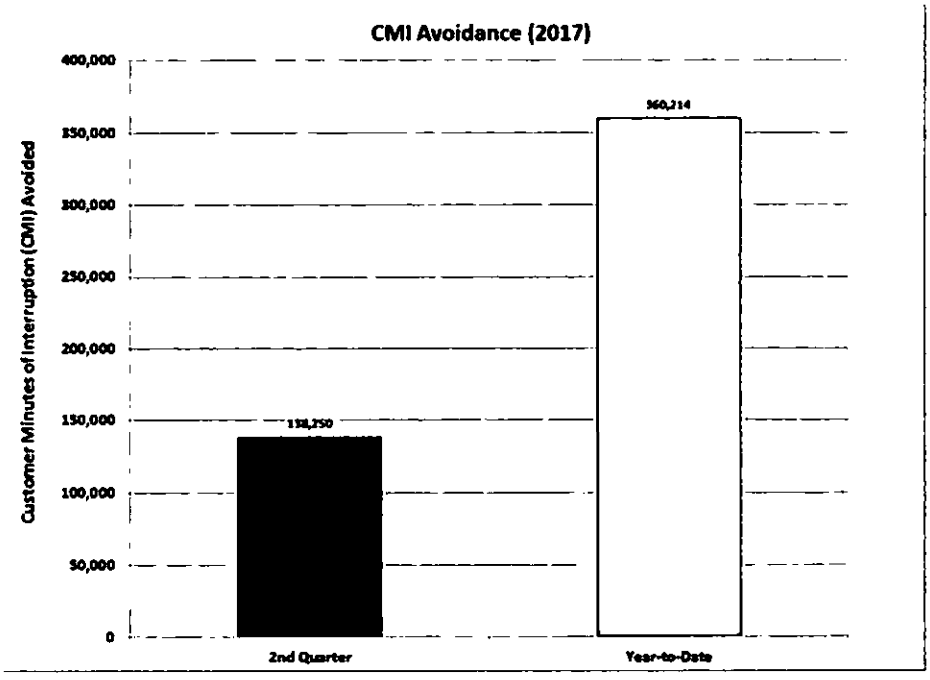


Figure 3: CMI Avoidance Due to Inspections for second quarter and year-to-date 2017

(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 2017, the company interrupted approximately 16,700 customers for a total of approximately 488,000 CMI. The figures below show these results for the number of customers interrupted and CMI experienced, respectively.

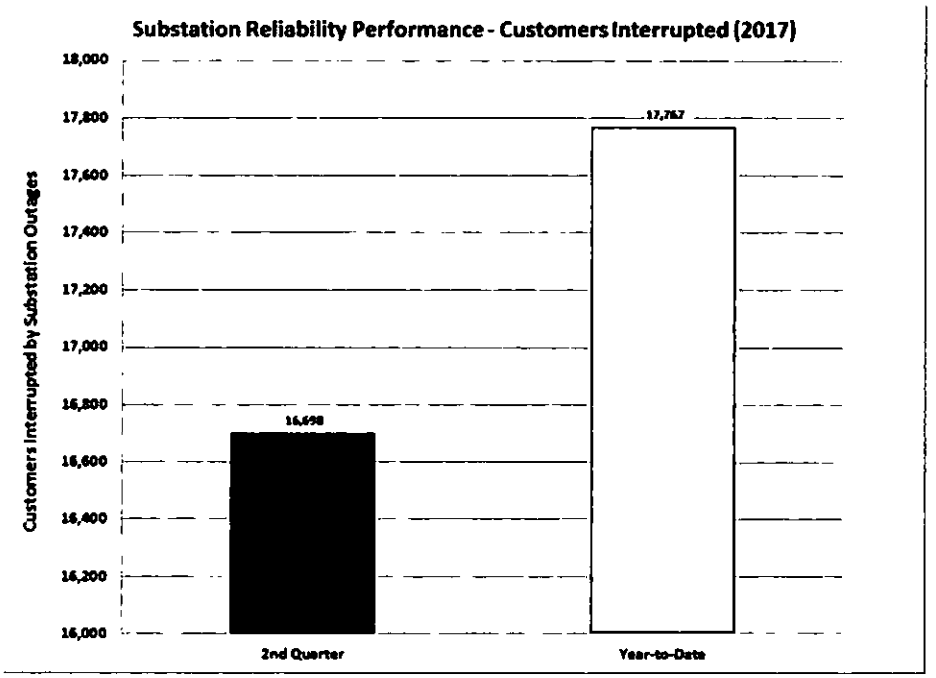


Figure 4: Substation Customers Interrupted for second quarter and year-to-date 2017

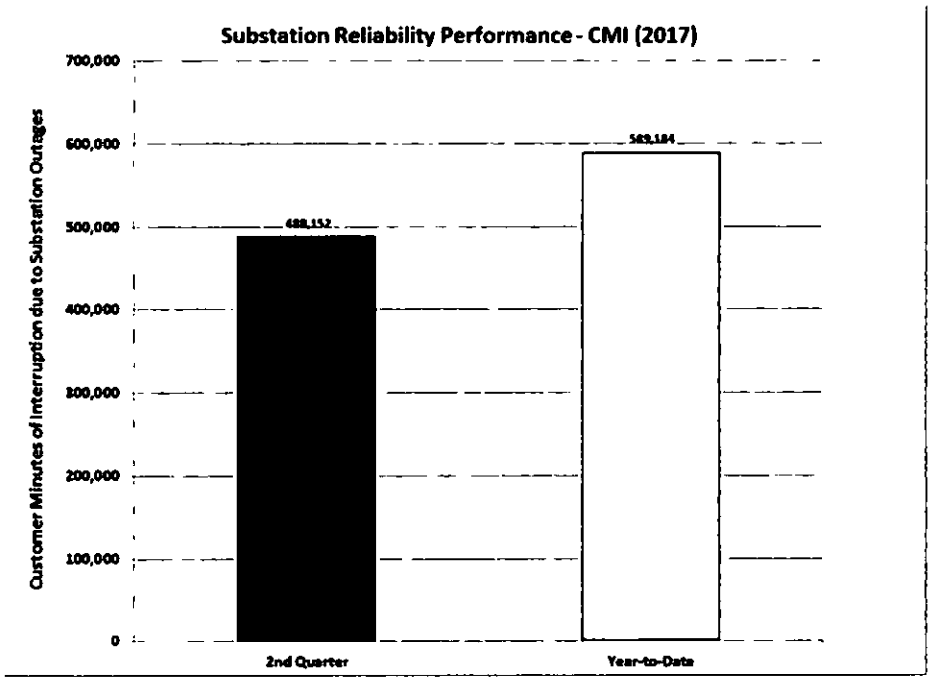


Figure 5: Substation Customer Minutes of Interruption for second quarter and year-to-date 2017

(f) Substation SAIFI Contribution

Overall, substation outages have contributed to around 2.2% of the total SAIFI experienced by PPL Electric customers in the second quarter of 2017. 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.

Substation Count	1st Quarter	Year-to-Date
Substations with Remote Monitoring	351	351
Total Number of Substations	353	353

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.

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	56
Journeyman Lineman	221
Journeyman Lineman-Trainee	30
Helper	12
Groundhand	3
Troubleman	52
T&D Total	374
Electrical	
Elect Leaders-UG	4
Elect Leaders-Net	9
Elect Leaders-Sub	24
Journeyman Elect-UG	18
Journeyman Elect-Net	34
Journeyman Elect-Sub	59
Journeyman Elect Trainee-UG	0
Journeyman Elect Trainee-Net	0
Journeyman Elect Trainee-Sub	15
Helper	0
Laborer-Network	0
Laborer-Substation	0
Electrical Total	163
Overall Total	537

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

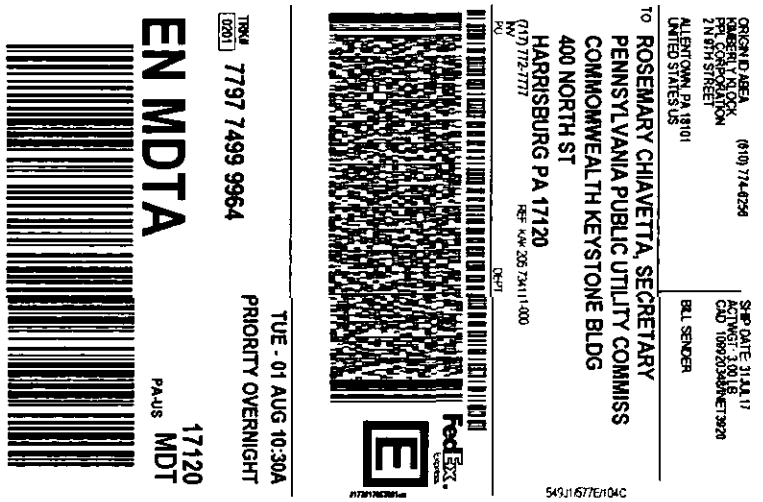
Transmission and Distribution

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, initiative, 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, initiative, 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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