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FEDERAL EXPRESS

January 30, 2015

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

Re: PPL Electric Utilities Corporation
Quarterly Reliability Report for the
Period Ended December 31, 2014
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 December 31, 2014. 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 January 30, 2015, 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.

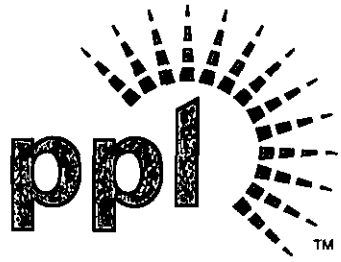
If you have any questions regarding this document, please call me or B. Kathryn Frazier, PPL Electric's Regulatory Affairs Manager at (610) 774-3372.

Very truly yours,

Paul E. Russell

Enclosures

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



PPL Electric Utilities

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

January 2015

I) 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 fourth quarter of 2014.

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

The following table provides data for the 12 months ending December 31st, 2014[1].

SAIFI (Benchmark = 0.98; Rolling 12-month Std. = 1.18)	0.92
CAIDI (Benchmark = 145; Rolling 12-month Std. = 174)	180
SAIDI (Benchmark = 142; Rolling 12-month Std. = 205)	165
MAIFI[2]	3.26
Average Number of Customers Served[3]	1,399,535
Number of Sustained Customer Interruptions (Trouble Cases)	17,388
Number of Customers Affected[4]	1,284,603
Customer Minutes of Interruptions (CMI)	230,750,454
Number of Customer Momentary Interruptions	4,559,353

PPL Electric was affected by a significant ice storm concentrated in the Lancaster region starting on February 5, 2014. Due to the concentrated nature of the storm, it did not affect enough customers to be declared a PUC major event, although it did produce significant damage to our system. Without this storm, which would be excluded under the Institute of Electrical and Electronics Engineers (IEEE) 2.5B standard, system values would be: SAIFI 0.85; CAIDI 143; and SAIDI 122.

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[1] Non-PPL Electric problems are excluded here, but may be found in Item 5.

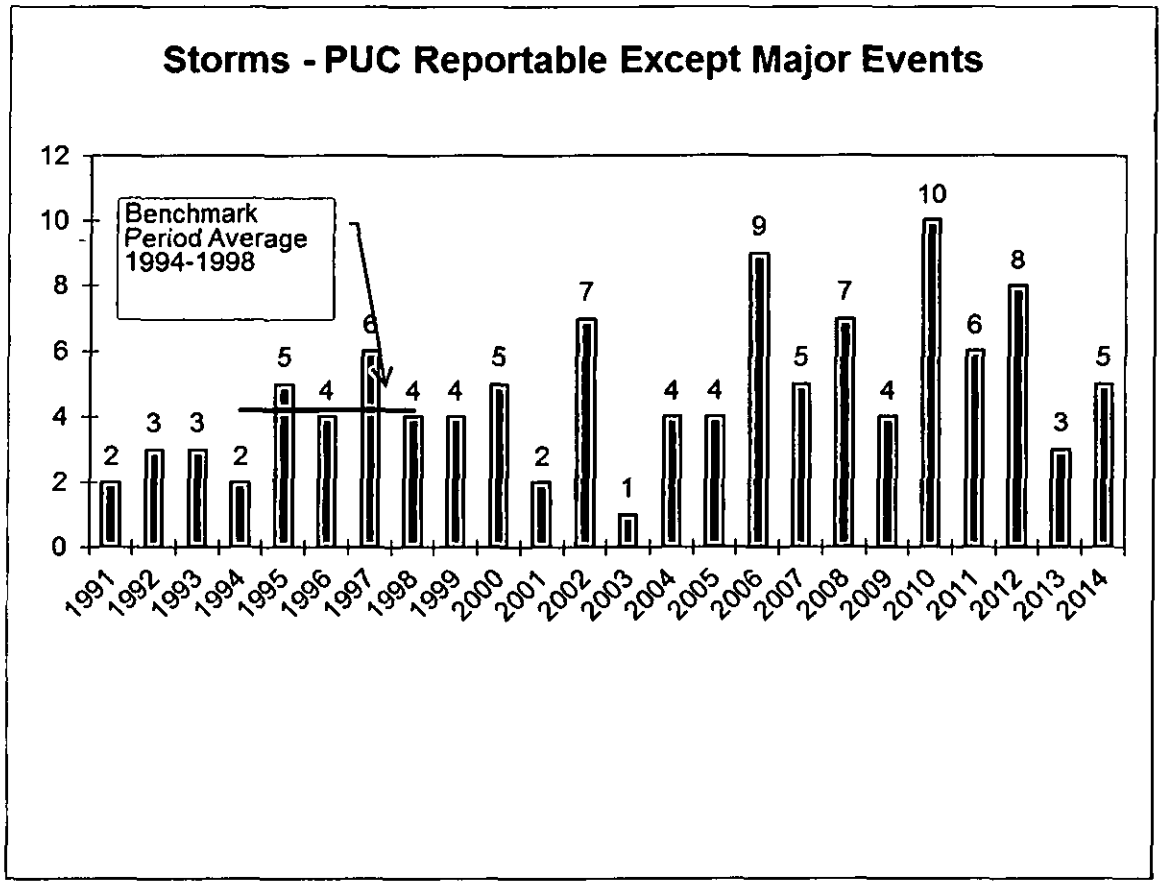
[2] *MAIFI data is obtained at the substation breaker and does not include momentary interruptions at lower level* devices.

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

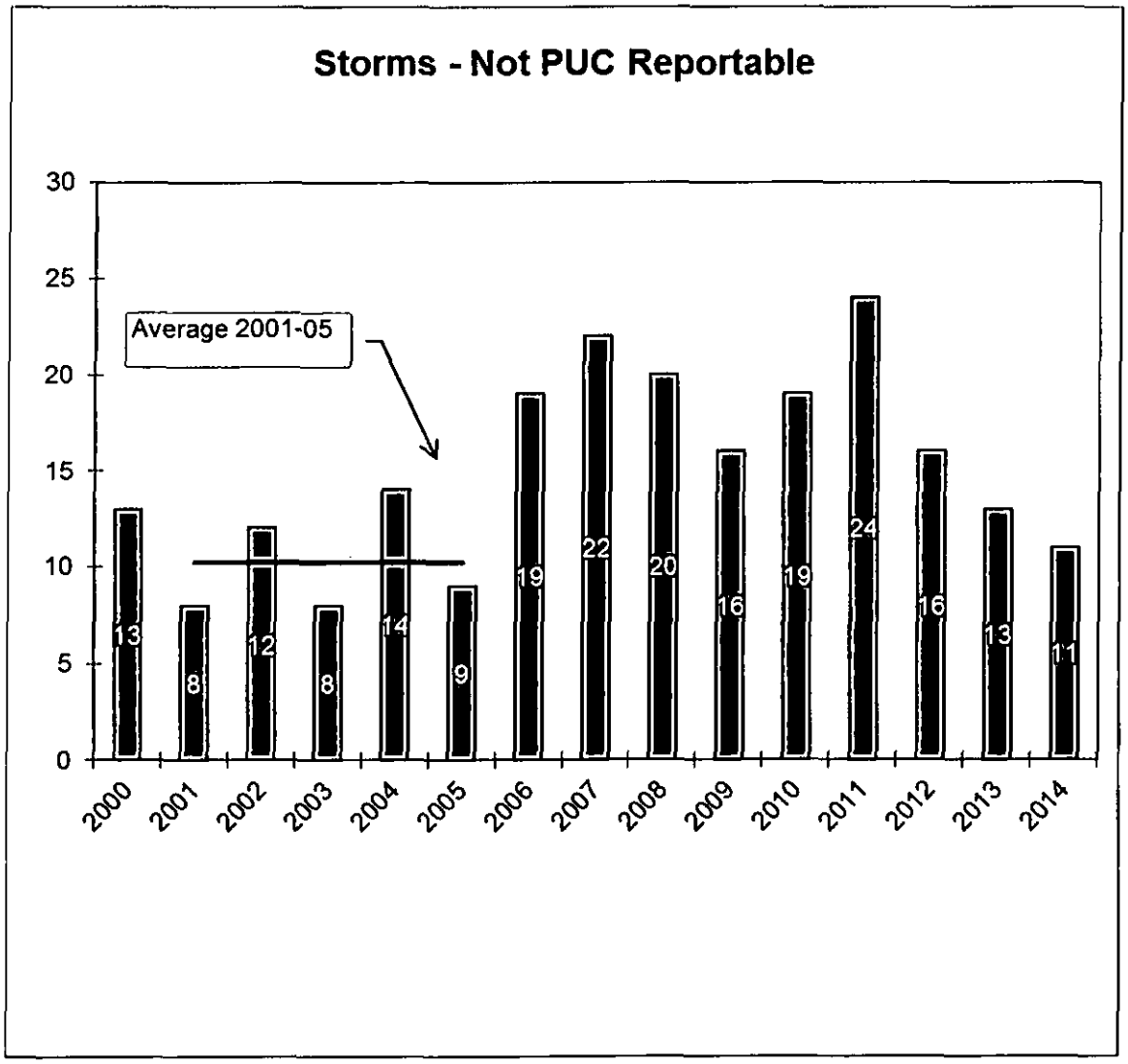
[4] The data reflects the number of customers interrupted for each interruption event summed for all events, also known as customer interruptions. If a customer is affected by three separate cases of trouble, that customer represents three customer interruptions, but only one customer interrupted.

During the fourth quarter, there were no (0) PUC major events, one (1) PUC reportable storm, and one (1) other storm that required the opening of one or more area emergency centers to manage restoration efforts.

Specifically, during the 12-month reporting period, there were no (0) PUC major events and five (5) PUC-reportable storms (≥2,500 customers interrupted for ≥6 hours) other than major events.



In addition, there were eleven (11) 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 7.5% of the circuits in the system for the 12 months ended at the current quarter. NOTE: The February 5, 2014, Lancaster ice storm caused a large number of historically non-problematic circuits to make the worst performing list. Therefore, PPL Electric has elected to report on the worst 7.5% of circuits in 2014 so as not to lose track of circuits that would be included had the ice storm not occurred. An explanation of how PPL Electric defines its worst performing circuits is included in Appendix A.

WPC Rank	Feeder ID	SAIFI	CAIDI	SAIDI	MAIFI[5]	Customers	Cases of Trouble[6]	Customer Minutes Interrupted (CMI)
1	56501	1.40	878.6	1228.1	8.0	2,343	27	2,877,491
2	64904	1.18	744.3	880.4	5.0	3,068	19	2,701,188
3	64101	1.22	1322.7	1617.5	5.1	1,611	38	2,605,761
4	66202	1.42	1419.9	2010.7	3.4	1,269	13	2,551,535
5	64801	2.50	598.3	1497.3	9.0	1,524	77	2,281,910
6	65603	1.35	625.0	846.1	8.0	2,462	81	2,083,181
7	64802	2.47	660.3	1630.5	15.0	1,268	49	2,067,487
8	25801	4.39	255.9	1122.1	0.0	1,821	39	2,043,404
9	63404	1.35	1384.0	1867.4	5.0	1,062	13	1,983,226
10	60803	1.99	511.2	1019.2	5.0	1,908	34	1,944,725
11	67401	1.50	936.9	1401.6	2.6	1,365	26	1,913,241
12	43202	2.28	697.9	1592.4	0.3	1,157	41	1,842,451
13	65702	0.71	1498.5	1061.2	4.9	1,703	40	1,807,172
14	43103	3.39	235.0	797.0	4.6	2,241	44	1,786,118
15	63402	2.49	343.8	857.1	4.0	1,901	25	1,629,396
16	65004	1.10	1147.9	1261.9	9.0	1,228	11	1,549,674
17	21401	2.24	244.6	547.7	0.0	2,552	17	1,397,716
18	61701	0.79	1557.1	1236.1	1.0	1,106	12	1,367,172
19	57304	2.63	324.9	854.1	3.1	1,567	33	1,338,383
20	67402	1.35	749.8	1015.0	7.0	1,309	41	1,328,660

[5] MAIFI data is obtained at the substation breaker and does not include momentary interruptions at lower level devices.

[6] Cases of trouble are the number of sustained customer service interruptions.

WPC Rank	Feeder ID	SAIFI	CAIDI	SAIDI	MAIFI[5]	Customers	Cases of Trouble[6]	Customer Minutes Interrupted (CMI)
21	62105	2.01	455.9	915.3	3.0	1,431	23	1,309,845
22	62607	1.31	333.4	435.7	3.0	2,931	38	1,276,906
23	67502	0.56	1310.6	732.6	3.0	1,739	22	1,273,912
24	65802	2.16	309.1	668.1	2.6	1,899	35	1,268,672
25	28604	1.29	545.2	702.6	1.0	1,773	36	1,245,795
26	60901	1.70	436.2	743.6	9.0	1,567	31	1,165,197
27	63403	1.25	624.7	778.4	4.9	1,439	25	1,120,127
28	41902	1.27	673.8	854.0	10.0	1,305	29	1,114,495
29	58402	3.19	225.8	720.4	1.0	1,537	31	1,107,296
30	60605	1.39	567.0	785.9	2.0	1,406	25	1,105,037
31	47502	1.97	702.2	1384.0	2.0	789	15	1,091,994
32	64203	2.31	336.7	776.8	1.0	1,403	13	1,089,825
33	66203	2.18	520.5	1132.0	1.0	948	14	1,073,173
34	60502	2.90	190.6	552.5	3.2	1,929	35	1,065,809
35	64201	3.85	148.6	572.1	4.0	1,850	33	1,058,419
36	63401	0.88	1461.0	1282.9	2.0	820	17	1,051,955
37	56504	1.19	439.2	522.3	2.9	1,989	57	1,038,809
38	28301	5.32	86.0	457.8	3.1	2,267	63	1,037,924
39	43504	3.49	141.8	494.6	6.0	2,026	12	1,002,104
40	45801	2.84	134.4	381.0	4.0	2,617	67	996,977
41	10602	1.14	631.2	720.1	1.0	1,348	47	970,762
42	40201	1.19	498.4	595.4	3.0	1,629	70	969,923
43	45501	2.73	245.7	669.7	10.0	1,443	57	966,403
44	53101	4.21	114.8	482.8	7.0	1,962	47	947,314
45	45502	1.54	979.5	1508.5	1.6	611	16	921,683
46	61001	3.95	126.2	498.1	8.0	1,840	16	916,578
47	60801	1.27	909.6	1156.3	0.0	789	14	912,329
48	22001	4.85	121.4	589.3	8.0	1,540	45	907,473
49	63801	1.52	413.4	629.4	7.0	1,418	24	892,512
50	61304	2.30	250.8	577.5	2.6	1,537	38	887,542
51	18502	4.29	111.9	480.3	4.0	1,809	77	868,830
52	13601	2.33	319.1	742.3	1.1	1,169	40	867,742
53	46301	2.82	290.8	820.9	5.0	1,047	36	859,493
54	60301	1.19	448.9	532.5	9.8	1,591	42	847,160
55	66703	0.81	699.2	566.3	8.8	1,478	33	836,948
56	41801	3.85	260.4	1001.9	4.0	834	31	835,547
57	53602	2.41	156.0	375.5	2.0	2,188	67	821,624
58	52402	4.50	111.2	500.0	2.0	1,640	61	819,930

WPC Rank	Feeder ID	SAIFI	CAIDI	SAIDI	MAIFI[5]	Customers	Cases of Trouble[6]	Customer Minutes Interrupted
59	24602	1.40	386.3	542.3	1.0	1,511	40	819,384
60	61801	1.12	456.2	509.4	0.0	1,594	35	812,001
61	66001	1.43	449.8	644.6	1.0	1,258	10	810,950
62	21601	2.15	192.3	413.6	5.0	1,941	41	802,706
63	60701	1.21	310.2	374.3	1.0	2,138	23	800,329
64	63602	2.05	236.2	483.4	0.0	1,639	46	792,260
65	13704	5.12	99.3	507.8	1.0	1,551	44	787,637
66	64202	2.89	261.1	755.3	3.0	1,040	34	785,534
67	65503	0.70	561.7	394.7	3.0	1,984	25	782,987
68	46302	2.03	345.5	702.8	2.0	1,082	51	760,483
69	14602	2.06	220.6	454.9	2.3	1,671	8	760,095
70	65401	1.55	265.9	413.0	6.4	1,839	19	759,530
71	51601	1.83	227.5	415.7	7.1	1,824	20	758,280
72	26002	6.57	95.5	627.3	2.0	1,208	55	757,768
73	47201	1.29	347.7	448.1	6.0	1,655	32	741,632
74	62102	1.05	310.6	325.4	0.7	2,263	21	736,380
75	57702	1.42	557.4	791.5	1.0	929	10	735,259
76	65804	1.23	661.1	811.7	1.2	887	11	719,988
77	64401	2.06	385.7	794.1	3.0	899	9	713,891
78	67804	1.99	174.9	348.4	1.0	2,025	16	705,569
79	43402	1.25	534.6	669.1	4.6	1,046	35	699,835
80	47101	1.93	117.6	227.0	2.0	2,983	19	677,087
81	67503	0.73	551.4	400.5	5.6	1,681	38	673,239
82	61504	1.84	293.3	539.8	7.1	1,154	19	622,952
83	11102	3.31	95.4	315.4	2.0	1,972	16	622,051
84	14103	3.00	102.2	306.8	5.9	2,026	60	621,581
85	40602	1.83	146.8	268.0	1.0	2,304	34	617,433
86	61502	3.22	188.9	607.9	5.0	1,009	15	613,414
87	41602	3.09	277.9	858.9	2.2	714	30	613,253
88	53501	3.52	79.6	280.5	12.0	2,138	47	599,604
89	15102	3.29	212.3	697.6	6.1	859	36	599,256

4) ***Specific remedial efforts taken and planned for the worst performing 7.5% of the circuits identified in paragraph (3).***

01 Circuit 56501 -- ROCKVILLE 65-01

Performance Analysis

The ROCKVILLE 65-01 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,345 customers for up to 1,196 minutes resulting in 2,803,189 CMI.

In total, the ROCKVILLE 65-01 circuit had 27 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (14); equipment failure (8); animal contacts (3); nothing found (1); other (1).

Remedial Actions

- In 2014, the ROCKVILLE 65-01 circuit was trimmed as part of its vegetation management cycle.
- In 2017, a roughly two mile tie line and reconductoring will provide approximately 760 radial customers with an alternate source for sectionalizing during cases of trouble. This tie line would have significantly improved restoration times during the July 8th outage.
- In 2018, a roughly four mile tie line and reconductoring will provide approximately 1,040 radial customers with an alternate source for sectionalizing during cases of trouble. This tie line would have also significantly improved restoration times during the July 8th outage.

02 Circuit 64904 -- MILLERSVILLE 49-04

Performance Analysis

The MILLERSVILLE 49-04 circuit experienced five outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 412 customers for up to 1,894 minutes resulting in 780,698 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 699 customers for up to 750 minutes resulting in 523,641 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 92 customers for up to 2,010 minutes resulting in 184,878 CMI.

On February 5, 2014, during a PUC Reportable ice storm, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 1,663 customers for up to 804 minutes resulting in 734,833 CMI.

On July 23, 2014, during a period of lightning, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 425 customers for up to 945 minutes resulting in 401,807 CMI.

In total, the MILLERSVILLE 49-04 circuit had 19 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (9); tree related (9); nothing found (1).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2014, multiple hazard trees were removed in order to prevent potential tree related outages.
- In 2015, a new tie will be evaluated between the MILLERSVILLE 49-04 and the WEST WILLOW 75-05, to allow 700 radial customers to be remotely restored.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.

- In 2016, three automated switches and one automated vacuum recloser will be installed as part of the Smart Grid Initiative.
- In 2017, a new line and terminal will be constructed from the ENGLESIDE substation which will reduce the MILLERSVILLE 49-04 customer count by half.

03 Circuit 64101 -- RED FRONT 41-01

Performance Analysis

The RED FRONT 41-01 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 135 customers for up to 2,437 minutes resulting in 329,107 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 714 customers for up to 5,081 minutes resulting in 1,179,654 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with a pole arm causing a recloser to trip to lockout. This outage affected 160 customers for up to 4,876 minutes resulting in 717,371 CMI.

In total, the RED FRONT 41-01 circuit had 38 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (23); equipment failure (6); animal contacts (2); contact or dig in (2); nothing found (2); vehicles (2); other (1).

Remedial Actions

- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2015, the addition of a Smart Grid device will be investigated for a three phase radial tap.
- In 2015, full circuit trimming will be performed.
- In 2015, a project will be evaluated to relocate an inaccessible section of three phase conductor.

04 Circuit 66202 -- SILVER SPRING 62-02

Performance Analysis

The SILVER SPRING 62-02 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,268 customers for up to 1,829 minutes resulting in 2,353,956 CMI.

In total, the SILVER SPRING 62-02 circuit had 13 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (6); tree related (6); contact or dig in (1).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2015, a full line performance review will be performed.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.

05 Circuit 64801 -- MOUNT NEBO 48-01

Performance Analysis

The MOUNT NEBO 48-01 circuit experienced five outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 54 customers for up to 3,887 minutes resulting in 209,865 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a temporary open point to be interrupted. This outage affected 63 customers for up to 3,269 minutes resulting in 144,164 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,310 customers for up to 481 minutes resulting in 629,035 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 67 customers for up to 2,464 minutes resulting in 165,085 CMI.

On March 13, 2014, during a period of strong wind, a tree made contact with a pole arm causing a recloser to trip to lockout. This outage affected 526 customers for up to 413 minutes resulting in 217,716 CMI.

In total, the MOUNT NEBO 48-01 circuit had 77 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (59); equipment failure (10); nothing found (4); animal contacts (3); other (1).

Remedial Actions

- In 2014, an infrared inspection of the line was performed. Minor repairs were made.
- In 2014, several crimps and cross arms were replaced as a result of a line inspection.
- In 2014, animal guards were installed at several locations as a result of a line inspection.
- In 2015, a full line review will be conducted.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2015, full circuit trimming will be performed.

06 Circuit 65603 -- QUARRYVILLE 56-03

Performance Analysis

The QUARRYVILLE 56-03 circuit experienced five outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 107 customers for up to 3,391 minutes resulting in 362,883 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 98 customers for up to 3,823 minutes resulting in 171,535 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead

conductor causing a load break fuse to operate. This outage affected 89 customers for up to 2,044 minutes resulting in 135,761 CMI.

On May 28, 2014, during a period of heavy rain, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 1,012 customers for up to 102 minutes resulting in 103,224 CMI.

On June 19, 2014, during a period of heavy rain, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,015 customers for up to 621 minutes resulting in 556,411 CMI.

In total, the QUARRYVILLE 56-03 circuit had 81 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (41); equipment failure (21); animal contacts (11); contact or dig in (2); nothing found (2); other (2); vehicles (2).

Remedial Actions

- In 2014, an existing manual switch was replaced with a Smart Grid device.
- In 2015, at tie between the QUARRYVILLE 56-3 and the QUARRYVILLE 56-2 will be evaluated to add additional sectionalizing capabilities.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2016, full circuit trimming will be performed.
- In 2016, the circuit will be re-configured to lower the customer count and circuit mileage of the line. This project will help minimize the number of customers affected by an outage and improve the overall reliability of the circuit.
- In 2016, two new manual switches and two reclosers will be installed as part of the Smart Grid Initiative.
- In 2016, a new circuit will be constructed out of the QUARRYVILLE substation. The new line will further reduce the customer count and circuit mileage of the line.

07 Circuit 64802 -- MOUNT NEBO 48-02

Performance Analysis

The MOUNT NEBO 48-02 circuit experienced four outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with a pole arm causing an interruption. This outage affected 44 customers for up to 4,862 minutes resulting in 158,666 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 56 customers for up to 3,769 minutes resulting in 211,075 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 98 customers for up to 2,780 minutes resulting in 150,357 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 752 customers for up to 5,079 minutes resulting in 1,230,407 CMI.

In total, the MOUNT NEBO 48-02 circuit had 49 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (29); equipment failure (8); animal contacts (6); nothing found (3); vehicles (2); other (1).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2014, an infrared inspection of the line was performed. Nothing was found during the review.
- In 2014, a section of single-phase primary conductor was relocated to improve its accessibility.
- In 2014, series fusing was installed for a single tap that experienced multiple outages in the previous four quarters.
- In 2015, a project will be developed to address customers on this circuit who have experienced multiple interruptions.

08 Circuit 25801 -- SULLIVAN TRAIL 58-01

Performance Analysis

The SULLIVAN TRAIL 58-01 circuit experienced five outages of over 100,000 CMI between January 2014 and December 2014.

On July 2, 2014, an unidentified issue occurred with a substation component causing a circuit breaker to trip to lockout. This outage affected 1,817 customers for up to 63 minutes resulting in 105,149 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 136 customers for up to 1,459 minutes resulting in 198,430 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,500 customers for up to 212 minutes resulting in 232,755 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 624 customers for up to 1,585 minutes resulting in 860,802 CMI.

On August 7, 2014, an equipment failure occurred on a substation component causing a circuit breaker to trip to lockout. This outage affected 1,813 customers for up to 234 minutes resulting in 205,149 CMI.

In total, the SULLIVAN TRAIL 58-01 circuit had 39 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (22); nothing found (6); animal contacts (5); equipment failure (5); other (1).

Remedial Actions

- In 2014, extensive tree trimming was completed on the SULLIVAN TRAIL 58-01 line to improve reliability for high CEMI customers.
- In 2014, SCADA was installed at the SULLIVAN TRAIL substation.
- In 2014, the substation cross-yard tie was replaced.
- In 2014, an Expanded Operational Review (EOR) was completed on the SULLIVAN TRAIL 58-01 line. As a result of this review two fuses were added to previously unprotected taps.

- In 2014, a line inspection was completed to proactively identify failing equipment. As a result of this inspection, 19 locations have been identified and equipment will be corrected by the end of the first quarter of 2015.
- In 2015, fault indicators will be installed at two locations.
- In 2016, a new sectionalizing device with remote operator capability will replace an existing manual switch as part of the Smart Grid Initiative.

09 Circuit 63404 -- HONEYBROOK 34-04

Performance Analysis

The HONEYBROOK 34-04 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 1,071 customers for up to 3,824 minutes resulting in 1,928,791 CMI.

In total, the HONEYBROOK 34-04 circuit had 13 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (10); animal contacts (2); equipment failure (1).

Remedial Actions

- In 2015, full circuit trimming will be performed.
- In 2015, an EOR will be conducted on this circuit.
- In 2016, a tie between the HONEYBROOK 34-02 and the HONEYBROOK 34-04 lines will be constructed to reduce outage durations.

10 Circuit 60803 -- BUCK 08-03

Performance Analysis

The BUCK 08-03 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,915 customers for up to 1,912 minutes resulting in 1,049,894 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,316 customers for up to 940 minutes resulting in 635,608 CMI.

In total, the BUCK 08-03 circuit had 34 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (14); equipment failure (13); nothing found (3); vehicles (3); animal contacts (1).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2014, an infrared inspection on the overhead two and three-phase sections of the circuit was performed. Nothing was found in the study.
- In 2014, a field patrol of the circuit was conducted. Minor repairs were identified and completed.
- In 2014, locations with vehicle pole hits were evaluated. No opportunities were found that would reduce the number of pole hits.
- In 2014, a new automated vacuum recloser and an automated vacuum recloser tie switch were installed as part of the Smart Grid Initiative.
- In 2014, a section of inaccessible line was relocated to a more accessible location closer to a public road. This project will allow future repairs to be made more quickly and help reduce the duration of outages.
- In 2015, a project is planned to extend a section of three- phase, and to remove a section of inaccessible three-phase in the right of way.
- In 2016, a remote operated vacuum recloser will be installed as part of the Smart Grid Initiative.
- In 2016, this circuit will be reconfigured to lower the customer count and circuit mileage of the line. This project will also help minimize the number of customers affected by an outage and improve the overall reliability of the circuit.

11 Circuit 67401 -- WAKEFIELD 74-01

Performance Analysis

The WAKEFIELD 74-01 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,365 customers for up to 2,406 minutes resulting in 1,595,414 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 232 customers for up to 545 minutes resulting in 126,228 CMI.

In total, the WAKEFIELD 74-01 circuit had 26 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (12); tree related (7); animal contacts (4); contact or dig in (1); nothing found (1); other (1).

Remedial Actions

- In 2015, several spans of old, three-phase conductor will be replaced.
- In 2015, a full circuit review will be performed.
- In 2017, full circuit trimming will be performed.

12 Circuit 43202 -- MILLVILLE 32-02

Performance Analysis

The MILLVILLE 32-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 856 customers for up to 3,193 minutes resulting in 1,255,183 CMI.

On July 9, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 115 customers for up to 1,711 minutes resulting in 196,758 CMI.

In total, the MILLVILLE 32-02 circuit had 41 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (25); equipment failure (5); nothing found (5); animal contacts (4); contact or dig in (1); vehicles (1).

Remedial Actions

- Currently, additional fusing is being evaluated at three locations.
- In 2014, a project built approximately 2,100 feet of new single phase along Hall Road to serve customers that experience frequent interruptions from a more reliable tap, and removed inaccessible line.
- In 2015, a project is scheduled to rebuild the three phase backbone of the MILLVILLE 32-02. Approximately 8,500 feet of larger capacity conductor will be installed on the MILLVILLE 32-02.
- In 2016, full circuit tree trimming will be performed.

13 Circuit 65702 -- ROSEVILLE 57-02

Performance Analysis

The ROSEVILLE 57-02 circuit experienced five outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 77 customers for up to 3,540 minutes resulting in 262,023 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 63 customers for up to 3,606 minutes resulting in 227,126 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 180 customers for up to 2,076 minutes resulting in 364,717 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 96 customers for up to 3,211 minutes resulting in 308,233 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 144 customers for up to 2,263 minutes resulting in 325,994 CMI.

In total, the ROSEVILLE 57-02 circuit had 40 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (29); equipment failure (4); animal contacts (3); contact or dig in (2); nothing found (2).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2014, fuses were installed on two single-phase taps.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.

14 Circuit 43103 -- SOUTH MILTON 31-03

Performance Analysis

The SOUTH MILTON 31-03 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014. A Smart Grid recloser with more than 1012 downstream customers opened on seven occasions from April – August.

On April 5, 2014, an equipment failure occurred on an overhead switch causing a recloser to trip to lockout. This outage affected 1,012 customers for up to 235 minutes resulting in 122,578 CMI.

On July 3, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,015 customers for up to 148 minutes resulting in 150,220 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, an equipment failure occurred on a pole or pole arm causing a recloser to trip to lockout. This outage affected 1,012 customers for up to 2,497 minutes resulting in 994,545 CMI.

In total, the SOUTH MILTON 31-03 circuit had 44 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (18); equipment failure (15); animal contacts (5); nothing found (3); other (2); vehicles (1).

Remedial Actions

- In 2014, a three phase recloser that is downstream from the Smart Grid recloser was replaced.
- In 2014, a post-storm line inspection was conducted and one trouble location was remediated where vines were growing on poles.
- In 2014, line patrol of the circuit was conducted and infrared imaging of potential hot spot areas was completed. Problems were identified on secondary services, and repairs were made.
- In 2014, a recloser that operated on multiple occasions was thoroughly inspected. It was determined that there was a wiring problem in the control circuitry of the device that prevented the device from reclosing after transient faults. The problem was immediately repaired.
- In 2014, two new automated switches were installed and three existing switches were automated as part of the Smart Grid Initiative.
- In 2014, multiple hazard trees were removed.
- In 2014, the circuit received additional trimming and hazard tree removal on a section of single phase line.
- In 2015, full circuit trimming will be performed.
- In 2015, a radial three phase tap with 163 customers will be evaluated for three-phase fusing.
- In 2015, a project is scheduled to install single phase fusing.

15 Circuit 63402 -- HONEYBROOK 34-02

Performance Analysis

The HONEYBROOK 34-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 4, 2014, 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 1,260 customers for up to 5,804 minutes resulting in 1,321,917 CMI.

On July 28, 2014, during a period of strong wind, an unidentified issue occurred with a substation component causing a circuit breaker to trip to lockout. This outage affected 1,894 customers for up to 773 minutes resulting in 221,374 CMI.

In total, the HONEYBROOK 34-02 circuit had 25 outages between January 2014 and December

2014, with the causes breaking down as follows: animal contacts (8); equipment failure (6); tree related (6); other (2); vehicles (2); nothing found (1).

Remedial Actions

- In 2015, full circuit trimming will be performed.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2015, a tie between the HONEYBROOK 34-02 and the HONEYBROOK 34-04 lines will be constructed in order to reduce outage durations.
- In 2015, an EOR will be performed on this circuit.

16 Circuit 65004 -- NEFFSVILLE 50-04

Performance Analysis

The NEFFSVILLE 50-04 circuit experienced four outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 76 customers for up to 3,609 minutes resulting in 274,276 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,144 customers for up to 814 minutes resulting in 931,765 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 48 customers for up to 2,577 minutes resulting in 123,688 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 44 customers for up to 2,909 minutes resulting in 127,966 CMI.

In total, the NEFFSVILLE 50-04 circuit had 11 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (9); equipment failure (1); other (1).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In late 2014, additional fusing was installed on several single-phase taps
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2016, single-phase customers will be transferred from the NEFFSVILLE 50-04 to the EAST PETERSBURG 15-04 line. This will reduce exposure to potential tree related outages for those customers.
- In 2016, a tie line will be constructed between the NEFFSVILLE 50-04 and EAST PETERSBURG 15-04 lines.

17 Circuit 21401 -- EXETER 14-01

Performance Analysis

The EXETER 14-01 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,538 customers for up to 954 minutes resulting in 1,101,058 CMI.

On November 26, 2014, during a PUC Reportable ice/sleet/snow storm, an unidentified issue occurred with an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 2,549 customers for up to 65 minutes resulting in 163,314 CMI.

On December 3, 2014, during a period of heavy rain, an equipment failure occurred on an overhead fuse causing a recloser to trip to lockout. This outage affected 1,530 customers for up to 114 minutes resulting in 121,777 CMI.

In total, the EXETER 14-01 circuit had 17 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (6); tree related (5); nothing found (3); animal contacts (2); other (1).

Remedial Actions

- In 2014, an EOR was completed for the EXETER 14-01 line. As a result of this review, additional fusing and sectionalizing will be installed. Additionally load balancing will be performed on this circuit.
- In 2014, a line inspection was completed to proactively identify failing equipment. As a follow-up to the line inspection, six locations have been identified and will be corrected by the end the first quarter of 2015.
- In 2014, a section of transmission conductor was repaired following an outage in November 2014.
- In 2015, two new sectionalizing devices with remote operator control will be installed as part of the Smart Grid Initiative.
- In 2015, solid blade disconnect switches are being installed. This will aid in sectionalizing and troubleshooting of the EXETER 14-01line during an outage.
- In 2016, three new sectionalizing devices with remote operator control will be installed as part of the Smart Grid Initiative.
- In 2016, a project to tie the EXETER 14-01 to the EXETER 14-02 will be completed. This will provide a tie to the radial customers on both circuits.

18 Circuit 61701 -- ELIZABETHTOWN 17-01

Performance Analysis

The ELIZABETHTOWN 17-01 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 812 customers for up to 3,504 minutes resulting in 1,351,313 CMI.

In total, the ELIZABETHTOWN 17-01 circuit had 12 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (6); animal contacts (3); tree related (2); contact or dig in (1).

Remedial Actions

- In 2015, full circuit trimming will be performed.
- In 2015, an EOR will be performed on this circuit.
- In 2017, a tie will be constructed between the ELIZABETHTOWN 17-03 and ELIZABETHTOWN 17-02 lines to provide opportunities to improve sectionalizing capabilities.

19 Circuit 57304 -- MOUNT ALLEN 73-04

Performance Analysis

The MOUNT ALLEN 73-04 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,517 customers for up to 566 minutes resulting in 679,167 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, an unidentified issue occurred with a substation component causing a circuit breaker to trip to lockout. This outage affected 1,545 customers for up to 139 minutes resulting in 213,627 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 87 customers for up to 2,238 minutes resulting in 194,772 CMI.

In total, the MOUNT ALLEN 73-04 circuit had 33 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (19); equipment failure (9); animal contacts (2); nothing found (2); vehicles (1).

Remedial Actions

- In 2014, three reclosers were upgraded to include remote operator control.
- In 2014, the MOUNT ALLEN 73-04 circuit was trimmed as part of its vegetation management cycle.
- In 2015, a circuit review is planned to identify opportunities for additional fusing on a single phase tap to improve SAIFI.

- In 2015, an existing sectionalizing device is scheduled to be upgraded as part of the Smart Grid Initiative. The device will allow for the remote transfer of approximately half the customers to an adjacent circuit.

20 Circuit 67402 -- WAKEFIELD 74-02

Performance Analysis

The WAKEFIELD 74-02 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 302 customers for up to 2,025 minutes resulting in 611,399 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 301 customers for up to 1,176 minutes resulting in 354,249 CMI.

On November 24, 2014, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 298 customers for up to 396 minutes resulting in 117,888 CMI.

In total, the WAKEFIELD 74-02 circuit had 41 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (17); equipment failure (14); nothing found (5); animal contacts (2); vehicles (2); other (1).

Remedial Actions

- In 2014, a new automated vacuum recloser and an automated vacuum recloser tie switch were installed as part of the Smart Grid Initiative.
- In 2014, a section of single-phase was extended, and an inaccessible conductor was removed.
- In 2014, a recloser was replaced with a new automated vacuum recloser.
- In 2015, a project to transfer a group of single-phase customers to another section of the line will be evaluated.
- In 2015, full circuit trimming will be performed.
- In 2015, a new sectionalizing device will be installed on a long single phase radial section.

21 Circuit 62105 -- EAST LANCASTER 21-05

Performance Analysis

The EAST LANCASTER 21-05 circuit experienced four outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 990 customers for up to 349 minutes resulting in 344,995 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 79 customers for up to 3,264 minutes resulting in 174,563 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 69 customers for up to 1,985 minutes resulting in 136,961 CMI.

On September 21, 2014, an equipment failure occurred on a substation component causing a circuit breaker to trip to lockout. This outage affected 1,436 customers for up to 342 minutes resulting in 407,947 CMI.

In total, the EAST LANCASTER 21-05 circuit had 23 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (16); equipment failure (5); animal contacts (2).

Remedial Actions

- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2014, a three-phase slack span which had the potential to cause outages was re-sagged.
- In 2014, full circuit trimming was performed.
- In 2015, the underground getaway that failed as a result of a customer substation fire will be replaced.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.

22 Circuit 62607 -- ENGLESIDE 26-07

Performance Analysis

The ENGLESIDE 26-07 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 187 customers for up to 2,487 minutes resulting in 450,796 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 243 customers for up to 2,009 minutes resulting in 488,043 CMI.

In total, the ENGLESIDE 26-07 circuit had 38 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (26); animal contacts (6); equipment failure (5); nothing found (1).

Remedial Actions

- In 2015, the feasibility of installing fuses on three single-phase taps beyond a recloser that operated during the ice will be evaluated.
- In 2015 an EOR will be conducted on this circuit.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2016, five new automated switches will be installed as part of the Smart Grid Initiative.
- In 2016, full circuit trimming will be performed.
- In 2016, a new line and terminal will be constructed out of the East Lancaster substation to transfer customers off of the ENGLESIDE 26-07.
- In 2016, a tie will be constructed between the ENGLESIDE 26-07 and the WEST LANCASTER 78-01.

23 Circuit 67502 -- WEST WILLOW 75-02

Performance Analysis

The WEST WILLOW 75-02 circuit experienced five outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 44 customers for up to 3,214 minutes resulting in 112,652 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 38 customers for up to 3,641 minutes resulting in 138,323 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 255 customers for up to 977 minutes resulting in 249,068 CMI.

On February 5, 2014, during a PUC Reportable ice storm, an equipment failure occurred on an overhead conductor causing a recloser to trip to lockout. This outage affected 157 customers for up to 2,433 minutes resulting in 361,998 CMI.

On February 6, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 157 customers for up to 26,238 minutes resulting in 157,458 CMI.

In total, the WEST WILLOW 75-02 circuit had 22 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (15); equipment failure (7).

Remedial Actions

- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2017, a tie will be constructed between the WEST WILLOW 75-02 and BUCK 08-01 lines.
- In 2017, full circuit trimming will be performed.

24 Circuit 65802 -- ROHRERSTOWN 58-02

Performance Analysis

The ROHRERSTOWN 58-02 circuit experienced four outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 65 customers for up to 2,271 minutes resulting in 147,569 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead switch causing a load break fuse to operate. This outage affected 69 customers for up to 1,662 minutes resulting in 114,655 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,171 customers for up to 109 minutes resulting in 127,779 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 529 customers for up to 4,852 minutes resulting in 563,852 CMI.

In total, the ROHRERSTOWN 58-02 circuit had 35 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (19); animal contacts (12); equipment failure (3); vehicles (1).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2014, seven new automated sectionalizing devices were installed on this circuit as part of the Smart Grid Initiative.
- In 2014, multiple hazard trees on single-phase lines were removed.
- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2017, the substation will be animal guarded.

25 Circuit 28604 -- BLYTHEBURN 86-04

Performance Analysis

The BLYTHEBURN 86-04 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On April 15, 2014, 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 1,957 customers for up to 645 minutes resulting in 1,194,856 CMI.

In total, the BLYTHEBURN 86-04 circuit had 36 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (14); animal contacts (8); equipment failure (8); nothing found (3); vehicles (3).

Remedial Actions

- *In 2014, a full circuit trimming was performed.*
- In 2015, a line inspection of the BLYTHEBURN 86-04 will be performed.
- In 2015, a project is planned to install fusing at multiple locations on the BLYTHEBURN 86-04 circuit. This will help reduce the number of customers affected in the event of an outage.
- In 2017, a project to reconductor an existing tie between the BLYTHEBURN 86-04 and SAINT JOHN'S 03-02 will be completed. The improved tie capability will provide additional transfer options to both circuits.

26 Circuit 60901 -- DONEGAL 09-01

Performance Analysis

The DONEGAL 09-01 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 1,139 customers for up to 4,910 minutes resulting in 953,254 CMI.

In total, the DONEGAL 09-01 circuit had 31 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (15); equipment failure (11); nothing found (3); animal contacts (1); vehicles (1).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2014, load break disconnects were installed on a getaway riser pole to improve future switching capabilities on the line.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.

27 Circuit 63403 -- HONEYBROOK 34-03

Performance Analysis

The HONEYBROOK 34-03 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 1,442 customers for up to 5,062 minutes resulting in 1,032,259 CMI.

In total, the HONEYBROOK 34-03 circuit had 25 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (10); animal contacts (8); tree related (5); nothing found (1); vehicles (1).

Remedial Actions

- In 2014, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2015, a project to reconductor a portion of the line will be evaluated.
- In 2015, an EOR will be conducted on this circuit.
- In 2017, full circuit trimming will be performed.

28 Circuit 41902 -- REED 19-02

Performance Analysis

The REED 19-02 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On March 30, 2014, during a PUC Reportable ice/sleet/snow storm, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 1,313 customers for up to 2,644 minutes resulting in 1,007,988 CMI.

In total, the REED 19-02 circuit had 29 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (14); animal contacts (6); equipment failure (4); nothing found (3); vehicles (2).

Remedial Actions

- In 2014, targeted hot spot tree trimming was completed on two sections of three phase line that experienced multiple interruptions due to tree contact.
- In 2014, an EOR was performed on the REED 19-02 line at the end of 2014. As a result of this review three poles and eight cross arms will be replaced.
- In 2014, fault indicators were installed on a single phase tap experiencing outages.
- In 2014, solid blade disconnects and fault indicators were installed on a three phase tap that experienced a recent outage. These will be used to quickly identify the outage location and isolate a damaged section of line.
- In 2014, two new sectionalizing devices with remote operator control were installed under the Smart Grid Initiative. This will improve sectionalizing and reduce the number of customers affected by future outages.
- In 2014, work continued on reconductoring spans of copper weld copper conductor. The remaining spans will be reconductored by the end of 2015. In areas where possible, spans will be relocated to more accessible locations. This will improve the load and transfer capability of the REED 19-02 line.
- In 2015, load balancing will be performed on the REED 19-02 line.
- In 2015, a full circuit tree trimming will be completed.
- In March, 2015, a project to transfer customers between two single phase taps will be completed to more adequately balance the customer count on the two taps.

29 Circuit 58402 -- MOUNT ROCK 84-02

Performance Analysis

The MOUNT ROCK 84-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On January 7, 2014, during a period of extreme temperatures, an equipment failure occurred on a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 1,544 customers for up to 316 minutes resulting in 279,743 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 1,532 customers for up to 155 minutes resulting in 538,103 CMI.

In total, the MOUNT ROCK 84-02 circuit had 31 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (14); tree related (9); animal contacts (3); nothing found (3); other (1); vehicles (1).

Remedial Actions

- In 2014, two failed insulators and a broken guy wire were replaced.
- In 2015, two additional sectionalizing devices will be installed or upgraded as part of the Smart Grid Initiative.
- In 2016, full circuit trimming will be performed.

30 Circuit 60605 -- NORTH COLUMBIA 06-05

Performance Analysis

The NORTH COLUMBIA 06-05 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 205 customers for up to 4,930 minutes resulting in 406,936 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a temporary open point to be interrupted. This outage affected 35 customers for up to 3,669 minutes resulting in 128,395 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,396 customers for up to 349 minutes resulting in 488,320 CMI.

In total, the NORTH COLUMBIA 06-05 circuit had 25 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (11); equipment failure (8); animal contacts (3); vehicles (2); nothing found (1).

Remedial Actions

- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2015, PPL Electric will be investigating adding another sectionalizing device on a three-phase tap.
- In 2015, an EOR will be performed on this circuit.
- In 2017, full circuit trimming will be performed.

31 Circuit 47502 -- NEW COLUMBIA 75-02

Performance Analysis

The NEW COLUMBIA 75-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On July 3, 2014, during a PUC Reportable rainstorm, an equipment failure occurred on a pole or pole arm causing an interruption. This outage affected 677 customers for up to 393 minutes resulting in 266,142 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 795 customers for up to 2,802 minutes resulting in 802,942 CMI.

In total, the NEW COLUMBIA 75-02 circuit had 15 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (7); animal contacts (4); tree related (2); other (1); vehicles (1).

Remedial Actions

- In 2014, an existing tie switch between the NEW COLUMBIA 75-02 and the WATSON 33-02 was automated as part of the Smart Grid Initiative.
- In 2015, an existing tie switch between the NEW COLUMBIA 75-02 and the NEW COLUMBIA 75-01 is scheduled to be automated as part of the Smart Grid Initiative.
- In 2015, a project is planned to create a tie between the NEW COLUMBIA 75-02 and the SOUTH MILTON 31-05 circuits. This project will provide an additional remotely operable tie for the NEW COLUMBIA 75-02.
- In 2015, a project to build a tie between the NEW COLUMBIA 75-02 and the ALLENWOOD 30-01 circuits will be evaluated.
- In 2015, an EOR will be completed.

32 Circuit 64203 -- KINZER 42-03

Performance Analysis

The KINZER 42-03 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a transformer to be interrupted. This outage affected 1,052 customers for up to 2,083 minutes resulting in 860,732 CMI.

On February 7, 2014, during a PUC Reportable ice storm, a vehicle contact occurred causing a recloser to trip to lockout. This outage affected 1,052 customers for up to 470 minutes resulting in 181,768 CMI.

In total, the KINZER 42-03 circuit had 13 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (4); animal contacts (3); tree related (3); contact or dig in (1); nothing found (1); vehicles (1).

Remedial Actions

- In 2014, an EOR was performed on the circuit. Repairs were completed as a result.
- In 2014, locations that experienced multiple vehicle hits were investigated. No remedial actions were identified as a result of the review.
- In 2014, the double circuit was replaced with a larger conductor.
- In 2014, the substation was animal guarded.
- In 2014, the 69 kV air break switch at the substation was replaced.

- In 2014, a new automated vacuum recloser and an automated vacuum recloser tie switch were installed as part of the Smart Grid Initiative.
- In 2015, full circuit trimming will be performed.
- In 2015, a rebuild of the FACE ROCK-KINZER transmission line will begin. The project will reduce the possibility of future transmission outages.

33 Circuit 66203 -- SILVER SPRING 62-03

Performance Analysis

The SILVER SPRING 62-03 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 954 customers for up to 1,666 minutes resulting in 683,218 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 951 customers for up to 326 minutes resulting in 310,026 CMI.

In total, the SILVER SPRING 62-03 circuit had 14 outages between January 2014 and December 2014, with the causes breaking down as follows: animal contacts (6); equipment failure (4); tree related (4).

Remedial Actions

- In 2015, an EOR will be conducted on this circuit.
- In 2015, a remotely operable vacuum recloser and tie air break switches will be installed as part of the Smart Grid Initiative.
- In 2016, full circuit trimming will be performed.

34 Circuit 60502 -- NORTH MANHEIM 05-02

Performance Analysis

The NORTH MANHEIM 05-02 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,866 customers for up to 458 minutes resulting in 767,598 CMI.

In total, the NORTH MANHEIM 05-02 circuit had 35 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (14); animal contacts (9); equipment failure (7); nothing found (2); vehicles (2); other (1).

Remedial Actions

- In 2014, six new automated sectionalizing devices were installed as part of the Smart Grid Initiative.
- In 2014, a pole with multiple vehicle hits will be relocated to a less vulnerable location.
- In 2015 an EOR will be performed on this circuit.
- In 2016, full circuit trimming will be performed.
- In 2018, a tie will be constructed between the NORTH MANHEIM 05-02 and NORTH MANHEIM 05-01 circuits.

35 Circuit 64201 -- KINZER 42-01

Performance Analysis

The KINZER 42-01 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 298 customers for up to 4,689 minutes resulting in 483,117 CMI.

On June 12, 2014, during a period of heavy rain, an equipment failure occurred on a substation component causing a circuit breaker to trip to lockout. This outage affected 1,842 customers for up to 368 minutes resulting in 119,793 CMI.

In total, the KINZER 42-01 circuit had 33 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (12); equipment failure (9); vehicles (7); nothing found (3); animal contacts (2).

Remedial Actions

- In 2014, an inspection was performed on areas with multiple vehicle hits in order to identify potential projects. Upon the completion of the inspection no viable projects were identified.
- In 2014, a new automated vacuum recloser and an automated vacuum recloser tie switch were installed as part of the Smart Grid Initiative.
- In 2014, animal guarding was installed at the substation.
- In 2014, the air break switch at the substation was replaced.
- In 2014, full circuit trimming was performed.
- In 2015, a new tie line between the KINZER 42-01 and KINZER 42-02 circuits will be evaluated.

36 Circuit 63401 -- HONEYBROOK 34-01

Performance Analysis

The HONEYBROOK 34-01 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 657 customers for up to 3,641 minutes resulting in 1,015,304 CMI.

In total, the HONEYBROOK 34-01 circuit had 17 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (7); tree related (5); animal contacts (3); contact or dig in (1); nothing found (1).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2014, a new automated vacuum recloser and an automated vacuum recloser tie switch were installed as part of the Smart Grid Initiative.
- In 2015 an EOR will be performed on this circuit.

37 Circuit 56504 -- ROCKVILLE 65-04

Performance Analysis

The ROCKVILLE 65-04 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 470 customers for up to 1,330 minutes resulting in 389,982 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 233 customers for up to 2,438 minutes resulting in 335,265 CMI.

In total, the ROCKVILLE 65-04 circuit had 57 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (33); animal contacts (13); equipment failure (9); nothing found (2).

Remedial Actions

- In 2015, a roughly one mile stretch of circuit is scheduled to be reconductored in order to mitigate vegetation outages experienced by high CEMI customers. Hot spot tree trimming will also be investigated in this area.
- In 2016, four additional sectionalizing devices will be installed or upgraded with remote operator control as part of the Smart Grid Initiative.
- In 2017, full circuit trimming will be performed.

38 Circuit 28301 -- NEWFOUNDLAND 83-01

Performance Analysis

The NEWFOUNDLAND 83-01 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On April 25, 2014, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 2,260 customers for up to 71 minutes resulting in 160,415 CMI.

On August 21, 2014, during a period of lightning, an equipment failure occurred on an overhead conductor causing a temporary open point to be interrupted. This outage affected 1,883 customers for up to 415 minutes resulting in 455,511 CMI.

On October 17, 2014, an equipment failure occurred on a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 2,271 customers for up to 480 minutes resulting in 101,134 CMI.

In total, the NEWFOUNDLAND 83-01 circuit had 63 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (22); equipment failure (17); animal contacts (13); nothing found (9); improper design (1); other (1).

Remedial Actions

- In 2014, a sectionalizer was replaced with a sectionalizing device with remote operator control as part of the Smart Grid Initiative.
- In 2014, the manual air break tie switch was replaced with a sectionalizing device with remote operator control on the NEWFOUNDLAND 83-01 to the HAMLIN 87-01 as part of the Smart Grid Initiative.
- In 2014, the wooden arms on the failed transmission structure as well as several adjacent transmission structures were replaced.
- In 2015, animal guards will be installed on several sections of the line to mitigate outages in an area with a high concentration of animal outages.
- In 2015, single phase fuses will be added in multiple locations.
- In 2015, two new sectionalizing devices with remote operator control will be installed as midline reclosing devices as part of the Smart Grid Initiative.
- In 2015, a line inspection will be completed.

39 Circuit 43504 -- W WILLIAMSPORT 35-04

Performance Analysis

The W WILLIAMSPORT 35-04 circuit experienced four outages of over 100,000 CMI between January 2014 and December 2014.

On July 3, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,032 customers for up to 514 minutes resulting in 307,144 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,032 customers for up to 115 minutes resulting in 144,604 CMI.

On July 9, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,030 customers for up to 456 minutes resulting in 435,921 CMI.

On July 15, 2014, an equipment failure occurred on an overhead conductor causing the circuit breaker to trip and reclose. The outage affected 916 customers for up to 327 minutes resulting in 103,789 CMI.

In total, the W WILLIAMSPORT 35-04 circuit had 12 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (5); tree related (5); animal contacts (2).

Remedial Actions

- In 2014, an EOR was performed on this circuit. As a result of this review fusing was installed at four locations.
- In 2014, work identified during a line patrol and infrared imaging of potential hot spots was remediated. Two hot spots were identified and remediated.
- In 2015, two existing switches are scheduled to be upgraded to Smart Grid switches and one existing recloser will be upgraded to a Smart Grid recloser.
- In 2016, single phase fusing will be installed at five locations.
- In 2016, an existing switch is scheduled to be automated and a new automated recloser will be installed as part of the Smart Grid Initiative.
- In 2016, a project is scheduled to create a tie for a radial section of this circuit. As part of this project a new automated switch and recloser will be installed as part of the Smart Grid Initiative.
- In 2016, a new recloser will be installed on a radial tap with 175 downstream customers. This new device will reduce the outage exposure for 178 upstream customers.

40 Circuit 45801 -- HEGINS 58-01

Performance Analysis

The HEGINS 58-01 circuit experienced four outages of over 100,000 CMI between January 2014 and December 2014.

On March 30, 2014, during a PUC Reportable ice/sleet/snow storm, an equipment failure occurred on an overhead transmission component causing a recloser to trip to lockout. This outage affected 2,605 customers for up to 1,365 minutes resulting in 373,300 CMI.

On May 10, 2014, a vehicle contact occurred causing a recloser to trip to lockout. This outage affected 957 customers for up to 119 minutes resulting in 114,256 CMI.

On July 3, 2014, during a PUC Reportable rainstorm, an unidentified issue occurred with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,613 customers for up to 605 minutes resulting in 179,857 CMI.

On September 6, 2014, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 275 customers for up to 1,385 minutes resulting in 142,780 CMI.

In total, the HEGINS 58-01 circuit had 67 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (25); equipment failure (21); animal contacts (7); nothing found (7); other (5); vehicles (2).

Remedial Actions

- In 2014, additional fuses were installed at seven locations to better protect the line.
- In 2014, equipment on the transmission line feeding the HEGINS substation was replaced after an equipment failure caused an outage at the HEGINS substation.
- In 2014, a hydraulic recloser on the HEGINS 58-01 line was replaced by a sectionalizing device with remote operator control.
- In 2015, full circuit trimming will be performed.
- In 2015, spans of copper weld copper conductor will be reconductored. This is split into two projects which will be completed in May of 2015 and October of 2015. All currently inaccessible sections of the line will be moved closer to the road as a part of these projects.
- In 2015, two fuses will be upgraded to single phase reclosers. These will be completed in March and September of 2015.

- In 2015, a new sectionalizing device with remote operator control is planned for installation on the HEGINS 58-01 line to further split the customer count and allow for better sectionalizing in the event of an outage.
- In 2016, a project to reconductor the tie between the HEGINS 58-01 line and the HEGINS 58-02 line will be completed in order to support the transfer of load between both circuits

41 Circuit 10602 -- BLOOMING GLEN 06-02

Performance Analysis

The BLOOMING GLEN 06-02 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 353 customers for up to 2,305 minutes resulting in 782,425 CMI.

In total, the BLOOMING GLEN 06-02 circuit had 47 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (15); equipment failure (14); animal contacts (12); nothing found (3); vehicles (2); other (1).

Remedial Actions

- In 2014, several Smart Grid devices were installed on this circuit, sectionalizing the line into 500 customer segments.
- In 2015, several single-phase fuses will be installed to isolate trouble areas.
- In 2015, animal guarding will be installed in areas where animal contacts have been increasing.
- In 2015, a project to reconfigure several long single-phase taps will be evaluated. This project would reduce outage exposure on long single-phase taps.

42 Circuit 40201 -- BEAR GAP 02-01

Performance Analysis

The BEAR GAP 02-01 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On March 30, 2014, during a PUC Reportable ice/sleet/snow storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 103 customers for up to 1,578 minutes resulting in 109,374 CMI.

On March 30, 2014, during a PUC Reportable ice/sleet/snow storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 82 customers for up to 2,970 minutes resulting in 178,678 CMI.

On November 26, 2014, during a PUC Reportable ice/sleet/snow storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 309 customers for up to 905 minutes resulting in 279,805 CMI.

In total, the BEAR GAP 02-01 circuit had 70 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (30); equipment failure (16); animal contacts (11); nothing found (4); other (4); vehicles (4); contact or dig in (1).

Remedial Actions

- In 2015, full circuit tree trimming will be performed.
- In 2015, a new sectionalizing device with remote operator control will be installed as part of the Smart Grid Initiative.
- In 2015, a project to install three phase fusing at several locations on the BEAR GAP 02-01 line is being investigated.
- In 2015, locations to add solid blade disconnects are being identified. The installation of the solid blade disconnects will increase sectionalizing opportunity and aid in troubleshooting during an outage.
- In 2015, areas for additional sectionalizing will be reviewed on the three phase backbone of the Bear Gap 02-01 circuit.

43 Circuit 45501 -- DERRY 55-01

Performance Analysis

The DERRY 55-01 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 537 customers for up to 1,075 minutes resulting in 136,524 CMI.

On October 20, 2014, an equipment failure occurred on an underground conductor causing the circuit breaker to trip and reclose. A line patrol was conducted and after the fault was located the line was sectionalized to reduce the number of customers affected while repairs were made. This outage affected 347 customers for up to 1,148 minutes resulting in 298,421 CMI.

In total, the DERRY 55-01 circuit had 57 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (23); equipment failure (17); animal contacts (8); vehicles (6); nothing found (2); contact or dig in (1).

Remedial Actions

- In 2015, a new manual disconnect switch will be installed at the head of a radial tap. This switch will help crews sectionalizing this circuit during restoration.
- In 2015, a new Smart Grid recloser will be installed to improve sectionalizing.
- In 2015, additional fusing will be evaluated.
- In 2015, solid blade disconnects will be installed on a three phase tap.

44 Circuit 53101 -- WILLIAMSTOWN 31-01

Performance Analysis

The WILLIAMSTOWN 31-01 circuit experienced four outages of over 100,000 CMI between January 2014 and December 2014.

On March 29, 2014, during a period of heavy rain, an equipment failure occurred on a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 1,955 customers for up to 147 minutes resulting in 133,731 CMI.

On March 31, 2014, during a period of ice/sleet/snow, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,896 customers for up to 77 minutes resulting in 146,086 CMI.

On April 30, 2014, during a period of heavy rain, an equipment failure occurred on an overhead transformer causing a recloser to trip to lockout. This outage affected 1,065 customers for up to 191 minutes resulting in 203,894 CMI.

On June 5, 2014, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,948 customers for up to 161 minutes resulting in 313,102 CMI.

In total, the WILLIAMSTOWN 31-01 circuit had 47 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (23); tree related (11); animal contacts (5); nothing found (4); other (3); vehicles (1).

Remedial Actions

- In 2014, approximately 30 vintage cutouts prone to failure were replaced.
- Thirty three Cellon transmission poles have been identified for replacement with steel structures in 2016.
- In 2016, 17 motor operated switches are scheduled to be installed on the SUNBURY-DAUPHIN and DAUPHIN-PINE GROVE 69 kV lines. The switches will allow operators to quickly sectionalize transmission outages to no more than a single distribution substation.
- In 2016, full circuit trimming will be performed.
- In 2019, a future reliability substation is planned for the Williamstown area. The new substation will provide 1,950 radial customers a new tie and alternate source for sectionalizing during cases of trouble.

45 Circuit 45502 -- DERRY 55-02

Performance Analysis

The DERRY 55-02 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 610 customers for up to 1,487 minutes resulting in 780,541 CMI.

In total, the DERRY 55-02 circuit had 16 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (7); equipment failure (5); animal contacts (1); nothing found (1); other (1); vehicles (1).

Remedial Actions

- In 2015, an existing recloser will be upgraded to a Smart Grid device.
- In 2015, an existing switch will be upgraded to a Smart Grid switch.
- In 2018, approximately 3.1 miles of the three phase backbone will be constructed using larger conductor. This will increase the transfer capacity of the DERRY 55-02 to DANVILLE 62-03 tie.

46 Circuit 61001 -- DONNERVILLE 10-01

Performance Analysis

The DONNERVILLE 10-01 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,829 customers for up to 212 minutes resulting in 388,132 CMI.

On April 16, 2014, during a period of heavy rain, a vehicle made contact with a pole causing a circuit breaker to trip to lockout. This outage affected 3,453 customers for up to 75 minutes resulting in 260,114 CMI.

On October 8, 2014, during a period of lightning, an equipment failure occurred on a substation component causing a circuit breaker to trip to lockout. This outage affected 1,837 customers for up to 343 minutes resulting in 240,693 CMI.

In total, the DONNERVILLE 10-01 circuit had 16 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (6); nothing found (3); tree related (3); vehicles (3); animal contacts (1).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2015, two new automated vacuum reclosers will be installed as part of the Smart Grid Initiative.
- In 2015, an EOR will be performed on this circuit.
- In 2017, two vacuum reclosers with remote operability will be added to this circuit.
- In 2017, an intersection will be reconductored on this circuit.

47 Circuit 60801 -- BUCK 08-01

Performance Analysis

The BUCK 08-01 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with a pole or pole arm causing a load break fuse to operate. This outage affected 59 customers for up to 1,997 minutes resulting in 117,820 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 455 customers for up to 779 minutes resulting in 354,404 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 274 customers for up to 1,997 minutes resulting in 299,713 CMI.

In total, the BUCK 08-01 circuit had 14 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (7); equipment failure (4); animal contacts (1); contact or dig in (1); vehicles (1).

Remedial Actions

- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2015, a new Smart Grid device will be added to this circuit.
- In 2016, full circuit trimming will be performed.
- In 2017, a tie will be constructed between the WEST WILLOW 75-02 and BUCK 08-01 circuits.

48 Circuit 22001 -- BOHEMIA 20-01

Performance Analysis

The BOHEMIA 20-01 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On January 6, 2014, an unidentified issue occurred with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,287 customers for up to 61 minutes resulting in 140,353 CMI.

On February 6, 2014, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 2,291 customers for up to 106 minutes resulting in 242,616 CMI.

On April 18, 2014, an equipment failure occurred on an overhead lightning protector causing a circuit breaker to trip to lockout. This outage affected 2,301 customers for up to 169 minutes resulting in 389,835 CMI.

In total, the BOHEMIA 20-01 circuit had 45 outages between January 2014 and December 2014, with the causes breaking down as follows: animal contacts (13); equipment failure (13); tree related (12); nothing found (5); other (2).

Remedial Actions

- In 2014, two single phase reclosers were replaced with two sectionalizers to improve circuit protection.
- In 2014, a new line reduced customer count, improved sectionalizing capabilities, and reduced outage exposure on the BOHEMIA 20-01 line.
- In 2015, animal guards will be installed on targeted areas of the BOHEMIA 20-01.
- In 2015, single phase fuses will be added in multiple locations.

- In 2015, a line inspection will be completed.

49 Circuit 63801 -- HEMPFIELD 38-01

Performance Analysis

The HEMPFIELD 38-01 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with a substation component causing a circuit breaker to trip to lockout. This outage affected 1,414 customers for up to 433 minutes resulting in 575,755 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 145 customers for up to 2,496 minutes resulting in 136,169 CMI.

In total, the HEMPFIELD 38-01 circuit had 24 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (11); equipment failure (10); animal contacts (1); other (1); vehicles (1).

Remedial Actions

- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2014, six new automated sectionalizing devices were installed on this circuit as part of the Smart Grid Initiative.
- In 2017, a section of three-phase will be reconductored in order to prevent future overloads and improve sectionalizing capability.
- In 2017, full circuit trimming will be performed.

50 Circuit 61304 -- EARL 13-04

Performance Analysis

The EARL 13-04 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 215 customers for up to 965 minutes resulting in 137,974 CMI.

On July 27, 2014, during a period of lightning, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 582 customers for up to 180 minutes resulting in 104,474 CMI.

In total, the EARL 13-04 circuit had 38 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (16); equipment failure (14); animal contacts (3); nothing found (2); vehicles (2); other (1).

Remedial Actions

- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2014, full circuit trimming was performed.
- In 2015, a section of two phase conductor will be upgraded to three phase.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2018, a tie will be constructed between the EARL 13-04 and EARL 13-02 lines.

51 Circuit 18502 -- CANADENSIS 85-02

Performance Analysis

The CANADENSIS 85-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On January 5, 2014, during a period of extreme temperatures, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,797 customers for up to 325 minutes resulting in 363,575 CMI.

On May 19, 2014, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 784 customers for up to 170 minutes resulting in 112,403 CMI.

In total, the CANADENSIS 85-02 circuit had 77 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (41); equipment failure (18); animal contacts (11); nothing found (4); vehicles (2); other (1).

Remedial Actions

- In 2014, a new tie line between the between the NORTH STROUDSBURG 56-04, the NORTH STROUDSBURG 56-01, and the CANADENSIS 85-02 lines was completed.
- In 2014, the wooden arms on the failed transmission structure as well as several adjacent transmission structures were replaced.
- In 2015, a single phase fuse will be replaced with a single phase recloser.
- In 2015, single phase fuses will be added in multiple locations.
- In 2015, single phase customers will be relocated to a different tap to decrease their exposure.
- In 2016, full circuit tree trimming will be performed.

52 Circuit 13601 -- RICHLAND 36-01

Performance Analysis

The RICHLAND 36-01 circuit experienced four outages of over 100,000 CMI between January 2014 and December 2014.

On July 3, 2014, during a PUC Reportable rainstorm, an equipment failure occurred on a substation component causing a circuit breaker to trip to lockout. This outage affected 1,164 customers for up to 352 minutes resulting in 294,403 CMI.

On July 4, 2014, during a period of lightning, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 210 customers for up to 933 minutes resulting in 186,337 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, an unidentified issue occurred with a substation component causing a circuit breaker to trip to lockout. This outage affected 431 customers for up to 415 minutes resulting in 179,261 CMI.

On July 23, 2014, during a period of heavy rain, a tree made contact with an overhead switch causing a recloser to trip to lockout. This outage affected 600 customers for up to 190 minutes resulting in 114,072 CMI.

In total, the RICHLAND 36-01 circuit had 40 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (15); tree related (13); nothing found (7); animal contacts (4); other (1).

Remedial Actions

- In 2014, several Smart Grid devices were installed on this circuit sectionalizing the line into 500 customer segments.
- In 2014, the substation circuit breaker was replaced.
- In 2015, two new single-phase fuses will be installed to isolate trouble areas.
- In 2016, an existing recloser will be replaced with a new Smart Grid Recloser completing the circuit's Smart Grid overhaul.

53 Circuit 46301 -- ROHRSBURG 63-01

Performance Analysis

The ROHRSBURG 63-01 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On July 2, 2014, during a period of lightning, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,039 customers for up to 194 minutes resulting in 110,566 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 78 customers for up to 3,179 minutes resulting in 191,465 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 310 customers for up to 475 minutes resulting in 142,613 CMI.

In total, the ROHRSBURG 63-01 circuit had 36 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (20); equipment failure (6); animal contacts (5); vehicles (3); nothing found (2).

Remedial Actions

- In 2016, an existing recloser will be upgraded to a Smart Grid recloser.
- Several single-phase taps will be evaluated for the application of series fusing.

54 Circuit 60301 -- TWIN VALLEY 03-01

Performance Analysis

The TWIN VALLEY 03-01 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 96 customers for up to 2,285 minutes resulting in 155,073 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 243 customers for up to 4,858 minutes resulting in 336,591 CMI.

In total, the TWIN VALLEY 03-01 circuit had 42 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (21); equipment failure (8); animal contacts (4); nothing found (4); vehicles (3); other (2).

Remedial Actions

- In 2014, four new automated sectionalizing devices were installed as part of the Smart Grid Initiative.
- In 2015, a second transmission line source will be built into the TWIN VALLEY substation. This project will improve substation reliability.
- In 2017, full circuit trimming will be performed.

55 Circuit 66703 -- STRASBURG 67-03

Performance Analysis

The STRASBURG 67-03 circuit experienced four outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 167 customers for up to 753 minutes resulting in 125,662 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 53 customers for up to 2,002 minutes resulting in 106,088 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 56 customers for up to 2,178 minutes resulting in 121,927 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 50 customers for up to 3,469 minutes resulting in 173,415 CMI.

In total, the STRASBURG 67-03 circuit had 33 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (14); equipment failure (12); animal contacts (2); nothing found (2); vehicles (2); other (1).

Remedial Actions

- In 2014, five new automated sectionalizing devices were installed as part of the Smart Grid Initiative.
- In 2014, full circuit trimming was performed.
- In 2014, the circuit breaker serving this circuit was replaced.
- In 2015, additional sectionalizing devices will be evaluated on a two phase tap that has experienced multiple outages.
- In 2018, the STRASBURG substation will be upgraded.

56 Circuit 41801 -- GOWEN CITY 18-01

Performance Analysis

The GOWEN CITY 18-01 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On March 30, 2014, during a PUC Reportable ice/sleet/snow storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 384 customers for up to 2,629 minutes resulting in 589,628 CMI.

In total, the GOWEN CITY 18-01 circuit had 31 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (10); animal contacts (8); tree related (6); nothing found (4); other (3).

Remedial Actions

- In 2014, the three phase backbone GOWEN CITY 18-01 was patrolled. Two cracked cross arms were identified and replaced. Additionally, new fault indicators were installed.
- In 2015, an existing sectionalizing device will be relocated to more adequately balance the customers between protective devices.
- In 2015, a project to install an air break switch directly outside the GOWEN CITY substation will be reviewed.
- In 2015, a project to tie the GOWEN CITY 18-01line to the GRATZ 33-02 line is being evaluated. This project would reduce the number of radial customers on the GOWEN CITY 18-01line and improve outage restoration.
- In 2016, full circuit trimming will be performed.

57 Circuit 53602 -- DALMATIA 36-02

Performance Analysis

The DALMATIA 36-02 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On May 27; 2014, during a period of heavy rain, a tree made contact with an overhead splice causing a recloser to trip to lockout. This outage affected 845 customers for up to 250 minutes resulting in 162,432 CMI.

In total, the DALMATIA 36-02 circuit had 67 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (34); equipment failure (19); animal contacts (5); vehicles (5); nothing found (3); contact or dig in (1).

Remedial Actions

- In 2014, the DALMATIA to DAUPHIN section of the SUNBURY-DAUPHIN 69 kV circuit was trimmed.
- In 2014, full circuit trimming was performed.
- In 2015, four additional sectionalizing devices will be installed or upgraded with remote operator control as part of the Smart Grid Initiative.
- In 2016, 17 motor operated switches are scheduled to be installed on the SUNBURY-DAUPHIN and DAUPHIN-PINE GROVE 69 kV lines. The switches will allow operators to quickly sectionalize transmission outages to no more than a single distribution substation.
- In 2017, a new 69-12 kV substation in the Meiserville area is scheduled for construction. The project will significantly reduce customer counts and circuit miles on the DALMATIA 36-02 circuit as well increase transfer capability in the area. The substation was originally intended to go into service in November, 2012, but has been delayed by land acquisitions and condemnation proceedings.

58 Circuit 52402 -- GREEN PARK 24-02

Performance Analysis

The GREEN PARK 24-02 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On June 12, 2014, during a period of heavy rain, an equipment failure occurred on an overhead switch causing a recloser to trip to lockout. This outage affected 1,118 customers for up to 157 minutes resulting in 175,637 CMI.

In total, the GREEN PARK 24-02 circuit had 61 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (26); tree related (19); animal contacts (10); nothing found (4); other (1); vehicles (1).

Remedial Actions

- In 2014, the GREEN PARK 24-02 getaway was reconductored to alleviate cold load pick up concerns.
- In 2014, two vintage oil circuit reclosers were replaced with Smart Grid devices on a high CEMI customer tap.
- In 2015, a circuit review is planned to identify opportunities for additional fusing on a single phase tap to improve reliability for over 200 customers.
- In 2015, a roughly 4,000 foot single-phase extension will transfer approximately 50 high CEMI customers to an adjacent circuit to limit line and outage exposure. Extensive hot spot trimming is also being investigated for a 7 mile section of line.
- In 2016, the Green Park 24-02 circuit is scheduled to be trimmed as part of its vegetation management cycle.
- In 2017, a three mile tie line will provide approximately 1,120 radial customers with an alternate source for sectionalizing during cases of trouble.

59 Circuit 24602 -- VARDEN 46-02

Performance Analysis

The VARDEN 46-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On July 9, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 186 customers for up to 1,359 minutes resulting in 202,003 CMI.

On July 9, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 495 customers for up to 1,228 minutes resulting in 193,323 CMI.

In total, the VARDEN 46-02 circuit had 40 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (19); animal contacts (8); equipment failure (7); nothing found (4); other (1); vehicles (1).

Remedial Actions

- 2014, full circuit trimming was performed.
- In 2015, single phase fuses will be added in multiple locations.

- In 2015, the benefits of three-phase fusing will be investigated to sectionalize a short three-phase tap.
- In 2015, a new tie line will be investigated to provide transfer capabilities for 514 radial customers.
- In 2015, the installation of additional sectionalizing devices with remote operator control to divide the circuit into 500 customer blocks will be investigated as part of the Smart Grid Initiative.

60 Circuit 61801 -- E ELIZABETHTOWN 18-01

Performance Analysis

The E ELIZABETHTOWN 18-01 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a temporary open point to be interrupted. This outage affected 344 customers for up to 734 minutes resulting in 151,031 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 577 customers for up to 542 minutes resulting in 312,809 CMI.

In total, the E ELIZABETHTOWN 18-01 circuit had 35 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (13); animal contacts (8); equipment failure (7); other (4); nothing found (2); vehicles (1).

Remedial Actions

- In 2014 an EOR was conducted on this circuit. Minor repairs were completed as a result.
- In 2014, full circuit trimming was performed.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2017, a new tie line will be built between the RHEEMS 60-01 and ELIZABETHTOWN 18-01 circuits.

61 Circuit 66001 -- RHEEMS 60-01

Performance Analysis

The RHEEMS 60-01 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 6, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a sectionalizing device to be interrupted. This outage affected 675 customers for up to 592 minutes resulting in 399,154 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 529 customers for up to 613 minutes resulting in 324,573 CMI.

In total, the RHEEMS 60-01 circuit had 10 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (5); tree related (5).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2014, an EOR was conducted on this circuit. Minor repairs were made as a result.
- In 2015, the replacement of a sectionalizer with a Smart Grid device will be investigated.
- In 2017, a new tie line will be built between the RHEEMS 60-01 and ELIZABETHTOWN 18-01 circuits.

62 Circuit 21601 -- EYNON 16-01

Performance Analysis

The EYNON 16-01 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On July 3, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 223 customers for up to 1,426 minutes resulting in 307,343 CMI.

In total, the EYNON 16-01 circuit had 41 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (19); animal contacts (10); equipment failure (9); other (3).

Remedial Actions

- In 2015, single phase fusing will be installed in multiple locations.
- In 2015, single blade disconnects will be added outside of the substation to allow for additional sectionalizing.
- In 2015, animal guards will be installed on targeted areas of the ENYON 16-01.
- In 2018, a new three phase tie between the ENYON 16-01 line and the GREENFIELD 71-01 line will be constructed.

63 Circuit 60701 -- BRECKNOCK 07-01

Performance Analysis

The BRECKNOCK 07-01 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a vehicle made contact with a pole causing a circuit breaker to trip to lockout. This outage affected 2,128 customers for up to 2,948 minutes resulting in 735,127 CMI.

In total, the BRECKNOCK 07-01 circuit had 23 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (10); tree related (5); nothing found (3); vehicles (3); animal contacts (2).

Remedial Actions

- In 2014, full circuit tree trimming was performed.
- In 2014, four new automated sectionalizing devices were installed as part of the Smart Grid Initiative.
- In 2015, the potential to bring a new line and terminal out of the TERRE HILL substation or the HONEYBROOK substation to decrease the number of customers fed from the BRECKNOCK 07-01 will be investigated.

64 Circuit 63602 -- LETORT 36-02

Performance Analysis

The LETORT 36-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 47 customers for up to 5,271 minutes resulting in 152,810 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead switch causing a circuit breaker to trip to lockout. This outage affected 1,633 customers for up to 101 minutes resulting in 164,933 CMI.

In total, the LETORT 36-02 circuit had 46 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (24); equipment failure (11); animal contacts (4); contact or dig in (2); nothing found (2); other (2); vehicles (1).

Remedial Actions

- In 2014, a load break disconnect switch and fuse was added to a section of single-phase line.
- In 2015, full circuit trimming will be performed.
- In 2015, two new automated devices will be installed as part of the Smart Grid Initiative.

65 Circuit 13704 -- SCHNECKSVILLE 37-04

Performance Analysis

The SCHNECKSVILLE 37-04 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On April 14, 2014, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,566 customers for up to 681 minutes resulting in 176,415 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead fuse causing a recloser to trip to lockout. This outage affected 109 customers for up to 1,263 minutes resulting in 117,948 CMI.

On September 6, 2014, during a period of strong wind, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,591 customers for up to 690 minutes resulting in 243,610 CMI.

In total, the SCHNECKSVILLE 37-04 circuit had 44 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (20); equipment failure (10); animal contacts (9); nothing found (2); other (2); vehicles (1).

Remedial Actions

- In 2014, full circuit trimming was performed.
- In 2014, two single-phase relocation projects were completed, moving the lines out of heavily forested areas.
- In 2014, a new Smart Grid device was installed on this circuit.
- In 2015, two new single-phase fuses are scheduled to be installed.
- In 2018, a new three-phase tie will be constructed to the SCHNECKSVILLE 37-01 which will benefit 400 radial customers.

66 Circuit 64202 -- KINZER 42-02

Performance Analysis

The KINZER 42-02 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 124 customers for up to 948 minutes resulting in 117,508 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with a pole or pole arm causing a recloser to trip to lockout. This outage affected 84 customers for up to 3,313 minutes resulting in 278,218 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 26 customers for up to 4,587 minutes resulting in 104,047 CMI.

In total, the KINZER 42-02 circuit had 34 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (15); equipment failure (9); animal contacts (3); vehicles (3); other (2); contact or dig in (1); nothing found (1).

Remedial Actions

- In 2014, 80 hazard trees were removed.
- In 2014, animal guarding was installed at the substation.
- In 2014, the 69 kV air break switch at the substation was replaced.
- In 2014, an EOR was performed on this circuit. Minor repairs were made as a result.
- In 2015, a new substation location is being investigated to reduce the customers being fed from this circuit.
- In 2015, a new tie line will be built between the KINZER 42-01 and KINZER 42-02 circuits.

67 Circuit 65503 -- MOUNT JOY 55-03

Performance Analysis

The MOUNT JOY 55-03 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 140 customers for up to 2,158 minutes resulting in 302,016 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, an unidentified issue occurred with an overhead switch causing a recloser to trip to lockout. This outage affected 533 customers for up to 534 minutes resulting in 285,128 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 260 customers for up to 464 minutes resulting in 120,744 CMI.

In total, the MOUNT JOY 55-03 circuit had 25 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (10); nothing found (5); tree related (5); animal contacts (2); other (2); vehicles (1).

Remedial Actions

- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2014, a three-phase line section was reconductored to prevent future overloads and increase sectionalizing capabilities.
- In 2014, a three-phase section was reconductored immediately outside of the substation.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2015 a single phase radial tap will be fused.
- In 2016, a vacuum recloser will be installed as part of its Smart Grid Initiative.
- In 2016, full circuit trimming will be performed.

68 Circuit 46302 -- ROHRSBURG 63-02

Performance Analysis

The ROHRSBURG 63-02 circuit experienced no outages of over 100,000 CMI between January 2014 and December 2014.

In total, the ROHRSBURG 63-02 circuit had 51 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (27); equipment failure (11); nothing found (9); animal contacts (2); vehicles (2).

Remedial Actions

- In 2014, an EOR was completed on this circuit.
- In 2015, an existing recloser will be upgraded to a Smart Grid recloser.
- In 2015, a project will relocate approximately 1 mile of inaccessible three-phase.
- In 2016, an existing recloser will be upgraded to a Smart Grid recloser.

69 Circuit 14602 -- SO WHITEHALL 46-02

Performance Analysis

The SO WHITEHALL 46-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 1, 2014, a vehicle made contact with a pole causing a recloser to trip to lockout. This outage affected 1,664 customers for up to 1,041 minutes resulting in 516,209 CMI.

On July 14, 2014, a vehicle contact occurred causing a circuit breaker to trip to lockout. This outage affected 1,672 customers for up to 101 minutes resulting in 233,458 CMI.

In total, the SO WHITEHALL 46-02 circuit had eight outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (5); vehicles (2); animal contacts (1).

Remedial Actions

- In 2014, six new Smart Grid devices were installed.
- In 2014, two additional Smart Grid devices were installed.
- In 2016, a new line will be installed at the MICKELEYS substation which will reduce the customer count on this circuit and provide an additional tie.

70 Circuit 65401 -- MARIETTA 54-01

Performance Analysis

The MARIETTA 54-01 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 205 customers for up to 1,978 minutes resulting in 385,748 CMI.

On June 12, 2014, during a period of heavy rain, a vehicle contact occurred causing a circuit breaker to trip to lockout. This outage affected 1,824 customers for up to 139 minutes resulting in 230,050 CMI.

In total, the MARIETTA 54-01 circuit had 19 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (9); equipment failure (4); vehicles (3); other (2); nothing found (1).

Remedial Actions

- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2016, full circuit trimming will be performed.
- In 2017, a new tie will be built between the MARIETTA 54-01 and the DONEGAL 9-02 circuits.

71 Circuit 51601 -- DUKE 16-01

Performance Analysis

The DUKE 16-01 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,106 customers for up to 2,217 minutes resulting in 605,837 CMI.

In total, the DUKE 16-01 circuit had 20 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (7); equipment failure (6); animal contacts (3); nothing found (2); other (1); vehicles (1).

Remedial Actions

- In 2015, full circuit trimming will be performed.
- In 2015, a one mile tie line will provide approximately 1,200 radial customers with an alternate source for sectionalizing during cases of trouble. The project will also install additional remote operator controlled sectionalizing devices. This tie line would have significantly improved restoration times during the July 8th outage.
- In 2016, two additional sectionalizing devices will be installed or upgraded with remote operator control as part of the Smart Grid Initiative.

72 Circuit 47201 -- FAXON 72-01

Performance Analysis

The FAXON 72-01 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 26, 2014, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,646 customers for up to 191 minutes resulting in 314,698 CMI.

In total, the FAXON 72-01 circuit had 32 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (14); equipment failure (12); animal contacts (3); nothing found (2); other (1).

Remedial Actions

- In 2015, one existing switch will be upgraded to a Smart Grid switch and a new Smart Grid recloser will be installed.
- In 2015 as a result of an EOR, single-phase fusing will be installed at 6 locations.
- In 2016, two existing switches will be upgraded to Smart Grid switches and a new Smart Grid recloser will be installed.
- In 2017, a project will create a tie for a radial section of this circuit. As part of this project a new Smart Grid switch and two existing reclosers will be upgraded to Smart Grid reclosers.

73 Circuit 62102 -- EAST LANCASTER 21-02

Performance Analysis

The EAST LANCASTER 21-02 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 2,229 customers for up to 305 minutes resulting in 658,796 CMI.

In total, the EAST LANCASTER 21-02 circuit had 21 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (11); tree related (6); animal contacts (3); other (1).

Remedial Actions

- In 2014, animal guards were installed on several sections of line.
- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2016, full circuit trimming will be performed.

74 Circuit 57702 -- PAXTON 77-02

Performance Analysis

The PAXTON 77-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 918 customers for up to 2,312 minutes resulting in 531,969 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 151 customers for up to 1,110 minutes resulting in 130,931 CMI.

In total, the PAXTON 77-02 circuit had 10 outages between January 2014 and December 2014, with the causes breaking down as follows: animal contacts (4); tree related (4); equipment failure (2).

Remedial Actions

- In 2016, two additional sectionalizing devices will be installed or upgraded with remote operator control as part of the Smart Grid Initiative.
- In 2016, full circuit trimming will be performed.

75 Circuit 65804 -- ROHRERSTOWN 58-04

Performance Analysis

The ROHRERSTOWN 58-04 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 877 customers for up to 575 minutes resulting in 505,046 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 125 customers for up to 1,584 minutes resulting in 197,946 CMI.

In total, the ROHRERSTOWN 58-04 circuit had 11 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (5); equipment failure (3); animal contacts (1); nothing found (1); other (1).

Remedial Actions

- In 2014, full circuit trimming was performed and hazard trees were removed.
- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2014, additional hazard trees were removed.
- In 2016, a manually operable sectionalizing device will be replaced with a Smart Grid device.

76 Circuit 26002 -- WEST DAMASCUS 60-02

Performance Analysis

The WEST DAMASCUS 60-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 6, 2014, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 1,202 customers for up to 105 minutes resulting in 127,051 CMI.

On July 3, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 108 customers for up to 1,056 minutes resulting in 114,006 CMI.

In total, the WEST DAMASCUS 60-02 circuit had 54 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (28); equipment failure (16); animal contacts (4); other (3); nothing found (2); vehicles (1).

Remedial Actions

- In 2015, a new sectionalizing device with remote operator control will be installed to replace an existing normally open manual air break as part of the Smart Grid Initiative.
- In 2015, a new sectionalizing device with remote operator control will replace an existing hydraulic recloser.
- In 2015, single phase fusing will be installed in multiple locations.
- In 2015, a complete line inspection will be completed.
- In 2016, a project to reconductor three-phase copper weld copper conductor will be completed.

77 Circuit 64401 -- LANDISVILLE 44-01

Performance Analysis

The LANDISVILLE 44-01 circuit experienced one outage of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 893 customers for up to 3,477 minutes resulting in 655,560 CMI.

In total, the LANDISVILLE 44-01 circuit had 9 outages between January 2014 and December 2014, with the causes breaking down as follows: animal contacts (3); equipment failure (3); tree related (2); nothing found (1).

Remedial Actions

- In 2014, an infrared inspection of the line was conducted. Nothing was found during the review.
- In 2014, a new automated vacuum recloser switch was installed.
- In 2015, full circuit trimming will be performed.

- In 2016, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.

78 Circuit 67804 -- WEST LANCASTER 78-04

Performance Analysis

The WEST LANCASTER 78-04 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,970 customers for up to 173 minutes resulting in 341,066 CMI.

On February 5, 2014, during a PUC Reportable ice storm, the circuit was taken out of service at the direction of a non-PPL authority. This outage affected 1,940 customers for up to 146 minutes resulting in 283,666 CMI.

In total, the WEST LANCASTER 78-04 circuit had 16 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (8); equipment failure (5); nothing found (2); other (1).

Remedial Actions

- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2017, full circuit trimming will be performed.

79 Circuit 43402 -- BENTON 34-02

Performance Analysis

The BENTON 34-02 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On March 30, 2014, during a PUC Reportable ice/sleet/snow storm, an equipment failure occurred on an overhead switch causing a recloser to trip to lockout. This outage affected 457 customers for up to 230 minutes resulting in 105,087 CMI.

On March 30, 2014, during a PUC Reportable ice/sleet/snow storm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 143 customers for up to 815 minutes resulting in 116,493 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 147 customers for up to 1,260 minutes resulting in 169,834 CMI.

In total, the BENTON 34-02 circuit had 35 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (14); equipment failure (11); nothing found (4); animal contacts (3); other (2); vehicles (1).

Remedial Actions

- In 2014, a recloser that failed to operate properly on at least two occasions was replaced.
- In 2015, full circuit trimming will be performed.
- In 2016, an existing recloser will be automated as part of the Smart Grid Initiative.

80 Circuit 47101 -- MARLIN 71-01

Performance Analysis

The MARLIN 71-01 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On February 22, 2014, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 2,992 customers for up to 81 minutes resulting in 160,495 CMI.

On April 30, 2014, during a period of heavy rain, a vehicle made contact with a pole causing a recloser to trip to lockout. This outage affected 509 customers for up to 215 minutes resulting in 109,149 CMI.

On October 1, 2014, an equipment failure occurred causing a recloser to trip to lockout. This outage affected 2,147 customers for up to 184 minutes resulting in 396,507 CMI.

In total, the MARLIN 71-01 circuit had 19 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (11); animal contacts (7); vehicles (1).

Remedial Actions

- In 2014, a set of three cross arms were replaced on a transmission structure following a transmission outage in February 2014.
- In 2015, three new sectionalizing devices with remote operator control will be installed in as part of the Smart Grid Initiative.
- In 2015, older style insulators will be replaced at ten locations.
- In 2015, one new sectionalizing device with remote operator control will be installed as part of the Circuit SAIDI program.
- In 2017, a project to transfer half of the customers served from the MARLIN 71-01 to another source will be completed.

81 Circuit 67503 -- WEST WILLOW 75-03

Performance Analysis

The WEST WILLOW 75-03 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead splice causing a recloser to trip to lockout. This outage affected 46 customers for up to 3,916 minutes resulting in 180,096 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead fuse causing a load break fuse to operate. This outage affected 107 customers for up to 1,443 minutes resulting in 154,378 CMI.

In total, the WEST WILLOW 75-03 circuit had 38 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (18); tree related (16); animal contacts (1); nothing found (1); other (1); vehicles (1).

Remedial Actions

- In 2014, a load break air break switch was replaced with an automated vacuum switch.
- In 2015, additional fusing downstream will be investigated for a single-phase recloser that operated during the February 5th ice storm.
- In 2015, the opportunity to relocate a section of difficult-to-access single-phase downstream from a recloser that operated during the February 5th ice storm will be investigated.

- In 2015, a new automated vacuum recloser and an automated vacuum recloser tie switch will be installed as part of the Smart Grid Initiative.
- In 2015, an EOR will be performed on this circuit.
- In 2017, full circuit trimming will be performed.

82 Circuit 61504 -- EAST PETERSBURG 15-04

Performance Analysis

The EAST PETERSBURG 15-04 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 30 customers for up to 3,497 minutes resulting in 104,907 CMI.

On February 5, 2014, during a PUC Reportable ice storm, a tree made contact with an overhead conductor causing a load break fuse to operate. This outage affected 74 customers for up to 2,044 minutes resulting in 151,203 CMI.

In total, the EAST PETERSBURG 15-04 circuit had 19 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (10); equipment failure (7); nothing found (1); other (1).

Remedial Actions

- In 2015, full circuit trimming will be performed.
- In 2015, a new automated vacuum recloser and an automated tie switch will be installed as part of the Smart Grid Initiative.
- In 2016, a tie will be constructed between the EAST PETERSBURG 15-04 and NEFFSVILLE 50-04 lines.

83 Circuit 11102 -- EGYPT 11-02

Performance Analysis

The EGYPT 11-02 circuit experienced three outages of over 100,000 CMI between January 2014 and December 2014.

On January 4, 2014, during a period of extreme temperatures, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 1,964 customers for up to 363 minutes resulting in 357,738 CMI.

On May 2, 2014, a vehicle made contact with a pole causing a circuit breaker to trip to lockout. This outage affected 2,351 customers for up to 829 minutes resulting in 128,497 CMI.

On June 9, 2014, 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 1,970 customers for up to 58 minutes resulting in 114,319 CMI.

In total, the EGYPT 11-02 circuit had 16 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (9); vehicles (3); animal contacts (2); nothing found (1); tree related (1).

Remedial Actions

- A project to extend three-phase and balance loading on the circuit is currently under investigation.
- In 2015, two new Smart Grid devices will be installed, sectionalizing the line into 500 customer segments.
- In 2016, two additional Smart Grid devices will be installed to isolate trouble locations.

84 Circuit 14103 -- TRUMBAUERSVILLE 41-03

Performance Analysis

The TRUMBAUERSVILLE 41-03 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On June 30, 2014, an animal interfered with an overhead conductor causing a recloser to trip to lockout. This outage affected 1,305 customers for up to 105 minutes resulting in 137,025 CMI.

On December 30, 2014, a vehicle contact occurred causing a circuit breaker to trip to lockout. This outage affected 2,025 customers for up to 688 minutes resulting in 156,536 CMI.

In total, the TRUMBAUERSVILLE 41-03 circuit had 60 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (25); animal contacts (14); equipment failure (12); nothing found (5); vehicles (3); other (1).

Remedial Actions

- In 2014, four new Smart Grid devices were installed, sectionalizing the line into 500 customer segments.
- In 2014, two areas of three-phase line were trimmed as a result of frequent momentary interruptions.
- Currently, two sections of single-phase line are being evaluated for improvement to help reduce frequency of outages.
- In 2016, an existing recloser will be replaced with a new Smart Grid recloser, allowing for improved coordination on a tap that has experienced several outages.
- In 2016, a new three-phase tie line will be constructed to the RIDGE ROAD 70-01 which will allow for restoration of over 500 radial customers.

85 Circuit 40602 -- PINE GROVE 06-02

Performance Analysis

The PINE GROVE 06-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On January 14, 2014, an equipment failure occurred on an overhead transformer causing a recloser to trip to lockout. This outage affected 255 customers for up to 1,060 minutes resulting in 175,521 CMI.

On March 31, 2014, during a period of ice/sleet/snow, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 2,310 customers for up to 81 minutes resulting in 189,096 CMI.

In total, the PINE GROVE 06-02 circuit had 34 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (13); tree related (9); animal contacts (7); other (2); vehicles (2); nothing found (1).

Remedial Actions

- In 2014, a sectionalizer was installed to reduce circuit exposure and outage restoration time in the event of an outage.
- In 2014, a Cellon wood pole was replaced with a steel pole following a transmission outage in March 2014. Twenty five additional Cellon poles are scheduled to be replaced in 2015.
- In 2015, a single phase recloser will be installed.
- In 2015, one new sectionalizing device with remote operator control will be installed to improve sectionalizing capability.
- In 2015, a new sectionalizing device with remote operator control will be installed as part of the Smart Grid Initiative.
- In 2016, a project to extend the three phase line on the PINE GROVE 06-02 and build a tie between the PINE GROVE 06-02 and the PINE GROVE 06-03 will be completed.
- In 2016, a new sectionalizing device with remote operator control will be installed as part of the Smart Grid Initiative.

86 Circuit 61502 -- EAST PETERSBURG 15-02

Performance Analysis

The EAST PETERSBURG 15-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 5, 2014, during a PUC Reportable ice storm, an unidentified issue occurred with a substation component causing a circuit breaker to trip to lockout. This outage affected 1,012 customers for up to 289 minutes resulting in 292,457 CMI.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead switch causing a circuit breaker to trip to lockout. This outage affected 1,017 customers for up to 130 minutes resulting in 132,525 CMI.

In total, the EAST PETERSBURG 15-02 circuit had 15 outages between January 2014 and December 2014, with the causes breaking down as follows: equipment failure (7); tree related (5); animal contacts (2); nothing found (1).

Remedial Actions

- In 2015, full circuit trimming will be performed.
- In 2016, a new automated switch and one automated vacuum recloser will be installed as part of the Smart Grid Initiative.

87 Circuit 41602 -- CLEVELAND 16-02

Performance Analysis

The CLEVELAND 16-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On July 8, 2014, during a PUC Reportable rainstorm, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 187 customers for up to 1,069 minutes resulting in 199,828 CMI.

On August 23, 2014, during a period of heavy rain, a tree made contact with an overhead conductor causing a recloser to trip to lockout. This outage affected 532 customers for up to 212 minutes resulting in 112,784 CMI.

In total, the CLEVELAND 16-02 circuit had 30 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (18); equipment failure (7); animal contacts (3); nothing found (2).

Remedial Actions

- In 2015, a project to install additional three phase sectionalizing on the CLEVELAND 16-02 line is being investigated.
- In 2015, a project is being reviewed to reduce line exposure and better sectionalize the CLEVELAND 16-02 line.

88 Circuit 53501 -- ELIZABETHVILLE 35-01

Performance Analysis

The ELIZABETHVILLE 35-01 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On February 12, 2014, an equipment failure occurred on an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 2,130 customers for up to 266 minutes resulting in 107,697 CMI.

On June 5, 2014, an equipment failure occurred on an overhead transmission component causing a circuit breaker to trip to lockout. This outage affected 2,145 customers for up to 62 minutes resulting in 133,011 CMI.

In total, the ELIZABETHVILLE 35-01 circuit had 47 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (25); equipment failure (14); animal contacts (4); nothing found (2); other (2).

Remedial Actions

- In 2015, two additional sectionalizing devices will be installed and/or upgraded with remote operator control as part of Smart Grid.
- In 2015, additional animal guarding will be investigated to remediate multiple animal contacts in an isolated area.
- In 2016, 17 motor operated switches are scheduled to be installed on the SUNBURY-DAUPHIN and DAUPHIN-PINE GROVE 69 kV lines. The switches will allow operators to quickly sectionalize transmission outages to no more than a single distribution substation.
- In 2017, the ELIZABETHVILLE 35-01 circuit is scheduled to be trimmed as part of its vegetation management cycle.

89 Circuit 15102 -- UPPER HANOVER 51-02

Performance Analysis

The UPPER HANOVER 51-02 circuit experienced two outages of over 100,000 CMI between January 2014 and December 2014.

On June 19, 2014, during a period of lightning, a tree made contact with an overhead conductor causing a circuit breaker to trip to lockout. This outage affected 855 customers for up to 765 minutes resulting in 142,859 CMI.

On July 3, 2014, during a PUC Reportable rainstorm, an equipment failure occurred on a pole or pole arm causing a circuit breaker to trip to lockout. This outage affected 861 customers for up to 1,007 minutes resulting in 192,583 CMI.

In total, the UPPER HANOVER 51-02 circuit had 36 outages between January 2014 and December 2014, with the causes breaking down as follows: tree related (19); equipment failure (9); animal contacts (4); nothing found (3); contact or dig in (1).

Remedial Actions

- Currently, several locations are being evaluated for three-phase fusing.
- In 2015, a new single phase recloser will be installed to isolate a problematic single-phase tap.
- In 2017, a new Smart Grid device will be installed allowing a 300 customer tap to be transferred remotely to an existing tie in the event of an outage.

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. The top three causes (Equipment Failures, Tree Related, and Animals), which are based on the percent of cases of trouble, are highlighted in the table. PPL Electric's maintenance programs focus on corrective actions to address controllable service interruptions (e.g., trees and equipment failure).

Cause Description	Trouble Cases[7]	Percent of Trouble Cases	Customer Interruptions[8]	Percent of Customer Interruptions	Customer Minutes	Percent of Customer Minutes
Animals	3,219	18.5%	46,745	3.6%	3,427,644	1.5%
Contact / Dig-In	128	0.7%	11,976	0.9%	888,021	0.4%
Directed by Non-PPL Authority	206	1.2%	14,709	1.1%	1,329,092	0.6%
Equipment Failure	5,575	32.1%	469,114	36.5%	54,580,416	23.7%
Improper Design	6	0.0%	6,254	0.5%	240,977	0.1%
Improper Installation	12	0.1%	8,952	0.7%	599,995	0.3%
Improper Operation	6	0.0%	8,584	0.7%	787,250	0.3%
Nothing Found	1,269	7.3%	79,190	6.2%	7,802,469	3.4%
Other Controllable	108	0.6%	38,786	3.0%	1,216,047	0.5%
Other Non-Control	255	1.5%	50,348	3.9%	4,285,034	1.9%
Other Public	46	0.3%	8,541	0.7%	566,541	0.2%
Tree Related	5,908	34.0%	417,422	32.5%	141,665,189	61.4%
Vehicles	650	3.7%	123,982	9.7%	13,361,779	5.8%
Total	17,388	100.0%	1,284,603	100.0%	230,750,454	100.0%

[7] Cases of trouble are the number of sustained customer service interruptions (i.e., service outages).

[8] 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.

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 48% of cases, 56% of customer interruptions, and 78% of CMI.

Tree Related: PPL Electric has recently increased funding to more aggressively address out of 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 three of a five year cycle for the new standard.

Animals: Animals accounted for about 19% of PPL Electric's cases of trouble. Although this represents a significant number of cases, the effect on SAIFI and CAIDI is small because approximately 79% 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, 46% of the customer interruptions and 54% 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	4th Quarter		Year-to-date	
		Budget	Actual	Budget	Actual
Transmission					
Transmission C-tag poles (# of poles)	455	101	102	455	462
Transmission arm replacements (# of sets)	0	0	0	0	0
Transmission air break switch inspections (# of switches)	29	8	14	29	26
Transmission lightning arrester installations (# of sets)	497	1,176	1,054	1,500	1,398
Transmission structure inspections (# of structures)	1,270	318	436	1,270	1,102
Transmission tree side trim-Bulk Power (linear feet)	N/A				
Transmission herbicide-Bulk Power (# of acres)	N/A				
Transmission reclearing (# of miles) BES Only	416.24	0	0	416.24	416.24
Transmission reclearing (# of miles) 69 kV	1046.34	264.30	280.47	1046.34	1046.34
Transmission reclearing (# of miles) 138 kV	12.16	0	0	12.16	12.16
Transmission danger tree removals-Bulk Power (# of trees)	N/A	N/A	6,172	N/A	30,592
Substation					
Substation batteries (# of activities)	652	45	43	652	651
Circuit breakers (# of activities)	675	26	73	675	646
Substation inspections (# of activities)	4,539	1,088	1,088	4,539	4,569
Transformer maintenance (# of activities)	1,430	338	75	1,430	866
Distribution					
Distribution C-tag poles replaced (# of poles)	1,416	136	112	1,416	1,177
C-truss distribution poles (# of poles)	5,433	1,539	1,527	5,433	5,156
Capacitor (MVAR added)	29	0	0	29	30
OCR replacements (# of)[9]	157	7	6	157	129
Distribution pole inspections (# of poles)	90,000	30,143	30,143	90,000	90,000
Distribution line inspections (hours)	5,224	1,159	1,730	5,224	5,081
Group re-lamping (# of lamps)	21,000	0	0	14,101	14,101
Test sections of underground distribution cable	592	98	84	592	534
Distribution tree trimming (# of miles)	6063.79	1413.74	1457.70	6063.79	6027.09
Distribution herbicide (# of acres)	N/A				

[9] On 12/3/2013 PPL Electric notified the PUC of its plan to replace all three- phase oil circuit reclosers with vacuum devices over a 10 year cycle.

Inspection & Maintenance Goals/Objectives	Annual Budget	4th Quarter		Year-to-date	
		Budget	Actual	Budget	Actual
Distribution >18" removals within R/W (# of trees)	N/A				
Distribution hazard tree removals outside R/W (# of trees)	N/A	N/A	443	N/A	12,137
LTN manhole inspections (# of)	373	61	46	373	377
LTN vault inspections (# of)	724	135	140	724	748
LTN network protector overhauls (# of)	79	4	8	79	73
LTN reverse power trip testing (# of)[10]	136	31	17	136	78

[10] A best practice benchmarking review found that PPL Electric was performing more testing than was effective. Future testing will be performed in accordance with industry best practices.

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. (For first, second and third quarter reports only.)***

The following table provides the operation and maintenance expenses for PPL Electric, as a whole, which includes the work identified in response to Item (6).

	4th Quarter		Year-to-date	
Activity	**Budget** ($1,000s)	**Actual** ($1,000s)	**Budget** ($1,000s)	**Actual** ($1,000s)
Provide Electric Service	2,359	2,575	9,274	8,559
Vegetation Management	10,062	11,740	43,537	52,066
Customer Response	17,013	14,262	65,574	75,476
Reliability & Maintenance	11,454	14,662	52,634	57,412
System Upgrade	55	331	454	987
Customer Services/Accounts	32,495	40,711	125,752	132,790
Others	9,595	11,562	40,182	41,198
Total O&M Expenses	**83,033**	**95,843**	**337,407**	**368,488**

*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. (For first, second and third quarter reports only.)***

The following table provides the capital expenditures for PPL Electric, as a whole, which includes transmission and distribution ("T&D") activities.

	4th Quarter		Year-to-date	
	Budget ($1,000s)	**Actual** ($1,000s)	**Budget** ($1,000s)	**Actual** ($1,000s)
New Service/Revenue	15,202	20,893	70,116	81,345
System Upgrade	112,775	113,824	525,432	541,825
Reliability & Maintenance	59,071	73,685	280,115	270,837
Customer Response	3,283	1,926	11,834	14,982
Other	8,366	3,099	26,061	18,242
Total	**198,697**	**213,427**	**913,559**	**927,231**

9) ***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	70
Journeyman Lineman	230
Journeyman Lineman-Trainee	38
Helper	28
Groundhand	3
Troubleman	50
T&D Total	**419**
Electrical	
Elect Leaders-UG	4
Elect Leaders-Net	8
Elect Leaders-Sub	21
Journeyman Elect-UG	24
Journeyman Elect-Net	18
Journeyman Elect-Sub	51
Journeyman Elect Trainee-UG	2
Journeyman Elect Trainee-Net	16
Journeyman Elect Trainee	23
Helper	15
Laborer-Network	0
Laborer-Substation	0
Electrical Total	**182**
Overall Total	**601**

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 by himself 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 by himself 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.

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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.

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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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Paul E Russell
PPL Corporation
2 N 9th Street

Allentown, PA 18101

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