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FEDERAL EXPRESS

April 30, 2014

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

Re: PPL Electric Utilities Corporation
Quarterly Reliability Report for the
Period Ended March 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 March 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 April 30, 2014, 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

April 2014

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

There were no major events during the first 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 March 31, 2014[1].

SAIFI (Benchmark = 0.98; Rolling 12-month Std. = 1.18)	0.91
CAIDI (Benchmark = 145; Rolling 12-month Std. = 174)	153
SAIDI (Benchmark = 142; Rolling 12-month Std. = 205)	140
MAIFI[2]	3.63
Average Number of Customers Served[3]	1,397,589
Number of Sustained Customer Interruptions (Trouble Cases)	15,866
Number of Customers Affected[4]	1,276,660
Customer Minutes of Interruptions	195,081,274
Number of Customer Momentary Interruptions	5,073,232

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. Without this storm, which would be excluded under the IEEE 2.5B standard, system values would be: SAIFI 0.87; CAIDI 112; SAIDI 97.

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

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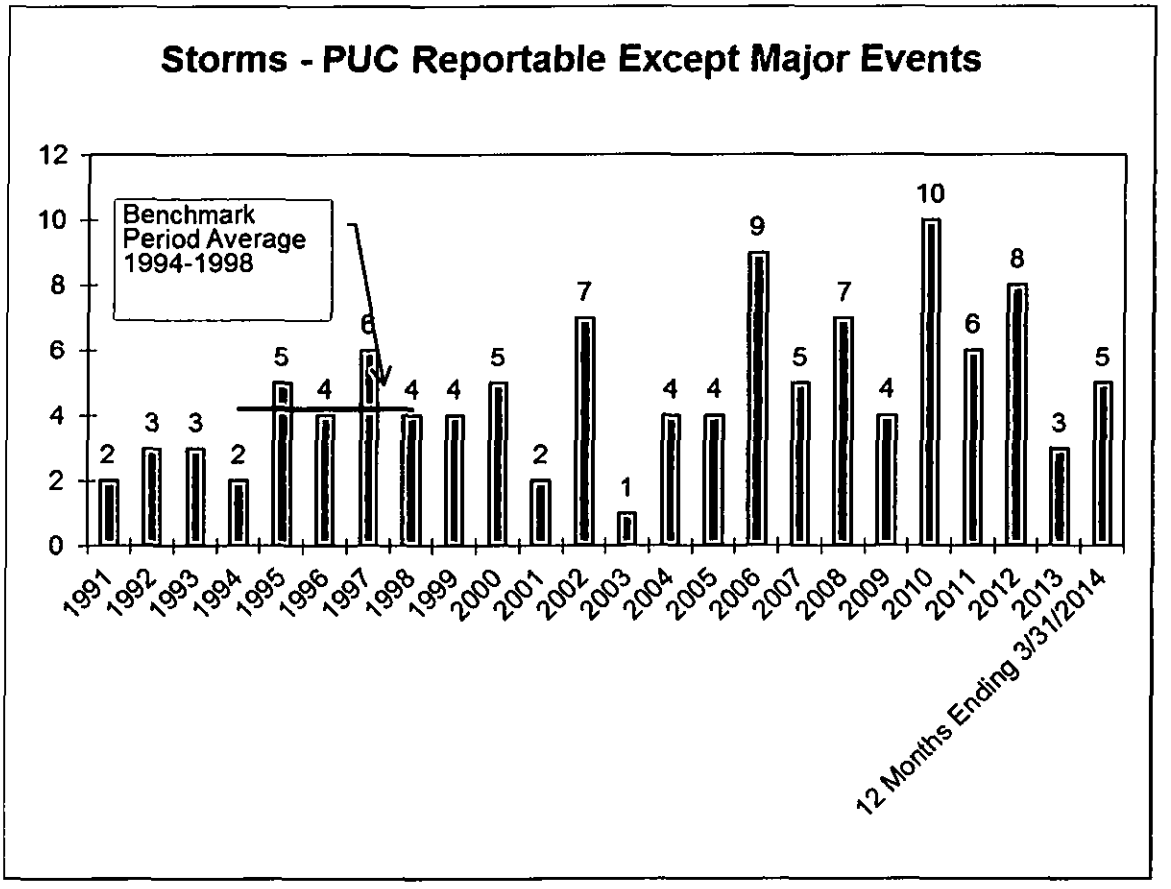
[1] Non-PPL Electric problems are excluded here, but may be found in Item 5.

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

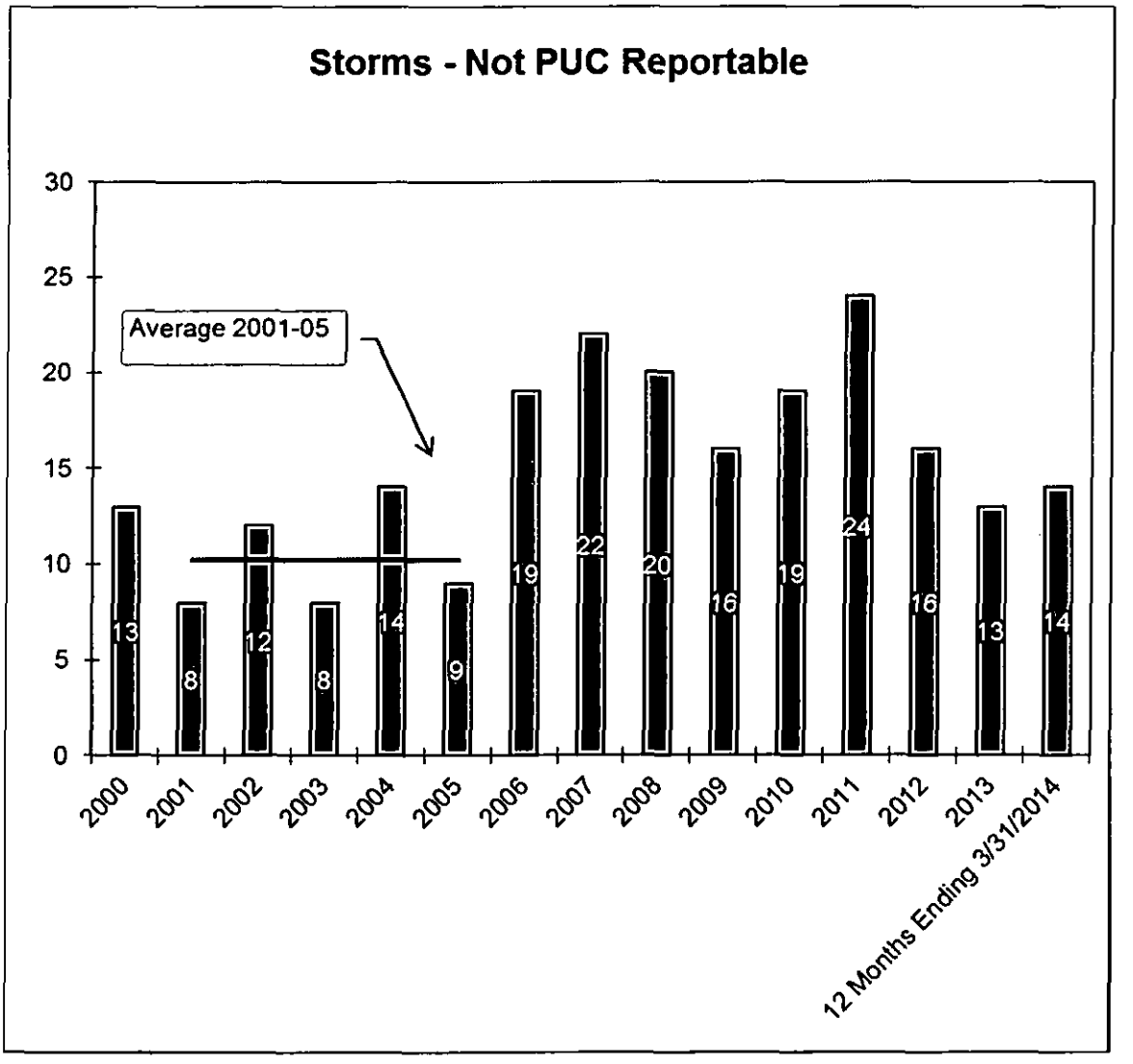
[3] PPL Electric calculates the annual indices using customers served at the end of the period. This is consistent with the method used to calculate PPL Electric's benchmarks.

[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.

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 fourteen (14) 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, 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 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
1	64101	2.0390	802.57	1636.4	6.38413	1,614	30	2,641,263
2	66202	2.0638	931.40	1922.3	2.03391	1,268	10	2,437,479
3	64904	1.9826	391.67	776.54	3.02685	3,054	13	2,371,565
4	63404	2.6166	825.54	2160.1	4.24720	1,072	25	2,315,648
5	64801	1.9272	749.28	1444.0	13.5862	1,525	55	2,202,158
6	64802	1.8955	908.01	1721.2	14.6914	1,264	59	2,175,611
7	41902	3.1328	516.53	1618.2	7.41145	1,310	35	2,119,856
8	25601	5.4186	348.51	1888.4	3.12075	1,118	11	2,111,284
9	65702	0.7146	1532.2	1095.0	3.03177	1,668	32	1,826,484
10	67401	1.2217	1036.7	1266.6	5.29321	1,371	26	1,736,630
11	45002	2.1942	396.37	869.73	0.25759	1,941	50	1,688,148
12	65004	1.2294	1045.2	1285.0	7.07160	1,229	17	1,579,298
13	63402	1.8237	452.14	824.61	3.14886	1,901	17	1,567,591
14	65603	1.4658	427.87	627.19	6.14308	2,460	63	1,542,908
15	60803	2.1834	362.52	791.54	9.60135	1,919	21	1,518,968
16	64203	3.488	291.03	1015.1	7.35418	1,375	14	1,395,799
17	47001	3.7939	149.43	566.93	7.26111	2,451	48	1,389,563
18	61701	0.7768	1601.9	1244.5	1.01716	1,107	10	1,377,701
19	63403	3.1904	294.83	940.66	4.11357	1,444	27	1,358,318
20	62607	0.3974	1131.6	449.78	3.06015	2,926	32	1,316,084
21	52402	4.2717	186.13	795.13	3.44789	1,641	62	1,304,813
22	59401	4.3990	113.01	497.17	1.06899	2,609	61	1,297,119
23	67502	0.6597	1130.9	746.13	7.16666	1,734	30	1,293,794

[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
24	65802	2.1343	315.12	672.58	5.05637	1,898	37	1,276,563
25	62105	1.8737	445.90	835.52	7.33891	1,434	37	1,198,144
26	22403	2.7073	472.44	1279.0	9.25161	926	11	1,184,427
27	46802	1.6976	358.64	608.83	0	1,938	50	1,179,931
28	60901	1.8892	379.16	716.34	8.79439	1,571	27	1,125,376
29	63401	1.9318	705.61	1363.1	2.11922	822	12	1,120,521
30	14602	3.0884	206.65	638.24	4.04181	1,674	9	1,068,428
31	46902	6.1618	112.15	691.09	0.20626	1,532	63	1,058,759
32	22001	1.2347	527.90	651.84	4.23612	1,478	40	963,424
33	66703	1.6511	433.39	715.61	12.8895	1,313	32	939,606
34	67402	1.2982	917.79	1191.5	14.0989	788	18	938,909
35	60801	1.4968	332.99	498.42	0.43496	1,876	25	935,037
36	60502	0.7587	900.28	683.08	5.80044	1,343	36	917,389
37	10602	1.6042	430.71	690.96	0	1,281	31	885,128
38	46702	3.2069	262.33	841.28	1.38113	1,039	39	874,097
39	64202	1.4280	298.75	426.65	0.53082	2,044	43	872,077
40	44301	2.172	229.23	497.90	6.17028	1,750	37	871,330
41	45001	2.0309	229.57	466.25	6.55078	1,841	41	858,369
42	64201	2.6646	141.47	376.98	6.16765	2,189	57	825,218
43	53602	2.2775	324.93	740.06	17.0759	1,106	34	818,511
44	53601	1.5979	228.78	365.57	2.16832	2,216	12	810,118
45	21702	1.1077	342.72	379.65	3.45364	2,125	20	806,770
46	60701	1.7931	281.63	504.99	6.80250	1,595	37	805,469
47	61801	2.8871	288.69	833.49	5.07628	957	11	797,658
48	66203	3.1749	110.16	349.77	0.86837	2,264	41	791,886
49	24901	1.0063	473.02	476.00	0	1,586	22	754,945
50	60301	1.1775	412.57	485.84	7.39662	1,543	20	749,652
51	57304	1.5709	168.47	264.65	2.68965	2,813	33	744,477
52	57505	1.2024	162.96	195.95	6.84513	3,784	23	741,486
53	22905	1.0700	309.26	330.93	1.85714	2,240	19	741,297
54	62102	1.9571	119.97	234.80	3.38528	3,125	35	733,760
55	12505	1.2308	678.83	835.55	21.7085	875	9	731,108
56	65804	0.7447	577.00	429.73	0.55648	1,673	40	718,954
57	67503	0.9108	939.38	855.63	8.24939	830	23	710,177
58	41801	2.0083	173.17	347.81	0.85897	2,028	16	705,362

WPC Rank	Feeder ID	SAIFI	CAIDI	SAIDI	MAIFI[7]	Customers	Cases of Trouble[8]	Customer Minutes Interrupted
59	67804	1.1114	707.22	786.07	0	897	13	705,105
60	64401	1.6739	287.18	480.73	0	1,420	21	682,643
61	63801	4.1094	110.26	453.11	6.75983	1,499	21	679,220
62	15406	1.4268	334.96	477.94	1.86438	1,401	18	669,602
63	60605	2.6546	109.02	289.44	1.94680	2,256	58	652,980
64	28301	1.4765	228.31	337.10	5.73614	1,895	59	638,822
65	63501	3.1605	117.13	370.22	22.1663	1,719	17	636,419
66	11203	1.1953	394.94	472.11	11.6808	1,341	20	633,102
67	63803	2.1206	135.12	286.54	2.50910	2,196	8	629,256
68	22901	1.3368	275.96	368.91	4.40490	1,630	49	601,324
69	40201	1.8655	150.50	280.76	5.67334	2,097	44	588,772
70	17801	2.1485	237.87	511.08	17.9452	1,151	38	588,264
71	52004	2.3929	148.79	356.06	5.01273	1,649	9	587,152
72	61505	2.0366	209.07	425.80	21.7796	1,366	51	581,647
73	26001	2.8920	135.65	392.32	0.97300	1,482	10	581,430
74	20105	0.4436	662.92	294.10	0.79857	1,961	36	576,748
75	60201	5.8460	132.74	776.03	0.00136	734	28	569,608
76	47704	1.2595	486.53	612.79	3.33441	921	13	564,380
77	57702	3.5580	150.81	536.61	5.42090	1,043	26	559,688
78	43402	2.3059	121.90	281.11	1.66869	1,971	24	554,068
79	65503	2.4093	149.86	361.08	4.05280	1,534	25	553,907
80	61304	3.1946	171.32	547.32	20.8843	1,012	14	553,897
81	61502	2.3897	184.70	441.40	5.06401	1,234	8	544,698
82	41503	2.0753	171.76	356.47	3.62802	1,527	11	544,335
83	67301	0.9117	353.10	321.94	0	1,643	51	528,949
84	28302	2.7307	173.82	474.67	6.85188	1,114	18	528,789
85	55408	2.4059	82.531	198.56	3.40067	2,658	21	527,792
86	10101	2.2058	114.51	252.59	2.84511	2,079	33	525,154
87	60104	3.6112	109.57	395.68	1.60668	1,317	58	521,118
88	11506	2.2368	231.64	518.15	4.05273	1,005	19	520,741
89	42903	2.2949	123.58	283.61	3.81195	1,824	17	517,318

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

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

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

01 Circuit 64101 RED FRONT 41-01

Performance Analysis

The Red Front 41-01 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. All three outages were the result of this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 740 customers for up to 5,081 minutes, resulting in 1,231,950 CMI.

On February 05, 2014, a tree made contact with an overhead pole arm or attachment and caused a recloser to trip to lockout. The outage affected approximately 180 customers for up to 4,876 minutes, resulting in 812,575 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 150 customers for up to 2,437 minutes, resulting in 360,799 CMI.

In total, the Red Front 41-01 circuit had 30 outages between April 2013 and March 2014. The causes of these outages include: tree related (19), equipment failures (6), other (3), vehicle (1), and nothing found (1).

Remedial Actions

- Full circuit tree trimming is scheduled for 2015, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- A project is being investigated to establish a tie for a three phase radial tap in 2017.
- A project is being investigated to install an additional remotely operable recloser on the three phase radial tap to provide additional sectionalizing opportunities when the tie is installed.
- A project is being investigated to relocate a section of three phase line to the road so that it is more accessible.

02 Circuit 66202 SILVER SPRING 62-02

Performance Analysis

The Silver Spring 62-02 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,290 customers for up to 1,829 minutes, resulting in 2,394,817 CMI.

In total, the Silver Spring 62-02 circuit had 10 outages between April 2013 and March 2014. The causes of these outages include: tree related (5), equipment failures (2), animal contacts (2), and other (1).

Remedial Actions

- Full circuit tree trimming is scheduled for 2014, using PPL Electric's new trimming specification, which is ground to sky trimming on all three phase line sections.
- One remotely operated midline recloser and one remotely operated normally open device will be installed in 2015.

03 Circuit 64904 MILLERSVILLE 49-04

Performance Analysis

The Millersville 49-04 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. All four outages were the result of this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 430 customers for up to 1,894 minutes, resulting in 816,702 CMI.

On February 05, 2014, an equipment failure occurred on an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 1,670 customers for up to 804 minutes, resulting in 739,871 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 700 customers for up to 750 minutes, resulting in 527,388 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 90 customers for up to 2,010 minutes, resulting in 184,879 CMI.

In total, the Millersville 49-04 circuit had 13 outages between April 2013 and March 2014. The causes of these outages include: tree related (8), and equipment failures (5).

Remedial Actions

- Full circuit tree trimming was completed in the first quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- As part of the tree trimming program, multiple hazard trees will be removed by the end of the second quarter of 2014.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- A tie between the Millersville 49-04 and the West Willow 75-05 will be investigated to allow 700 radial customers to be remotely restored.

04 Circuit 63404 HONEYBROOK 34-04

Performance Analysis

The Honeybrook 34-04 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 1,130 customers for up to 3,824 minutes, resulting in 2,051,877 CMI.

In total, the Honeybrook 34-04 circuit had 25 outages between April 2013 and March 2014. The causes of these outages include: tree related (10), equipment failures (6), animal contacts (6), vehicles (2), and nothing found (1).

Remedial Actions

- Full circuit tree trimming is scheduled for the second half of 2014, with enhanced ground to sky tree trimming.
- A tie line to the Honeybrook 34-02 has been scheduled to be built in 2016 which will allow customers to be remotely restored.

05 Circuit 64801 MOUNT NEBO 48-01

Performance Analysis

The Mount Nebo 48-01 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. Five of the six outages on this circuit were the result of this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,370 customers for up to 481 minutes, resulting in 656,406 CMI.

On March 13, 2014, a tree made contact with an overhead pole arm or attachment and caused a recloser to trip to lockout. The outage affected approximately 550 customers for up to 414 minutes, resulting in 228,854 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 60 customers for up to 3,887 minutes, resulting in 217,638 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 70 customers for up to 2,464 minutes, resulting in 177,405 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and required a temporary sectionalizing open point to be opened for repairs. The outage affected approximately 60 customers for up to 3,269 minutes, resulting in 148,493 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 40 customers for up to 2,535 minutes, resulting in 101,385 CMI.

In total, the Mount Nebo 48-01 circuit had 55 outages between April 2013 and March 2014. The causes of these outages include: tree related (42), equipment failures (6), animal contacts (3), nothing found (2), vehicle (1), and other (1).

Remedial Actions

- The circuit was last trimmed in 2011.
- Full circuit tree trimming is scheduled for 2015, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection was completed in the first quarter of 2014. Only very minor fixes were found.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- Several crimps and cross arms will be replaced in April 2014. These were identified during a recent line inspection.
- Animal Guards will be installed at several locations in April 2014. These were identified during a recent line inspection.

06 Circuit 64802 MOUNT NEBO 48-02

Performance Analysis

The Mount Nebo 48-02 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. All four outages were the result this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 780 customers for up to 1,660 minutes, resulting in 1,294,608 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 60 customers for up to 3,518 minutes, resulting in 211,076 CMI.

On February 05, 2014, a tree made contact with an overhead pole arm or attachment and required a temporary sectionalizing open point to be opened for repairs. The outage affected approximately 50 customers for up to 4,862 minutes, resulting in 177,345 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 100 customers for up to 2,780 minutes, resulting in 151,288 CMI.

In total, the Mount Nebo 48-02 circuit had 59 outages between April 2013 and March 2014. The causes of these outages include: tree related (33), equipment failures (13), animal contacts (8), vehicles (3), and nothing found (2).

Remedial Actions

- The circuit was last trimmed in 2010.
- Full circuit tree trimming is scheduled for completion in the third quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection was completed in the first quarter of 2014. No problems were found.
- The Hill Road CEMI ("Customers Experiencing Multiple Interruptions") project is scheduled to be placed in-service in December 2014.
- Relocating a section of single phase primary cable in the third quarter of 2014 to improve its accessibility as part of the reliability preservation program.
- Series fusing is being investigated for a single tap that experienced multiple outages in the previous four quarters.

07 Circuit 41902 REED 19-02

Performance Analysis

On March 30, 2014, a tree made contact with an overhead switch and caused a recloser to trip to lockout. The outage affected approximately 1,390 customers for up to 2,644 minutes, resulting in 1,068,802 CMI.

On December 22, 2013, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,390 customers for up to 909 minutes, resulting in 413,065 CMI.

On June 25, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 300 customers for up to 1,209 minutes, resulting in 301,218 CMI.

On August 22, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 190 customers for up to 880 minutes, resulting in 165,436 CMI.

On October 12, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 390 customers for up to 322 minutes, resulting in 108,346 CMI.

In total, the Reed 19-02 circuit had 35 outages between April 2013 and March 2014. The causes of these outages include: tree related (14), equipment failures (13), animal contacts (6), other (1), and nothing found (1).

Remedial Actions

- Danger trees were identified and trimmed in the first quarter of 2014.
- A full circuit tree trim is scheduled for 2015.
- Two remotely operable sectionalizing devices will be installed in the third quarter of 2014 under the Smart Grid program. This will improve sectionalizing and reduce the number of customers affected by future outages.
- Two jobs were completed to install solid blades and fault indicators at the end of 2013. This will allow for easier sectionalizing and quicker identification of fault locations.
- Spans of copper-weld copper were reconductored at the end of 2013. The remaining spans will continue to be reconductored throughout 2014. In areas where possible, spans will be relocated to more accessible locations. The reconductoring will improve the load and transfer capability of the circuit.

08 Circuit 25601 ARROWHEAD 56-01

Performance Analysis

On June 03, 2013, an animal made contact with a substation transformer and caused the circuit breaker to trip to lockout. The outage affected approximately 6,020 customer, resulting in 2,103,939 CMI.

In total, the Arrowhead 56-01 circuit had 11 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (5), tree related (2), animal contacts (2), vehicle (1), and nothing found (1).

Remedial Actions

- Following the animal contact in 2013, animal guarding was installed at the substation.
- Four devices were upgraded to remotely operable sectionalizing devices under the 2013 Smart Grid program.
- Danger tree trimming was performed on this circuit in 2013.
- The substation will undergo maintenance in 2014. This includes maintenance and routine inspection of the vacuum circuit breakers, vacuum switches, fuses, and lightning arrestors.
- The circuit was reviewed under an expanded operational review in the fourth quarter of 2013. As a result four jobs were created. These jobs include load balancing, installation of two additional fusing, and installation of fault indicators. These jobs will be completed in 2014.
- A full circuit tree trim has begun on this circuit and will be completed by the end of June this year.
- A project was created to build a new tie line between the Arrowhead 56-01 and Arrowhead 56-02 lines. This will improve transfer capability of both circuits and help customer restoration during outages. This project is scheduled for 2016.
- Under the recloser replacement program, a sectionalizing device will be upgraded to a remotely operable reclosing device in 2015.

09 Circuit 65702 ROSEVILLE 57-02

Performance Analysis

The Roseville 57-02 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. All five outages were the result of the February 5, 2014 ice storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 180 customers for up to 2,076 minutes, resulting in 366,656 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 140 customers for up to 2,328 minutes, resulting in 325,994 CMI.

On February 05, 2014, a tree made contact with an overhead switch and caused a recloser to trip to lockout. The outage affected approximately 100 customers for up to 3,211 minutes, resulting in 314,655 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 80 customers for up to 3,540 minutes, resulting in 262,023 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 60 customers for up to 3,606 minutes, resulting in 227,126 CMI.

In total, the Roseville 57-02 circuit had 32 outages between April 2013 and March 2014. The causes of these outages include: tree related (26), animal contacts (3), nothing found (1), equipment failure (1), and contact/dig-in (1).

Remedial Actions

- Full circuit tree trimming is scheduled for 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- In 2014, additional fusing will be installed on two single phase taps. These were identified through an Expanded Operational Review.

10 Circuit 67401 WAKEFIELD 74-01

Performance Analysis

The Wakefield 74-01 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 1,460 customers for up to 1,162 minutes, resulting in 1,695,617 CMI.

In total, the Wakefield 74-01 circuit had 26 outages between April 2013 and March 2014. The causes of these outages include: tree related (9), equipment failures (9), nothing found (4), and animal contacts (4).

Remedial Actions

- The circuit was last trimmed in 2013, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Full circuit tree trimming is scheduled for 2017.
- In 2015, several spans of old, three phase conductor are scheduled to be replaced as part of the Reliability Preservation program.
- The installation of remotely operable reclosing devices is being investigated.

11 Circuit 45002, LIMESTONE 50-02

Performance Analysis

On July 07, 2013, during a period of thunder and lightning, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 2,030 customers for up to 1,164 minutes, resulting in 1,384,942 CMI.

On November 27, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 1,430 customers for up to 105 minutes, resulting in 150,059 CMI. These two outages accounted for more than 90% of the total CMI over the past 12 months.

In total, the Limestone 50-02 circuit had 50 outages between April 2013 and March 2014. The causes of these outages include: tree related (21), equipment failures (12), animal contacts (11), nothing found (4), vehicle (1), and other (1).

Remedial Actions

- The manual operated switch between the Limestone 50-02 and the Laurelton 10-01 was upgraded to a remotely operable switch in April 2013.
- Tree crews completed trimming this circuit in February 2014 as part of its vegetation management cycle.
- A manual operated recloser was upgraded to a remotely operable recloser on January 29, 2014.
- A manual operated sectionalizing switch was upgraded to a remotely operable sectionalizing switch on April 7, 2014.
- A work order has been initiated to install a new remotely operable recloser on this circuit. This worked is scheduled to be completed by October 2014.
- A work order has been initiated to relocate inaccessible line along Walbash road. This work is scheduled for 2015.

12 Circuit 65004 NEFFSVILLE 50-04

Performance Analysis

The Neffsville 50-04 circuit experienced the following major outages which strongly influenced the current ranking of this circuit on the WPC list. All four outages were the result of the February 5, 2014 ice storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,160 customers for up to 815 minutes, resulting in 941,631 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 80 customers for up to 3,609 minutes, resulting in 277,885 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 40 customers for up to 2,909 minutes, resulting in 127,967 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 50 customers for up to 2,577 minutes, resulting in 123,689 CMI.

In total, the Neffsville 50-04 circuit had 17 outages between April 2013 and March 2014. The causes of these outages include: tree related (9), animal contacts (4), equipment failures (3), and other (1).

Remedial Actions

- Full circuit tree trimming was completed in the first quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection was completed in the first quarter of 2014.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- In late 2014, additional fusing will be installed on several single phase taps as part of the Reliability Preservation program.
- Customers on a single phase tap will be transferred from the Neffsville 50-04 to the East Petersburg 15-04 in order to reduce the outage exposure to those customers.

13 Circuit 63402 HONEYBROOK 34-02

Performance Analysis

The Honeybrook 34-02 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 1,320 customers for up to 5,804 minutes, resulting in 1,379,597 CMI.

In total, the Honeybrook 34-02 circuit had 17 outages between April 2013 and March 2014. The causes of these outages include: tree related (8), equipment failures (5), animal contacts (3), and nothing found (1).

Remedial Actions

- The circuit was last trimmed in 2011.
- Full circuit tree trimming is scheduled for 2015, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- In 2016, a tie will be established between the Honeybrook 34-02 and the Honeybrook 34-04 lines to reduce outage durations.

14 Circuit 65603 QUARRYVILLE 56-03

Performance Analysis

The Quarryville 56-03 circuit experienced the following major outages which strongly influenced the current ranking of this circuit on the WPC list. Six of the seven outages were the result of the February 5, 2014 ice storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 110 customers for up to 3,391 minutes, resulting in 379,840 CMI.

On February 05, 2014, a tree made contact with an overhead switch and caused a recloser to trip to lockout. The outage affected approximately 100 customers for up to 3,823 minutes, resulting in 174,717 CMI.

On April 18, 2013, an equipment failure occurred on an overhead pole arm or attachment and caused the circuit breaker to trip to lockout. The outage affected approximately 2,470 customers for up to 282 minutes, resulting in 154,177 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 90 customers for up to 2,044 minutes, resulting in 135,762 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 50 customers for up to 1,962 minutes, resulting in 96,136 CMI.

On February 05, 2014, a tree made contact with an overhead pole arm or attachment and caused a tap fuse to operate. The outage affected approximately 30 customers for up to 2,564 minutes, resulting in 87,156 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 40 customers for up to 1,788 minutes, resulting in 76,844 CMI.

In total, the Quarryville 56-03 circuit had 63 outages between April 2013 and March 2014. The causes of these outages include: tree related (35), equipment failures (15), animal contacts (6), vehicles (5), and nothing found (2).

Remedial Actions

- The circuit was last trimmed in 2012.
- Full circuit tree trimming is scheduled for 2016, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An Expanded Operational Review ("EOR") on the circuit was completed by December 2013. Only minor repairs were needed.
- An existing manual device will be automated in 2014.
- The circuit will be re-configured in November 2016 to lower the customer count and circuit mileage of the line. This will help minimize the number of customers affected by an outage and improve the overall reliability of the circuit.
- A new circuit out of the Quarryville substation will be built in May 2016 that will further reduce the customer count and circuit mileage of the line.
- The transmission lattice towers that failed in the October 19, 2012 storm were replaced by embedded steel poles.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.

15 Circuit 60803 BUCK 08-03

Performance Analysis

The Buck 08-03 circuit experienced the following major outages which strongly influenced the current ranking of this circuit on the WPC list. Two of the three outages were the result of the February 5, 2014 ice storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 2,020 customers for up to 1,912 minutes, resulting in 1,093,463 CMI.

On June 06, 2013, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 1,470 customers for up to 335 minutes, resulting in 172,791 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 50 customers for up to 2,216 minutes, resulting in 101,901 CMI.

In total, the Buck 8-03 circuit had 21 outages between April 2013 and March 2014. The causes of these outages include: tree related (11), equipment failures (5), vehicles (2), animal contacts (2), and nothing found (1).

Remedial Actions

- The circuit was last trimmed in 2010.
- Full circuit tree trimming is scheduled for the second quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection was completed on this circuit in the first quarter of 2014. Only minor repairs were needed.
- An expanded operational review will be completed on this circuit in 2014.
- A line inspection on the overhead two and three phase sections of the circuit was completed in April 2013. A few minor issues were found and will be corrected by the end of 2014.
- A field patrol of the circuit was performed in late January 2014. Only minor repairs were needed.
- Fault indicators were installed at various locations along the circuit in April 2013 to help identify fault locations more quickly. This will shorten the duration of future outages.
- An Expanded Operational Review on the circuit was completed in December 2013. There was nothing significant found.
- In August 2013, a single phase line was transferred to the Quarryville 56-3 line. This will greatly improve the overall reliability for the 90 customers on this section of line.
- The circuit will be re-configured in November 2016 to lower the customer count and circuit mileage of the line. This will help minimize the number of customers affected by an outage and improve the overall reliability of the circuit.
- A section of line will be relocated from the right-of-way to a more accessible location along a public road in late 2014 that will allow repairs to be made more easily and help reduce the duration of outages.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- The vehicle pole hits were investigated but no opportunities were found that would reduce the number of pole hits and outages.
- A project is being planned for 2016 to extend the 3 phase along Truce Road and remove the inaccessible 3 phase in the current right of way.

16 Circuit 64203 KINZER 42-03

Performance Analysis

The Kinzer 42-03 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. This outage contributed the majority of the CMI this circuit incurred.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a transformer outage. The outage affected approximately 1,110 customers for up to 2,083 minutes, resulting in 906,533 CMI.

On February 07, 2014, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 1,110 customers for up to 470 minutes, resulting in 192,384 CMI.

On April 19, 2013, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 1,080 customers for up to 464 minutes, resulting in 155,902 CMI.

On May 10, 2013, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 1,090 customers for up to 587 minutes, resulting in 103,265 CMI.

In total, the Kinzer 42-03 circuit had 14 outages between April 2013 and March 2014. The causes of these outages include: vehicles (5), tree related (5), and animal contacts (4).

Remedial Actions

- The circuit was last trimmed in 2011.
- Full circuit tree trimming is scheduled for 2015, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An Expanded Operational Review on the circuit was completed in 2013. Only minor repairs were needed.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- The multiple vehicle hits were investigated and there were no remedial actions identified.
- There is an Asset Optimization Strategy Project to rebuild the Face Rock-Kinzer 13 transmission line in 2015 or 2016.
- Animal guards are being installed on the Kinzer substation in 2014.
- The 69 kV air break on the Kinzer substation is being replaced in 2014.
- Replacing the 2/0 copper double circuit with 477 aluminum along Route 30 from Ronks Road to Oakhill Road during the third quarter of 2014 as part of the Reliability Preservation program.

17 Circuit 47001, HUGHESVILLE 70-01

Performance Analysis

On September 11, 2013, a tree fell on the overhead primary conductor and broke an overhead pole arm or attachment which caused the circuit breaker to trip to lockout. The outage affected approximately 2,550 customers for up to 367 minutes, resulting in 637,042 CMI.

On April 10, 2013 while 261 additional customers were transferred to this circuit, the Hughesville 70-01 CB operated to lock out during storm activity. The outage affected approximately 2,810 customers for up to 1,525 minutes, resulting in 461,347 CMI.

On November 7, 2013, an equipment failure occurred on an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 2,550 customers for up to 50 minutes, resulting in 128,953 CMI.

In total, the Hughesville 70-01 circuit had 47 outages between April 2013 and March 2014. The causes of these outages include: tree related (22), equipment failures (13), animal contacts (11), and nothing found (1).

Remedial Actions

- Under the circuit SAIFI initiative, 10 slot fuses were installed in 2013.
- A project was completed in December 2013 that extended the three phase backbone of the Hughesville 70-01 and created a remotely operable tie to the Millville 32-02. Three remotely operable sectionalizing devices were also installed as part of this project.
- On April 9, 2014 tree crews began spot trimming and hazard tree removal on the Pine Summit Tap. This work is being funded under the CEMI program.
- New controls were added to an existing recloser. The remotely operable device was placed into service on April 7, 2014.
- New controls were added to an existing sectionalizing device. The remotely operable sectionalizing device is scheduled to be placed into service during the second quarter of 2014.
- As part of the 2014 Smart Grid Program the normally open switch between the Hughesville 70-1 and Hughesville 70-2 circuits will be upgraded to a remotely operable switch.
- A project has been developed that will increase the load that can be transferred from the Hughesville 70-01 to the Millville 32-02. Approximately 8500 feet of larger capacity conductor will be installed on the Millville 32-02. This project is scheduled to be completed in the fourth quarter of 2015.
- A work order has been initiated to install a new manually operable switch along SR 2040. This switch will allow line crews to transfer the Hughesville 70-01 to the Hughesville 70-02 should the Hughesville 70-01 circuit breaker or getaway fail. This work is scheduled for 2016.
- The radial Hughesville 69kV transmission tap that supplies the Hughesville distribution substation is currently sourced by only the Clinton – Muncy #1 69kV transmission line. Additional 69kV transmission switches will be installed to allow the Hughesville 69kV transmission tap to be fed by either the Clinton – Muncy #1 69kV transmission line or the Clinton – Muncy #2 69kV transmission line. This work is scheduled to be completed by the fourth quarter of 2015.

18 Circuit 61701 ELIZABETHTOWN 17-01

Performance Analysis

The Elizabethtown 17-01 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead switch and caused a recloser to trip to lockout. The outage affected approximately 830 customers for up to 3,504 minutes, resulting in 1,366,265 CMI.

In total, the Elizabethtown 17-01 circuit had 10 outages between April 2013 and March 2014. The causes of these outages include: tree related (4), equipment failures (3), nothing found (1), contact/dig-in (1), and animal contact (1).

Remedial Actions

- The circuit was last trimmed in 2011.
- Full circuit tree trimming is scheduled for 2015, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Circuit ties are being investigated to the Elizabethtown 17-03 and the Elizabethtown 17-02 to provide opportunities to sectionalize customers and remotely restore customers in the case of an outage.

19 Circuit 63403 HONEYBROOK 34-03

Performance Analysis

The Honeybrook 34-03 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead pole arm or attachment and caused a recloser to trip to lockout. The outage affected approximately 1,480 customers for up to 5,062 minutes, resulting in 1,083,856 CMI.

In total, the Honeybrook 34-03 circuit had 27 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (11), tree related (9), animal contacts (3), vehicles (2), and nothing found (2).

Remedial Actions

- The circuit was last trimmed in 2013, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Full circuit tree trimming is scheduled for 2017, which will also be conducted utilizing the new trimming specifications.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.

20 Circuit 62607 ENGLESIDE 26-07

Performance Analysis

The Engleside 26-07 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 240 customers for up to 2,009 minutes, resulting in 490,052 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 190 customers for up to 2,487 minutes, resulting in 455,770 CMI.

In total, the Engleside 26-07 circuit had 31 outages between April 2013 and March 2014. The causes of these outages include: tree related (21), animal contacts (5), equipment failures (4), and nothing found (1).

Remedial Actions

- The circuit was last trimmed in 2012.
- Full circuit tree trimming is scheduled for 2016, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- The installation of tap fuses will be investigated on the single phase taps beyond the reclosers that operated during the ice storm causing the largest outages.

21 Circuit 52402, GREEN PARK 24-02

Performance Analysis

On November 30, 2013, an equipment failure occurred on the bushing of a three phase recloser and caused the circuit breaker to trip to lockout. Restoration was delayed due to cold load pickup. The outage affected approximately 1,720 customers for up to 555 minutes, resulting in 694,763 CMI. This single circuit breaker outage significantly affected this circuit's reliability in the past four quarters. Tree related interruptions were the most common outage cause.

In total, the Green Park 24-02 circuit had 62 outages between April 2013 and March 2014. The causes of these outages include: tree related (27), equipment failures (21), animal contacts (9), other (3), and nothing found (2).

Remedial Actions

- Two vintage oil circuit reclosers on a CEMI customer tap are scheduled for replacement in 2014. This will allow for better device coordination and limit the impact of outages for 200 customers.
- A roughly 4,000' single phase extension is planned for 2015. The extension will transfer approximately 50 CEMI customers to an adjacent circuit to limit line and outage exposure.
- The Green Park 24-02 getaway was reconductored in early 2014 to alleviate cold load pick up concerns.

- Two failed reclosers were replaced in late 2013.
- The Green Park 24-02 was last trimmed in 2012 as part of its vegetation management cycle.

22 Circuit 59401, RICHFIELD 94-01

Performance Analysis

Four circuit breaker outages significantly affected this circuit's reliability in the past four quarters. Equipment failures were the most common outage cause.

On June 25, 2013, high winds blew a phase conductor tie loose and two conductors into one another. The contact interrupted the circuit breaker and affected approximately 2,710 customers for up to 315 minutes, resulting in 453,771 CMI.

On June 25, 2013, a tree from outside the trimming right of way interrupted the circuit breaker. The outage affected approximately 2,710 customers for up to 185 minutes, resulting in 201,512 CMI.

On June 25, 2013, a vehicle pole hit caused the circuit breaker to trip to lockout. The outage affected approximately 2,710 customers for up to 85 minutes, resulting in 180,999 CMI.

On June 28, 2013, a vehicle pole hit caused the circuit breaker to trip to lockout. The outage affected approximately 2,710 customers for up to 285 minutes, resulting in 295,701 CMI.

In total, the Richfield 94-01 circuit had 61 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (21), tree related (16), animal contacts (8), nothing found (6), other (5), vehicles (4), and contact/dig-in (1).

Remedial Actions

- The Richfield 94-01 circuit is scheduled to be trimmed in 2014 as part of its vegetation management cycle.
- Additional remote operator controlled devices are scheduled to be added to the circuit in 2014. The devices will allow for faster sectionalizing in the event of an outage.
- A new circuit is scheduled to be installed at Richfield substation in 2015. The new circuit will reduce the customers, circuit miles, and exposure on the Richfield 94-01.
- A second transformer is scheduled to be installed at Richfield substation in 2015. The new transformer will add redundancy and decrease the exposure for extended outages.
- SCADA is scheduled to be installed at Richfield substation in 2015.
- A thermography inspection was completed on the overhead 2 and 3 phase sections of the circuit in March 2013. Two minor crimp and regulator repairs were made.
- Two single phase reclosers were relocated in September 2013 in order to reduce customer exposure.
- Additional fusing was installed in five locations during September 2013 in order to reduce customer exposure.

23 Circuit 67502 WEST WILLOW 75-02

Performance Analysis

The West Willow 75-02 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. All five outages were the result of this storm.

On February 05, 2014, an equipment failure occurred on an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 160 customers for up to 2,433 minutes, resulting in 365,333 CMI.

On February 05, 2014, a tree made contact with an overhead pole arm or attachment and caused a recloser to trip to lockout. The outage affected approximately 260 customers for up to 977 minutes, resulting in 255,906 CMI.

On February 06, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 160 customers for up to 26,238 minutes, resulting in 160,467 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 40 customers for up to 3,641 minutes, resulting in 138,324 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 40 customers for up to 3,214 minutes, resulting in 115,129 CMI.

In total, the West Willow 75-02 circuit had 30 outages between April 2013 and March 2014. The causes of these outages include: tree related (17), equipment failures (7), vehicles (2), animal contacts (2), nothing found (1), and contact/dig-in (1).

Remedial Actions

- The circuit was last trimmed in 2013, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Full circuit tree trimming is scheduled for 2017, which will be conducted utilizing the new trimming specifications.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.

24 Circuit 65802 ROHRERSTOWN 58-02

Performance Analysis

The Rohrerstown 58-02 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. All three outages were the result of this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 540 customers for up to 4,852 minutes, resulting in 584,546 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 60 customers for up to 2,271 minutes, resulting in 147,570 CMI.

On February 05, 2014, a tree made contact with an overhead switch and caused a tap fuse to operate. The outage affected approximately 70 customers for up to 1,662 minutes, resulting in 114,655 CMI.

In total, the Rohrerstown 58-02 circuit had 36 outages between April 2013 and March 2014. The causes of these outages include: tree related (21), animal contacts (7), equipment failures (6), vehicle (1), and nothing found (1).

Remedial Actions

- Full circuit tree trimming will be completed in the second quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Multiple hazard trees were removed to protect several single phase lines.
- An infrared inspection of the line was completed in the first quarter of 2014. Nothing was found.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- The circuit was reconfigured in late 2013 to improve the overall reliability of the line.
- The installation of animal guard on distribution transformers will be investigated to prevent future animal outages.

25 Circuit 62105 EAST LANCASTER 21-05

Performance Analysis

The East Lancaster 21-05 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. Three of the four outages were the result of this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 1,000 customers for up to 349 minutes, resulting in 346,738 CMI.

On November 26, 2013, an equipment failure occurred on an overhead switch and caused a recloser to trip to lockout. The outage affected approximately 1,000 customers for up to 211 minutes, resulting in 194,873 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 80 customers for up to 3,264 minutes, resulting in 176,439 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 70 customers for up to 1,985 minutes, resulting in 138,946 CMI.

In total, the East Lancaster 21-05 circuit had 37 outages between April 2013 and March 2014. The causes of these outages include: tree related (21), animal contacts (8), equipment failures (6), other (1), and contact/dig-in (1).

Remedial Actions

- The circuit was last trimmed in 2010.
- Full circuit tree trimming will be completed by the end of the second quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection of the line was completed in the first quarter of 2014. Nothing was found.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- The failed mainline recloser was replaced with a new vacuum recloser.
- A work order has been initiated to re-sag a three phase slack span which had the potential to cause future outages.

26 Circuit 22403 MORGAN 24-03

Performance Analysis

On September 11, 2013, a tree made contact with the overhead primary conductor and caused the Morgan 24-03 circuit breaker to trip to lockout. The outage affected approximately 2,400 customers for up to 1,262 minutes, resulting in 1,159,611 CMI.

In total, the Morgan 24-03 circuit had 11 outages between April 2013 and March 2014. The causes of these outages include: animal contacts (5), tree related (4), vehicle (1), and equipment failure (1).

Remedial Actions

- In 2013, a thermal scan was performed on the Morgan 24-03 line to identify equipment that had a high probability of failure. The equipment that was identified by this analysis was replaced promptly after identification. It is expected that the actions taken from this review will reduce future equipment failures which will improve overall line reliability.
- In 2014, PPL Electric will be identifying potential locations for animal guarding that will help reduce future animal related outages in the future.
- In 2014, PPL Electric will be conducting expanded operational review (EOR) on the entire Morgan 24-03 line in order to identify circuit improvements to reduce the potential for future outages.
- In 2014, a midline switch will be replaced with an automated recloser as part of its smart grid project plan. This automated device will help to reduce customer exposure to outages and reduce future outage durations.
- In 2015, PPL Electric will be automating the Morgan 24-03 to Edella 21-01 and Morgan 24-03 to Edella 21-03 manual tie switches as part of its smart grid project plan. These automated devices will improve sectionalizing capabilities and reduce future outage durations.
- In 2016, a new line and terminal will be constructed out of the Edella Substation. The new line will help to improve tie capabilities and sectionalizing capabilities which will improve future reliability for all customers on the Morgan 24-03 line.
- In 2017, Vegetation Management plans to trim the entire Morgan 24-03 circuit in order to reduce future tree related outages.

27 Circuit 46802, HEPBURN 68-02

Performance Analysis

During a period of severe weather on April 10, 2013 approximately 2,080 customers on this circuit were out of service for up to 1,483 minutes due to multiple devices operating to lockout, resulting in 1,040,301 CMI. The outage on April 10, 2013 accounted for more than 85% of the total CMI over the last 12 months.

In total, the Hepburn 68-02 circuit had 50 outages between April 2013 and March 2014. The causes of these outages include: tree related (21), equipment failures (15), nothing found (8), animal contacts (5), and vehicle (1).

Remedial Actions

- Vegetation within the right of way was sprayed with herbicide and the circuit was trimmed in 2013.
- SCADA was installed at the Hepburn substation in February 2013.
- A project was developed to improve the reliability for 121 customers on the radial Crescent Tap. The Crescent Tap CEMI project will relocate inaccessible line, replace #6

copper weld conductor, and install an additional recloser. This project is scheduled to be completed by December 2014.

- Work orders have been created to install solid blade disconnects at four locations and to add additional slot fusing at two locations. The aforementioned work is scheduled for 2014 and 2015.
- Work orders have been created to relocate inaccessible line at two locations and to split a large single phase tap into two separate taps. This work is scheduled for 2014 and 2015.
- As part of the 2015 Smart Grid Program two existing sectionalizing switches and a normally open tie switch will be upgraded to remotely operable switches.
- A project has been developed that will increase the reliability for customers served by the Hepburn distribution substation. Remotely operable MOSLABS will be installed on both of the 69kV transmission sources, a second 69/12kV power transformer will be added at the substation, and a new 12kV bus tie breaker will be added that will transfer customers automatically in the event of a transmission outage. This project is scheduled to be completed by May 2016.

28 Circuit 60901 DONEGAL 09-01

Performance Analysis

The Donegal 09-01 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead pole arm or attachment and caused a recloser to trip to lockout. The outage affected approximately 1,170 customers for up to 4,910 minutes, resulting in 976,340 CMI.

In total, the Donegal 9-01 circuit had 27 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (13), tree related (8), animal contacts (3), vehicles (2), and other (1).

Remedial Actions

- Full circuit tree trimming is scheduled for the second half of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection of the line was completed in the first quarter of 2014. Nothing was found.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- In the second quarter of 2014, a section of old copper-weld wire will be re-conductored.
- In the second quarter of 2014, load break disconnect will be installed on a getaway riser pole to improve switching capability.

29 Circuit 63401 HONEYBROOK 34-01

Performance Analysis

The Honeybrook 34-01 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 690 customers for up to 3,641 minutes, resulting in 1,062,543 CMI.

In total, the Honeybrook 34-01 circuit had 12 outages between April 2013 and March 2014. The causes of these outages include: animal contacts (4), tree related (3), equipment failures (2), vehicle (1), other (1), and contact/dig-in (1).

Remedial Actions

- Full circuit tree trimming is scheduled for 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- Additional fusing opportunities will be investigated.

30 Circuit 14602 SOUTH WHITEHALL 46-02

Performance Analysis

In the past twelve months, the South Whitehall 46-02 has had two circuit breaker lockouts. In addition, there have been several small, isolated outages.

On November 01, 2013, a report of a pole fire caused the system operations to open the circuit breaker for safety reasons. No actual pole fire was found. The outage affected approximately 1,700 customers for up to 116 minutes, resulting in 197,872 CMI.

Also on November 01, 2013, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,700 customers for up to 260 minutes, resulting in 331,216 CMI.

On February 01, 2014, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 1,700 customers for up to 1,041 minutes, resulting in 531,583 CMI.

In total, the So Whitehall 46-02 circuit had 9 outages between April 2013 and March 2014. The causes of these outages include: nothing found (3), animal contacts (2), vehicle (1), tree related (1), equipment failure (1), and contact/dig-in (1).

Remedial Actions

- Six new Smart Grid Devices will be installed in 2014
- In early 2014, fuses were added for protection
- A new line and terminal out of Mickleys substation will go into service in 2016 and will transfer approximately 750 customers and improve sectionalizing, further reducing the risk of outages.

31 Circuit 46902, MONTGOMERY 69-2

Performance Analysis

On March 17, 2014 at 0600 the Montgomery Substation was taken out of service to maintain the 69kV source to the substation. The Montgomery 69-2 circuit was tied to the Montgomery 69-3 circuit and both circuits were transferred to the Watson 33-1 circuit.

On March 17, 2014, at 0720 a failed crimp caused a recloser to operate to lockout. This outage affected approximately 1,940 customers for up to 367 minutes, resulting in 574,536 CMI. Later in the day at 1540 another crimp failed and caused a recloser to operate to lockout. This outage affected approximately 2,710 customers for up to 245 minutes, resulting in 482,636. These two outages account for more than 99% of the total CMI over the past 12 months.

In total, the Montgomery 69-02 circuit had 4 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (3) and nothing found (1).

Remedial Actions

- Line patrols of the circuits were conducted and infrared imaging of potential hot spot areas was completed on March 18, 2014. Two potential problems were identified during the infrared inspection and were immediately repaired.
- All three circuits were returned to the normal configuration on March 22, 2014.
- A project has been developed to build a new substation at the Great Stream Commons Business Park. This project will provide additional transfer capacity in the area which will reduce the load on the Watson 33-01 when it is carrying the Montgomery 69-02 and Montgomery 69-03 circuits during substation maintenance at Montgomery. This project is planned for November 2017.

32 Circuit 22001 BOHEMIA 20-01

On July 30, 2013, a predicted momentary contact of the overhead primary conductor caused an upstream recloser to trip to lockout. Crews investigated the cause of the outage and found nothing in the affected area. The recloser was closed and did not trip back to lockout. The outage affected approximately 420 customers for up to 170 minutes, resulting in 71,024 CMI.

On December 06, 2013, the circuit breaker tripped to lockout. Crews investigated the line and could not find the cause of the outage. System operators closed the breaker and it did not trip

back to lockout. The outage affected approximately 2,360 customers for up to 154 minutes, resulting in 354,693 CMI.

On January 06, 2014, conductor to insulator tie broke on the overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 2,360 customers for up to 61 minutes, resulting in 144,588 CMI.

On February 06, 2014, an equipment failure occurred on the transmission line which caused the entire Bohemia Substation to be out. The outage affected approximately 2,360 customers for up to 106 minutes, resulting in 250,348 CMI.

In total, the Bohemia 20-01 circuit had 63 outages between April 2013 and March 2014. The causes of these outages include: animal contacts (28), equipment failures (14), nothing found (8), other (7), and tree related (6).

Remedial Actions

- In 2013, Vegetation Management trimmed the entire Bohemia 20-01 line in order to reduce tree related outages.
- In 2014, PPL Electric completed the construction of a new line out of the Bohemia substation. In 2014 approximately 779 customers will be transferred off of the Bohemia 20-01 line to the new line. This project will help improve sectionalizing capability and significantly reduce customer outage durations in the future.
- In 2018, Vegetation Management plans to trim the entire Bohemia 20-01 line in order to reduce tree related outages.

33 Circuit 66703 STRASBURG 67-03

Performance Analysis

The Strasburg 67-03 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. Five of the six outages were the result of this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 50 customers for up to 3,469 minutes, resulting in 176,884 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 180 customers for up to 753 minutes, resulting in 138,454 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 60 customers for up to 2,178 minutes, resulting in 126,282 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 60 customers for up to 2,002 minutes, resulting in 124,104 CMI.

On February 05, 2014, a tree made contact with a primary splices or connector and required a temporary sectionalizing open point to be opened for repairs. The outage affected approximately 80 customers for up to 1,442 minutes, resulting in 117,282 CMI.

On June 17, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 510 customers for up to 696 minutes, resulting in 110,146 CMI.

In total, the Strasburg 67-03 circuit had 40 outages between April 2013 and March 2014. The causes of these outages include: tree related (19), equipment failures (16), animal contacts (4), and nothing found (1).

Remedial Actions

- Full circuit tree trimming is scheduled for 2015, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- The circuit breaker for this line will be replaced in the fourth quarter of 2014.
- Installing a VCR in the third quarter of 2014 as part of the Reliability Preservation program.
- Additional sectionalizing devices on the two phase tap that experienced three outages are being investigated.

34 Circuit 67402 WAKEFIELD 74-02

Performance Analysis

The Wakefield 74-02 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 330 customers for up to 2,025 minutes, resulting in 666,060 CMI.

On September 21, 2013, an equipment failure occurred on an overhead switch and caused the circuit breaker to trip to lockout. The outage affected approximately 1,390 customers for up to 221 minutes, resulting in 156,448 CMI.

In total, the Wakefield 74-02 circuit had 32 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (17), tree related (6), vehicles (4), other (2), nothing found (2), and animal contact (1).

Remedial Actions

- Full circuit tree trimming is scheduled for 2015, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- The recloser that failed on September 21, 2013 has been replaced.
- Extending single phase along Kirks Mill Road and removing the inaccessible conductor is scheduled for the second quarter of 2014 as part of the reliability preservation program.
- Investigating the replacement of copperweld copper and small conductors on the circuit.

35 Circuit 60801 BUCK 08-01

Performance Analysis

The Buck 08-01 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. All four outages were the result of the February 5, 2014 ice storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 480 customers for up to 779 minutes, resulting in 371,540 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 280 customers for up to 1,997 minutes, resulting in 310,743 CMI.

On February 05, 2014, a tree made contact with an overhead pole arm or attachment and caused a tap fuse to operate. The outage affected approximately 60 customers for up to 1,997 minutes, resulting in 121,815 CMI.

On February 06, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 80 customers for up to 1,514 minutes, resulting in 91,452 CMI.

In total, the Buck 8-01 circuit had 18 outages between April 2013 and March 2014. The causes of these outages include: tree related (8), equipment failures (5), animal contacts (4), and vehicle (1).

Remedial Actions

- The circuit was last trimmed in 2012.
- Full circuit tree trimming is scheduled for 2016, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection of the line was completed in the first quarter of 2014. Nothing was found.

- Installing a fuse on a single phase tap near the substation as a result of the Expanded Operational Review in 2013.
- A tie to the Buck 08-03 line will be investigated.

36 Circuit 60502 NORTH MANHEIM 05-02

Performance Analysis

The North Manheim 05-02 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,950 customers for up to 458 minutes, resulting in 804,707 CMI.

In total, the North Manheim 5-02 circuit had 25 outages between April 2013 and March 2014. The causes of these outages include: tree related (11), equipment failures (9), animal contacts (3), vehicle (1), and nothing found (1).

Remedial Actions

- The circuit was last trimmed in 2012.
- Full circuit tree trimming is scheduled for 2016, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- In the third quarter of 2014, several poles with multiple vehicle hits will be relocated to less vulnerable locations.
- A CEMI project will be completed during the fourth quarter of 2014 to reduce the number of outages that have been experienced by customers along Mastersonville Road. This project will also provide a strong tie to reduce overall outage durations for over 1,000 customers that are on this line.
- A new Tie between the North Manheim 05-01 and 05-02 lines is scheduled for 2015.

37 Circuit 10602, BLOOMING GLEN 06-02

Performance Analysis

In the past twelve months, the Blooming Glen 6-02 has had one large outage. On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 360 customers for up to 2,305 minutes, resulting in 797,761 CMI. In addition, there have been several small, isolated outages.

In total, the Blooming Glen 6-02 circuit had 36 outages between April 2013 and March 2014. The causes of these outages include: tree related (12), animal contacts (12), equipment failures (11), and other (1).

Remedial Actions

- The Blooming Glen 06-02 is located in the Buxmont area and will receive Smart Grid radio upgrades this year to its existing telemetric reclosers and switches.
- Fuses will be added to three single phase taps.
- Load balancing and animal guarding are being investigated.

38 Circuit 46702, RENOVO 67-02

Performance Analysis

On May 22, 2013 the North Bend Tap Recloser operated to lock out when trees outside the right of way fell on conductors during a period of thunder and lightning affecting 670 customers for up to 1,155 minutes, resulting in 306,052 CMI.

On April 10, 2013 during heavy thunderstorm activity there were four separate cases of trouble on this circuit that affected approximately 200 customers for up to 1,729 minutes, resulting in 268,429 CMI.

On June 13, 2013 the North Bend Tap Recloser operated to lock out when trees outside the right of way fell on conductors during a period of thunder and lightning affecting 670 customers for up to 236 minutes, resulting in 158,339 CMI.

In total, the Renovo 67-02 circuit had 31 outages between April 2013 and March 2014. The causes of these outages include: tree related (20), equipment failures (5), animal contacts (4), other (1), and nothing found (1).

Remedial Actions

- The Renovo 67-02 was last trimmed in 2013.
- An Expanded Operational Review of this circuit was completed in 2013.
- Under the circuit SAIFI initiative, 17 slot fuses were installed in 2013.
- Additional slot fusing was installed at six locations. This work was completed in 2013.
- As part of the 2014 Smart Grid Program two remotely operable sectionalizing switches will be installed and a normally open tie switch will be upgraded to a remotely operable switch.
- Part 3 of the Young Woman's Creek CEMI project to rebuild 2.5 miles of 1-phase #2 ACSR conductor with #1/0 ACSR XLP protected by a static overhead wire and relocate two inaccessible spans. This CEMI project is scheduled for 2014.
- A work order has been initiated to rebuild a section of three phase along Renovo Rd. This project will relocate a section of the line to reduce the exposure to trees and add sectionalizing devices. This work is scheduled for 2015.
- A work order has been initiated to rebuild 0.7 miles of two phase along Route 120. This work is scheduled for 2015.

39 Circuit 64202 KINZER 42-02

Performance Analysis

The Kinzer 42-02 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. All four outages were the result of this ice storm.

On February 05, 2014, a tree made contact with an overhead pole arm or attachment and caused a recloser to trip to lockout. The outage affected approximately 90 customers for up to 3,313 minutes, resulting in 294,780 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 130 customers for up to 948 minutes, resulting in 123,194 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 30 customers for up to 4,587 minutes, resulting in 116,817 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 30 customers for up to 3,351 minutes, resulting in 110,551 CMI.

In total, the Kinzer 42-02 circuit had 39 outages between April 2013 and March 2014. The causes of these outages include: tree related (22), equipment failures (8), animal contacts (4), vehicles (2), nothing found (2), and other (1).

Remedial Actions

- The circuit was last trimmed in 2013, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Full circuit tree trimming is scheduled for 2017, which will be performed utilizing the new trimming specifications.
- One hundred fifteen hazard trees were identified during the 2013 tree trimming and removed. Approximately 80 additional hazard trees were identified and will be removed in the second quarter of 2014.
- Existing sectionalizing and tie devices will be automated in 2016 as part of the Smart Grid program.
- Animal Guards are being installed on the Kinzer substation in 2014.
- The 69 kV air break on the Kinzer substation is being replaced in 2014.
- A new substation is being investigated to split up the customers being fed from this line.

40 Circuit 44301, BEAVERTOWN 43-01

Performance Analysis

On July 07, 2013, a tree made contact with the Sunbury – Middleburg 69kV transmission line and caused the circuit breaker to trip to lockout. This outage affected approximately 2,140 customers for up to 307 minutes, resulting in 656,587 CMI. This outage accounted for more than 75% of the total CMI over the past 12 months.

In total, the Beavertown 43-01 circuit had 43 outages between April 2013 and March 2014. The causes of these outages include: tree related (17), equipment failures (12), animal contacts (7), nothing found (3), vehicles (2), and contact/dig-ins (2).

Remedial Actions

- SCADA was installed at the Beavertown substation in June 2013.
- In January 2014 select trouble areas on this circuit were trimmed and hazard trees were removed.
- The Sunbury – Middleburg 69kV transmission line is scheduled to be trimmed in 2014.
- Work was initiated to build 900 feet of new single phase along Ettinger Rd so that inaccessible line can be removed. This work is scheduled for 2014.
- As part of the Circuit SAIDI initiative a new remotely operable sectionalizing switch was installed. This work was completed on February 26, 2014.
- As part of the Circuit SAIDI initiative an existing recloser, sectionalizing switch, and normally open tie switch will be upgraded to remotely operable devices. This work is scheduled for 2015.
- As part of the 2015 Smart Grid Program two reclosers will be upgraded to remotely operable reclosers.

41 Circuit 45001, LIMESTONE 50-01

Performance Analysis

On March 26, 2014, a snow plow truck struck a pole and the pole fell on the truck and entrapped the operator. The circuit breaker was intentionally de-energized to remove the entrapped operator of the truck and to replace the pole. The outage affected approximately 1,820 customers for up to 688 minutes, resulting in 445,065 CMI.

On May 22, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 120 customers for up to 1,050 minutes, resulting in 95,193 CMI.

On October 26, 2013, an equipment failure occurred on an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 290 customers for up to 321 minutes, resulting in 91,906 CMI.

In total, the Limestone 50-01 circuit had 37 outages between April 2013 and March 2014. The causes of these outages include: tree related (15), equipment failures (14), vehicles (3), other (3), nothing found (1), and animal contact (1).

Remedial Actions

- The normally open switch that ties the Limestone 50-01 to the Laurelton 10-01 was upgraded to a remotely operable switch. This work was completed on March 5, 2014.
- The Limestone 50-01 is scheduled to be trimmed in 2014.
- Hot spot trimming was completed and hazard trees were removed downstream of the Wildwood Tap Fuse. This work was completed in July 2013.
- Under the Circuit SAIDI initiative two existing sectionalizing switches will be upgraded to remotely operable sectionalizing switches. A new remotely operable recloser will also be installed. This work is scheduled for 2015.
- As part of the 2015 Smart Grid Program a new remotely operable switch will be added and an existing recloser will be upgraded to a remotely operable recloser.
- Work has been initiated to rebuild 0.5 miles of 1-phase downstream of the Graybill tap recloser to 2-phase. The project will relocate a several spans of conductor to along the road, replace several spans of #6 copper weld conductor, and install two single phase reclosers to protect the tap that serves 284 customers. The new line will be constructed with 1/0 ACSR. In areas with trees and limited right of way, 1/0 ACSR XLP (tree wire) will be used.
- Work has been initiated to install a new remotely operable recloser. This work is scheduled to be completed by December 2015.
- Work has been initiated to remove inaccessible line and to relocate along Walnut Acres Rd and Wildwood Rd. This work is scheduled for to be completed by December 2015.
- Under the Circuit SAIDI initiative, an existing recloser will be upgraded to a remotely operable recloser. This work is scheduled for 2016.

42 Circuit 64201 KINZER 42-01

Performance Analysis

The Kinzer 42-01 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 310, resulting in 509,443 CMI.

In total, the Kinzer 42-01 circuit had 41 outages between April 2013 and March 2014. The causes of these outages include: tree related (16), equipment failures (15), vehicles (5), animal contacts (3), other (1), and nothing found (1).

Remedial Actions

- Full circuit tree trimming is scheduled for the fourth quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- Animal Guards are being installed on the Kinzer substation in 2014.
- The 69 kV air break on the Kinzer substation is being replaced in 2014.

43 Circuit 53602, DALMATIA 36-02

Performance Analysis

Two outages significantly affected this circuit's reliability in the past four quarters. Tree related interruptions were the most common outage cause.

On June 27, 2013, the Sunbury-Dauphin 69kV circuit tripped to lockout at the due to a broken transmission pole caused by a tree from outside the right of way falling on a guy wire. This outage affected approximately 13,100 customers at Dalmatia, Elizabethville, Lykens, Gratz, and Williamstown substations. Approximately 2,355 customers on the Dalmatia 36-02 were interrupted for up to 447 minutes, resulting in 380,496 CMI.

On April 10, 2013, an equipment failure occurred on an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 390 customers for up to 356 minutes, resulting in 82,576 CMI.

In total, the Dalmatia 36-02 circuit had 57 outages between April 2013 and March 2014. The causes of these outages include: tree related (26), equipment failures (20), nothing found (4), other (3), animal contacts (3), and vehicle (1).

Remedial Actions

- Additional radio communication is scheduled to be added to a recloser and normally open air break in 2014. This will allow remote operator controlled switching for approximately 200 customers.
- The Dalmatia 36-02 circuit is scheduled to be trimmed in the third quarter of 2014 as part of its vegetation management cycle.
- The Dalmatia to Dauphin section of the Sunbury-Dauphin 69 kV circuit was recently trimmed in early 2014.
- The Sunbury-Dauphin and Dauphin-Pine Grove 69 kV circuits are scheduled to have remote operator controlled switches installed in 2014. The switches will allow operators to quickly sectionalize and limit the impact of any outage.
- 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. If a successful resolution can be reached, the new substation will be scheduled for completion in 2016.

- Three phase voltage regulators were installed on the adjacent PENS 74-01 circuit in 2013. The regulators allow for additional customers to be transferred in the event of an outage.
- Additional fusing was installed in two locations during September 2013 in order to reduce customer exposure.

44 Circuit 53601, DALMATIA 36-01

Performance Analysis

Three major outages significantly affected this circuit's reliability in the past four quarters. Tree related interruptions were the most common outage cause.

On June 27, 2013, the Sunbury-Dauphin 69kV circuit tripped to lockout at the due to a broken transmission pole caused by a tree from outside the right of way falling on a guy wire. This outage affected approximately 13,100 customers at Dalmatia, Elizabethville, Lykens, Gratz, and Williamstown substations. Approximately 1,200 customers on the Dalmatia 36-01 were interrupted for up to 447 minutes, resulting in 444,278 CMI.

On November 02, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 360 customers for up to 386 minutes, resulting in 137,921 CMI.

On July 12, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 360 customers for up to 561 minutes, resulting in 105,344 CMI.

In total, the Dalmatia 36-01 circuit had 34 outages between April 2013 and March 2014. The causes of these outages include: tree related (15), equipment failures (10), animal contacts (5), nothing found (2), vehicle (1), and other (1).

Remedial Actions

- The Sunbury-Dauphin and Dauphin-Pine Grove 69 kV circuits are scheduled to have remote operator controlled switches installed in 2014. The switches will allow operators to quickly sectionalize and limit the impact of any outage.
- The Dalmatia 36-01 circuit is scheduled to be trimmed in 2015 as part of its vegetation management cycle.
- The Dalmatia to Dauphin section of the Sunbury-Dauphin 69 kV circuit was recently trimmed in early 2014.
- Spot trimming along a high CEMI customer tap was completed in late September 2013.
- Additional single phase fusing was installed on a problematic tap in June 2013.
- A failed recloser was replaced in early 2013.

45 Circuit 21702 SUBURBAN 17-02

Performance Analysis

On September 14, 2013, an equipment failure occurred on an overhead primary conductor and caused the Suburban 17-02 circuit breaker to trip to lockout. The outage affected approximately 3,350 customers for up to 425 minutes, resulting in 787,023 CMI.

In total, the Suburban 17-02 circuit had 12 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (5), tree related (3), animal contacts (2), other (1), and nothing found (1).

Remedial Actions:

- In November 2013, PPL Electric re-phased a section of existing three-phase conductor to single-phase with fusing in order to minimize the number of customers affected by an outage like the one that occurred on September 14, 2013.
- In December 2013, the Suburban 17-02 to Providence 42-02 tie switch was automated. The automation will allow for improved sectionalizing capability and reduced outage durations in the future.
- In 2014, PPL Electric will be conducting an expanded operational review (EOR) on the entire Suburban 17-02 line in order to identify circuit improvements to reduce the potential for future outages.
- In 2014, a midline recloser will be replaced with automated recloser as part of the Smart Grid project plan. The device automation is anticipated to significantly reduce outage exposure to customers and future outage durations.
- In 2015, a manual midline switch will be replaced, and the Suburban 17-02 to Providence 42-06 manual tie switch will be replaced, both with automated switches as part of the Smart Grid project plan. The device automation will improve sectionalizing capabilities and reduce future outage durations on the circuit.
- In 2015, a new midline automated recloser will be installed in order to further improve sectionalizing capability and reduce outage exposure to customers on the Suburban 17-02 line.
- In 2016, Vegetation Management plans to trim the entire Suburban 17-02 circuit in order to reduce future tree related outages.

46 Circuit 60701 BRECKNOCK 07-01

Performance Analysis

The Brecknock 07-01 circuit experienced the following major outage which strongly influenced the current ranking of this circuit on the WPC list. This one outage was the result of the February 5, 2014 ice storm.

On February 05, 2014, a vehicle pole hit caused the circuit breaker to trip to lockout. The outage affected approximately 2,170 customers for up to 2,948 minutes, resulting in 755,482 CMI.

In total, the Brecknock 7-01 circuit had 20 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (6), vehicles (4), tree related (4), other (2), nothing found (2), and animal contacts (2).

Remedial Actions

- The circuit was last trimmed in 2010.
- Full circuit tree trimming is scheduled for 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- Investigating 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.
- Investigating an additional sectionalizing device on the three phase tap where the vehicle hit occurred.

47 Circuit 61801 EAST ELIZABETHTOWN 18-01

Performance Analysis

The East Elizabethtown 18-01 circuit experienced the following major outages which strongly influenced the current ranking of this circuit on the WPC list. Both of the outages were the result of the February 5, 2014 ice storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 580 customers for up to 542 minutes, resulting in 316,062 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and required a temporary sectionalizing open point to be opened for repairs. The outage affected approximately 360 customers for up to 432 minutes, resulting in 155,434 CMI.

In total, the E Elizabethtown 18-01 circuit had 37 outages between April 2013 and March 2014. The causes of these outages include: tree related (15), equipment failures (11), animal contacts (5), nothing found (3), other (2), and vehicle (1).

Remedial Actions

- The circuit was last trimmed in 2010.
- Full circuit tree trimming is scheduled for the fourth quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.

- Investigating potential ties to adjacent circuits in order to reduce outage durations.

48 Circuit 66203 SILVER SPRING 62-03

Performance Analysis

The Silver Spring 62-03 circuit experienced the following major outage which strongly influenced the current ranking of this circuit on the WPC list. This one outage was the result of the February 5, 2014 ice storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 980 customers for up to 1,666 minutes, resulting in 703,443 CMI.

In total, the Silver Spring 62-03 circuit had 11 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (3), tree related (2), other (2), animal contacts (2), vehicle (1), and nothing found (1).

Remedial Actions

- The circuit was last trimmed in 2012.
- Full circuit tree trimming is scheduled for 2016, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Investigating a remotely operable switch between the midline recloser and the normally open device in order to better sectionalize customers in the case of an outage.

49 Circuit 24901 WHITE HAVEN 49-01

Performance Analysis

On September 12, 2013, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 2,400 customers for up to 112 minutes, resulting in 197,200 CMI.

On May 24, 2013, an equipment failure occurred on an overhead transformer and caused a recloser to trip to lockout. The outage affected approximately 380 customers for up to 405 minutes, resulting in 149,270 CMI.

On December 02, 2013, a tree made contact with an overhead primary conductor and caused multiple devices to operate. The outage affected approximately 610 customers for up to 279 minutes, resulting in 124,546 CMI.

On July 05, 2013, an equipment failure occurred on an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 450 customers for up to 251 minutes, resulting in 111,011 CMI.

In total, the White Haven 49-01 circuit had 41 outages between April 2013 and March 2014. The causes of these outages include: nothing found (11), equipment failures (11), tree related (9), animal contacts (7), and other (3).

Remedial Actions

- A line inspection was performed on the circuit in July 2013. As a result 8 work orders were initiated and completed at the end of 2013. These work orders replaced equipment that was identified as potential problems.
- A new remotely operable switch was installed in the 2013. This will help to sectionalize and restore over 1,500 customers in the case of a breaker outage.
- A new line and terminal is being investigated to split the customer count on the White Haven 49-1. This will help reduce the customers affected by a circuit breaker outage.

50 Circuit 60301 TWIN VALLEY 03-01

Performance Analysis

The Twin Valley 03-01 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. All three outages were the result of this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 250 customers for up to 4,858 minutes, resulting in 339,889 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 100 customers for up to 2,285 minutes, resulting in 156,168 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 30 customers for up to 3,207 minutes, resulting in 89,781 CMI.

In total, the Twin Valley 3-01 circuit had 22 outages between April 2013 and March 2014. The causes of these outages include: tree related (11), equipment failures (6), animal contacts (4), and nothing found (1).

Remedial Actions

- The circuit was last trimmed in 2013, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Full circuit tree trimming is scheduled for 2017, which will be completed utilizing the new trimming specification.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.

- A second transmission line that will supply the Twin Valley substation is currently under construction with an expected completion date of mid-2015.
- The Twin Valley substation will be converted to a type Double AA in mid-2015. This will improve the overall reliability of the six circuits fed from for the substation.
- Further investigation of the Twin Valley 03-01 and the surrounding circuits will be performed to balance load and improve reliability in the area.

51 Circuit 57304, MOUNT ALLEN 73-04

Performance Analysis

A single circuit breaker outage significantly affected this circuit's reliability in the past four quarters. Tree related interruptions were the most common outage cause.

On February 05, 2014, an equipment failure occurred on an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,550 customers for up to 566 minutes, resulting in 694,483 CMI. Troubleshooting time was extended due to two protective devices being bypassed for replacement. Restoration times were delayed due to a widespread ice storm that affected the area.

In total, the Mount Allen 73-04 circuit had 20 outages between April 2013 and March 2014. The causes of these outages include: tree related (11), equipment failures (4), animal contacts (4), and vehicle (1).

Remedial Actions

- The Mount Allen 73-04 circuit is scheduled to be trimmed in 2014 as part of its vegetation management cycle.
- Two reclosers were upgraded to include remote operator control in early 2014. The devices were out of service awaiting programing during the February 5th outage. Troubleshooting crews initially believed the devices were in service and did not see the fault, lengthening the time it took to find the trouble location. Had the devices been in service, the outage would have been limited to less than 500 customers. Crews would have been able to more quickly locate and repair the trouble location as well.
- An existing sectionalizing device will be upgraded in 2015 as part of the Smart Grid initiative. This will allow for the remote transfer of approximately half the customers to an adjacent circuit.

52 Circuit 57505, LAWNTON 75-05

Performance Analysis

Two outages significantly affected this circuit's reliability in the past four quarters. Tree related interruptions were the most common outage cause.

On July 19, 2013, a tree made contact with an overhead primary conductor during a storm and caused the circuit breaker to trip to lockout. The outage affected approximately 2,890 customers for up to 280 minutes, resulting in 386,225 CMI.

On December 20, 2013, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 550 customers for up to 561 minutes, resulting in 307,198 CMI.

In total, the Lawnton 75-05 circuit had 33 outages between April 2013 and March 2014. The causes of these outages include: tree related (12), equipment failures (12), vehicles (3), nothing found (3), animal contacts (2), and other (1).

Remedial Actions

- Three existing sectionalizing and tie devices will be upgraded in 2014 as part of the Smart Grid initiative.
- Loops are scheduled to be installed in June 2014 near the pole hit by the vehicle last December. The loops will allow for quicker sectionalizing and restoration during outages.
- A thermography inspection was completed on the overhead 2 and 3 phase sections of the circuit in March 2013. A minor connector repair was made.
- Additional fusing was installed at one location during September 2013 in order to reduce customer exposure.
- The Lawnton 75-05 was last trimmed in 2012 as part of its vegetation management cycle.

53 Circuit 22905 HARWOOD 29-05

Performance Analysis

On June 09, 2013, an improper design caused the circuit breaker to trip to lockout. The outage affected approximately 4,160 customers for up to 166 minutes, resulting in 688,940 CMI.

In total, the Harwood 29-05 circuit had 23 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (16), other (3), nothing found (2), tree related (1), and improper design (1).

Remedial Actions

- A full circuit tree trim was completed in February of 2013.
- Three remotely operable sectionalizing devices were installed in 2013 under the Circuit SAIDI program.
- A line maintenance inspection was completed in August of 2013. Two work orders were created for the findings, and these findings will be completed in 2014.
- Twelve new single phase reclosers, two fuse locations, two new three phase vacuum reclosers, and a three phase recloser upgrade were identified under the expanded operational review.

- A failed transformer serving 40 customers was replaced and the secondary upgraded to mitigate a recurring outage.
- Four remotely operable sectionalizing devices will be installed under the 2014 Smart Grid program.
- Four remotely operable midline devices will be installed on this circuit under the Smart Grid 2015 program.
- A project is under review to install two new line and terminals out of the nearby Harleigh Substation. This will reduce customer exposure to the customers served in the downtown Hazleton area and customers served off this circuit.

54 Circuit 62102 EAST LANCASTER 21-02

Performance Analysis

The East Lancaster 21-02 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead pole arm or attachment and caused the circuit breaker to trip to lockout. The outage affected approximately 2,270 customers for up to 305 minutes, resulting in 671,465 CMI.

In total, the East Lancaster 21-02 circuit had 19 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (9), tree related (7), vehicles (2), and animal contact (1).

Remedial Actions

- The circuit was last trimmed in 2012.
- Full circuit tree trimming is scheduled for 2016, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection was completed in the first quarter of 2014. Nothing was found.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program. The new VCR being installed will be upstream of the existing recloser.
- Animal guards were installed in the first quarter of 2014 on several sections of line that will mitigate future animal related outages.

55 Circuit 12505, Minsi Trail 25-05

Performance Analysis

In the past twelve months, the Minsi Trail 25-02 has had one circuit breaker lockout and one additional large outage. In addition, there have been several small, isolated outages which have contributed to the circuits poor CPI.

On April 05, 2013, an equipment failure occurred on an overhead switch and caused a recloser to trip to lockout. The outage affected approximately 1,270 customers for up to 212 minutes, resulting in 233,759 CMI.

On November 21, 2013, a vehicle pole hit caused the circuit breaker to trip to lockout. The outage affected approximately 3,170 customers for up to 579 minutes, resulting in 354,432 CMI.

In total, the Minsi Trail 25-05 circuit had 32 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (16), animal contacts (8), tree related (8), vehicles (1), and nothing found (1).

Remedial Actions

- Installing new reclosing devices to split the line into approximately 500 customer blocks to limit the effect and duration of outages in 2015.
- Investigating a circuit tie to the Minsi Trail 25-02.
- Investigating building a new line and terminal to reduce customer count.

56 Circuit 65804 ROHRERSTOWN 58-04

Performance Analysis

The Rohrerstown 58-04 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead pole arm or attachment and caused the circuit breaker to trip to lockout. The outage affected approximately 880 customers for up to 576 minutes, resulting in 508,032 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 130 customers for up to 1,584 minutes, resulting in 199,530 CMI.

In total, the Rohrerstown 58-04 circuit had 9 outages between April 2013 and March 2014. The causes of these outages include: tree related (6), and equipment failures (3).

Remedial Actions

- Full circuit tree trimming was completed at the end of the first quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections. Additional hazard trees will be removed by the end of the second quarter of 2014.
- An infrared inspection of the line was completed in the first quarter of 2014. Nothing was found.
- Investigating the automation of the manually operable normally open tie to the McGovernville 63-01 in 2015.

- Investigating the automation of a manually operable sectionalizing device in 2015.

57 Circuit 67503 WEST WILLOW 75-03

Performance Analysis

The West Willow 75-03 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. Both of the outages listed were the result this storm.

On February 05, 2014, a tree made contact an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 50 customers for up to 3,916 minutes, resulting in 191,842 CMI.

On February 05, 2014, a tree made contact with a tap fuse and caused a tap fuse to operate. The outage affected approximately 110 customers for up to 1,443 minutes, resulting in 154,379 CMI.

In total, the West Willow 75-03 circuit had 40 outages between April 2013 and March 2014. The causes of these outages include: tree related (17), equipment failures (15), vehicles (4), other (2), nothing found (1), and animal contact (1).

Remedial Actions

- The circuit was last trimmed in 2013, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Full circuit tree trimming is scheduled for 2017, which will be completed utilizing the new trimming specifications.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- Additional fusing will be investigated downstream of the single phase recloser that operated during the ice storm.
- Investigating the opportunity to reconfigure the inaccessible single phase section of line downstream from the recloser that operated during the ice storm.

58 Circuit 41801 GOWEN CITY 18-01

Performance Analysis

On March 30, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 410 customers for up to 2,629 minutes, resulting in 621,358 CMI.

In total, the Gowen City 18-01 circuit had 23 outages between April 2013 and March 2014. The causes of these outages include: tree related (7), equipment failures (6), animal contacts (4), nothing found (3), vehicles (2), and other (1).

Remedial Actions

- The entire Gowen City 18-01 was patrolled and studied under an expanded operational review in 2013. Seven work orders were created in response to reviews. These work orders will be installing eight new fuse locations, performing maintenance on six pole locations, and replacing failed sectionalizing at one location.
- A full circuit tree trim will be completed in 2015.
- In 2015 a recloser will be relocated to better divide the customers between protective devices.
- A project to tie the Gowen City 18-1 to the Gratz 33-2 is being evaluated. This project would reduce the number of radial customers on the Gowen City 18-1 and improve outage restoration.

59 Circuit 67804 WEST LANCASTER 78-04

Performance Analysis

The West Lancaster 78-04 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,960 customers for up to 147 minutes, resulting in 287,072 CMI.

In total, the West Lancaster 78-04 circuit had 15 outages between April 2013 and March 2014. The causes of these outages include: tree related (9), equipment failures (3), other (2), and animal contact (1).

Remedial Actions

- The circuit was last trimmed in 2013, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Full circuit tree trimming is scheduled for 2017, which will be completed utilizing the new trimming specifications.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- Investigating the opportunity to reconductor portions of 2/0 copper on the line.

60 Circuit 64401 LANDISVILLE 44-01

Performance Analysis

The Landisville 44-01 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, an equipment failure occurred on an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 910 customers for up to 3,477 minutes, resulting in 664,770 CMI.

In total, the Landisville 44-01 circuit had 13 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (4), animal contacts (4), tree related (3), other (1), and nothing found (1).

Remedial Actions

- The circuit was last trimmed in 2011.
- Full circuit tree trimming is scheduled for 2015, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection was completed in the first quarter of 2014. Nothing was found.
- Investigating an opportunity to automate a manually operated sectionalizing device and a manually operated normally open tie in 2015.

61 Circuit 63801 HEMPFIELD 38-01

Performance Analysis

The Hempfield 38-01 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with the substation circuit breaker and caused the circuit breaker to trip to lockout. The outage affected approximately 1,450 customers for up to 433 minutes, resulting in 590,293 CMI.

In total, the Hempfield 38-01 circuit had 22 outages between April 2013 and March 2014. The causes of these outages include: tree related (9), equipment failures (7), vehicles (4), other (1), and nothing found (1).

Remedial Actions

- The circuit was last trimmed in 2013, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Full circuit tree trimming is scheduled for 2017, which will be completed utilizing the new trimming specifications.
- An infrared inspection of the line was completed in the first quarter of 2014. Nothing was found.
- New and existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- In 2015, a section of copper wire along Manor Street will be re-conductored.

62 Circuit 15406, West Allentown 54-06

Performance Analysis

In the past twelve months, there have been two circuit breaker lockouts on the West Allentown 54-06 that affected all 1,970 customers. Additionally, several smaller, more isolated outages have contributed to the circuits poor CPI.

On July 30, 2013, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 540 customers for up to 157 minutes, resulting in 79,639 CMI.

On September 03, 2013, phase conductors contacted each other due to a loose slack span causing the circuit breaker to trip to lockout. The outage affected approximately 1,970 customers for up to 1,149 minutes, resulting in 418,231 CMI.

On December 06, 2013, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,520 customers for up to 41 minutes, resulting in 61,266 CMI.

In total, the West Allentown 54-06 circuit had 22 outages between April 2013 and March 2014. The causes of these outages include: vehicles (4), equipment failures (8), tree related (3), animal contacts (4), other (1), and nothing found (1).

Remedial Actions

- There are plans to install two new Smart Grid reclosers and one new Smart Grid normally open switch on this circuit.
- Fault indicators were recently installed on this circuit.
- Comprehensive trimming was performed in 2013.
- A loose slack span was recently corrected.
- A three phase tie to Crackersport 05-01 will be constructed in late 2016.
- A three phase tie to Trexlertown 47-02 will be constructed in late 2015.

63 Circuit 60605 NORTH COLUMBIA 06-05

Performance Analysis

The North Columbia 06-05 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. Both of the following outages were the result of this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 210 customers for up to 4,930 minutes, resulting in 420,526 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and required a temporary sectionalizing open point to be opened for repairs. The outage affected approximately 40 customers for up to 3,669 minutes, resulting in 135,732 CMI.

In total, the North Columbia 6-05 circuit had 18 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (7), tree related (6), vehicles (2), nothing found (2), and other (1).

Remedial Actions

- The circuit was last trimmed in 2013, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- Full circuit tree trimming is scheduled for 2017, which will be completed utilizing the new trimming specifications.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- Investigating the opportunity to add a sectionalizing device on a three phase tap to reduce the number of customers affected by future outages.

64 Circuit 28301 NEWFOUNDLAND 83-01

On May 22, 2013 a tree from outside PPL's right of way came in contact with the overhead primary conductor causing the upstream midline recloser to trip to lockout. The outage affected a maximum of 2,635 customers up to 86 minutes. The outage contributed 177,872 to the circuit's total CMI.

On November 18, 2013, two trees came in contact with the overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 2,390 customers for up to 627 minutes, resulting in 196,245 CMI.

In total, the Newfoundland 83-01 circuit had 58 outages between April 2013 and March 2014. The causes of these outages include: tree related (37), equipment failures (9), animal contacts (7), nothing found (4), and other (1).

Remedial Actions

- In 2012, Vegetation Management trimmed the entire Newfoundland 83-01 circuit in order to reduce tree related outages in the future. Tree related outage have significantly reduced in the past several months since the trimming was complete.
- In June 2013, PPL Electric finished construction of the new Ledgedale Substation. This project transferred approximately 700 PPL customers off the Newfoundland 83-01 circuit.
- In 2013, Vegetation Management spot trimmed a total of two miles of single phase conductor in order to reduce tree related outages in line sections that historically had numerous tree contacts.

- In 2014, the Hamlin 87-01 to Newfoundland 83-01 manual tie switch will be replaced with an automated switch as part of its smart grid project plan. This automated device is anticipated to significantly reduce future outage durations and improve sectionalizing capabilities.
- In 2014, a single phase line relocation will improve reliability for approximately sixty CEMI 6 customers on the circuit.
- In 2015, an existing midline sectionalizer will be replaced with a new automated recloser in order to significantly reduce future outage exposure and durations.
- In 2015, a new automated sectionalizing device will be added to reduce outage exposure for approximately 900 customers on the Newfoundland 83-01 line.
- In 2017, Vegetation Management plans to trim the entire Newfoundland 83-01 circuit in order to reduce future tree related outages.

65 Circuit 63501, HEIDELBERG 35-01

Performance Analysis

The circuit experienced the following two major outages which strongly influenced the current ranking of this circuit on the WPC list.

On February 19, 2013, the circuit breaker tripped to lockout. No cause for the interruption was found. The outage affected approximately 1,893 customers for up to 71 minutes, resulting in 114,742 CMI.

On June 25, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 230 customers for up to 545 minutes, resulting in 101,851 CMI.

In total, the Heidelberg 35-01 circuit had 61 outages between January 2013 and December 2013. The causes of these outages include: equipment failures (23), tree related (16), animal contacts (10), contact/dig-ins (5), vehicles (3), nothing found (3), and other (1).

Remedial Actions

- The circuit was last trimmed in mid-2013. 50 hazard trees were identified and removed during the tree trimming.
- Full circuit tree trimming is scheduled for 2017.
- SCADA was installed on the Heidelberg Substation in 2013.
- A thermography inspection on the overhead two and three phase sections of the circuit was completed in February 2013. Several minor issues were found and these were all completed at the end of 2013.
- An Expanded Operational Review on the circuit will be completed in the early part of 2014.
- Line patrols were initiated after the last two momentary outages. Nothing was found as a result of the inspections.

- A new circuit will be extended out of the substation in 2016. This new circuit will split the existing 35-1 line in half. This will lower the customer count and circuit mileage of the line. This will help minimize the number of customers affected by an outage and improve the overall reliability of the circuit.
- A project will be completed in late 2014 that will sectionalize a long single phase tap that has experienced multiple outages. A second phase will be added along Springhaven Road that will be used to sectionalize the customers along the Netzley tap. This will greatly improve the reliability for the 230 customers on this section of line.
- Existing sectionalizing and tie devices will be automated in 2014 as part of the Smart Grid program.
- All three substation transformers are scheduled to be replaced in 2016 as part of PPL Electric's Asset Optimization Strategy.
- Due to the large number of equipment failures on the line, an investigation will be performed in order to determine the causes of equipment failures and remedial actions.
- A review of a project to strengthen the tie to Lavino will be performed.
- A review of a project to create a tie to the North Manheim 05-01 will be performed.

66 Circuit 11203, ELLIOTT HEIGHTS 12-03

Performance Analysis

During the past twelve months the Elliott Heights 12-03 circuit breaker has tripped to lockout three times interrupting all 1,740 customers. The circuit has also experienced several small outages as well, which have contributed to the poor CPI.

On July 20, 2013, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,740 customers for up to 171 minutes, resulting in 297,540 CMI.

On August 07, 2013, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,740 customers for up to 126 minutes, resulting in 57,367 CMI.

On November 05, 2013, Mylar balloons became entangled in the 12kV line causing the circuit breaker to trip to lockout. The outage affected approximately 1,750 customers for up to 148 minutes, resulting in 229,170 CMI.

In total, the Elliott Heights 12-03 circuit had 13 outages between April 2013 and March 2014. The causes of these outages include: tree related (6), equipment failures (2), animal contacts (3), vehicles (1), and nothing found (1).

Remedial Actions

- After the completion of Fountain Hill substation in June, 2014, the section of the line south of the river will be transferred to the Elliott Heights 12-04.

- There are plans to install two new Smart Grid reclosing devices to split the line into approximately 500 customer blocks to limit the effect and duration of outages in mid-2014.
- Comprehensive tree trimming was completed in January 2014.
- A circuit tie will be constructed between Elliott Height 12-03 and East Allentown 42-04 in 2015.
- Reconductoring of inaccessible portion of line to the road is scheduled for 2016
- A substation rebuild will be completed by mid-2015

67 Circuit 63803 HEMPFIELD 38-03

Performance Analysis

The Hempfield 38-03 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 260 customers for up to 4,646 minutes, resulting in 466,766 CMI.

In total, the Hempfield 38-03 circuit had 20 outages between April 2013 and March 2014. The causes of these outages include: tree related (11), equipment failures (3), vehicles (2), nothing found (2), contact/dig-in (1), and animal contact (1).

Remedial Actions

- The circuit was last trimmed in 2010.
- Full circuit tree trimming is scheduled for the third quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection of the circuit was completed in the first quarter of 2014. Nothing was found.
- Investigating the installation of an automated sectionalizing device in the section between the substation and the first recloser. There are over 1,000 customers served from this section.

68 Circuit 22901 HARWOOD 29-01

Performance Analysis

On June 09, 2013, an improper design caused the circuit breaker to trip to lockout. The outage affected approximately 2,390 customers for up to 206 minutes, resulting in 492,494 CMI.

In total, the Harwood 29-01 circuit had 8 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (4), tree related (1), other (1), improper design (1), and animal contact (1).

Remedial Actions

- A full circuit tree trim was completed in April of 2014.
- An expanded operational review and line patrol will be completed in the second quarter of 2014.
- A CEMI project was completed in August of 2013 to transfer 12 CEMI customers to a more reliable section of the Harwood 29-01 circuit.
- A project to tie the Harwood 29-1 to the East Hazleton 41-1 is scheduled for 2015. This will increase the sectionalizing capability of the Harwood 29-1 and improve outage restoration. This project will be completed in 2015.
- Two remotely operable midline devices will be installed on this circuit under the Smart Grid 2015 program.
- A project is being evaluated to tie the Harwood 29-01 to the Tamanend 3-01. This will decrease the number of radial customers and improve the sectionalizing capability and outage restoration of the Harwood 29-01.

69 Circuit 40201 BEAR GAP 02-01

Performance Analysis

On March 30, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 80 customers for up to 2,970 minutes, resulting in 182,094 CMI.

On March 30, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 100 customers for up to 1,578 minutes, resulting in 111,822 CMI.

In total, the Bear Gap 2-01 circuit had 49 outages between April 2013 and March 2014. The causes of these outages include: tree related (24), equipment failures (11), animal contacts (8), nothing found (4), and vehicles (2).

Remedial Actions

- A project was completed in 2013 to provide this circuit with a tie to the Cleveland substation. This project improves the transfer capability of the Bear Gap circuit and reduces outage exposure for over 1,000 customers on this circuit.
- The circuit has been reviewed under an expanded operational review in 2013. As a result three jobs were created. These jobs include removal of unused facilities (completed), installation of additional fusing at four locations (2015), and maintenance of failed equipment at four locations (October 2014).
- The recloser that is operating as the breaker for this circuit will be replaced at the end of 2014.
- An air break will be replaced with a remotely operable switch under the Circuit SAIDI program in 2015.

- A remotely operable switch will be installed on this circuit under the Smart Grid 2015 program.
- A full circuit tree trim is scheduled for 2015.

70 Circuit 17801 GILBERT 78-01

Performance Analysis

On July 09, 2013, an underground primary cable failure caused a single phase tap fuse to operate. The outage affected approximately 30 customers for up to 314 minutes, resulting in 274,101 CMI.

On December 24, 2013, a vehicle pole hit caused the circuit breaker to trip to lockout. The outage affected approximately 2,220 customers for up to 53 minutes, resulting in 117,816 CMI.

On March 15, 2014, Mylar balloons became entangled with the overhead primary conductor which required temporary sectionalizing to make repairs. The outage affected approximately 870 customers for up to 230 minutes, resulting in 71,764 CMI.

In total, the Gilbert 78-01 circuit had 44 outages between April 2013 and March 2014. The causes of these outages include: tree related (13), equipment failures (11), animal contacts (9), nothing found (5), vehicles (4), and other (2).

Remedial Actions

- In December 2013, PPL Electric completed the installation of six new automated devices on the Gilbert 78-01 line as part of the Smart Grid project plan. These devices will improve sectionalizing capability and reduce outage durations in the future.
- In 2016, Vegetation Management plans to trim the entire Gilbert 78-01 line in order to reduce future tree related outages.
- By April 2013, the Distribution Planning Department will review a project to add a new tie line between the Appenzell 92-02 line and the Gilbert 78-01 line. The project is expected to help reduce future outage durations by improving sectionalizing capability.
- In 2019, PPL Electric has a project that will relieve a portion of the Gilbert 78-01 line. This project will improve sectionalizing capability on the Gilbert 78-01 line in the future.

71 Circuit 52004, LINGLESTOWN 20-04

Performance Analysis

Two recloser outages significantly affected this circuit's reliability in the past four quarters. Tree related interruptions were the most common outage cause.

On March 30, 2014, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 660 customers for up to 780 minutes, resulting in 252,751 CMI. A downstream

protective device which would have limited the impact of the outage was out of service at the time.

On September 19, 2013, an equipment failure occurred on an overhead switch and caused a recloser to trip to lockout. The outage affected approximately 840 customers for up to 373 minutes, resulting in 184,146 CMI.

In total, the Linglestown 20-04 circuit had 38 outages between April 2013 and March 2014. The causes of these outages include: tree related (16), equipment failures (8), animal contacts (7), vehicles (4), and nothing found (3).

Remedial Actions

- The Linglestown 20-04 is scheduled to be trimmed in 2014 as part of its vegetation management cycle.
- Approximately two miles of weaker conductor is scheduled to be reconductored to strengthen a tie line in late 2014. This will offer the ability to transfer additional customers and would have helped for both major outages in the last four quarters.

72 Circuit 61505 EAST PETERSBURG 15-05

Performance Analysis

The East Petersburg 15-05 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. Two of the three outages were the result of this storm.

On February 05, 2014, an equipment failure occurred on an overhead pole arm or attachment and caused the circuit breaker to trip to lockout. The outage affected approximately 1,660 customers for up to 215 minutes, resulting in 320,554 CMI.

On August 31, 2013, an equipment failure occurred on a substation relay and caused the circuit breaker to trip to lockout. The outage affected approximately 1,640 customers for up to 67 minutes, resulting in 109,491 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 40 customers for up to 2,506 minutes, resulting in 95,190 CMI.

In total, the East Petersburg 15-05 circuit had 9 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (4), tree related (3), nothing found (1), and contact/dig-in (1).

Remedial Actions

- Full circuit tree trimming is scheduled for 2015, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection of the circuit was completed in the first quarter of 2014. Nothing was found.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- Investigating the installation of additional fuses for improved sectionalizing.

73 Circuit 26001 WEST DAMASCUS 60-01

On November 18, 2013, a tree made contact with an overhead primary conductor and required a temporary sectionalizing open point to be opened for repairs. The outage affected approximately 430 customers for up to 358 minutes, resulting in 155,385 CMI.

On February 06, 2014, an equipment failure occurred on the Blooming Grove-West Damascus 69kV line. The outage affected approximately 1,450 customers on the West Damascus 60-01 line for up to 106 minutes, resulting in 153,424 CMI.

In total, the West Damascus 60-01 circuit had 51 outages between April 2013 and March 2014. The causes of these outages include: tree related (27), equipment failures (15), animal contacts (5), other (2), nothing found (1), and contact/dig-in (1).

Remedial Actions

- In November 2016, PPL Electric is anticipating the completion of a new tie line project between the West Damascus 60-01 and West Damascus 60-02 circuits. This project will improve sectionalizing capability between the circuits, reducing outage durations in the future.
- In 2015, PPL Electric plans to replace the West Damascus 60-01 to Indian Orchard 64-01 manual tie switch with an automated switch as part of its smart grid project plan. This automated device is anticipated to significantly reduce future outage durations and improve sectionalizing capabilities.
- In 2017, Vegetation Management plans to trim the entire West Damascus 60-01 line in order to reduce future tree related outages.

74 Circuit 20105 AVOCA 01-05

Performance Analysis

On April 25, 2013, an equipment failure occurred on an overhead transformer and caused the circuit breaker to trip to lockout. The outage affected approximately 4,180 customers for up to 266 minutes, resulting in 568,778 CMI.

In total, the Avoca 1-05 circuit had 10 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (5), animal contacts (3), and nothing found (2).

Remedial Actions

- The Avoca 01-05 was reviewed under the radio frequency inspection pilot program in 2013. The pilot is to determine the capability of proactively identifying failing equipment. The equipment on the Avoca 01-05 will be tested for performance and replaced according to the findings of this program.
- An expanded operational review and line patrol will be completed in 2014.
- Two remotely operable sectionalizing switches will be upgraded under the 2014 Smart Grid program.
- A remotely operable midline and normally open device will be installed on this circuit under the 2015 Smart Grid program.

75 Circuit 60201 ATGLEN 02-01

Performance Analysis

The Atglen 02-01 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. Two of the following three outages were part of this storm.

On June 17, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 130 customers for up to 1,124 minutes, resulting in 123,583 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused multiple devices to operate. The outage affected approximately 40 customers for up to 1,826 minutes, resulting in 78,498 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 100 customers for up to 709 minutes, resulting in 74,348 CMI.

In total, the Atglen 2-01 circuit had 36 outages between April 2013 and March 2014. The causes of these outages include: tree related (21), equipment failures (8), animal contacts (3), other (2), vehicle (1), and nothing found (1).

Remedial Actions

- The circuit was last trimmed in 2012
- Full circuit tree trimming is scheduled for 2016, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- A new circuit out of the Atglen substation will be built in November 2016 that will further reduce the customer count and circuit mileage of the line. This will help minimize the number of customers affected by an outage and improve the overall reliability of the circuit.
- SCADA will be installed at the Atglen substation in 2016.
- Investigating the installation of a new substation in the vicinity of Atglen substation with a proposed installation date of 2019.

76 Circuit 47704, BLOOMSBURG 77-04

Performance Analysis

On November 18, 2013, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 770 customers for up to 461 minutes, resulting in 249,685 CMI.

On March 30, 2014, an equipment failure occurred on an overhead pole arm or attachment and caused a recloser to trip to lockout. The outage affected approximately 180 customers for up to 347 minutes, resulting in 61,345 CMI.

On July 04, 2013, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 770 customers for up to 92 minutes, resulting in 58,115 CMI.

In total, the Bloomsburg 77-04 circuit had 28 outages between April 2013 and March 2014. The causes of these outages include: tree related (12), equipment failures (9), animal contacts (3), nothing found (2), other (1), and contact/dig-in (1).

Remedial Actions

- Work orders have been initiated to remove undergrowth along Millville Road and to replace a split cross arm and pin insulators. The undergrowth was removed on March 5, 2014 and the hardware is scheduled to be replaced by July 31, 2014.
- A project was developed to improve the reliability for 10 customers on the Davenport Tap. The Mellick Hollow Road CEMI project will relocate inaccessible line and replace #6 CW conductor. The project is scheduled to be completed by December 2014.
- A project will add a new ROCS device that will allow system operators to remotely transfer customers from the 77-04 circuit to the 77-03 circuit. This project is scheduled to be completed by November 2015.

77 Circuit 57702, PAXTON 77-02

Performance Analysis

A single circuit breaker outage significantly affected this circuit's reliability in the past four quarters. Animal contacts were the most common outage cause.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 950 customers for up to 2,312 minutes, resulting in 548,587 CMI. Restoration times were delayed due to a widespread ice storm that affected the area.

In total, the Paxton 77-02 circuit had 13 outages between April 2013 and March 2014. The causes of these outages include: animal contacts (6), equipment failures (3), tree related (2), vehicle (1), and other (1).

Remedial Actions

- The Paxton 77-02 was last trimmed in 2012 as part of its vegetation management cycle.
- Two existing sectionalizing and tie devices will be upgraded in 2015 as part of the Circuit SAIDI initiative. This will allow for quicker sectionalizing and restoration in the event of an outage and would have reduced the impact of the February 5th outage.

78 Circuit 43402, BENTON 34-2

Performance Analysis

On May 19, 2013 the Rohrsburg 63-02 circuit was transferred to the Benton 34-1 to install SCADA and replace the transformers at the Rohrsburg Substation.

On May 20, 2013 an excavator contacted the OH primary and caused an outage for all of the customers on the Benton 34-02 and the Rohrsburg 63-02. The outage affected approximately 1,630 customers for up to 104 minutes, resulting in 126,196 CMI.

On March 30, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 150 customers for up to 815 minutes, resulting in 122,196 CMI.

On March 30, 2014, an equipment failure occurred on an overhead switch and caused a recloser to trip to lockout. The outage affected approximately 480 customers for up to 230 minutes, resulting in 110,836 CMI.

In total, the Benton 34-02 circuit had 26 outages between April 2013 and March 2014. The causes of these outages include: tree related (11), equipment failures (9), animal contacts (3), vehicle (1), nothing found (1), and contact/dig-in (1).

Remedial Actions

- Work has been initiated to replace a recloser that failed to operate properly on at least two occasions. This work is scheduled to be completed in 2Q 2014.
- SCADA was installed at the Benton substation in March 2013.
- SCADA installation at the Rohrsburg substation was completed in June 2013 and the Benton 34-02 was returned to its normal configuration.

79 Circuit 61304 EARL 13-04

Performance Analysis

The Earl 13-04 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.
All three of the following outages were the result of this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 220 customers for up to 965 minutes, resulting in 145,512 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 140 customers for up to 715 minutes, resulting in 90,723 CMI.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a tap fuse to operate. The outage affected approximately 40 customers for up to 2,054 minutes, resulting in 90,347 CMI.

In total, the Earl 13-04 circuit had 25 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (10), tree related (8), vehicles (2), other (2), nothing found (1), contact/dig-in (1), and animal contact (1).

Remedial Actions

- The circuit was last trimmed in 2010.
- Full circuit tree trimming is scheduled for the second half of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection of the circuit was completed in the first quarter of 2014. Nothing was found.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of PPL Smart Grid program.

80 Circuit 65503 MOUNT JOY 55-03

Performance Analysis

The Mount Joy 55-03 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 140 customers for up to 2,158 minutes, resulting in 304,174 CMI.

In total, the Mount Joy 55-03 circuit had 24 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (10), tree related (6), nothing found (3), animal contacts (3), and vehicles (2).

Remedial Actions

- The circuit was last trimmed in 2012.
- Full circuit tree trimming is scheduled for 2016, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection of the circuit was completed in the first quarter of 2014. Nothing was found.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- A three phase line section was reconductored with larger, more reliable wire in the first quarter of 2014.
- Investigating a project to reconductor a three phase section of old, 4/0 copper wire.

81 Circuit 61502 EAST PETERSBURG 15-02

Performance Analysis

The East Petersburg 15-02 circuit experienced a major outage on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,030 customers for up to 289 minutes, resulting in 298,527 CMI.

In total, the East Petersburg 15-02 circuit had 14 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (6), tree related (4), vehicle (1), nothing found (1), contact/dig-in (1), and animal contact (1).

Remedial Actions

- The circuit was last trimmed in 2012.

- Full circuit tree trimming is scheduled for 2016, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection of the circuit was completed in the first quarter of 2014. Only minor repairs were found.
- Investigating the installation of an automated midline sectionalizing device and an automated normally open tie to better sectionalize customers.

82 Circuit 41503 FAIRVIEW 15-03

Performance Analysis

On September 21, 2013, a tree made contact with an overhead primary conductor and required a temporary sectionalizing open point to be opened for repairs. The outage affected approximately 1,390 customers for up to 332 minutes, resulting in 324,108 CMI.

In total, the Fairview 15-03 circuit had 8 outages between April 2013 and March 2014. The causes of these outages include: tree related (3), equipment failures (3), and animal contacts (2).

Remedial Actions

- One new remotely operable sectionalizing switch will be installed under the 2014 Smart Grid program.
- Three existing devices will be upgraded to normally open remotely operable switches under the Smart Grid 2014. This will improve sectionalizing and reduce the number of customers affected by future outages.
- Animal guarding was installed at ten locations on this circuit in the first quarter of 2014.
- A new remotely operable recloser will be installed in 2015 under the Circuit SAIDI program.

83 Circuit 67301 WYOMISSING 73-01

Performance Analysis

The Wyomissing 73-01 circuit experienced major outages on February 5, 2014, as a result of an ice storm which strongly influenced the current ranking of this circuit on the WPC list. Both of the following outages were the result of this storm.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,550 customers for up to 505 minutes, resulting in 402,727 CMI.

On October 11, 2013, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,550 customers for up to 77 minutes, resulting in 119,784 CMI.

In total, the Wyomissing 73-01 circuit had 11 outages between April 2013 and March 2014. The causes of these outages include: tree related (6), equipment failures (3), and animal contacts (2).

Remedial Actions

- Full circuit tree trimming is scheduled to be completed by the end of the second quarter of 2014, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- An infrared inspection of the circuit was completed in the first quarter of 2014. Only minor repairs were found.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- In 2014, remote operation capabilities will be added to the sectionalizing air break in the middle of the line to improve restoration times as part of the Reliability Preservation program.

84 Circuit 28302 NEWFOUNDLAND 83-02

On April 19, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 250 customers for up to 759 minutes, resulting in 192,623 CMI.

On December 01, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 170 customers for up to 403 minutes, resulting in 69,153 CMI.

On July 23, 2013, a tree made contact with an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 170 customers for up to 511 minutes, resulting in 88,239 CMI.

In total, the Newfoundland 83-02 circuit had 51 outages between April 2013 and March 2014. The causes of these outages include: tree related (24), equipment failures (16), animal contacts (8), other (2), and nothing found (1).

Remedial Actions

- In June 2013, PPL Electric finished construction of the Newfoundland 83-02 to Tafton 80-01 tie line. This new tie will improve sectionalizing capability and reduce customer outage durations on both circuits.
- In June 2013, construction was completed on the new Ledgedale Substation. This project transferred approximately 1,181 customers off of the Newfoundland 83-02 circuit. The new substation will provide new sectionalizing capabilities and reduce customer exposure to outages.
- In 2013, Vegetation Management trimmed a mile of single phase line that has had several tree related outages in the past year in order to prevent future tree related outages.

- In 2014, a project will relocate 79 PPL customers that experienced eight outages in the past year. This project will move these customers to a more reliable source off of the North Coolbaugh 88-01 line.
- In 2014, a midline hydraulic recloser will be replaced with a new automated recloser as part of the Smart Grid project plan. This automated recloser will reduce future outage durations and improve sectionalizing capabilities.
- In May 2015, construction of the new Angels Substation will be completed. This substation will relieve approximately 662 customers off the Newfoundland 83-02 circuit. The new substation will provide new sectionalizing capabilities and reduce customer exposure to outages.
- In 2015, Vegetation Management plans to trim the entire Newfoundland 83-02 circuit in order to reduce future tree related outages.

85 Circuit 55408, SOUTH HERSHEY 54-08

Performance Analysis

Two circuit breaker outages significantly affected this circuit's reliability in the past four quarters. Tree related interruptions were the most common outage cause.

On February 05, 2014, a tree made contact with an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 1,130 customers for up to 588 minutes, resulting in 223,332 CMI. Restoration times were delayed due to a widespread ice storm that affected the area.

On May 11, 2013, a failed transmission cross arm fell and damaged the distribution circuit underneath. The outage affected approximately 1,130 customers for up to 479 minutes, resulting in 173,004 CMI.

In total, the South Hershey 54-08 circuit had 18 outages between April 2013 and March 2014. The causes of these outages include: tree related (9), equipment failures (6), vehicle (1), other (1), and animal contact (1).

Remedial Actions

- Two existing sectionalizing and tie devices will be upgraded in 2016 as part of the Smart Grid initiative.
- The South Hershey 54-08 was last trimmed in 2013 as part of its vegetation management cycle.
- A comprehensive helicopter patrol of the Hummelstown-Hershey 69kV circuit was completed on May 30, 2013. Five sets of critical pole arms were identified and replaced by August 7, 2013. An additional 26 sets of pole arms were also identified and replaced by February 20, 2014.

86 Circuit 10101, ALLENTOWN 01-01

Performance Analysis

In the past twelve months, the Allentown 01-01 circuit breaker has tripped to lockout twice. In addition, there have been several small, isolated outages.

On September 25, 2013, an equipment failure occurred on the substation circuit breaker and caused the circuit breaker to trip to lockout. The outage affected approximately 2,950 customers for up to 66 minutes, resulting in 194,898 CMI.

On December 20, 2013, an equipment failure occurred on an overhead primary conductor and caused the circuit breaker to trip to lockout. The outage affected approximately 2,960 customers for up to 136 minutes, resulting in 273,085 CMI.
In total, the Allentown 01-01 circuit had 19 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (16), animal contacts (2), and nothing found (1).

Remedial Actions

- Two Smart Grid VCRs will be installed in 2015.
- There are plans to add three single phase fuses.
- The planned Riverfront project will install one new VCR, and transfer approximately 1200 customers to the Allentown 01-09 in 2015.
- Following the Planned Riverfront Project, two new Smart Grid VCRs will be installed. Part of the line will be relocated as part of this project.
- Full circuit trimming is scheduled for 2015.
- Substation rebuild will be completed in 2015.

87 Circuit 60104, COCALICO 01-04

Performance Analysis

The Cocalico 01-04 circuit experienced the following major outages which strongly influenced the current ranking of this circuit on the WPC list.

On June 05, 2013, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 1,940 customers for up to 110 minutes, resulting in 115,027 CMI.

On May 14, 2013, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 280 customers for up to 401 minutes, resulting in 110,659 CMI.

On November 16, 2013, an equipment failure occurred on an overhead pole arm or attachment and caused a recloser to trip to lockout. The outage affected approximately 1,940 customers for up to 229 minutes, resulting in 108,795 CMI.

On February 05, 2014, an equipment failure occurred on an overhead pole arm or attachment and caused a recloser to trip to lockout. The outage affected approximately 50 customers for up to 2,236 minutes, resulting in 102,767 CMI.

In total, the Cocalico 1-04 circuit had 33 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (15), vehicles (5), tree related (5), animal contacts (5), nothing found (2), and other (1).

Remedial Actions

- The circuit was last trimmed in 2011.
- Full circuit tree trimming is scheduled for 2015, utilizing PPL Electric's new trimming specifications, which is ground to sky trimming on all three phase line sections.
- New and existing mid-line sectionalizing and tie devices will be automated in 2015 as part of the Smart Grid program.
- A line inspection will be completed in the second quarter of 2014.
- A new reliability type substation is scheduled to be installed in the second quarter of 2015 and will improve the overall reliable of service in this area. Additional sectionalizing will also be installed to minimize future outage durations.

88 Circuit 11506, FREEMANSBURG 15-06

Performance Analysis

In the past twelve months, there have been several outages affecting a large number of customers on the Freemansburg 15-06.

On July 17, 2013, an equipment failure occurred on an overhead primary conductor requiring a temporary open point be made for repairs. The outage affected approximately 440 customers for up to 342 minutes, resulting in 62,159 CMI.

On July 20, 2013, an equipment failure occurred on an overhead primary conductor and caused a recloser to trip to lockout. The outage affected approximately 700 customers for up to 338 minutes, resulting in 52,366 CMI.

On September 01, 2013, a recloser tripped to lockout, upon investigation, crews found no cause for the interruption. The outage affected approximately 330 customers for up to 126 minutes, resulting in 41,007 CMI.

On September 08, 2013, an equipment failure occurred on an overhead switch and caused a recloser to trip to lockout. The outage affected approximately 330 customers for up to 68 minutes, resulting in 22,170 CMI.

On September 27, 2013, a vehicle pole hit caused a recloser to trip to lockout. The outage affected approximately 440 customers for up to 329 minutes, resulting in 30,224 CMI.

In total, the Freemansburg 15-06 circuit had 52 outages between April 2013 and March 2014. The causes of these outages include: tree related (20), equipment failures (11), nothing found (7), animal contacts (11), vehicles (2), and other (1).

Remedial Actions

- One new Smart Grid switch will be installed in 2015; the circuit is already split into 350-400 customer blocks.
- Comprehensive tree trimming will be performed in the second quarter of 2014.
- Animal guarding is currently being evaluated.
- There are plans to reconductor single phase to three phase taps

89 Circuit 42903, MIDDLEBURG 29-03

Performance Analysis

On July 07, 2013, a tree contacted the Sunbury-Middleburg 69kV and caused the 69kV circuit breaker at Sunbury to trip to lock out. This transmission outage caused all 1,030 customers on this circuit to experience an outage. Approximately 110 customers experienced a longer outage due to an additional outage downstream of a recloser. These two faults affected approximately 1,030 customers for up to 1,197 minutes, resulting in 356,124 CMI.

On October 14, 2013, a vehicle pole hit caused the circuit breaker to trip to lockout. The outage affected approximately 1,030 customers for up to 211 minutes, resulting in 119,406 CMI. These two outages accounted for more than 90% of the total CMI over the past 12 months.

In total, the Middleburg 29-03 circuit had 19 outages between April 2013 and March 2014. The causes of these outages include: equipment failures (9), tree related (7), vehicle (1), other (1), and animal contact (1).

Remedial Actions

- Load break disconnect switches and fault indicators were installed on October 15, 2013, to provide additional sectionalizing.
- A manually operable sectionalizing switch was upgraded to a remotely operable sectionalizing switch. This work was completed on February 24, 2014.
- A work order has been initiated to remove inaccessible line and to relocate along Dock Hill Rd. This work is scheduled for to be completed by December 2015.

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[9]	Percent of Trouble Cases	Customer Interruptions[10]	Percent of Customer Interruptions	Customer Minutes	Percent of Customer Minutes
Animals	3,066	19.32%	65,387	5.12%	5,856,865	3.00%
Contact/Dig-In	143	0.90%	19,924	1.56%	1,444,202	0.74%
Directed by Non-PPL Authority	248	1.56%	11,914	0.93%	932,854	0.48%
Equipment Failures	5,245	33.06%	410,211	32.13%	41,937,669	21.50%
Improper Design	14	0.09%	21,595	1.69%	1,957,405	1.00%
Improper Installation	1	0.00%	639	0.00%	53,446	0.00%
Improper Operation	6	0.04%	8,511	0.67%	658,487	0.34%
Nothing Found	1,160	7.31%	93,793	7.35%	5,822,997	2.98%
Other-Controllable	150	0.95%	56,364	4.41%	3,200,082	1.64%
Other-Non Control	285	1.80%	34,195	2.68%	2,637,189	1.35%
Other-Public	54	0.34%	6,977	0.55%	1,074,918	0.55%
Tree Related	4,758	29.99%	374,973	29.37%	112,223,946	57.53%
Vehicles	736	4.64%	172,177	13.49%	17,281,214	8.86%
Total	15,866	100.00%	1,276,660	100.00%	195,081,274	100.00%

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

[10] 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.

Tree Related: Although their effect on reliability is significant, tree outages not related to trimming generally are caused by trees falling from outside of PPL Electric's rights-of-way. 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.

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 78% of the number of cases of trouble was associated with individual distribution transformers. However, when animal contacts affect substation equipment, the effect may be widespread and potentially can interrupt thousands of customers on multiple circuits. In addition to guarding new distribution transformers and substations, in 2009, PPL Electric initiated distribution and substation animal guarding programs to focus systematically on protecting existing facilities most at risk of incurring animal-caused interruptions. All substations are scheduled to be animal guarded by 2017.

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

Equipment Failure: Equipment failure is one of the largest single contributors to the number of cases of trouble, customer interruptions and customer minutes. However, approximately 41% of the cases of trouble, 40% of the customer interruptions and 58% of the customer minutes attributed to equipment failure were weather-related and, as such, are not considered to be indicators of equipment condition or performance. In 2009, to help reduce the risk of incurring interruptions due to equipment failures, PPL Electric initiated an Asset Optimization Strategy project to assess equipment health and generate a long-term plan for proactive infrastructure replacement and enhanced maintenance practices. It is anticipated that, over time, this strategy will improve reliability performance as it pertains to PPL Electric's distribution, substation and transmission assets.

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	1st Quarter		Year-to-date	
		Budget	Actual	Budget	Actual
Transmission					
Transmission C-tag poles (# of poles)	455	32	44	32	44
Transmission arm replacements (# of sets)	0	0	0	0	0
Transmission air break switch inspections (# of switches)	29	9	0	9	0
Transmission lightning arrester installations (# of sets)	497	0	0	0	0
Transmission structure inspections (# of structures)	1,270	0	0	0	0
Transmission tree side trim-Bulk Power (linear feet)	N/A				
Transmission herbicide-Bulk Power (# of acres)	N/A				
Transmission reclearing (# of miles) BES Only	440.15	164.30	133.75	164.30	133.75
Transmission reclearing (# of miles) 69 kV	1,030.46	168.47	242.25	168.47	242.25
Transmission reclearing (# of miles) 138 kV	12.16	0	0	0	0
Transmission danger tree removals-Bulk Power (# of trees)	N/A	N/A	9,171	N/A	9,171
Substation					
Substation batteries (# of activities)	652	421	418	421	418
Circuit breakers (# of activities)	675	269	232	269	232
Substation inspections (# of activities)	4,539	1,331	1,337	1,331	1,337
Transformer maintenance (# of activities)	1,430	370	379	370	379
Distribution					
Distribution C-tag poles replaced (# of poles)	1,416	474	515	474	515
C-truss distribution poles (# of poles)	5,367	1,435	1,103	1,435	1,103
Capacitor (MVAR added)	18	17	17	17	17
OCR replacements (# of)[11]	160	81	69	81	69
Distribution pole inspections (# of poles)	90,000	12,705	12,801	12,705	12,801
Distribution line inspections (hours)	7,446	1,360	469	1,360	469
Group re-lamping (# of lamps)	21,000	3,500	5,058	3,500	5,058
Test sections of underground distribution cable	225	130	104	130	104
Distribution tree trimming (# of miles)	6,046.27	1,436.46	1,481.21	1,436.46	1,481.21
Distribution herbicide (# of acres)	N/A				
Distribution >18" removals within R/W (# of trees)	N/A				
Distribution hazard tree removals outside R/W (# of trees)	N/A	N/A	4,407	N/A	4,407

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

Inspection & Maintenance Goals/Objectives	Annual Budget	1st Quarter		Year-to-date	
		Budget	Actual	Budget	Actual
LTN manhole inspections (# of)	373	265	252	265	252
LTN vault inspections (# of)	724	223	246	223	246
LTN network protector overhauls (# of)	79	46	32	46	32
LTN reverse power trip testing (# of)	136	35	23	35	23

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).

	1st Quarter		Year-to-date	
Activity	**Budget** ($000)	**Actual** ($000)	**Budget** ($000)	**Actual** ($000)
Provide Electric Service	2,252	1,535	2,252	1,535
Vegetation Management	9,472	12,343	9,472	12,343
Customer Response	13,634	26,262	13,634	26,262
Reliability & Maintenance	14,179	14,407	14,179	14,407
System Upgrade	93	-222[12]	93	-222
Customer Services/Accounts	28,288	26,284	28,288	26,284
Others	10,701	9,930	10,701	9,930
Total O&M Expenses	**78,619**	**90,539**	**78,619**	**90,539**

[12] The negative balance is due to an accounting correction. Certain IPP bills were incorrectly charged to expense in 2013, and corrected in March, 2014.

*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.

	1st Quarter		Year-to-date	
	Budget ($1,000s)	**Actual** ($1,000s)	**Budget** ($1,000s)	**Actual** ($1,000s)
New Service/Revenue	20,090	17,672	20,090	17,672
System Upgrade	142,914	135,486	142,914	135,486
Reliability &	69,530	48,286	69,530	48,286
Customer Response	2,441	5,848	2,441	5,848
Other	7,269	5,594	7,269	5,594
Total	**242,244**	**221,886**	**242,244**	**221,886**

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	66
Journeyman Lineman	221
Journeyman Lineman-Trainee	64
Helper	0
Groundhand	4
Troubleman	49
T&D Total	**404**
Electrical	
Elect Leaders-UG	6
Elect Leaders-Net	9
Elect Leaders-Sub	25
Journeyman Elect-UG	24
Journeyman Elect-Net	18
Journeyman Elect-Sub	59
Journeyman Elect Trainee-UG	2
Journeyman Elect Trainee-Net	17
Journeyman Elect Trainee	26
Helper	0
Laborer-Network	0
Laborer-Substation	0
Electrical Total	**186**
Overall Total	**590**

Appendix A

PPL Electric Utilities Corporation
Worst Performing Circuit Definition / Comparison under old and new CPI formulas.

PPL Electric uses total Customer Minutes Interrupted 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 simpler and more transparent, therefore allowing WPCs to be identified and remediated on a shorter timetable.

The following table illustrates the 5% worst performing circuits for the first quarter of 2014 under the previous CPI system, their rank under the new system, and the reason for the change. Approximately half of the circuits remain WPCs under the change to CMI.

Appendix A

Rank	Feeder	Rank by Previous CPI score	Rank by new score	Explanation of Variance
1	50833	1	274	Under the old CPI this circuit has a high SAIFI score. Circuit has 2 customers.
2	43501	2	434	Under the old CPI this circuit has a high SAIFI score. Circuit has 15 customers.
3	46902	3	31	Remains on list.
4	91391	4	671	Under the old CPI this circuit has a high CEMI score. Circuit has 33 customers.
5	41902	5	7	Remains on list.
6	47704	6	76	On extended list.
7	29302	7	160	Under the old CPI this circuit has a high CEMI score. Circuit is not otherwise a poor performer.
8	42101	8	779	Under the old CPI this circuit has a high CEMI score. Circuit is not otherwise a poor performer.
9	25601	9	8	Remains on list.
10	64203	10	16	Remains on list.
11	63404	11	4	Remains on list.
12	59401	12	22	Remains on list.
13	45101	13	795	Under the old CPI this circuit has a high CEMI score. Circuit is not otherwise a poor performer.
14	66202	14	2	Remains on list.
15	52402	15	21	Remains on list.
16	43101	16	193	Under the old CPI this circuit has a high CEMI score. Circuit is not otherwise a poor performer.
17	12402	17	91	Under the old CPI this circuit has a mildly high SAIFI score.
18	64802	18	6	Remains on list.
19	22001	19	32	Remains on list.
20	64801	20	5	Remains on list.
21	64101	21	1	Remains on list.
22	15402	22	500	Under the old CPI this circuit has a high CEMI score. Circuit is not otherwise a poor performer.
23	47706	23	755	Under the old CPI this circuit has a high CEMI score. Circuit is not otherwise a poor performer.
24	22403	24	26	Remains on list.
25	63401	25	29	Remains on list.
26	57402	26	144	Under the old CPI this circuit has a high CEMI score. Circuit is not otherwise a poor performer.
27	11506	27	88	On extended list.
28	67401	28	10	Remains on list.
29	47001	29	17	Remains on list.
30	65004	30	12	Remains on list.

Appendix A

Rank	Feeder	Rank by Previous CPI score	Rank by new score	Explanation of Variance
31	60801	31	35	Remains on list.
32	53301	32	174	Under the old CPI this circuit has a mildly high SAIFI score.
33	42001	33	165	Under the old CPI this circuit has a high CEMI score. Circuit is not otherwise a poor performer.
34	66203	34	48	Remains on list.
35	62602	35	97	Under the old CPI this circuit has a mildly high SAIFI score.
36	63403	36	19	Remains on list.
37	22003	37	323	Under the old CPI this circuit has a high CEMI score. Circuit is not otherwise a poor performer.
38	45002	38	11	Remains on list.
39	91291	39	303	Under the old CPI this circuit has a mildly high SAIFI score.
40	61701	40	18	Remains on list.
41	41802	41	92	Under the old CPI this circuit has a mildly high SAIFI score.
42	62105	42	25	Remains on list.
43	53601	43	44	Remains on list.
44	61502	44	81	On extended list.
45	15406	45	62	On extended list.
46	52004	46	71	On extended list.
47	60604	47	253	Under the old CPI this circuit has a mildly high SAIFI score.
48	51501	48	302	Under the old CPI this circuit has a mildly high SAIFI score.
49	57106	49	218	Under the old CPI this circuit has a high CEMI score. Circuit is not otherwise a poor performer.
50	65804	50	56	Remains on list.
51	65204	51	360	Under the old CPI this circuit has a mildly high SAIFI score.
52	10803	52	626	Under the old CPI this circuit has a mildly high SAIFI score.
53	63402	53	13	Remains on list.
54	14602	54	30	Remains on list.
55	67101	55	361	Under the old CPI this circuit has a mildly high SAIFI score.
56	64401	56	60	On extended list.
57	64202	57	39	Remains on list.
58	40703	58	524	Under the old CPI this circuit has a mildly high SAIFI score.
59	65702	59	9	Remains on list.

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.

Electrical

Electrician Leader - Substation - Network - Underground	• Responsible for completing assigned work by directing one or multiple groups of employees involved in the construction and maintenance activities of the transmission and distribution systems associated with, but not limited to, PPL Electric facilities. • Engage in and perform work along with providing the necessary leadership, all-around knowledge, initiative, judgment, and experience to produce a quality job. • Performs all direct duties of the Journeyman Electrician when not acting as a leader.
Helper - Substation - Network - Underground	• Performs manual labor at any work location including those areas containing non-exposed energized electrical equipment, and to prepare the employee for entrance into the Apprenticeship Program.
Laborer - Substation - Network - Underground	• Performs manual labor and assists employees in higher job classifications.
Journeyman Electrician - Substation - Network - Underground	• Normally under limited supervision performs and is responsible for work associated with, but not limited to, PPL Electric facilities involving the highest degree of skill in construction and maintenance work associated with substations, LTN or underground distribution and transmission. • Uses microprocessor based equipment for troubleshooting and revising relay logic and its control systems related to the Field Services electrical discipline.
Journeyman Electrician - Trainee - Substation - Network - Underground	• Normally under limited supervision performs and is responsible for work associated with, but not limited to, PPL Electric facilities involving the highest degree of skill in construction and maintenance work associated with substations, LTN or underground distribution and transmission. • Uses microprocessor based equipment for troubleshooting and revising relay logic and its control systems related to the Field Services electrical discipline.