FirstEnergy

2800 Pottsville Pike
P.O. Box 16001
Reading, PA 19612-6001

Tori L. Giesler, Esq.
(610) 921-6658
(610) 939-8655 (Fax)

610-929-3601

July 13, 2015

VIA UNITED PARCEL SERVICE

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120

Re: Implementation Plan for the Focused Management Audit of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company, Docket Nos. D-2013-2365991, D-2013-2365992, D-2013-2365993 and D-2013-2365994; Extension Request

Dear Secretary Chiavetta:

On March 30, 2015, the Pennsylvania Public Utility Commission ("Commission") issued an Order directing Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company (collectively, the "Companies") to prepare and file a revised implementation plan relating to a number of specific topics addressed in the report issued by the Commission's Bureau of Audits on February 12, 2015 ("March 30 Order"). On May 19, 2015, the Commission issued a Secretarial Letter granting a forty-five day extension for the filing of revised plans related to certain of the ordering paragraphs. Since the issuance of the March 30 Order, the Companies have worked, with the consult and review of Commission technical staff, to establish more detailed plans regarding each topic addressed by the March 30 Order. Pursuant to the May 19 Secretarial Letter issued at the above-referenced docket, the Companies now submit for filing revised implementation plans associated with ordering paragraphs 3, 4, 9 and 12 of the Commission's March 30 Order.

In addition, on May 29, 2015 the Companies filed revised implementation plans related to the provisions of ordering paragraphs not subject to the forty-five day extension; specifically, ordering paragraphs 1, 5, 6, 7, 8, and 10. Following Commission technical staff's further review, it was requested that the Companies resubmit a revised response to ordering paragraph 7. Further, while the Companies are currently under no obligation to submit a supplemental plan related to ordering paragraph at this time, Commission technical staff has requested that the Companies submit a brief response noting as much in order to provide a complete package in response to each ordering paragraph. Therefore, a revised response to ordering paragraph 7 and an initial response to ordering paragraph 11 are both included with today's filing as well.

Please date stamp the additional copy of this filing and return it to me in the enclosed, postage-prepaid envelope provided.

Please contact me with any questions you may have.

Very truly yours,

Tori L. Giesler

dlm
Enclosures

c: Carl Hisiro, Law Bureau
Brent Killian, Electric Safety Division
Dan Mumford, Bureau of Consumer Services
Dan Searfoorce, Bureau of Technical Utility Services
Dave Washko, Bureau of Technical Utility Services

Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company
Focused Management and Operations Audits
Implementation Plan

Ordering Paragraph 3:

Metropolitan Edison Company, the Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company are hereby directed to submit a detailed reliability plan, as more fully discussed in the body of this Order, describing: (1) the causes of the number and duration of outages; (2) specific investments to address each worst performing circuit and other causes of their poor reliability performance metrics; (3) detailed inspection and maintenance plans; and (4) detailed staffing and training plans.

Bureau of Audits Recommendation VII-1

Improve electric reliability performance at Penelec and Penn Power to achieve, at a minimum, both 12 and 36 month reliability standards and strive to achieve benchmark performance; and implement specific measures for West Penn Power to meet the reliability provisions of the 2010 Joint Petition.

Response

Outage Analyses and Detailed Reliability Plans

In response to Ordering Paragraph 3, Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power"), and West Penn Power Company ("West Penn") (individually a "Company" and collectively, the "Companies") each performed an analysis of their respective Companies' reliability performance. As a result, each Company has developed a Reliability Plan that will allow it to not only meet its twelve-month and three-year performance standards, consistent with other regulatory obligations,[1] but will also facilitate each Company in meeting benchmark-level performance by year-end 2018. Each reliability plan includes: an analysis of the causes of, the number, and duration of outages; specific investments to improve reliability based upon this analysis; estimated reliability performance improvements associated with these investments; and estimated project completion dates.

[1] The Companies agreed to take necessary actions to: (i) consistently meet the twelve-month performance standards established by the Commission for SAIFI, SAIDI and CAIDI by the end of the first reporting quarter of 2016 (i.e., March 31, 2016); (ii) consistently meet the three-year performance standards established by the Commission for SAIFI, SAIDI, and CAIDI by the end of the calendar year 2017; and (iii) to strive towards the achievement of reliability performance that is at or better than the performance benchmarks established by the Commission. Joint Petition for Partial Settlement of Rate Investigation, *Pa. Pub. Util. Comm'n v. West Penn Power Co.*, Docket No. R-2014-2428742 (approved by Order entered April 9, 2015); Joint Petition for Partial Settlement of Rate Investigation, *Pa. Pub. Util. Comm'n v. Metropolitan Edison Co.*, Docket No. R-2014-2428745 (approved by Order entered April 9, 2015); Joint Petition for Partial Settlement of Rate Investigation, *Pa. Pub. Util. Comm'n v. Pennsylvania Elec. Co.*, Docket No. R-2014-2428743 (approved by Order entered April 9, 2015); Joint Petition for Partial Settlement of Rate Investigation, *Pa. Pub. Util. Comm'n v. Pennsylvania Power Co.*, Docket No. R-2014-2428744 (approved by Order entered April 9, 2015).

As a starting point for these analyses, the Companies reviewed the work conducted by UMS Group ("UMS") during the detailed reliability focused audit at Met-Ed in 2007,[2] a similar audit that was conducted by UMS between November 2008 and January 2009 at Penelec,[3] and finally, a reliability review conducted by UMS on behalf of Met-Ed in 2014.[4] The key takeaways from these UMS audits recommended improvements in the following areas: developing an enhanced tree trimming program, implementing additional circuit protection and sectionalizing, deploying lightning protection, and implementing partial restoration programs. In fact, as a result, implementing additional circuit protection and sectionalizing, enhanced tree trimming, and partial restoration programs are considered the cornerstones of the Companies' reliability programs today. These best practices are implemented first when reliability improvements are needed. However, it is important to recognize that each Company's system is unique and while reliability improvement may be achieved by implementing these best practices, other projects and programs may be necessary to target these differences.

Over the past several years, Met-Ed has produced positive trends in its reliability performance, resulting in recent achievement of benchmark reliability performance. As a result, Met-Ed has determined that targeting circuits that have appeared on the worst performing circuit ("WPC") 5% list within its Annual Reliability Report for two or more years during the 2010-2014 period will have the greatest impact on overall reliability performance. Met-Ed's plan in addressing these circuits can be found in Met-Ed's response to Ordering Paragraph 4.

In December 2014, Penelec submitted a Corrective Action Plan ("CAP") that is designed to drive towards not only meeting the Company's twelve-month rolling standard metrics, but will also facilitate Penelec in meeting benchmark performance by year-end 2018. This CAP has been incorporated within this response to form the starting point for Penelec's Reliability Plan, which is attached hereto as Appendix B. The Reliability Plan also includes a Transmission Improvement Study, which will focus on identifying potential reliability improvements which will focus on identifying potential reliability improvements. The outcome of the study will determine whether additional projects should be undertaken to target improved reliability in future years. Additionally, projects and programs have been identified that will have a positive impact on circuits that have appeared on the WPC 5% list within the Annual Reliability Report for two or more years for the period of 2010-2014. These projects and programs can be found in Penelec's response to Ordering Paragraph 4, which discusses Penelec's WPC Plan in further detail.

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[2] 2006 Focused Audit of Metropolitan Edison Company conducted by UMS Group Inc., issued July 2007 ("Met-Ed UMS Audit").

[3] Focused Reliability Assessment of FirstEnergy's Pennsylvania Electric Company (Penelec) conducted by UMS Group Inc., issued March 2009 ("Penelec UMS Audit").

[4] FirstEnergy's Metropolitan Edison Company (Met-Ed) Reliability Review 2013 conducted by UMS Group Inc., issued April 2014.

Penn Power also submitted a CAP in November 2014 in order to outline its plans to improve overall reliability and achieve benchmark performance by year-end 2018. The CAP, as previously submitted, will form the basis for Penn Power's Reliability Plan, which is attached hereto as Appendix C. Penn Power does not have any circuits that have appeared on the WPC 5% list within the Annual Reliability Report for two or more years for the period of 2010-2014. Therefore, while Penn Power has not established a targeted program to reduce WPCs, it will continue to review this metric to ensure no circuits develop more specific needs. Penn Power's response to Ordering Paragraph 4 provides a further discussion of the Company's WPC performance.

As a result of mild weather and programs designed to enhance reliability, such as targeted vegetation management, West Penn surpassed benchmark performance for all three reliability indices in 2014. With an eye towards continuing this positive trend, West Penn's Reliability Plan, attached hereto as Appendix D, will place a special target on the Company's extensive sub-transmission system and continue the Company's focus on vegetation management. West Penn's reliability strategy also includes projects and programs targeted to remove circuits that have appeared on the WPC 5% list within the Annual Reliability Report for two or more years during the 2010-2014 period, as outlined in more detail in the Company's response to Ordering Paragraph 4.

The Companies will continuously review their Reliability Plans to determine the effectiveness of the identified projects and programs in relation to actual performance results. The Companies may re-prioritize, alter completion dates, and add or remove projects based on ongoing engineering analyses to maximize the reliability and operating benefits to the system as determined necessary to meet the established targets.

In addition to identifying the causes, number and duration of outages typically experienced by the Companies, along with a set of planned investments to address each Company's WPCs and specific outage causes, the Companies were directed to review their inspection and maintenance programs, their staffing and training plans, and their tracking and reporting of performance metrics.

Inspection & Maintenance

In accordance with 52 Pa. Code § 57.198, every two years, the Companies file Biennial Inspection, Maintenance, Repair and Replacement Plans ("Biennial Plans") by October 1. These Biennial Plans are designed to reduce the risk of outages on the Companies' systems and form the basis of inspection and maintenance objectives. The Biennial Plans include programs to conduct vegetation management, pole inspections, distribution overhead line inspections, distribution transformer inspections, recloser inspections and substation inspections. In addition to providing a description of the program, inspection plans (i.e., number of pole inspections planned) are provided by area. On October 1, 2013, the Companies filed Biennial Plans for the period of January 1, 2015 through December 31, 2016. The Commission subsequently approved these plans on December 20, 2013. The Companies will file Biennial Plans on October 1, 2015 for the period of January 1, 2017

through December 31, 2018. Any changes to the Biennial Plans will be contemplated at that time of preparation. The Biennial Plans are designed consistent with the guidelines established by the National Electric Safety Code, the Codes and Practices of the Institute of Electrical and Electronic Engineers, Federal Regulatory Commission Regulations, and the American National Standards Institute.

Additionally, UMS is conducting a third party independent review of West Penn's inspection and maintenance procedures, which is projected to be completed by the end of October 2015. Upon completion of UMS's review, any best practices identified will be considered for incorporation into not only West Penn's inspection and maintenance programs, but also Met-Ed, Penelec and Penn Power's inspection and maintenance programs, following evaluation and a cost/benefit analysis. Given this review, the Companies believe that any modifications to their inspection and maintenance programs would be premature at this time and will revise their existing programs should the outcome of the UMS review and subsequent analysis of those outcomes support such revisions.

Staffing and Training Plans

The Companies will utilize their existing workforce to engineer and construct the projects and initiatives identified within each of the Reliability and WPC Plans and, where applicable, the Companies will supplement this workforce with skilled contractors. The Companies have also committed to undertaking a detailed staffing study, which will account for the workload associated with these reliability plans, as discussed in more detail in their response to Ordering Paragraph 9.

Monitoring of Performance

In addition to regular review (i.e., daily, weekly, monthly) of reliability performance by the Companies, reliability performance is also monitored by the Executive Leadership Team[5] ("ELT") on a monthly basis.

To address Pennsylvania-specific performance objectives and other regulatory requirements outlined in the Pennsylvania ("PA") Management Audit recommendations, a "PA State Management Report" is being created for Met-Ed, Penelec, Penn Power and West Penn and will be reviewed on a monthly basis by the ELT participants that have PA responsibilities. This review includes reliability and WPC performance, among other performance factors. The reports will reflect actual year-to-date performance versus Commission-stated targets, with the intention of managing towards top-level specified performance goals. The Companies' response to Ordering Paragraph 12 discusses this performance review in further detail.

[5] The ELT is comprised of the President and Vice Presidents of FirstEnergy Utilities, the President of Pennsylvania Operations, and the Presidents of each of the FirstEnergy distribution operating companies. The ELT meets monthly to review the performance of each of the FirstEnergy distribution operating companies in accordance with stated objectives.

Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company
Focused Management and Operations Audits
Implementation Plan

Individual Responsible

Linda Moss, President, Pennsylvania Operations

Expected Completion Date

December 31, 2018

Met-Ed Reliability Plan

Executive Summary

Over the past several years, Metropolitan Edison Company ("Met-Ed" or "Company") has produced positive trends in its reliability performance, resulting in recent achievement of benchmark reliability performance. Given this positive trend and following a review of analyses performed, Met-Ed has determined that a focus on its worst performing circuits ("WPC") will most effectively support Met-Ed in continuing to meet its twelve-month, three-year and benchmark performance standards established by the Commission for System Average Interruption Frequency Index ("SAIFI"), System Average Interruption Duration Index ("SAIDI") and Customer Average Interruption Duration Index ("CAIDI").

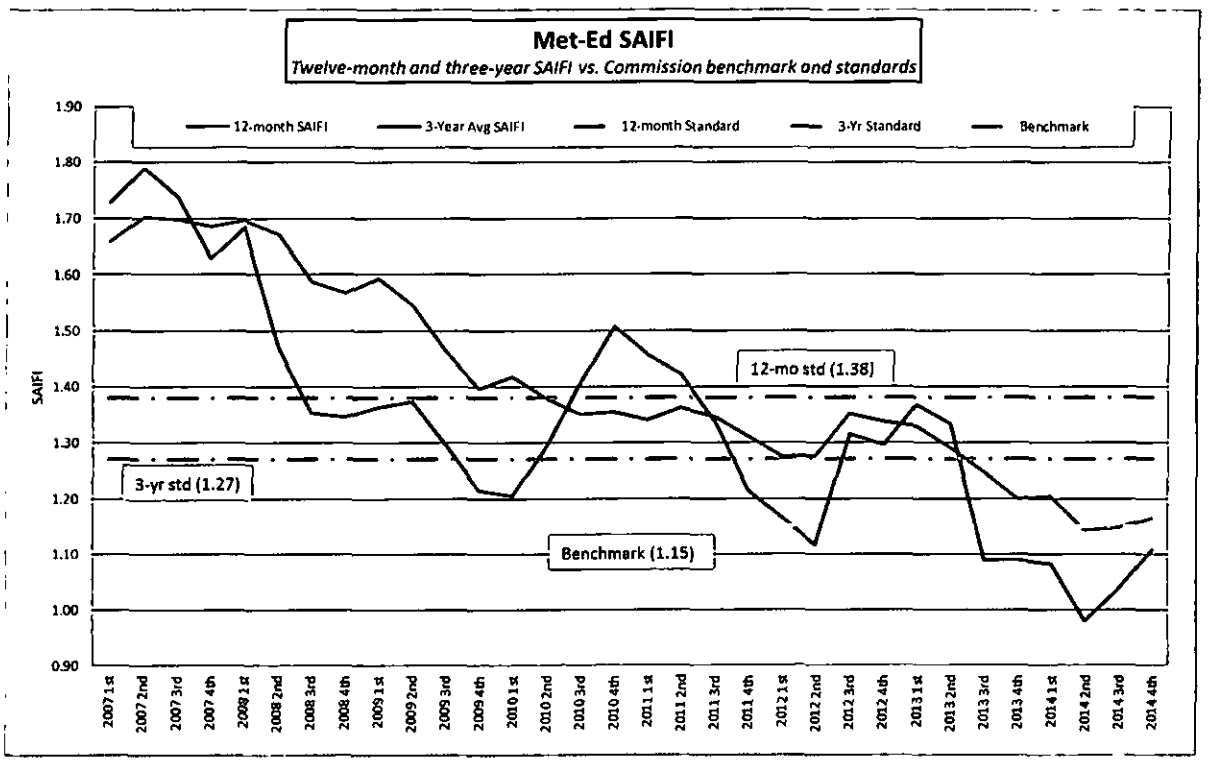
Background

In an effort to improve overall reliability, Met-Ed underwent a focused reliability assessment by an outside consultant in 2007,[1] and initiatives undertaken by Met-Ed following the assessment resulted in reliability improvement. These initiatives included the development of an enhanced vegetation management program; installation of fuses, reclosers, supervisory control and data acquisition ("SCADA") controlled devices, and faulted circuit indicators; and the refinement of partial restoration procedures. Not only did these upgrades result in significant reductions in SAIFI and SAIDI and enable Met-Ed to maintain steady CAIDI performance, but they also continue to drive improvements to reliability. Overall, Met-Ed's reliability performance has shown steady improvement in SAIFI, SAIDI and CAIDI since 2007, with reductions of approximately 23% for SAIFI, 33% for SAIDI and 4% for CAIDI.

[1] 2006 Focused Audit of Metropolitan Edison Company conducted by UMS Group Inc. and issued July 2007.

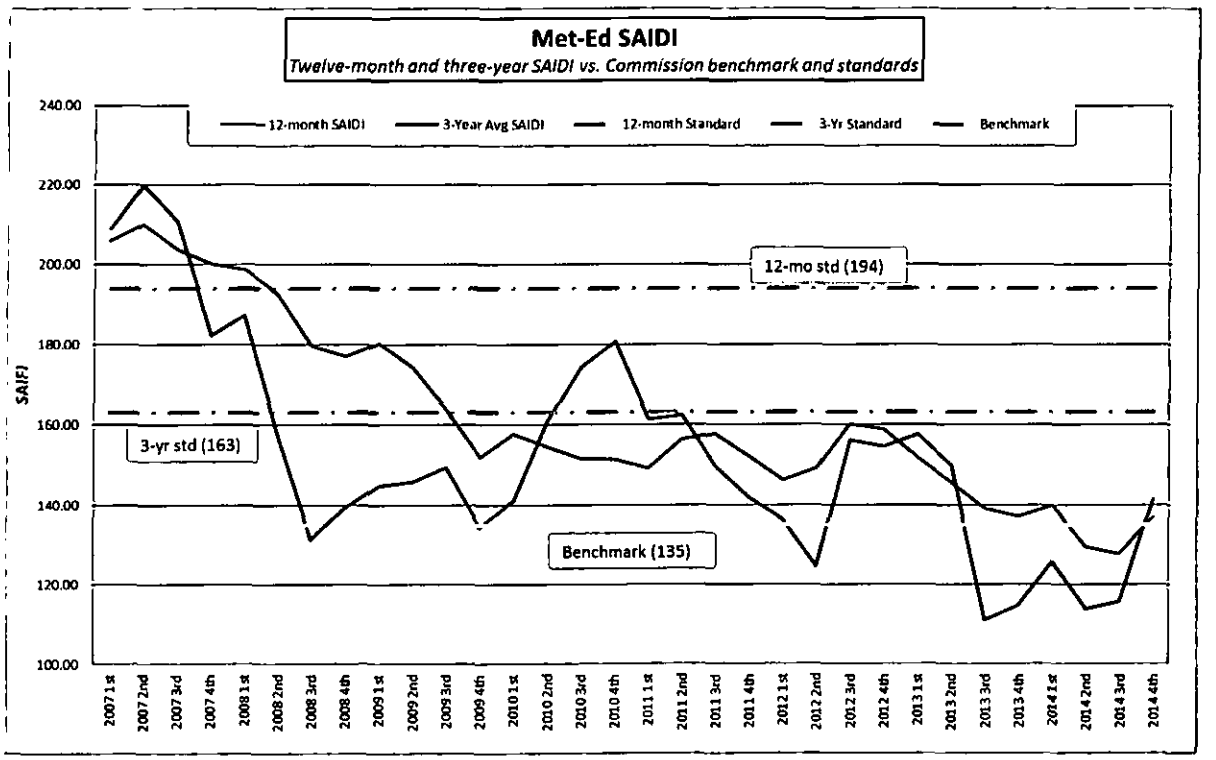
As seen in ***Chart 1***, Met-Ed's year-end twelve-month SAIFI was better than the twelve-month performance standard in 2008, 2009, and 2011-2014, and better than benchmark in both 2013 and 2014. Additionally, Met-Ed's three-year SAIFI was better than the three-year performance standard in 2013 and 2014.

Chart 1. Twelve-month and three-year rolling SAIFI performance through December 2014



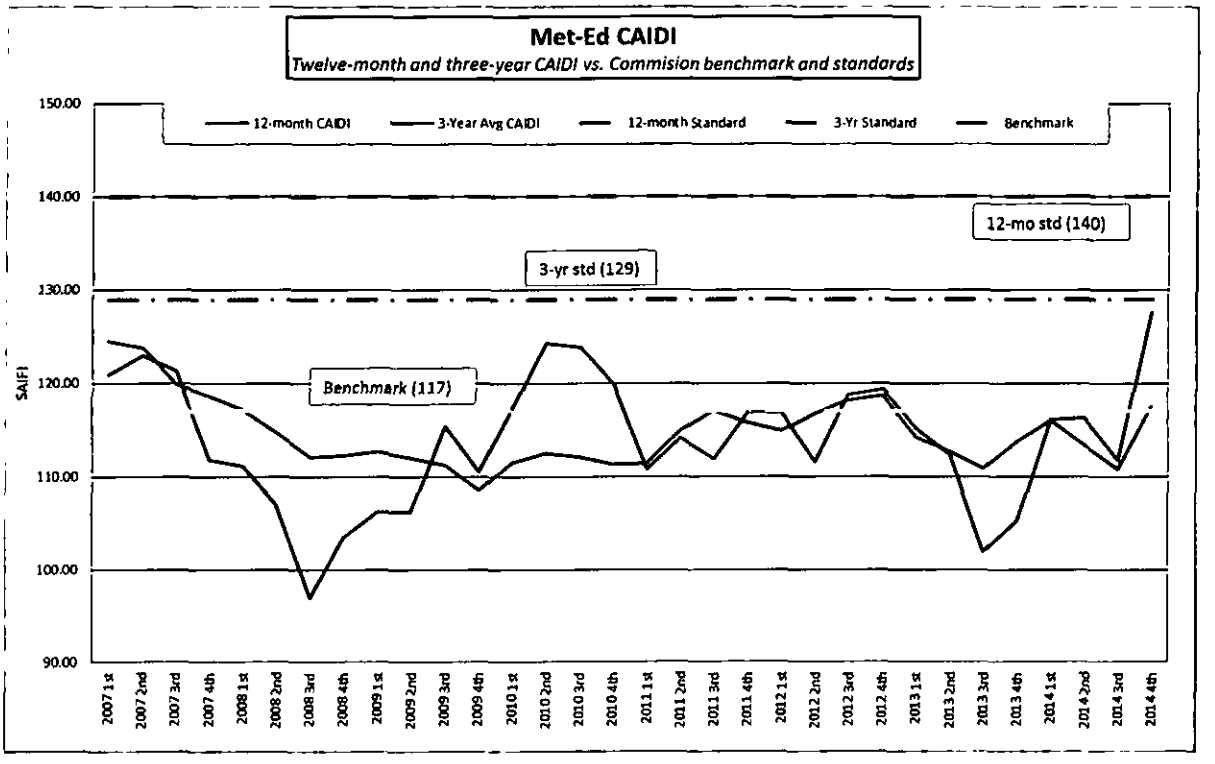
As seen in ***Chart 2***, Met-Ed's year-end twelve-month SAIDI was better than the twelve-month performance standard in 2007-2014, and better than benchmark in both 2009 and 2013. Additionally, Met-Ed's three-year SAIDI was better than the three-year performance standard since 2009.

Chart 2. Twelve-month and three-year rolling SAIDI performance through December 2014



As seen in ***Chart 3***, Met-Ed's year-end twelve-month CAIDI was better than the twelve-month performance standard in 2007-2014, and better than benchmark in 2007-2009, 2011 and 2013. Additionally, Met-Ed's three-year CAIDI has been better than the three-year performance standard since 2007.

Chart 3. Twelve-month and three-year rolling performance through December 2014



Reliability Analysis

When reviewing Met-Ed's historical reliability performance, CAIDI has traditionally performed below benchmark while SAIFI has performed at or just above benchmark. By targeting SAIFI, customers will continue to experience good reliability both in terms of frequency and duration and as a product of SAIFI and CAIDI, SAIDI will also continue to perform well.

The largest contributors to Met-Ed's SAIFI between 2010 and 2014 were equipment failure, line failure, and off right-of-way tree caused outages. ***Attachment A*** identifies the outage causes experienced by Met-Ed, including the number and duration of, for this period. Further, as described in Ordering Paragraph 4, Met-Ed has determined that targeting these outage causes specifically on WPCs will have the greatest impact to improving reliability. In addition to SCADA device installations and specific projects designed to create circuit ties, the WPC Plan contains targeted circuit rehabilitation as well as a focus on vegetation management in an attempt to reduce the number of customer interruptions. The WPC Plan also targets replacement of porcelain cutouts, as porcelain cutouts represent the highest contributor to equipment failure.

Additionally, Met-Ed completed an analysis of blue sky and non-blue sky day SAIFI performance to determine whether recent blue sky day performance was strong enough to withstand a higher than normal storm year while continuing to consistently achieve benchmark performance. Because the number of storms experienced in a given year is unpredictable, SAIFI will in turn vary. Met-Ed's average combined blue sky and non-blue sky day performance for SAIFI is 1.14.[2] Therefore, implementing the Company's WPC Plan will help ensure that SAIFI performance falls within the desirable range, enabling Met-Ed to still target consistent benchmark performance.

Reliability Plan

Due to its strong reliability performance in recent years and based on Met-Ed's engineering analyses, it has been determined that an effort to target the circuits which have appeared on the 5% WPC list within its Annual Reliability Reports for two or more years between 2010 and 2014 will have the greatest impact on system-wide SAIFI, SAIDI, and CAIDI performance in the most cost-effective manner. Met-Ed's focused plan to address these circuits can be found in Met-Ed's response to Ordering Paragraph 4.

Conclusion

Met-Ed leadership is actively engaged and working with all employees in its continued drive towards meeting its twelve-month, three-year, and benchmark performance standards established by the Commission for SAIFI, SAIDI, and CAIDI. Met-Ed continuously evaluates system-wide reliability performance and looks for any emerging trends that would affect reliability. These analyses include reviewing performance during both blue sky and non-blue sky days. Met-Ed employees and leadership remain diligently committed to continuing its strong reliability performance in all three indices.

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[2] Based on the twelve-month rolling performance for each quarter in 2013 and 2014.

Outages by Cause				
2010	Met-Ed			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
EQUIPMENT FAILURE	19,426,569	2,536	233,486	24.14%
TREES/NOT PREVENTABLE	41,317,679	2,273	215,128	21.64%
ANIMAL	2,926,237	1,705	33,264	16.23%
UNKNOWN	4,780,093	1,311	48,786	12.48%
LINE FAILURE	10,822,550	889	82,550	8.46%
LIGHTNING	2,566,969	374	16,243	3.56%
FORCED OUTAGE	3,298,165	331	55,155	3.15%
VEHICLE	6,690,576	277	53,493	2.64%
BIRD	102,531	189	1,703	1.80%
TREES/PREVENTABLE	868,086	149	8,521	1.42%
OVERLOAD	1,924,803	106	12,534	1.01%
HUMAN ERROR -NON-COMPANY	380,111	73	8,347	0.69%
HUMAN ERROR - COMPANY	885,254	66	40,059	0.63%
PREVIOUS LIGHTNING	131,897	66	1,218	0.63%
UG DIG-UP	91,271	34	480	0.32%
CUSTOMER EQUIPMENT	9,227	24	102	0.23%
ICE	1,984	23	23	0.22%
WIND	1,546,748	21	4,658	0.20%
OBJECT CONTACT WITH LINE	239,998	20	2,047	0.19%
OTHER ELECTRIC UTILITY	317,881	18	2,776	0.17%
VANDALISM	360,127	15	3,040	0.14%
FIRE	51,802	4	184	0.04%
TOTAL	**98,740,558**	**10,504**	**823,797**	**100.00%**

Outages by Cause				
2011	**Met-Ed**			
Cause	**Customer Minutes**	**Number of Sustained Interruptions**	**Customers Affected**	**% Based on Number of Outages**
EQUIPMENT FAILURE	15,192,610	2367	148,623	26.87%
TREES/NOT PREVENTABLE	26,822,080	1764	159,871	20.03%
ANIMAL	2,962,276	1030	33616	11.69%
UNKNOWN	4,183,606	902	61,324	10.24%
LINE FAILURE	7,466,060	730	43,449	8.29%
LIGHTNING	4,480,236	624	39,193	7.08%
FORCED OUTAGE	2,924,675	357	56,860	4.05%
VEHICLE	6,208,642	298	57,037	3.38%
BIRD	353,919	185	2,325	2.10%
TREES/PREVENTABLE	906,418	173	5,122	1.96%
HUMAN ERROR -NON-COMPANY	559,242	71	5,816	0.81%
OVERLOAD	454,985	65	5,569	0.74%
WIND	3,412,334	54	19,345	0.61%
PREVIOUS LIGHTNING	39,000	51	222	0.58%
HUMAN ERROR - COMPANY	237,495	34	10,316	0.39%
UG DIG-UP	142,352	25	1,942	0.28%
OBJECT CONTACT WITH LINE	480,187	23	5,540	0.26%
CUSTOMER EQUIPMENT	52,118	15	1,641	0.17%
VANDALISM	356,675	15	3,667	0.17%
OTHER ELECTRIC UTILITY	299,878	9	2,082	0.10%
FIRE	16,573	8	66	0.09%
CONTAMINATION	1,875	3	5	0.03%
ICE	1,123	3	13	0.03%
OTHER UTILITY-NON ELEC	4,060	2	20	0.02%
TOTAL	**77,558,419**	**8,808**	**663,664**	**100.00%**

Outages by Cause				
2012	**Met-Ed**			
Cause	**Customer Minutes**	**Number of Sustained Interruptions**	**Customers Affected**	**% Based on Number of Outages**
TREES/NOT PREVENTABLE	32,371,510	2,044	177,791	22.68%
EQUIPMENT FAILURE	14,508,654	1,946	152,066	21.59%
UNKNOWN	7,134,496	1,218	91,844	13.51%
ANIMAL	1,338,572	1,094	14,499	12.14%
LIGHTNING	6,261,982	831	41,355	9.22%
LINE FAILURE	6,568,441	580	49,030	6.44%
FORCED OUTAGE	3,284,898	332	66,466	3.68%
VEHICLE	6,889,128	267	48,700	2.96%
BIRD	167,917	181	3,947	2.01%
TREES/PREVENTABLE	1,784,595	141	12,994	1.56%
HUMAN ERROR - NON-COMPANY	770,638	76	4,507	0.84%
PREVIOUS LIGHTNING	129,220	64	701	0.71%
HUMAN ERROR - COMPANY	261,548	56	18,525	0.62%
OVERLOAD	855,133	54	10,090	0.60%
UG DIG-UP	95,492	31	478	0.34%
OBJECT CONTACT WITH LINE	628,515	26	7,063	0.29%
WIND	1,021,924	23	2,200	0.26%
CUSTOMER EQUIPMENT	430,596	18	2,052	0.20%
VANDALISM	5,501	11	45	0.12%
OTHER ELECTRIC UTILITY	107,588	9	4,532	0.10%
FIRE	99,181	8	978	0.09%
OTHER UTILITY-NON ELEC	2,736	2	10	0.02%
CONTAMINATION	111	1	1	0.01%
TOTAL	**84,718,376**	**9,013**	**709,874**	**100.00%**

Outages by Cause				
2013	Met-Ed			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
EQUIPMENT FAILURE	18,699,169	2,113	214,166	29.10%
ANIMAL	3,004,590	1,076	27,213	14.82%
UNKNOWN	3,995,693	870	50,726	11.98%
TREES OFF ROW-TREE	8,996,430	503	56,619	6.93%
LINE FAILURE	6,600,045	501	38,347	6.90%
LIGHTNING	2,340,781	327	24,753	4.50%
FORCED OUTAGE	3,920,703	303	62,330	4.17%
VEHICLE	5,959,469	295	38,117	4.06%
TREES/NOT PREVENTABLE	2,883,257	274	23,787	3.77%
BIRD	382,822	226	4,470	3.11%
TREES OFF ROW-LIMB	2,338,148	216	17,377	2.97%
TREES ON ROW	1,215,052	164	7,218	2.26%
TREES - SEC/SERVICE	173,157	88	723	1.21%
OVERLOAD	414,317	79	3,545	1.09%
HUMAN ERROR -NON-COMPANY	489,673	49	4,582	0.67%
HUMAN ERROR - COMPANY	678,479	34	16,331	0.47%
PREVIOUS LIGHTNING	27,817	31	160	0.43%
UG DIG-UP	71,343	27	345	0.37%
OBJECT CONTACT WITH LINE	558,894	21	3,041	0.29%
TREES/PREVENTABLE	66,714	16	524	0.22%
CUSTOMER EQUIPMENT	19,012	15	258	0.21%
WIND	52,197	11	246	0.15%
VANDALISM	25,539	8	2,537	0.11%
OTHER UTILITY-NON ELEC	45,831	5	438	0.07%
FIRE	5,847	3	162	0.04%
OTHER ELECTRIC UTILITY	1,878	3	25	0.04%
CONTAMINATION	2,254	2	34	0.03%
ICE	13,357	1	37	0.01%
Total	**62,982,468**	**7,261**	**598,111**	**100.00%**

Outages by Cause				
2014	Met-Ed			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
EQUIPMENT FAILURE	18,417,151	2,311	167,932	26.36%
ANIMAL	2,248,538	1,407	32,637	16.05%
UNKNOWN	7,093,745	1,228	68,830	14.01%
TREES OFF ROW-TREE	14,432,617	748	59,981	8.53%
LINE FAILURE	7,867,205	577	55,832	6.58%
TREES OFF ROW-LIMB	4,696,759	419	28,782	4.78%
LIGHTNING	1,582,984	357	19,061	4.07%
FORCED OUTAGE	3,655,771	315	68,356	3.59%
TREES ON ROW	4,306,985	312	17,714	3.56%
VEHICLE	8,873,190	302	58,464	3.45%
BIRD	851,029	290	11,133	3.31%
TREES - SEC/SERVICE	345,327	136	823	1.55%
ICE	1,508,685	83	3,357	0.95%
OVERLOAD	428,876	73	4,037	0.83%
HUMAN ERROR -NON-COMPANY	507,723	72	4,452	0.82%
OBJECT CONTACT WITH LINE	762,007	52	5,049	0.59%
UGDIG-UP	267,522	21	1,092	0.24%
CUSTOMER EQUIPMENT	8,272	20	65	0.23%
PREVIOUS LIGHTNING	10,195	20	94	0.23%
FIRE	25,933	7	320	0.08%
HUMAN ERROR - COMPANY	56,930	6	1,937	0.07%
VANDALISM	146	3	3	0.03%
CONTAMINATION	283	2	3	0.02%
OTHER UTILITY-NON ELEC	2,512	2	10	0.02%
OTHER ELECTRIC UTILITY	75	1	1	0.01%
SWITCHING ERROR	5,120	1	640	0.01%
WIND	309	1	1	0.01%
Total	**77,955,889**	**8,766**	**610,606**	**100.00%**

Penelec Reliability Plan

Executive Summary

In response to the Commission's Order, the Pennsylvania Electric Company ("Penelec" or "Company") developed a detailed Reliability Plan that will not only allow it to meet its twelve-month and three-year performance standards, but will also facilitate the Company's goal of meeting benchmark-level performance in all three indices by year-end 2018. The projects and initiatives identified in the Reliability Plan, previously referred to as a Corrective Action Plan ("CAP"),[1] will be implemented during the period of 2016-2018. Penelec's CAP contains four main components: targeted circuit rehabilitation, porcelain cutout replacement, sectionalizing and supervisory control and data acquisition ("SCADA") control, and accelerated and enhanced vegetation management. The Reliability Plan will include the four components from the CAP as well as a new component, a Transmission Improvement Study. The Reliability Plan includes an analysis of the causes of, the number, and duration of outages; specific investments to improve reliability based upon this analysis; estimated reliability performance improvements associated with these investments; and estimated project completion dates.

Background

In an effort to improve overall reliability, Penelec underwent a focused reliability assessment by an outside consultant between November 2008 and January 2009,[2] and actions were undertaken by Penelec following the assessment that resulted in reliability improvement. These initiatives included the development of an enhanced tree trimming program, installation of additional adaptive relay and directional fault indicators, and the implementation of partial restoration procedures. Also, circuit protection and sectionalizing upgrades were completed, which resulted in a 20% reduction to the number of customers interrupted per outage incident. All of these projects, paired with the Company's routine inspection and maintenance of electrical equipment, have continued in an effort to improve reliability. Despite routine annual work which attempted to create steady state reliability, Penelec leadership recognized that System Average Interruption Frequency Index ("SAIFI") has shown an increasing trend and as a result formed a Reliability Improvement Team in 2014. This team identified projects and programs targeted to improve the Company's negative SAIFI trend. These projects and programs were later incorporated into the CAP with construction beginning in 2015.

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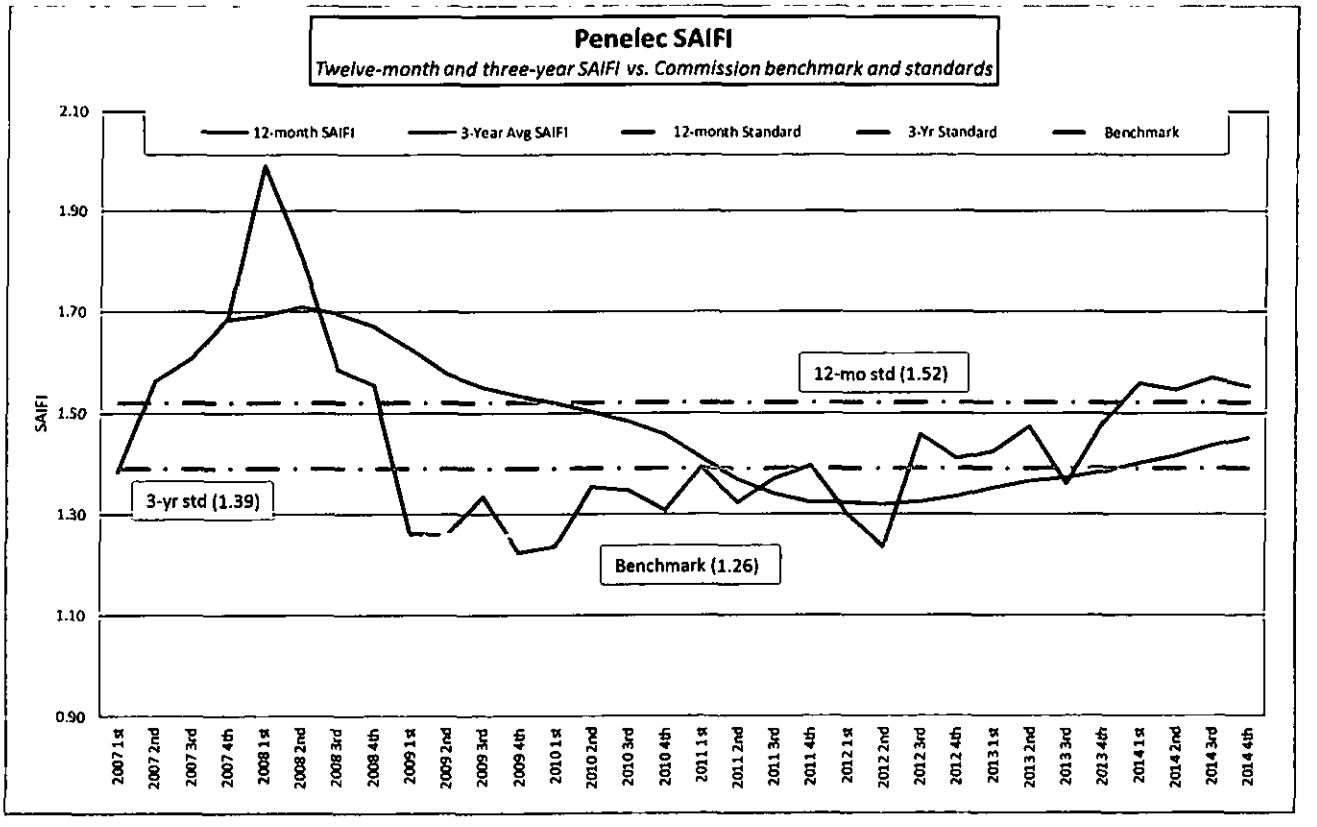
[1] In December 2014, Penelec submitted a CAP designed to improve overall reliability and achieve benchmark performance in all three indices by year-end 2018. The projects and initiatives included in the CAP were for the period of 2015-2018. The 2016-2018 portion of the CAP is now incorporated within this Reliability Plan.

[2] Focused Reliability Assessment (Penelec) conducted by UMS Group Inc. and issued March 2009.

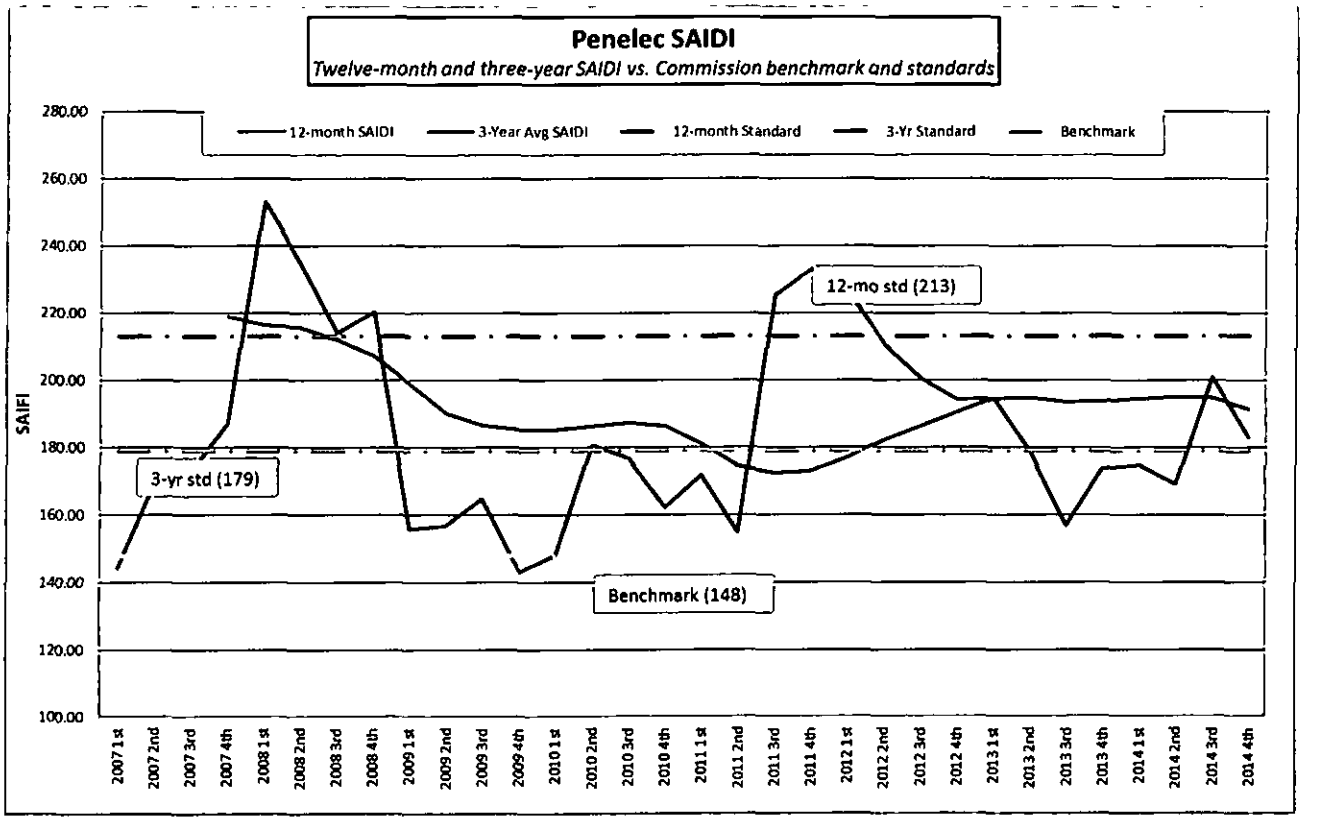
As seen in ***Chart 1***, Penelec's year-end twelve-month SAIFI was better than the twelve-month performance standard for 2009-2013, and better than benchmark in 2009. Additionally, Penelec's three-year SAIFI was better than the three-year performance standard in each of 2010, 2011 and 2012.

Chart 1. Twelve-month and three-year rolling SAIFI performance through December 2014



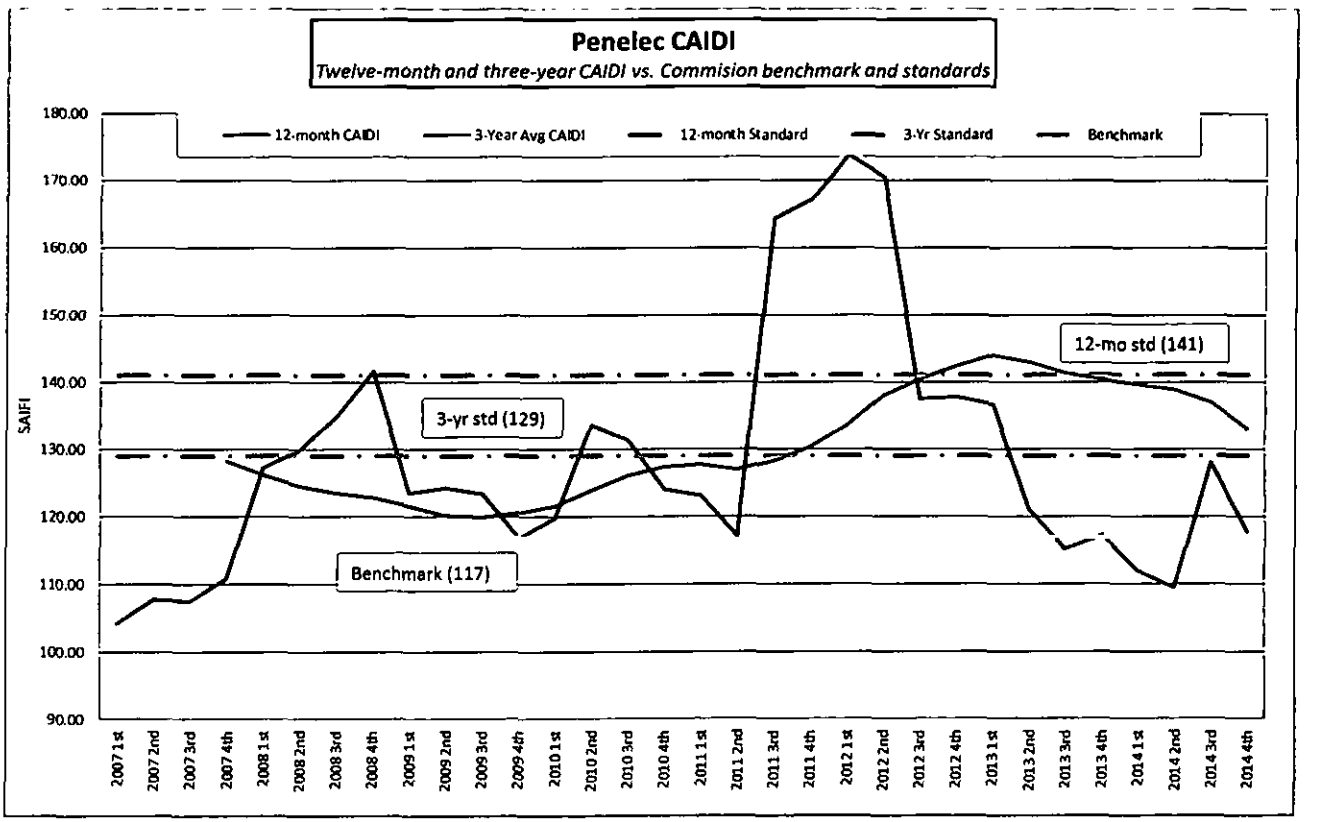
As seen in ***Chart 2***, Penelec's year-end twelve-month System Average Interruption Duration Index ("SAIDI") was better than the twelve-month performance standard for 2007, 2009, 2010, and 2012-2014, and better than benchmark in 2009. Additionally, Penelec's three-year SAIDI was better than the three-year performance standard in 2010.

Chart 2. Twelve-month and three-year rolling SAIDI performance through December 2014



As seen in ***Chart 3***, Penelec's year-end twelve-month Customer Average Interruption Duration Index ("CAIDI") was better than the twelve-month performance standard for 2007, 2009, 2010, and 2012-2014, and better than benchmark in 2007, 2009 and 2013. Additionally, Penelec's three-year CAIDI was better than the three-year performance standard between 2007 through 2010 and 2014.

Chart 3. Twelve-month and three-year rolling CAIDI performance through December 2014



Reliability Analysis

The largest contributors to SAIFI between 2010 and 2014 were in the categories of equipment failure, off right of way ("ROW") trees, and line failure caused outages. ***Attachment A*** identifies the outage causes experienced by Penelec, including the number and duration of, for this period. As such, Penelec's Reliability Plan is designed to target these top outage causes. The Reliability Plan contains system upgrades as well as a targeted vegetation management component in an attempt to reduce the number of customer interruptions. In the equipment failure category, cutout failures on the 34.5kV system were the highest contributor, while most of the SAIFI degradation is occurring on the 34.5kV system – especially in Erie, Towanda, and Oil City operations centers – when looking at tree-caused outages.

The Company also completed an analysis of its blue sky SAIFI and CAIDI. In order to address SAIFI performance, the CAP was developed to ensure that SAIFI variations experienced from

historical non-blue sky days would be able to be absorbed and provide an adequate "buffer" to achieve benchmark-level performance by year-end 2018. For example, over the time period reviewed, blue sky SAIFI varied by 15%, while non-blue sky SAIFI varied by 53%. Penelec's Reliability Plan accommodates these variations by recognizing that the best blue sky and non-blue sky quarters (1.32 SAIFI) and the worst blue sky and non-blue sky quarters (1.68 SAIFI) form an anticipated variance bandwidth of 0.36 SAIFI. Therefore, the Reliability Plan is designed to improve SAIFI performance such that the upper and lower limits of the 0.36 bandwidth fall into the desired performance range. With regard to CAIDI, the Company currently has an internal blue sky set point of 100 minutes, but continues to review performance and adjusts the set point as needed to better ensure overall CAIDI performance does not exceed benchmark.

Reliability Plan

As a result of the Penelec's analyses, a list of projects targeted to improve SAIFI, CAIDI and SAIDI performance were identified, which formed the basis of the Company's Reliability Plan, which is found in ***Attachment B.*** The Reliability Plan includes a combination of existing and accelerated or enhanced projects aimed to improve reliability, as well as additional new projects to drive further reliability benefits. The Reliability Plan provides anticipated start and completion dates of the individual actions, as well as projected reliability benefits defined in terms of SAIFI and minutes of SAIDI and CAIDI.

Penelec has concluded that its recent negative SAIFI trend can be attributed to:

1. A small number of circuits contributing to a large negative reliability impact
2. Increased cutout failures
3. Lost opportunities for remote controlled switching
4. Increased off ROW tree interruptions

While a large portion of the reliability improvement effort in recent years focused on reducing the size of an interruption by installing circuit protection and sectionalizing equipment, the average interruption size increased somewhat in the last two years. This is primarily due to an increase in the number of supply circuit interruptions on Penelec's 34.5kV system. As a result, the Reliability Plan will specifically target improvements to its 34.5 kV system where there is the potential for the highest customer impact. The Reliability Plan is structured into five main components that will address reliability and WPC concerns. These components include:

1. Targeted circuit rehabilitation

   Penelec will target zone 1 of six circuits, primarily on its 34.5 kV system, for circuit rehabilitation.[3] When performing circuit rehabilitation, the Company will first conduct an

[3] Zone 1 is defined as the portion of the circuit from the substation breaker to the first protective device. Zone 2 is defined as the three phase conductor and devices after the first protective device.

inspection to identify and then replace equipment. Equipment may include poles, switches, crossarms, insulators, braces and cutouts.

2. Porcelain cutout replacement

The porcelain cutout replacement component of Penelec's Reliability Plan is specifically geared towards its 34.5kV system. When it comes to equipment failure, cutout failures have been identified as the highest contributor to this outage category. Installing new porcelain cutouts is expected to greatly enhance the reliability of the Company's 34.5kV system and reduce the number of equipment failures that Penelec experiences.

3. Sectionalizing and remote SCADA switching control

Remote SCADA controlled switches allow the Distribution Control Center to remotely operate switches to restore service to customers when an outage occurs. This eliminates the need to dispatch crews to manually operate them and reduces the number of customers affected by an outage, as well as reduces outage durations.

4. Accelerated and enhanced vegetation management

One of the largest contributors to SAIFI, SAIDI and CAIDI are off ROW tree outages. As such, the Reliability Plan contains a dedicated forestry component. This forestry work is in addition to the other vegetation management work that the Company implements, including its routine vegetation management program. Penelec will accelerate the removal of trees outside the ROW in zones one and two of over 1300 miles of its distribution and 34.5 kV system that typically experience high tree-related SAIFI. Penelec will also perform enhanced tree trimming on approximately 1800 miles of the distribution system in 2017.

5. Transmission Improvement Study

The Reliability Plan will also include a Transmission Improvement Study which will focus on identifying potential reliability improvements. The outcome of the study will determine whether additional projects should be undertaken to target improved reliability in future years.

Penelec will continuously review its Reliability Plan to determine the effectiveness of the identified projects and programs in relation to actual performance results. The Company may re-prioritize, alter completion dates, and add or remove projects based on ongoing engineering analyses to maximize the reliability and operating benefits to the system as determined necessary to meet the established targets.

In conjunction with its Reliability Plan, Penelec has also developed a plan to address those circuits which have appeared on the 5% worst performing circuit ("WPC") list within its Annual Reliability Reports for two or more years between 2010 and 2014. The WPC plan will work in tandem with the Reliability Plan in that each will improve overall reliability; however, the WPC plan will target specific circuits that have demonstrated deficiencies in performance. Likewise, projects and initiatives identified in Penelec's Reliability Plan will improve the performance of

these WPCs. These projects and programs can be found in Penelec's response to Ordering Paragraph 4, which discusses Penelec's WPC plan in further detail.

Conclusion

Penelec leadership is actively engaged and working with all employees to implement this Reliability Plan with the intent of not only meeting the Company's twelve-month and three-year performance standards established by the Commission for SAIFI, SAIDI and CAIDI, but also facilitating the Company's goal of meeting benchmark-level performance by year-end 2018. Penelec regularly evaluates system-wide reliability performance and looks for any emerging trends that would affect reliability. These analyses include reviewing performance during both blue sky and non-blue sky days. Penelec employees and leadership will diligently work towards meeting their goal of achieving benchmark-level performance in all three indices by year-end 2018.

Outages by Cause				
2010	Penelec			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
EQUIPMENT FAILURE	21,673,206	3,337	212,441	29.47%
UNKNOWN	6,790,147	1,723	91,063	15.21%
TREES/NOT PREVENTABLE	27,244,159	1,529	140,645	13.50%
ANIMAL	2,832,370	1,150	25,231	10.15%
LINE FAILURE	13,017,146	858	113,765	7.58%
FORCED OUTAGE	2,548,171	643	44,191	5.68%
LIGHTNING	4,929,119	504	34,786	4.45%
BIRD	474,568	362	6,454	3.20%
VEHICLE	4,375,025	312	27,784	2.75%
OVERLOAD	968,447	168	13,311	1.48%
HUMAN ERROR - COMPANY	170,466	115	8,926	1.02%
HUMAN ERROR -NON-COMPANY	925,049	103	7,986	0.91%
ICE	54,316	89	356	0.79%
OTHER ELECTRIC UTILITY	246,941	84	1,341	0.74%
UG DIG-UP	378,451	74	1,876	0.65%
PREVIOUS LIGHTNING	18,945	71	148	0.63%
WIND	6,870,559	60	21,189	0.53%
TREES/PREVENTABLE	30,718	38	359	0.34%
OBJECT CONTACT WITH LINE	407,328	25	1,676	0.22%
VANDALISM	418,795	22	2,040	0.19%
FIRE	64,192	19	499	0.17%
CUSTOMER EQUIPMENT	22,084	16	101	0.14%
OTHER UTILITY-NON ELEC	86,177	12	1,852	0.11%
SWITCHING ERROR	193,786	7	5,597	0.06%
CONTAMINATION	18,843	4	229	0.04%
TOTAL	**94,759,008**	**11,325**	**763,846**	**100.00%**

Outages by Cause				
2011	Penelec			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
EQUIPMENT FAILURE	38,111,369	3,822	311,950	29.93%
TREES/NOT PREVENTABLE	55,758,431	2,041	139,447	15.98%
UNKNOWN	9,992,858	1,878	80,573	14.71%
LINE FAILURE	14,144,404	1,088	125,510	8.52%
ANIMAL	1,379,220	1,059	15,822	8.29%
LIGHTNING	3,530,487	694	37,456	5.44%
FORCED OUTAGE	2,968,424	660	32,970	5.17%
VEHICLE	4,527,267	361	29,842	2.83%
BIRD	405,865	279	4,936	2.18%
OVERLOAD	1,582,038	201	12,052	1.57%
HUMAN ERROR - COMPANY	49,047	108	1,914	0.85%
OTHER ELECTRIC UTILITY	877,486	100	2,249	0.78%
HUMAN ERROR - NON-COMPANY	1,184,534	98	8,174	0.77%
ICE	628,643	82	1,694	0.64%
PREVIOUS LIGHTNING	191,953	78	4,813	0.61%
UG DIG-UP	144,203	68	731	0.53%
OBJECT CONTACT WITH LINE	360,108	40	2,567	0.31%
TREES/PREVENTABLE	82,319	39	639	0.31%
CUSTOMER EQUIPMENT	90,498	21	672	0.16%
VANDALISM	357,629	17	1,995	0.13%
FIRE	109,312	16	197	0.13%
OTHER UTILITY-NON ELEC	107,909	9	1,195	0.07%
CONTAMINATION	4,499	7	57	0.05%
CALL ERROR	0	1	0	0.01%
SWITCHING ERROR	17,004	1	436	0.01%
WIND	1,520	1	19	0.01%
TOTAL	**136,607,027**	**12,769**	**817,910**	**100.00%**

Outages by Cause				
2012	Penelec			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
EQUIPMENT FAILURE	23,140,103	3,036	200,965	26.35%
UNKNOWN	11,223,749	2,044	117,411	17.74%
TREES/NOT PREVENTABLE	41,128,588	1,825	163,997	15.84%
ANIMAL	2,155,071	1,185	31,806	10.29%
LINE FAILURE	15,678,176	868	114,517	7.53%
FORCED OUTAGE	3,105,186	605	33,952	5.25%
LIGHTNING	5,535,695	535	40,698	4.64%
VEHICLE	6,041,986	371	39,463	3.22%
BIRD	800,110	262	5,936	2.27%
HUMAN ERROR - COMPANY	424,924	198	12,252	1.72%
CUSTOMER EQUIPMENT	1,106,736	111	34,711	0.96%
HUMAN ERROR -NON-COMPANY	415,439	92	8,176	0.80%
OVERLOAD	501,682	89	5,979	0.77%
OTHER ELECTRIC UTILITY	244,436	59	1,514	0.51%
PREVIOUS LIGHTNING	84,247	58	344	0.50%
TREES/PREVENTABLE	145,029	57	548	0.49%
UG DIG-UP	94,399	49	483	0.43%
ICE	112,447	18	246	0.16%
VANDALISM	770,802	18	3,583	0.16%
OBJECT CONTACT WITH LINE	194,423	16	1,232	0.14%
FIRE	87,570	10	819	0.09%
OTHER UTILITY-NON ELEC	277,520	6	239	0.05%
SWITCHING ERROR	44,770	4	4,070	0.03%
CONTAMINATION	455	3	7	0.03%
WIND	3,244	2	2	0.02%
Total	**113,316,787**	**11,521**	**822,950**	**100.00%**

Outages by Cause				
2013	Penelec			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
EQUIPMENT FAILURE	21,067,549	2,932	233,926	26.03%
UNKNOWN	10,190,282	2,064	128,284	18.32%
TREES OFF ROW-TREE	23,808,972	951	95,730	8.44%
ANIMAL	1,770,532	908	32,407	8.06%
LINE FAILURE	12,508,136	880	115,736	7.81%
FORCED OUTAGE	6,110,372	708	46,882	6.28%
TREES/NOT PREVENTABLE	6,311,692	438	43,010	3.89%
LIGHTNING	3,038,654	405	31,004	3.60%
TREES - SEC/SERVICE	513,223	324	1,264	2.88%
VEHICLE	4,360,712	319	32,828	2.83%
BIRD	464,487	291	5,801	2.58%
TREES OFF ROW-LIMB	3,388,468	283	27,820	2.51%
HUMAN ERROR - COMPANY	195,775	177	2,460	1.57%
HUMAN ERROR -NON-COMPANY	893,196	111	10,447	0.99%
OVERLOAD	562,621	81	12,169	0.72%
CUSTOMER EQUIPMENT	1,935,393	78	16,055	0.69%
TREES ON ROW	134,274	65	821	0.58%
OTHER ELECTRIC UTILITY	174,606	60	1,988	0.53%
UG DIG-UP	84,895	41	490	0.36%
PREVIOUS LIGHTNING	49,154	32	160	0.28%
OBJECT CONTACT WITH LINE	166,256	29	1,393	0.26%
CONTAMINATION	1,036,570	24	13,962	0.21%
VANDALISM	67,324	21	507	0.19%
ICE	144,193	17	491	0.15%
FIRE	183,379	9	1,872	0.08%
WIND	1,159,105	7	5,260	0.06%
OTHER UTILITY-NON ELEC	14,226	6	150	0.05%
SWITCHING ERROR	5,180	2	685	0.02%
TREES/PREVENTABLE	338	2	2	0.02%
Total	**101,239,564**	**11,265**	**863,604**	**100.00%**

Outages by Cause				
2014	Penelec			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
Equipment Failure	28,557,408	3,334	311,986	28.90%
Unknown	9,828,214	2,140	105,617	18.55%
Trees Off ROW-Tree	29,780,272	1,115	157,601	9.67%
Animal	2,469,432	1,107	27,804	9.60%
Line Failure	13,522,399	905	108,637	7.85%
Forced Outage	3,823,102	721	48,787	6.25%
Trees Off ROW-Limb	2,923,980	349	19,350	3.03%
Lightning	2,368,625	339	16,519	2.94%
Trees - Sec/Service	452,413	322	1,249	2.79%
Bird	658,202	272	6,718	2.36%
Vehicle	5,887,118	264	41,315	2.29%
Human Error - Company	174,601	179	9,181	1.55%
Human Error -Non-Company	2,041,116	94	9,340	0.81%
Trees On ROW	1,094,271	86	4,397	0.75%
Overload	1,319,644	74	25,254	0.64%
Other Electric Utility	230,590	47	2,340	0.41%
UG Dig-Up	62,053	35	312	0.30%
Object Contact With Line	391,709	32	1,589	0.28%
Previous Lightning	4,952	23	35	0.20%
Fire	197,574	22	835	0.19%
Ice	5,708	19	26	0.16%
Vandalism	33,203	14	326	0.12%
Customer Equipment	10,022	13	69	0.11%
Wind	471,246	12	1,086	0.10%
Other Utility-Non Elec	29,455	8	89	0.07%
Switching Error	86,382	5	2,958	0.04%
Contamination	1,916	3	9	0.03%
Call Error	-	1	-	0.01%
Total	***106,425,607***	***11,535***	***903,429***	***100.00%***

Penelec Projects 2016

Distribution Lines Projects (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Complete Construction of Backfeed for 00206-43	Reliability	February 2015	November 2016			5%	0.0017		0.20	$ 852,000	
Finish protection/coordination work on 00520-31	Reliability	April 2016	June 2016				0.0001		0.01	$ 17,040	
Finish protection/coordination work on 00237-31	Reliability	August 2016	October 2016				0.0003		0.04	$ 17,040	
Finish protection/coordination work on 00498-51	Reliability	April 2016	July 2016				0.0003		0.04	$ 17,040	
Finish protection/coordination work on 00436-65	Reliability	March 2016	June 2016				0.0007		0.08	$ 56,800	
Targeted Mainline Rehabilitation of 00164-22	Reliability	February 2016	May 2016				0.0050		0.59	$ 424,800	
Targeted Mainline Rehabilitation of 00168-22	Reliability	June 2016	September 2016				0.0013		0.15	$ 466,100	
Finish protection/coordination work on 00013-12	Reliability	March 2016	June 2016				0.0003		0.04	$ 17,040	
Finish protection/coordination work on 00080-13	Reliability	April 2016	July 2016				0.0003		0.04	$ 17,040	

Porcelain Cutout Replacement (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
34kV 3 Phase Priority 2 circuit list cutout replacement (65 circuits)	Reliability	January 2016	December 2016				0.0112		1.31	$ 7,225,406	

12kV and below Substation Isolation SCADA (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Titusville West - Install SCADA	Reliability	August 2016	September 2016				0.0019		0.22	$ 88,500	
W & K Sub - Install SCADA	Reliability	April 2016	June 2016				0.0018		0.21	$ 88,500	
Reedsville - Install SCADA	Reliability	April 2016	May 2016				0.0017		0.20	$ 88,500	
Roxbury - Install SCADA	Reliability	June 2016	August 2016				0.0017		0.19	$ 88,500	
Vail - Install SCADA	Reliability	October 2016	November 2016				0.0016		0.19	$ 88,500	
Viscose Hill - Install SCADA	Reliability	July 2016	August 2016				0.0014		0.17	$ 88,500	
Twin Rocks - Install SCADA	Reliability	February 2016	March 2016				0.0014		0.17	$ 88,500	
Bellwood North - Install SCADA	Reliability	November 2016	December 2016				0.0012		0.14	$ 88,500	
Thomas Avenue - Install SCADA	Reliability	May 2016	June 2016				0.0011		0.13	$ 88,500	
Knoxville - Install SCADA	Reliability	October 2016	November 2016				0.0011		0.13	$ 88,500	
Poplar Street - Install SCADA	Reliability	July 2016	August 2016				0.0010		0.12	$ 88,500	
Towanda - Install SCADA	Reliability	September 2016	October 2016				0.0011		0.13	$ 88,500	
18th Avenue - Install SCADA	Reliability	May 2016	June 2016				0.0010		0.12	$ 88,500	

Forestry (Project Lead: Forestry Manager)

Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Accelerated Off ROW tree removal zone 1 & 2 on high tree SAIFI 34.5kV (319 miles)	Reliability	January 2016	December 2016				0.0060	0.63	1.63	$ 468,897	
Accelerated Off ROW tree removal zone 1 & 2 on high tree SAIFI (77 miles)	Reliability	January 2016	December 2016				0.0075	0.79	2.03	$ 112,324	

Penelec Projects 2017

Transmission Projects (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Transmission Improvement Study	Reliability	January 2017	December 2017							$ 12,011,250	

Distribution Lines Projects (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Finish protection/coordination work on 00312-31	Reliability	March 2017	June 2017				0.0005		0.06	$ 28,400	
Finish protection/coordination work on 00297-65	Reliability	March 2017	June 2017				0.0005		0.06	$ 35,500	
Finish protection/coordination on 00558-63	Reliability	March 2017	June 2017				0.0003		0.04	$ 42,600	
Cutout Replacement on 00787-65	Reliability	July 2017	October 2017				0.0010		0.12	$ 71,980	
Finish protection/coordination work on 00017-12	Reliability	March 2017	June 2017				0.0001		0.01	$ 14,200	
Protection/coordination work on 00052-72	Reliability	February 2017	May 2017				0.0005		0.06	$ 28,400	
Finish protection/coordination work on 00094-13	Reliability	March 2017	June 2017				0.0005		0.06	$ 28,400	
Grover 00527-63 Line Rehabilitation 15 miles	WPC	June 2017	November 2017				0.0004		0.04	$ 766,800	
Erie West 00237-31 line Rehabilitation 10 miles	WPC	June 2017	October 2017				0.0002		0.02	$ 424,800	
Rolling Meadows 00310-31 Line Rehabilitation 10 miles	WPC	June 2017	October 2017				0.0008		0.09	$ 424,800	

Porcelain Cutout Replacement (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
34kV 3 Phase Priority 3 circuit list cutout replacement (78 circuits)	Reliability	January 2017	December 2017				0.0028		0.33	$ 3,947,960	
Starrucca 00744-65 Porcelain cutout replacement	WPC	June 2017	September 2017				0.0001		0.01	$ 25,960	

12kV and below Substation Isolation SCADA (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Dorn - Install SCADA	*Reliability*	*April 2017*	*May 2017*				*0.0010*		*0.12*	$ 88,500	
Loretto - Install SCADA	Reliability	May 2017	June 2017				0.0009		0.11	$ 88,500	
Sugar Hill - Install SCADA	Reliability	May 2017	June 2017				0.0009		0.11	$ 88,500	
Blairsville - Install SCADA	Reliability	August 2017	September 2017				0.0007		0.08	$ 88,500	
Summit Hall - Install SCADA	Reliability	August 2017	September 2017				0.0007		0.08	$ 88,500	
McConnellstown - Install SCADA	Reliability	July 2017	August 2017				0.0007		0.08	$ 88,500	
Meyersdale - Install SCADA	Reliability	November 2017	December 2017				0.0006		0.07	$ 88,500	
Ehrenfeld Jackson - Install SCADA	Reliability	August 2017	September 2017				0.0006		0.07	$ 88,500	
Smithfield - Install SCADA	Reliability	September 2017	October 2017				0.0006		0.07	$ 88,500	
Sankertown - Install SCADA	Reliability	October 2017	November 2017				0.0005		0.06	$ 88,500	
Conemaugh Boro - Install SCADA	Reliability	June 2017	July 2017				0.0005		0.06	$ 88,500	
Franklin Boro - Install SCADA	Reliability	August 2017	September 2017				0.0005		0.06	$ 88,500	

Forestry (Project Lead: Forestry Manager)

Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Enhanced tree removal (additional 11 trees per mile - 1,800 total miles)	Reliability	January 2017	December 2017				0.0120	0.00	1.40	$ 2,641,520	
Accelerated Off ROW tree removal zone 1 & 2 on high tree SAIFI 34.5kV (404 miles)	Reliability	January 2017	December 2017				0.0130	1.37	3.52	$ 593,628	
Accelerated Off ROW tree removal zone 1 & 2 on high tree SAIFI (101 miles)	Reliability	January 2017	December 2017				0.0070	0.74	1.90	$ 148,686	
Accelerated Off ROW tree removal zone 1 & 2 on high tree SAIFI 34.5kV (363 miles)	Reliability	January 2017	December 2018	December 2017			0.0060	0.63	1.63	$ 533,283	
Accelerated Off ROW tree removal zone 1 & 2 on high tree SAIFI (43 miles)	Reliability	January 2017	December 2018	December 2017			0.0008	0.09	0.23	$ 63,373	

Substation (Project Lead: Substation Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Phillipsburg 00162-22 Mod Sub	WPC	January 2017	December 2017				0.0055		0.6423	$ 4,118,306	

Penelec Projects 2018

Transmission Projects (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Transmission Improvement Study	Reliability	January 2018	December 2018							$ 3,000,000	

Distribution Lines Projects (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
DuBois 00137-23 line Rehabilitation 20 miles	WPC	June 2017	December 2017				0.0007		0.08	$ 1,022,400	
Targeted Mainline Rehabilitation of 00226-31	Reliability	March 2018	May 2018				0.0020		0.23	$ 82,600	
Targeted Mainline Rehabilitation of 00201-31	Reliability	October 2018	December 2018				0.0022		0.26	$ 708,000	
Finish Targeted Mainline Rehabilitation of 00222-31	Reliability	May 2018	June 2018				0.0020		0.23	$ 59,000	
Finish protection/coordination work on 00225-31	Reliability	June 2018	July 2018				0.0007		0.08	$ 56,800	
Finish protection/coordination work on 00586-31	Reliability	August 2018	September 2018				0.0002		0.02	$ 14,200	
Targeted Mainline Rehabilitation of 00048-11	Rehability	February 2018	June 2018				0.0018		0.21	$ 230,100	

Porcelain Cutout Replacement (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
34kV 3 Phase Priority 4 circuit list cutout replacement (57 circuits)	Reliability	January 2018	December 2018				0.0001		0.01	$ 1,011,590	

12kV and below Substation Isolation SCADA (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Abex - Install SCADA	Reliability	August 2018	September 2018				0.0003		0.04	$ 88,500	
Mine 40 - Install SCADA	Reliability	October 2018	November 2018				0.0003		0.01	$ 88,500	
South Towanda - Install SCADA	Reliability	August 2018	September 2018				0.0003		0.01	$ 88,500	
Wells Elec - Install SCADA	Reliability	August 2018	September 2018				0.0002		0.03	$ 88,500	
Catherine Street - Install SCADA	Reliability	September 2018	October 2018				0.0002		0.02	$ 88,500	
Shade Gap - Install SCADA	Reliability	August 2018	September 2018				0.0001		0.01	$ 88,500	
Bethlehem No 31 - Install SCADA	Reliability	March 2018	April 2018				0.0001		0.01	$ 88,500	
Pleasant Valley - Install SCADA	Reliability	May 2018	June 2018				0.0001		0.01	$ 88,500	
Buckeye Pipeline - Install SCADA	Reliability	July 2018	August 2018				0.0000		0.00	$ 88,500	
Litton - Install SCADA	Reliability	October 2018	November 2018				0.0000		0.00	$ 88,500	
Erie South 00259-31 Advanced Protection and Distribution Automation	WPC	September 2017	December 2018				0.0041		0.4800	$ 483,800	
Warren South 00220-41 Advanced Protection and Distribution Automation	WPC	September 2017	December 2018				0.0045		0.5510	$ 595,900	
Madera 00166-22 - Add Distribution Automation	WPC	September 2017	December 2018				0.0035		0.4148	$ 649,000	
Union City 00206-43 Advanced Protection and Distribution Automation	WPC	September 2017	December 2018				0.0059		0.6970	$ 536,900	

Substation (Project Lead: Substation Manager)

Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Salix 00070-11- add 115kV/23kV at Mayh	WPC	September 2017	December 2018				0.0045		0.5295	$ 2,242,000	
Tunhannock 00533-6S install automatic switching and provide a 10 mile backfeed to Falls substation	WPC	September 2017	December 2018				0.0028		0.3280	$ 3,186,000	

Penn Power Reliability Plan

Executive Summary

In response to the Commission's Order, Pennsylvania Power Company ("Penn Power" or "Company") has developed a detailed Reliability Plan that will not only allow it to meet its twelve-month and three-year performance standards, but will also facilitate the Company's goal in meeting benchmark-level performance in all three indices by year-end 2018. The projects and initiatives identified in the Reliability Plan, many of which were previously included in the Company's Corrective Action Plan ("CAP"),[1] will be implemented during the period of 2016-2018. Penn Power's Reliability Plan is structured into four main components: enhanced tree removal, installation of circuit ties (loops or sources), rehabilitation of transmission lines, and installation of supervisory control and data acquisition ("SCADA") line switches. The Reliability Plan includes an analysis of the causes of, the number, and duration of outages; specific investments to improve reliability based upon this analysis; estimated reliability performance improvements associated with these investments; and estimated project completion dates.

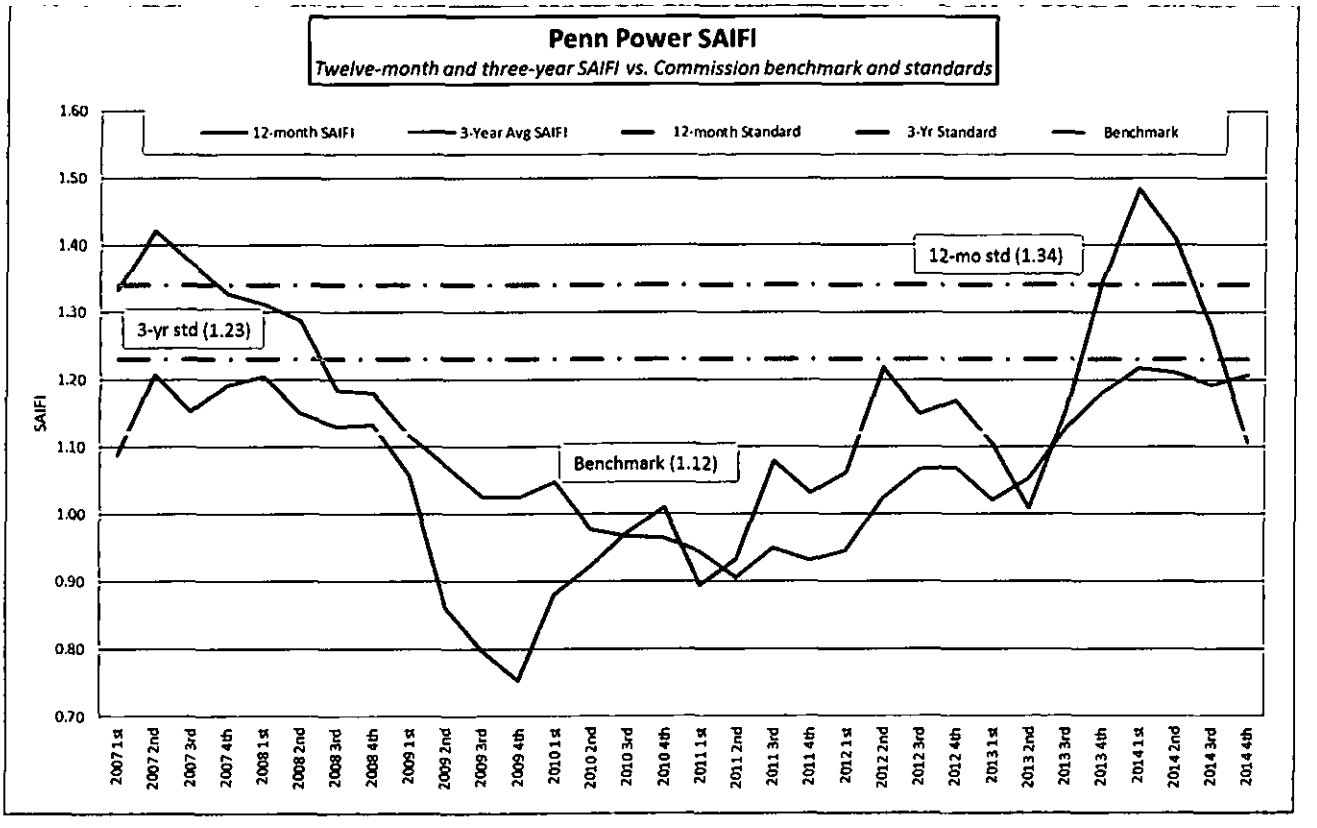
Background

Traditionally, Penn Power has experienced very good reliability performance, often performing better than benchmark. In 2013, Penn Power experienced a difficult weather year, resulting in year-end performance that did not achieve the twelve-month performance standard for System Average Interruption Frequency Index ("SAIFI"), System Average Interruption Duration Index ("SAIDI"), and Customer Average Interruption Duration Index ("CAIDI"). Penn Power's leadership recognized this negative trend and as a result formed a Reliability Enhancement Team. This team identified projects and programs to improve reliability with a particular focus on CAIDI. These projects and programs were later incorporated into the CAP with construction beginning in 2014.

[1] In November 2014, Penn Power submitted a CAP designed to improve overall reliability and achieve benchmark performance in all three indices by year-end 2018. The projects and initiatives included in the CAP for the period of 2014-2018. The 2016-2018 portion of the CAP is now incorporated within this Reliability Plan.

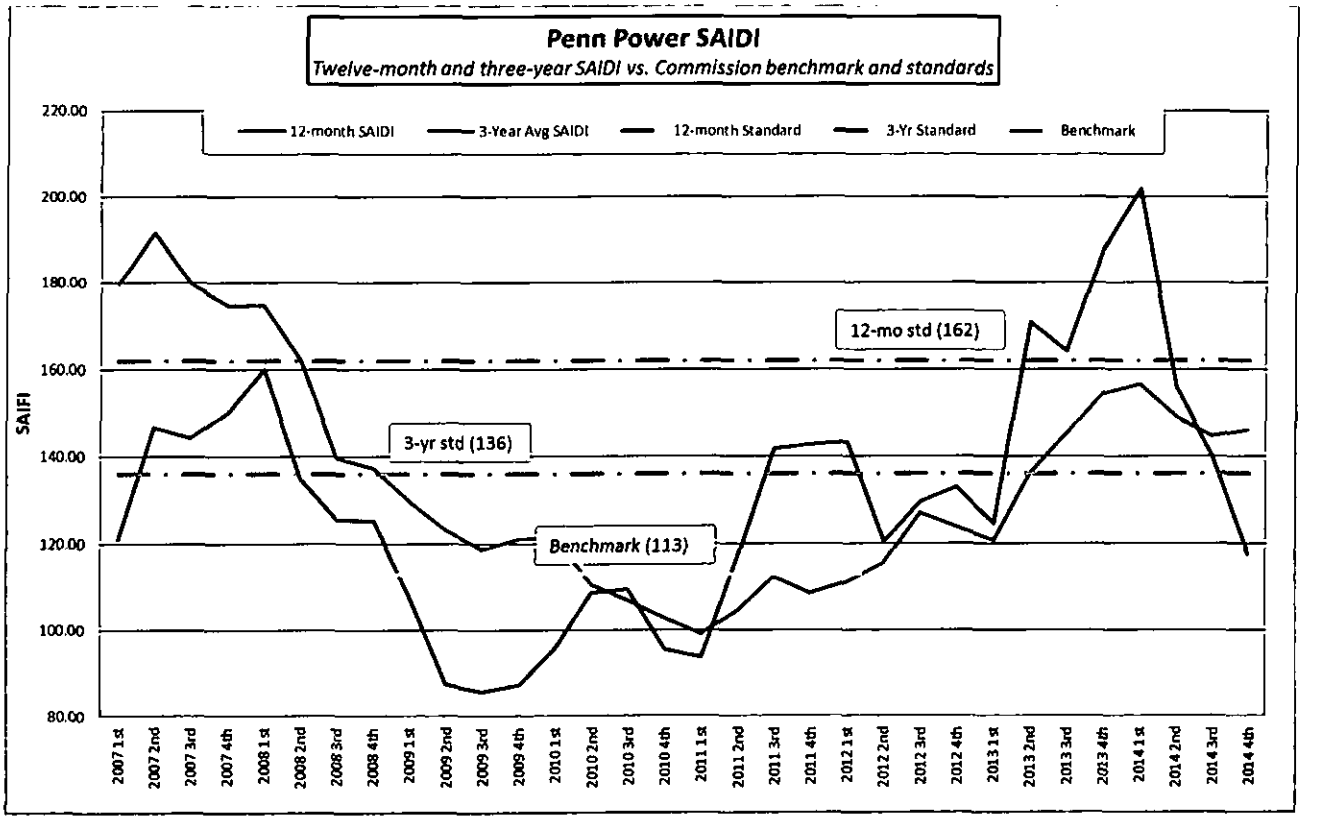
As seen in ***Chart 1***, Penn Power's year-end twelve-month SAIFI was better than the twelve-month performance standard for 2007-2012 and 2014, and better than benchmark for 2007, 2009-2011 and 2014. Additionally, Penn Power's three-year SAIFI was better than the three-year performance standard between 2008 and 2014.

Chart 1. Twelve-month and three-year rolling SAIFI performance through December 2014



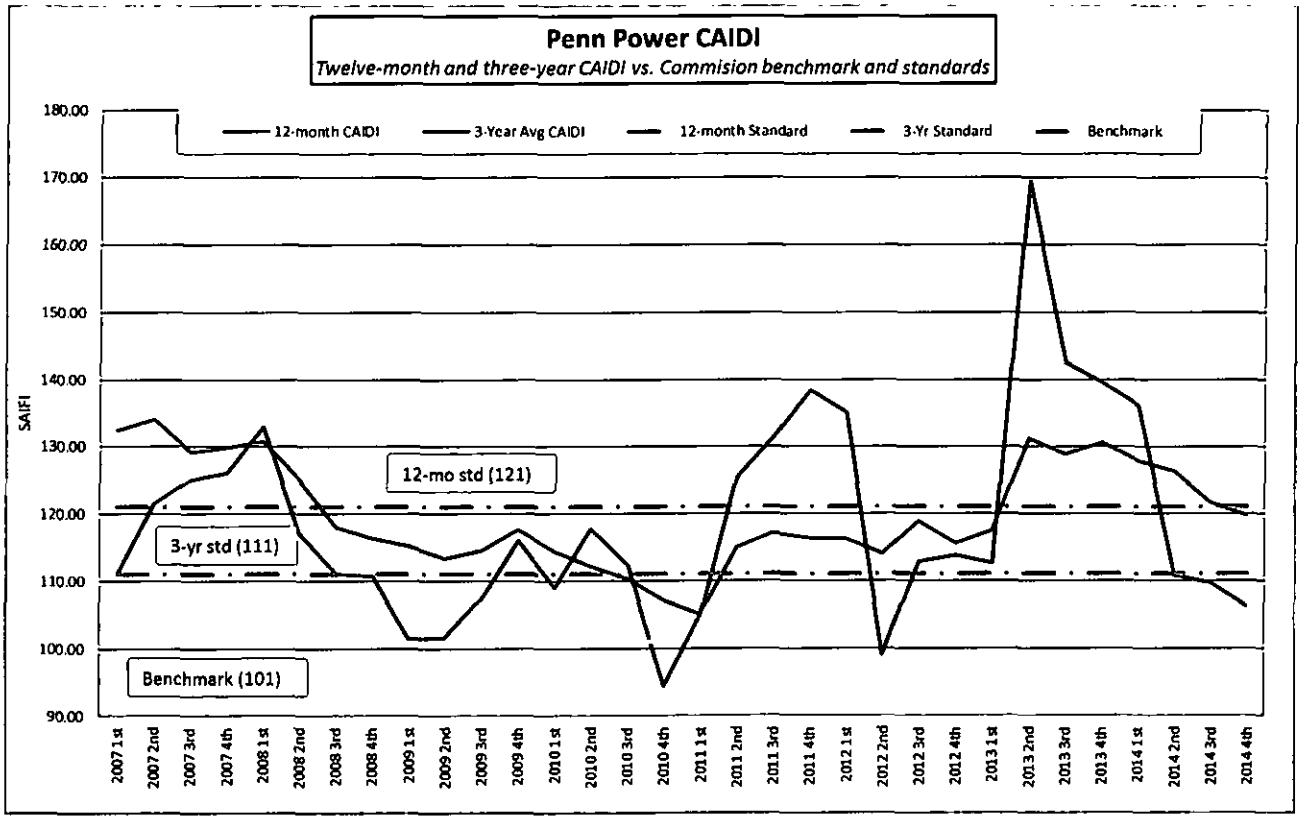
As seen in ***Chart 2***, Penn Power's year-end twelve-month SAIDI was better than the twelve-month performance standard for 2007-2012 and 2014, and better than benchmark in both 2009 and 2010. Additionally, Penn Power's three-year SAIDI was better than the three-year performance standard between 2009 and 2012.

Chart 2. Twelve-month and three-year rolling SAIDI performance through December 2014



As seen in ***Chart 3***, Penn Power's year-end twelve-month CAIDI was better than the twelve-month performance standard for 2008-2010, 2012, and 2014, and better than benchmark in 2010. Additionally, Penn Power's three-year CAIDI was better than the three-year performance standard in 2010.

Chart 3. Twelve-month and three-year rolling CAIDI performance through December 2014



Reliability Analysis

The largest contributors to CAIDI between 2010 and 2014 were off right-of-way tree and weather caused outages. ***Attachment A*** identifies the outage causes experienced by Penn Power, including the number and duration of, for this period. By reducing long duration outages, whether tree or weather caused, Penn Power's overall CAIDI performance is expected to improve. For example, the average of the yearly CAIDI between 2010 and 2014 resulting from off right-of-way ("ROW") trees is 180 minutes,[2] as compared to Penn Power's CAIDI benchmark of 101 minutes. Projects such as enhanced tree trimming will help reduce Penn Power's CAIDI associated with outages caused by off ROW trees by reducing Penn Power's overall CAIDI. Other projects targeted to improve CAIDI include installation of SCADA technology and installation of circuit ties.

[2] Please note that CAIDI is not additive.

Reliability Plan

As a result of Penn Power's analyses, a list of projects targeted for CAIDI improvement were identified to address reliability which the Company refers to as the Reliability Plan, which is found in ***Attachment B***. This Reliability Plan will also have a positive impact on SAIFI and SAIDI. The plan is a combination of existing and accelerated or enhanced projects aimed to enhance reliability, as well as additional new projects to drive further reliability benefits. The Reliability Plan provides anticipated start and completion dates of the individual actions, and projected reliability benefits defined in terms of SAIFI and minutes of CAIDI and SAIDI.

Penn Power analyzed its reliability performance and determined that the primary reasons CAIDI is negatively impacted is due to long duration outages associated with off ROW tree and weather caused outages. As such, Penn Power's Reliability Plan is structured into four main components that will help reduce these long duration outages. The Reliability Plan components include:

1. Enhanced tree removal

The Reliability Plan contains an enhanced tree removal component to address the large number of tree outages that occur primarily as a result of healthy trees falling from outside the ROW. Vegetation management continues to have the most immediate impact on reliability. Penn Power will target approximately 1100 miles in 2016 and 2017. Enhanced tree trimming will take place in addition to the other vegetation management work that Penn Power performs, including its cycle based vegetation management program.

2. Installation of circuit ties (loops and sources)

The purpose of this program is to install new distribution circuit ties and loops that will improve reliability, specifically CAIDI and SAIDI, by reducing long duration outages. This is accomplished by creating an alternate path from which power is provided to customers affected by an outage. Penn Power will build or upgrade 73 miles of distribution lines to create the circuit ties and loops between 2016 and 2018. The Reliability Plan also includes building three new substations. These new substations will provide a new source to feed customers as well as provide additional capacity.

3. Rehabilitation of transmission lines

Rehabilitation of selected transmission lines will help to reduce CAIDI and SAIDI. This rehabilitation will include inspecting approximately 48 miles of transmission lines in 2016 and 2017 and replacing equipment as necessary. Poles, switches, crossarms, insulators and braces are examples of equipment that is typically replaced during this type of effort. This project will strengthen Penn Power's 69kV system, therefore decreasing the risk of extended outages affecting a high volume of customers.

4. Installation of SCADA line switches

The Reliability Plan contains the installation of 43 SCADA controlled line switches in 2016 and 2017. These switches will allow the Distribution Control Center to remotely operate the line switches versus dispatching crews to manually operate them, thereby reducing restoration time, or CAIDI.

Similar projects to those identified in the Reliability Plan were recently completed in 2014 or are currently under construction. Other more procedural enhancements have also been implemented to improve CAIDI and SAIDI. These enhancements include the increased deployment of Ohio Edison crews to work in Penn Power territory, the staging of critical materials for quick access, installation of remote circuit monitors, and the dispatching of both trouble and line crews to outages on selected circuits in remote areas. When an outage is received, restoration crews do not always know the specific types of repairs that need to be made until they arrive onsite and patrol for damage. Sending both types of crews to a remote location better ensures the correct repair crew is onsite and can reduce the restoration time. Penn Power continues to employ these enhancements.

Penn Power will continuously review their Reliability Plan to determine the effectiveness of the identified projects and programs in relation to actual performance results. The Company may re-prioritize, alter completion dates, and add or remove projects based on ongoing engineering analyses to maximize the reliability and operating benefits to the system as determined necessary to meet the established targets.

Finally, Penn Power does not have any circuits appearing on the 5% worst performing circuit ("WPC") list within its Annual Reliability Reports for two or more years between 2010 and 2014. Therefore, while Penn Power has not established a targeted program to reduce WPCs, it will continue to review this metric to ensure no circuits develop more specific needs. Penn Power's response to Ordering Paragraph 4 provides a further discussion of the Company's WPC performance.

Conclusion

Penn Power leadership is actively engaged and working with all employees to implement this Reliability Plan with the intent of not only meeting the Company's twelve-month and three-year performance standards established by the Commission for SAIFI, SAIDI, and CAIDI, but also facilitating the Company's goal of meeting benchmark-level performance by year-end 2018. Penn Power continuously evaluates system-wide reliability performance and looks for any emerging trends that would affect reliability. These analyses include reviewing performance during both blue sky and non-blue sky days. Penn Power employees and leadership will diligently work towards meeting their goal of achieving benchmark-level performance in all three indices by year-end 2018.

Outages by Cause				
2010	Penn Power			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
TREES/NOT PREVENTABLE	4,802,629	579	30,368	19.06%
LIGHTNING	1,667,680	493	14,065	16.23%
EQUIPMENT FAILURE	3,299,932	420	62,602	13.82%
ANIMAL	718,010	390	10,741	12.84%
BIRD	349,639	320	4,848	10.53%
LINE FAILURE	1,483,109	236	9,661	7.77%
UNKNOWN	450,890	162	4,990	5.33%
VEHICLE	1,273,276	98	7,960	3.23%
OVERLOAD	117,029	89	1,638	2.93%
FORCED OUTAGE	346,450	56	7,318	1.84%
PREVIOUS LIGHTNING	45,248	52	799	1.71%
HUMAN ERROR -NON-COMPANY	296,133	44	1,869	1.45%
TREES/PREVENTABLE	87,948	40	696	1.32%
ICE	1,811	14	15	0.46%
CUSTOMER EQUIPMENT	99,922	13	1,377	0.43%
UG DIG-UP	5,020	12	30	0.39%
OBJECT CONTACT WITH LINE	17,102	10	290	0.33%
HUMAN ERROR - COMPANY	10,845	6	198	0.20%
VANDALISM	12,114	2	136	0.07%
CONTAMINATION	1,632	1	12	0.03%
FIRE	102	1	2	0.03%
TOTAL	**15,086,521**	**3,038**	**159,615**	**100.00%**

Outages by Cause				
2011	Penn Power			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
LIGHTNING	3,867,031	866	29,138	23.92%
TREES/NOT PREVENTABLE	7,700,928	760	38346	20.99%
ANIMAL	1,003,446	421	12,783	11.63%
EQUIPMENT FAILURE	1,762,119	372	29888	10.28%
LINE FAILURE	2,987,564	363	17,939	10.03%
BIRD	274,056	272	3,945	7.51%
UNKNOWN	608,669	111	7103	3.07%
OVERLOAD	314,559	96	3,162	2.65%
VEHICLE	776,468	86	6,767	2.38%
PREVIOUS LIGHTNING	57,724	85	582	2.35%
FORCED OUTAGE	171,431	71	5,150	1.96%
HUMAN ERROR -NON-COMPANY	156,559	37	2,746	1.02%
TREES/PREVENTABLE	65,851	30	391	0.83%
HUMAN ERROR - COMPANY	50,535	13	663	0.36%
CUSTOMER EQUIPMENT	3,287	9	48	0.25%
OBJECT CONTACT WITH LINE	16,433	9	151	0.25%
UG DIG-UP	6,998	6	39	0.17%
VANDALISM	2,814,964	5	4,335	0.14%
FIRE	12,036	2	467	0.06%
ICE	1,510	2	4	0.06%
OTHER ELECTRIC UTILITY	1,724	2	8	0.06%
CONTAMINATION	58	1	1	0.03%
WIND	543	1	1	0.03%
TOTAL	**22,654,493**	**3,620**	**163,657**	**100.00%**

Outages by Cause				
2012	Penn Power			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
TREES/NOT PREVENTABLE	7,883,570	759	36,866	22.79%
LIGHTNING	2,996,554	643	17,143	19.31%
ANIMAL	1,067,067	485	19,826	14.56%
BIRD	302,385	339	3,688	10.18%
EQUIPMENT FAILURE	2,750,656	332	30,660	9.97%
LINE FAILURE	2,294,859	286	16,222	8.59%
OVERLOAD	301,395	86	4,636	2.58%
VEHICLE	872,390	72	8,644	2.16%
PREVIOUS LIGHTNING	36,879	66	295	1.98%
UNKNOWN	246,839	64	2,695	1.92%
FORCED OUTAGE	610,131	53	7,632	1.59%
HUMAN ERROR - NON-COMPANY	254,954	35	1,627	1.05%
HUMAN ERROR - COMPANY	676,759	34	28,928	1.02%
TREES/PREVENTABLE	77,425	27	893	0.81%
CUSTOMER EQUIPMENT	428,545	15	2,909	0.45%
OBJECT CONTACT WITH LINE	52,291	10	422	0.30%
UG DIG-UP	15,390	8	109	0.24%
FIRE	58,674	5	800	0.15%
VANDALISM	4,518	4	13	0.12%
CONTAMINATION	4,930	3	14	0.09%
WIND	4,478	2	14	0.06%
CALL ERROR	11,088	1	84	0.03%
OTHER UTILITY-NON ELEC	1,050	1	6	0.03%
TOTAL	**20,952,827**	**3,330**	**184,126**	**100.00%**

Outages by Cause				
2013	Penn Power			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
LIGHTNING	2,177,708	476	14,956	13.80%
TREES OFF ROW-TREE	9,565,324	440	52,921	12.75%
ANIMAL	658,586	406	8,294	11.77%
BIRD	355,238	372	4,357	10.78%
EQUIPMENT FAILURE	2,193,595	350	51,916	10.14%
LINE FAILURE	2,194,265	308	17,308	8.93%
TREES/NOT PREVENTABLE	5,213,842	263	12,407	7.62%
TREES OFF ROW-LIMB	1,829,578	195	12,163	5.65%
UNKNOWN	331,567	93	3,249	2.70%
TREES - SEC/SERVICE	116,008	88	357	2.55%
VEHICLE	1,221,607	83	8,557	2.41%
ICE	1,130,404	72	1,606	2.09%
OVERLOAD	227,238	63	2,956	1.83%
FORCED OUTAGE	215,081	56	7,029	1.62%
TREES ON ROW	1,480,297	53	3,517	1.54%
PREVIOUS LIGHTNING	56,406	51	363	1.48%
HUMAN ERROR -NON-COMPANY	306,474	25	2,076	0.72%
CUSTOMER EQUIPMENT	38,277	15	6,255	0.43%
HUMAN ERROR - COMPANY	4,488	11	121	0.32%
OBJECT CONTACT WITH LINE	476,669	11	2,955	0.32%
UG DIG-UP	10,516	6	121	0.17%
VANDALISM	59,468	5	567	0.14%
TREES/PREVENTABLE	2,791	3	23	0.09%
WIND	2,747	2	3	0.06%
CONTAMINATION	2,001	1	29	0.03%
OTHER ELECTRIC UTILITY	636	1	4	0.03%
SWITCHING ERROR	713	1	23	0.03%
Total	**29,871,524**	**3,450**	**214,133**	**100.00%**

Outages by Cause				
2014	Penn Power			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
TREES OFF ROW-TREE	5,142,718	452	46,001	14.67%
ANIMAL	1,130,273	428	11,474	13.89%
LIGHTNING	1,537,098	375	10,758	12.17%
BIRD	330,263	338	4,044	10.97%
EQUIPMENT FAILURE	2,213,312	330	22,140	10.71%
LINE FAILURE	3,242,273	290	25,779	9.41%
TREES OFF ROW-LIMB	1,377,953	222	11,789	7.21%
UNKNOWN	621,725	144	12,361	4.67%
TREES - SEC/SERVICE	41,786	86	233	2.79%
VEHICLE	1,255,359	84	9,351	2.73%
OVERLOAD	321,644	78	4052	2.53%
PREVIOUS LIGHTNING	28,104	41	213	1.33%
HUMAN ERROR -NON-COMPANY	362,819	40	5,015	1.30%
FORCED OUTAGE	87,146	39	2,403	1.27%
TREES ON ROW	90,594	33	921	1.07%
ICE	166,967	32	488	1.04%
CUSTOMER EQUIPMENT	449,222	17	6,293	0.55%
HUMAN ERROR - COMPANY	23,206	17	341	0.55%
UG DIG-UP	20,816	15	207	0.49%
OBJECT CONTACT WITH LINE	33,252	12	271	0.39%
WIND	129,869	3	1044	0.10%
FIRE	660	2	10	0.06%
CONTAMINATION	785	1	1	0.03%
OTHER ELECTRIC UTILITY	7,434	1	63	0.03%
OTHER UTILITY-NON ELEC	2,225	1	19	0.03%
Total	**18,617,503**	**3,081**	**175,271**	**100.00%**

Penn Power Projects 2016											
Forestry (Project Lead: Forestry Manager)											
Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Enhanced Tree Removal (400 miles)	Reliability	January 2016	December 2016				0.011	1.043	2.511	$ 3,929,400.00	
Distribution Projects (Project Lead: Line General Manager)											
Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Install Circuit Ties, Loops, or Sources (25 Miles)	Reliability	January 2016	December 2016					0.503	0.648	$ 12,085,534.30	
Transmission Projects (Project Lead: Line General Manager)											
Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
69 kV Line Rehab (24 miles)	Reliability	January 2016	December 2016				0.022	0.826	5.239	$ 4,592,013.62	
Install 30 SCADA MOAB switches	Reliability	January 2016	December 2016					0.924	1.292	$ 2,991,234.96	

Penn Power Projects 2017											
Forestry (Project Lead: Forestry Manager)											
Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Enhanced Tree Removal (485 miles)	Reliability	January 2017	December 2017				0.017	1.685	4.056	$ 4,765,786.00	
Enhanced Tree Removal (200 miles)	Reliability	January 2017	December 2018	December 2017			0.007	0.696	1.675	$ 1,970,600.00	
Distribution Line Projects (Project Lead: Line General Manager)											
Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Install Circuit Ties, Loops, or Sources (29 miles and 2 Subs)	Reliability	January 2017	December 2017					0.769	0.991	$ 15,306,603.76	
Transmission Projects (Project Lead: Line General Manager)											
Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Install 13 SCADA MOAB switches	Reliability	January 2017	December 2017					0.400	0.560	$ 736,522.74	
69 kV Line Rehab (24 miles)	Reliability	January 2017	December 2017				0.023	0.894	2.838	$ 4,592,013.62	

Penn Power Projects 2018											
Distribution (line Projects (Project Lead: Line General Manager)											
Project Description	Plan Type	Start Date *(Actual/Projected)*	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Install Circuit Ties, Loops, or Sources (19 miles and Build Subs)	Reliability	January 2018	December 2018					0.990	1.277	$ 7,393,658.18	

West Penn Reliability Plan

Executive Summary

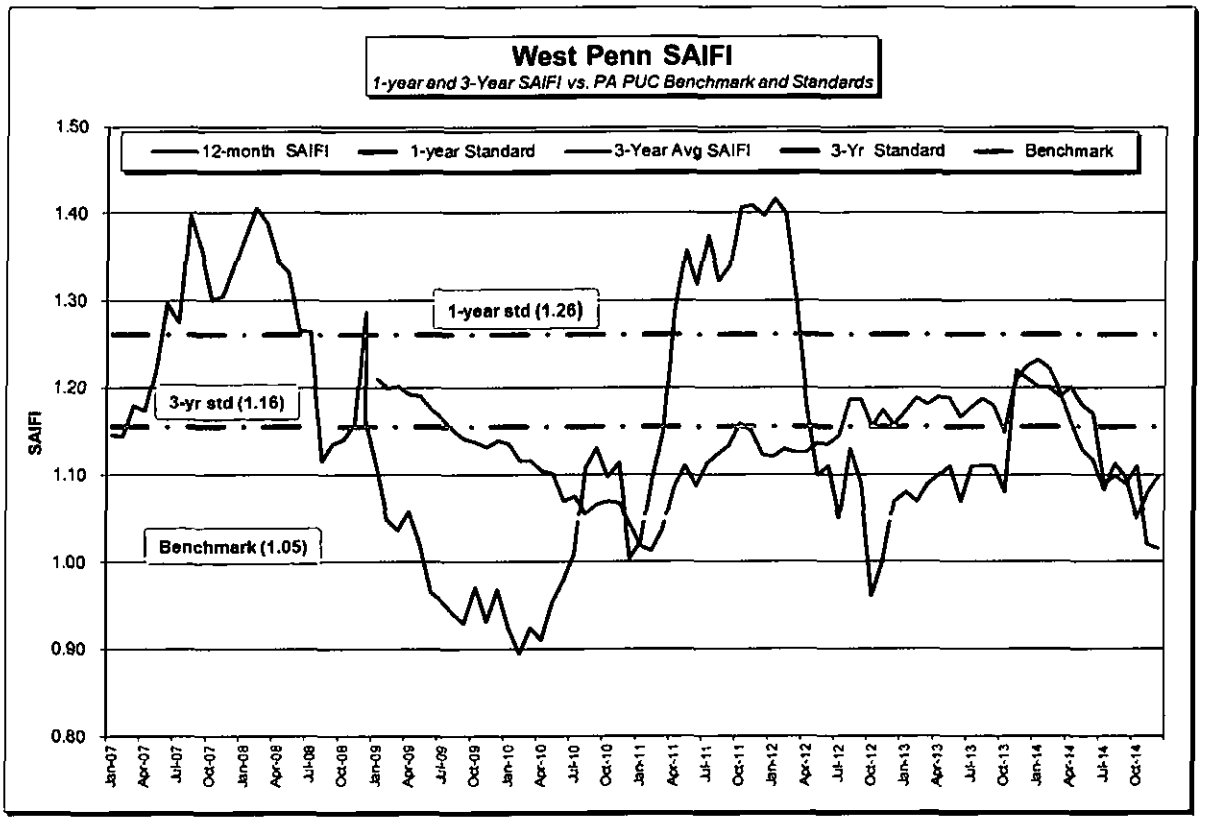
In response to the Commission's Order, West Penn Power Company ("West Penn" or "Company") developed a detailed Reliability Plan that will not only allow it to meet its twelve-month and three-year performance standards, but will also facilitate the Company's goal of meeting benchmark-level performance in all three indices by year-end 2018. The projects and initiatives identified in the Reliability Plan will be implemented during the period of 2016-2018. West Penn's Reliability Plan is structured into five main components: focused vegetation management, targeted circuit rehabilitation, enhanced overcurrent protection and supervisory control and data acquisition ("SCADA") control, underground getaway replacement, and subtransmission modernization and automation. The Reliability Plan includes an analysis of the causes of, the number, and duration of outages; specific investments to improve reliability based upon this analysis; estimated reliability performance improvements with these investments; and estimated project completion dates.

Background

Since 2011, West Penn has implemented several programs to improve overall reliability. These programs include introduction of a new vegetation management program which adopted a more aggressive five-year cycle, establishment of a danger tree program which also includes Emerald Ash Borer mitigation, zone one circuit patrols, subtransmission aerial flyovers and subsequent hardware repairs, and large outage (over 250 customers interrupted) reviews. These enhanced programs, coupled with routine inspection and maintenance of distribution and transmission assets, continue to drive improvements to reliability. Overall, West Penn's reliability performance has shown a steady improvement for System Average Interruption Frequency Index ("SAIFI"), System Average Interruption Duration Index ("SAIDI") and System Average Interruption Duration Index ("CAIDI"), with reductions of approximately 28% for SAIFI, 34% for SAIDI and 9% for CAIDI.

As seen in ***Chart 1***, West Penn's year-end twelve-month SAIFI was better than the twelve-month performance standard for 2008-2010 and 2012-2014, and better than benchmark in each of 2009, 2010 and 2014. Additionally, West Penn's three-year SAIFI was better than the three-year performance standard for 2010-2012 and 2014.

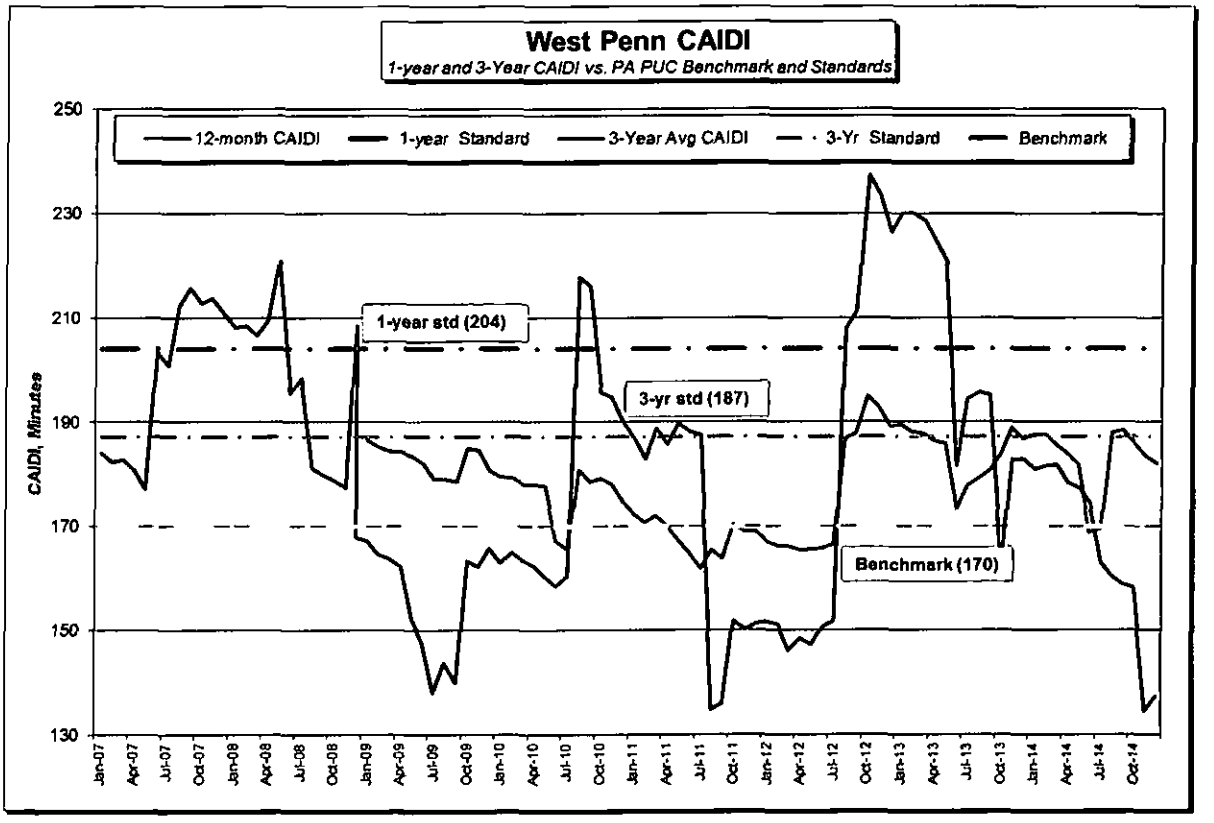
Chart 1. Twelve-month and three-year rolling SAIFI performance through December 2014[1]



[1] Prior to 2009, West Penn did not report three-year actual performance for SAIFI.

As seen in ***Chart 2,*** West Penn's year-end twelve-month CAIDI was better than the twelve-month performance standard for 2008-2011, 2013 and 2014, and better than benchmark in each of 2008, 2009, 2011 and 2014. Additionally, West Penn's three-year CAIDI was also better than the three-year performance standard for 2009-2011, 2013 and 2014.

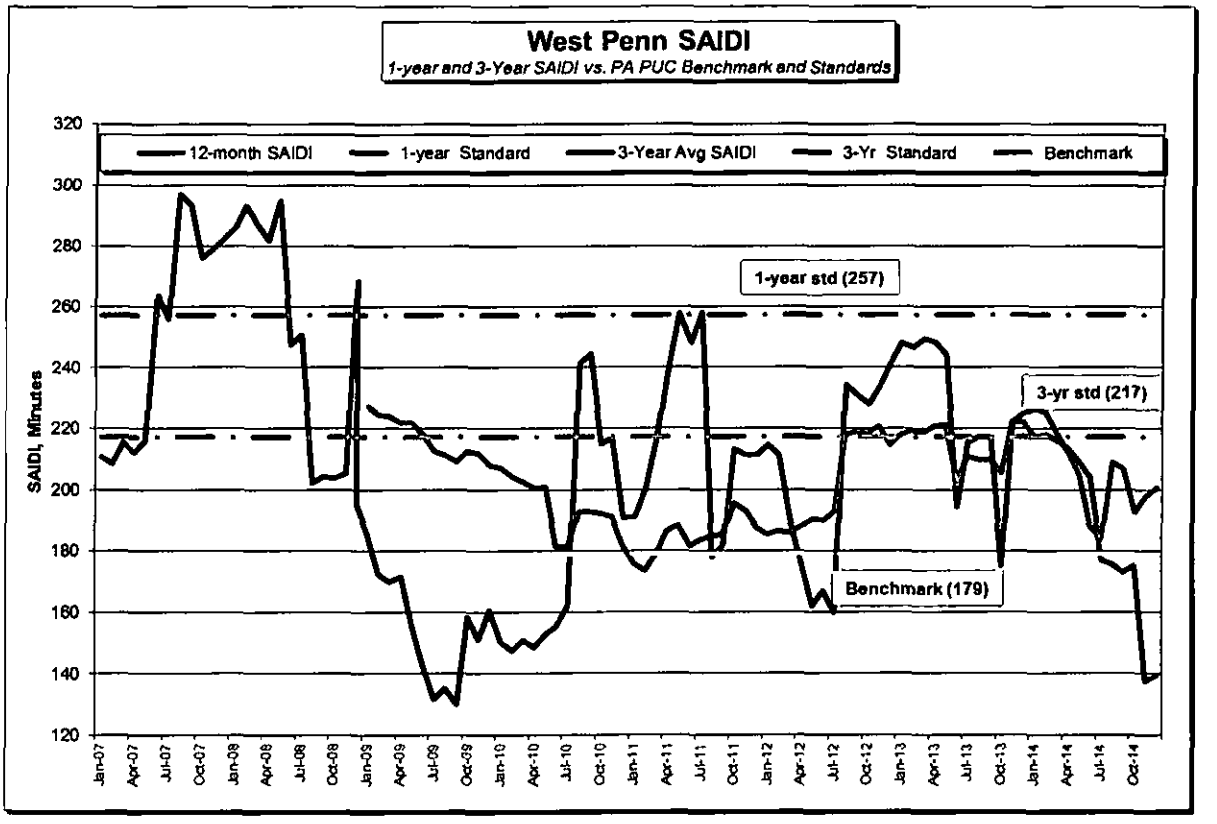
Chart 2. Twelve-month and three-year rolling CAIDI performance through December 2014[2]



[2] Prior to 2009, West Penn did not report three-year actual performance for CAIDI.

As seen in ***Chart 3***, West Penn's year-end twelve-month SAIDI was better than the twelve-month performance standard in all years since 2008, and better than benchmark in both 2009 and 2014. Additionally, West Penn's three-year SAIDI was better than the three-year performance standard in all years since 2009 with the exception of 2013.

Chart 3. Twelve-month and three-year rolling SAIDI performance through December 2014[3]



Reliability Analysis

When reviewing West Penn's historical reliability performance, CAIDI has on average performed at benchmark while average SAIFI has performed just above benchmark. By targeting SAIFI, customers will continue to experience good reliability both in terms of frequency and duration and as a product of SAIFI and CAIDI, SAIDI will also continue to perform well.

The largest contributors to SAIFI between 2010 and 2014 were equipment failure, line failure, and tree caused outages - both on and off right-of-way ("ROW") trees. ***Attachment A*** identifies the outage causes experienced by West Penn, including the number and duration of, for this period. As such, West Penn's Reliability Plan is designed to target these top outage causes. Finalizing the first cycle of its new vegetation management cycle and attacking the emerging emerald ash borer

[3] Prior to 2009, West Penn did not report three-year actual performance for SAIDI.

threat is expected to have a positive impact on tree-caused outages. Meanwhile, equipment and line failure causes will be addressed by remediating hardware on distribution circuit mainlines, subtransmission hardware items discovered through aerial patrol inspections, installation of subtransmission auto air switches, and substation carbide arrestor replacements.

Additionally, West Penn completed an analysis of blue sky day and non-blue sky day SAIFI performance to determine whether its blue sky day performance was strong enough to withstand a statistically high storm year while continuing to meet benchmark-level performance by year-end 2018. Because the number of storms experienced in a given year is unpredictable, SAIFI will in turn vary. Therefore, one standard deviation above and below West Penn's average SAIFI performance years was used to predict the SAIFI variability from year to year. As a result, West Penn could expect to see SAIFI performance between 0.90 and 1.15 at year-end 2018. Therefore, implementing the Reliability Plan to target improvements to the Company's SAIFI will help ensure that SAIFI performance falls within the desirable range, enabling West Penn to absorb more storms and still achieve benchmark by year-end 2018.

Reliability Plan

As a result of West Penn's analyses, a list of projects targeted to improve SAIFI, CAIDI and SAIDI performance were identified, which formed the basis of the Company's Reliability Plan, outlined in ***Attachment B***. The Reliability Plan includes a combination of existing and accelerated or enhanced projects aimed to improve reliability, as well as additional new projects to drive further reliability improvements. The Reliability Plan provides anticipated start and completion dates of the individual actions, as well as projected reliability benefits defined in terms of SAIFI and minutes of SAIDI and CAIDI.

West Penn analyzed the reliability performance of the distribution system and determined that the primary reasons for the higher SAIFI performance can be attributed to:

1. Off ROW tree caused outages;
2. Equipment and line failure;
3. Subtransmission system performance; and
4. Substation outages.

As a result, West Penn's Reliability Plan has been structured into four main components that will address these primary contributors to higher SAIFI performance. These components include:

1. <u>Focused Vegetation Management</u>
   Since implementing its new, more aggressive vegetation management program in 2011, West Penn has experienced positive improvements in overall reliability. In addition to its normal on-cycle tree trimming, West Penn has introduced a program to mitigate the impact of the emerald ash borer which is now invading western portions of Pennsylvania. The Reliability Plan will accelerate this emerald ash borer mitigation program for the subtransmission system

and the zone 2 portion of its distribution system from its current five years to a new three-year completion timeline.[4] This program, combined with the Company's more frequent on-cycle tree trimming, will improve both blue sky and minor storm day performance on both distribution circuits and subtransmission lines.

2. Targeted Circuit Rehabilitation

West Penn's Reliability Plan includes a circuit rehabilitation program which will target zones 1 and 2. When performing circuit rehabilitation, the Company will conduct a circuit inspection, identify equipment to replace and then replace the identified equipment. Equipment may include, but is not limited to, poles, switches, crossarms, insulators, braces and cutouts.

3. Enhanced Overcurrent Protection and SCADA Control

West Penn will install new electronic reclosers with SCADA control which will limit the number of customers affected during a lockout and allow remote switching by the Distribution Control Center ("DCC") to restore customers more quickly. Adding SCADA control to electronic reclosers in select substations with existing SCADA capabilities will provide better monitoring and also allow remote switching by the DCC to restore customers at the circuit level more quickly.

4. Underground Getaway Replacement

This program will replace select underground substation exits which is cable that leads out of the substation to the overhead lines. These exits are also referred to as underground getaways. Specifically, this program will target underground getaways that were installed prior to 1988 and are known to be prone to failure. By replacing these getaways, West Penn will reduce the interruptions to a circuit associated with the cable as well as the long interruption times associated with the replacement.

5. Subtransmission Modernization and Automation

The installation of SCADA controlled reclosers and switches and automatic air switch modernization will provide enhanced sectionalizing for larger blocks of customers at the substation source level. The SCADA controlled switches will also allow remote switching by the DCC to sectionalize and restore large blocks of customers more quickly, leading to reduced outage durations.

West Penn will continuously review its Reliability Plan to determine the effectiveness of the identified projects and programs in relation to actual performance results. The Company may re-prioritize, alter completion dates, and add or remove projects based on ongoing engineering analyses to maximize the reliability and operating benefits to the system as determined necessary to meet the established targets.

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[4] Zone 1 is defined as the portion of the circuit from the substation breaker to the first protective device. Zone 2 is defined as the three phase conductor and devices after the first protective device.

In conjunction with the Reliability Plan, West Penn has also developed a plan to address those circuits which have appeared on the 5% WPC list within its Annual Reliability Reports for two or more years between 2010 and 2014. The WPC plan will work in tandem with the Reliability Plan in that each will improve overall reliability. However, the WPC plan will target specific circuits that have demonstrated deficiencies in performance. Likewise, some projects and initiatives identified in West Penn's Reliability Plan will improve the performance of these WPCs. West Penn's plan in addressing these circuits can be found in West Penn's response to Ordering Paragraph 4.

Conclusion

West Penn leadership is actively engaged and working with all employees to implement this Reliability Plan with the intent of not only meeting the Company's twelve-month and three-year performance standards established by the Commission for SAIFI, SAIDI and CAIDI, but also facilitating the Company's goal of meeting benchmark-level performance by year-end 2018. West Penn continuously evaluates system-wide reliability performance and looks for any emerging trends that would affect reliability. These analyses include reviewing performance during both blue sky and non-blue sky days. West Penn employees and leadership will diligently work towards meeting their goal of achieving benchmark-level performance in all three indices by year-end 2018.

Outages by Cause				
2010	West Penn Power			
Cause	Customer Minutes	Number of Sustained *Interruptions*	Customers Affected	% Based on Number of Outages
OFF RIGHT-OF-WAY TREES	50,980,031	3,382	154,892	22.84%
OVERHEAD LINE MATERIAL	10,465,593	1,678	97,893	11.33%
UNKNOWN	6,743,951	1,581	63,009	10.68%
ANIMAL	3,154,622	1,428	39,248	9.65%
WEATHER	25,088,085	1,422	73,034	9.60%
PUBLIC/CUSTOMER	9,319,324	1,254	81,426	8.47%
OVERHEAD LINE EQUIPMENT	2,332,005	1,185	26,210	8.00%
RIGHT-OF-WAY TREES	14,543,676	981	53,817	6.63%
OVERHEAD WIRE	5,885,611	957	57,134	6.46%
UG CABLE	2,693,741	496	16,353	3.35%
SUBSTATION EQUIPMENT	3,393,848	147	37,373	0.99%
OTHER	897,256	131	9,793	0.88%
UG LINE EQUIPMENT	302,785	104	1,519	0.70%
UG LINE MATERIAL	272,232	44	1,552	0.30%
SERVICE EQUIPMENT	49,024	15	2,482	0.10%
TOTAL	**136,121,784**	**14,805**	**715,735**	**100.00%**

Outages by Cause				
2011	West Penn Power			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
OFF RIGHT-OF-WAY TREES	59,711,813	5,305	260,406	26.63%
WEATHER	30,040,467	2,682	161,875	13.46%
UNKNOWN	14,458,608	2,102	110,080	10.55%
OVERHEAD MATERIAL	8,753,886	1,976	96,239	9.92%
PUBLIC	10,892,911	1,599	122,567	8.03%
OVERHEAD EQUIPMENT	3,331,940	1,545	32,067	7.75%
ANIMALS	2,318,530	1,422	31,284	7.14%
OVERHEAD WIRE	6,777,961	1,180	63,576	5.92%
ON RIGHT-OF-WAY TREES	7,777,797	1,038	53,813	5.21%
UNDERGROUND CABLE	1,830,441	533	9,733	2.68%
OTHER	1,698,854	252	22,555	1.26%
SUBSTATION EQUIPMENT	3,043,286	129	32,283	0.65%
UNDERGROUND EQUIPMENT	449,727	119	2,946	0.60%
UNDERGROUND MATERIAL	38,210	26	292	0.13%
SERVICE EQUIPMENT	33,322	16	272	0.08%
TOTAL	**151,157,755**	**19,924**	**999,988**	**100.00%**

Outages by Cause				
2012	West Penn Power			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Numberof Outages
EQUIPMENT FAILURE	19,471,142	2,566	136,800	22.84%
TREES/NOT PREVENTABLE	68,377,040	2,450	169,825	21.80%
UNKNOWN	21,532,137	1,978	113,781	17.60%
ANIMAL	2,087,784	998	24,834	8.88%
LINE FAILURE	13,428,338	779	69,476	6.93%
FORCED OUTAGE	4,368,227	718	67,046	6.39%
TREES/PREVENTABLE	7,044,906	398	19,873	3.54%
VEHICLE	8,040,413	352	65,690	3.13%
WIND	18,969,212	324	31,860	2.88%
LIGHTNING	2,245,292	225	10,921	2.00%
BIRD	587,746	151	4,572	1.34%
HUMAN ERROR - NON-COMPANY	1,411,515	91	13,351	0.81%
CUSTOMER EQUIPMENT	133,444	50	915	0.44%
UG DIG-UP	115,205	34	1,037	0.30%
HUMAN ERROR - COMPANY	394,571	29	8,005	0.26%
FIRE	515,347	23	3,192	0.20%
OBJECT CONTACT WITH LINE	104,055	20	1,560	0.18%
OVERLOAD	618,369	20	3,989	0.18%
VANDALISM	118,885	15	5,261	0.13%
PREVIOUS LIGHTNING	14,121	7	49	0.06%
OTHER UTILITY-NON ELEC	3,755	5	19	0.04%
ICE	2,452	2	2	0.02%
OTHER ELECTRIC UTILITY	914,748	2	1,243	0.02%
TOTAL	**170,498,704**	**11,237**	**753,301**	**100.00%**

Outages by Cause				
2013	West Penn Power			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
EQUIPMENT FAILURE	26,334,683	2,335	175,741	20.43%
UNKNOWN	16,443,556	1,856	106,987	16.24%
TREES OFF ROW-TREE	49,962,288	1,524	135,965	13.33%
FORCED OUTAGE	13,286,903	1,267	163,291	11.08%
LINE FAILURE	17,925,397	1,045	76,169	9.14%
ANIMAL	2,664,483	1022	28,191	8.94%
TREES/NOT PREVENTABLE	8,985,043	624	42,526	5.46%
VEHICLE	5,724,060	350	44,732	3.06%
TREES OFF ROW-LIMB	5,390,579	335	28,393	2.93%
TREES ON ROW	4,505,225	264	15,425	2.31%
TREES - SEC/SERVICE	218,306	212	521	1.85%
BIRD	471,053	209	4,304	1.83%
LIGHTNING	2,907,124	140	15,967	1.22%
HUMAN ERROR -NON-COMPANY	906,071	88	9,004	0.77%
UG DIG-UP	81,061	34	493	0.30%
HUMAN ERROR - COMPANY	274,849	25	6,472	0.22%
TREES/PREVENTABLE	72,508	18	413	0.16%
OBJECT CONTACT WITH LINE	61,986	15	205	0.13%
OVERLOAD	433,295	13	3,420	0.11%
VANDALISM	22,740	13	77	0.11%
CUSTOMER EQUIPMENT	133,940	12	155	0.10%
FIRE	35,003	9	148	0.08%
OTHER ELECTRIC UTILITY	683,771	6	3,178	0.05%
PREVIOUS LIGHTNING	137,787	4	798	0.03%
SWITCHING ERROR	16,516	4	205	0.03%
CONTAMINATION	1,425	2	9	0.02%
WIND	47,765	2	19	0.02%
ICE	118	1	1	0.01%
OTHER UTILITY-NON ELEC	24,190	1	295	0.01%
Total	**157,751,725**	**11,430**	**863,104**	**100.00%**

Outages by Cause				
2014	West Penn Power			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
EQUIPMENT FAILURE	15,665,072	2,419	144,555	23.58%
UNKNOWN	9,346,031	1,632	77,777	15.91%
TREES OFF ROW-TREE	25,728,451	1,215	100,298	11.84%
FORCED OUTAGE	8,443,654	1,149	142,602	11.20%
LINE FAILURE	12,774,306	943	71,871	9.19%
ANIMAL	1,427,517	874	22,244	8.52%
TREES ON ROW	5,996,223	455	30,399	4.43%
TREES OFF ROW-LIMB	4,822,659	360	28,653	3.51%
VEHICLE	9,284,922	343	65,989	3.34%
BIRD	612,174	225	5,841	2.19%
TREES - SEC/SERVICE	304,323	212	1,106	2.07%
LIGHTNING	2,148,109	170	11,046	1.66%
HUMAN ERROR -NON-COMPANY	1,636,702	99	12,474	0.96%
UG DIG-UP	60,007	32	275	0.31%
HUMAN ERROR - COMPANY	50,757	27	611	0.26%
OBJECT CONTACT WITH LINE	95,624	27	712	0.26%
CUSTOMER EQUIPMENT	171,149	20	2285	0.19%
OVERLOAD	296,487	20	2,030	0.19%
FIRE	17,438	11	69	0.11%
VANDALISM	10,963	10	66	0.10%
OTHER ELECTRIC UTILITY	261,690	5	742	0.05%
PREVIOUS LIGHTNING	2,432	5	5	0.05%
WIND	37,342	4	227	0.04%
SWITCHING ERROR	9,334	2	718	0.02%
OTHER UTILITY-NON ELEC	98	1	2	0.01%
Total	99,203,464	10260	722,597	100.00%
Total	**157,751,725**	**11,430**	**863,104**	**100.00%**

West Penn Projects 2016

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Vanceville - Hardware and Coordination Rehabilitation	WPC	January 2016	December 2016				0.001		0.060	$ 210,157.41	
McGovern - Hardware and Coordination Rehabilitation	WPC	January 2016	December 2016				0.001		0.060	$ 210,157.41	
Ohiopyle - Hardware and Coordination Rehabilitation	WPC	January 2016	December 2016				0.001		0.060	$ 72,637.41	
East Millsboro - Hardware and Coordination Rehabilitation	WPC	January 2016	December 2016				0.001		0.060	$ 72,637.41	
Waterville - Hardware and Coordination Rehabilitation	WPC	January 2016	December 2016				0.001		0.060	$ 72,637.41	
Windridge - Hardware and Coordination Rehabilitation	WPC	January 2016	December 2016				0.001		0.060	$ 72,637.41	
Vanceville - Add 2 additional phases (1 Mile) to split customer exposure.	WPC	January 2016	December 2016				0.002		0.050	$ 150,920.00	
McGovern - Replace all non-vacuum type line reclosers	WPC	January 2016	December 2016				0.001		0.060	$ 30,581.85	
Enhanced Overcurrent Protection and SCADA Control	Reliability	January 2016	December 2016				0.004		0.134	$ 3,971,000.00	
Subtransmission Modernization and Automation	Reliability	January 2016	December 2016				0.009		0.603	$ 3,450,780.00	
Targeted Circuit Rehabilitation	Reliability	January 2016	December 2016				0.006		0.512	$ 2,760,221.43	
Replace Underground Getaways installed prior to 1988	Reliability	January 2016	December 2016				0.001		0.070	$ 754,600.00	

West Penn Projects 2017

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Hardware and Coordination Rehabilitation	WPC	January 2017	December 2017				0.004		0.180	$ 710,864.44	
Emerald Ash Borer Mitigation	Reliability	January 2017	December 2017							$ 4,116,820.00	
Subtransmission Modernization and Automation	Reliability	January 2017	December 2017				0.005		0.603	$ 5,594,530.00	
Enhanced Overcurrent Protection and SCADA Control	Reliability	January 2017	December 2017				0.004		0.066	$ 4,125,600.00	
Targeted Circuit Rehabilitation	Reliability	January 2017	December 2017				0.008		0.090	$ 5,262,262.54	
Replace Underground Getaways installed prior to 1988	Reliability	January 2017	December 2017				0.001		0.070	$ 753,600.00	

West Penn Projects 2018											
Project Description	Plan Type	Start Date *(Actual/Projected)*	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
Hardware and Coordination Rehabilitation	WPC	January 2018	December 2018				0.004		0.180	$ 710,861.44	
Subtransmission Modernization and Automation	Reliability	January 2018	December 2018				0.005		0.603	$ 3,534,141.60	
Enhanced Overcurrent Protection and SCADA Control	Reliability	January 2018	December 2018				0.003		0.066	$ 2,750,400.00	
Targeted Mainline Rehabilitation	Reliability	January 2018	December 2018				0.006		0.090	$ 2,844,466.24	

Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company
Focused Management and Operations Audits
Implementation Plan

Ordering Paragraph 4:

That Metropolitan Edison Company, the Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company are hereby directed to include in their reliability plan as described in Ordering Paragraph 3 above, a detailed plan, including project completion dates, to address the 5% worst performing circuits that have appeared on the Annual Reliability Report for two or more years in the past five years.

Bureau of Audits Recommendation VII-4

Develop and implement remedial actions that effectively correct the deficiencies of circuits found on the worst performing circuits list such that the circuits do not re-appear on the list for several years.

Response

Worst Performing Circuit Plan

In response to the Commission's Order, Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power"), and West Penn Power Company ("West Penn") (individually, a "Company" and collectively, the "Companies") have each developed a worst performing circuit ("WPC") plan that will implement remedial actions to positively impact circuits found on the 5% WPC list provided in their Annual Reliability Reports[1] for two or more years for the 2010-2014 period.

The Companies have historically performed an annual review of their WPC lists, which led to the development of plans for remedial action to improve performance. Core reliability strategies, most of which are supported by the Met-Ed 2007 UMS Audit,[2] formed the basis for these plans. Examples of prior remediation work that have been completed on many of the circuits identified in these plans include: vegetation management with a focus on priority or danger trees, circuit sectionalizing, and the installation of lightning protection, fault indicators, animal guards and additional fuses and reclosers.

In response to Ordering Paragraph 4, each of the Companies completed in-depth analyses of their respective WPC performance. As a result, each Company has developed a WPC Plan that addresses circuits from its respective 5% WPC list within the Annual Reliability Reports. Many of the circuits that appear on the 5% WPC list for two or more years

[1] Contained in the Focused Management and Operations Audit prepared by the Pennsylvania Public Utility Commission Bureau of Audits were circuits that appeared on any Quarterly Reliability Report during the specified years. However, for the purposes of the response to the Order issued on March 30, 2015, the Companies are considering circuits that have been identified in their Annual Reliability Reports, which show an annual view of circuit performance.

[2] *2006 Focused Audit of Metropolitan Edison Company conducted by UMS Group Inc. and issued July 2007.*

between 2010 and 2014 are circuits that have more exposure than an average circuit, meaning that these circuits are generally longer and may be located in areas that are difficult to access. Due to these characteristics, it is sometimes challenging or very costly to improve overall reliability performance for such a circuit. Additionally, some of the longer circuits in more rural areas have less customers per mile than an average circuit; therefore, some projects that might have significant costs to improve performance only benefit a limited number of customers, reducing cost-effectiveness. These factors were taken into consideration when developing the Companies' plans to address their WPCs. The Plans include a description of each circuit that has appeared on the annual WPC list for two or more years during between 2010 and 2014, the top outage causes for each circuit, a discussion of projects that have already been completed on the circuit, and additional projects identified to improve WPC performance.

As a result of the 2007 UMS Group, Inc. ("UMS") reliability assessment, the average performance of Met-Ed's WPC has seen a 50% reduction in customer minutes interrupted ("CMI") over the last eight years. Met-Ed's commitment to reliability performance was further demonstrated in the 2013 reliability review[3] in which UMS stated that Met-Ed had "complied with (and in fact exceeded expectations in terms of results from) the recommendations of the 2006 audit." Met-Ed has eleven circuits which have remained on the 5% WPC list within the Annual Reliability Report for two or more years for the 2010-2014 period. The top outage causes for these circuits include off right of way ("ROW") trees, and equipment and line failures. As such, the Met-Ed WPC Plan, attached hereto as Appendix A, focuses on accelerated and enhanced vegetation management, targeted circuit rehabilitation, porcelain cutout replacement, supervisory control and data acquisition ("SCADA") switch installation, and specific projects to create ties and split circuits to address each WPC. Met-Ed will also continue to monitor its WPC performance to proactively target potential circuit deficiencies in the future.

Penelec has nineteen circuits appearing on its 5% WPC list within the Annual Reliability Report for two or more years between 2010 and 2014. Penelec's Reliability Plan, described more fully in response to Ordering Paragraph 3, is geared towards improving overall reliability, but also has the benefit of improving the Company's WPC performance. However, additional projects have been identified to specifically address WPC concerns. Penelec's WPCs have top outage causes which include off ROW trees, and equipment and line failures. As such, the Penelec WPC Plan, attached hereto as Appendix B, will focus on accelerated and enhanced vegetation management, targeted circuit rehabilitation, porcelain cutout replacement, SCADA switch installation, modular substation construction, and other substation upgrades. Penelec will also continue to monitor its WPC performance to proactively target potential circuit deficiencies in the future.

Penn Power has not identified any circuits appearing on its 5% WPC list within the Annual Reliability Report for two or more years between 2010 and 2014. Nonetheless, Penn Power

[3] Metropolitan Edison Company Reliability Review 2013 conducted by UMS and issued April 2014.

will continue to monitor its WPC performance so that it can proactively target potential circuit deficiencies in the future, as discussed in Penn Power's WPC Plan, attached hereto as Appendix C.

West Penn has six circuits which appeared on its 5% WPC list within the Annual Reliability Report for two or more years between 2010 and 2014. West Penn's Reliability Plan submitted in response to Ordering Paragraph 3 will help improve this WPC performance. However, additional projects have been identified to specifically address WPC concerns. The top outage causes of West Penn's WPCs include off ROW trees and weather-related outages. As such, the West Penn WPC Plan, attached hereto as Appendix D, focuses on vegetation management and the installation of additional circuit ties and reclosers in order to remediate each WPC. Like its counterparts, West Penn will also continue to monitor its WPC performance to ensure that it is posed to proactively target potential circuit deficiencies in the future.

While the Companies' plans as outlined in each of the attached appendices were designed with the goal of removing circuits appearing for two or more years from the 5% WPC lists, this outcome may not be possible in all instances due to the challenges seen by some circuits as discussed earlier in this response. In order to ensure that resources are being most effectively used to target these circuits' removal, the Companies will continuously review their respective WPC Plans to determine the effectiveness of the identified projects and programs in relation to actual performance results. The Companies may re-prioritize, alter completion dates, and add or remove projects based on ongoing engineering analyses to maximize the reliability and operating benefits to their systems, while taking into consideration the overall impact to reliability improvement and the cost benefits to customers.

Individual Responsible

Linda Moss, President, Pennsylvania Operations

Expected Completion Date

December 31, 2018

Met-Ed Worst Performing Circuit ("WPC") Plan

Background and Outage Causes

In an effort to improve overall reliability, Met-Ed underwent a focused reliability assessment by an outside consultant in 2007.[1] Initiatives undertaken following the assessment resulted in reliability improvements for Met-Ed. These initiatives included the development of an enhanced vegetation management program, installation of fuses, reclosers, supervisory control and data acquisition ("SCADA") devices and fault circuit indicators, and the refinement of partial restoration procedures. These upgrades resulted in the reduction of customer minutes interrupted ("CMI") associated with WPCs. The enhancements, coupled with routine inspection and maintenance of distribution and transmission assets, have continued to improve WPC performance. For example, the average performance of Met-Ed's WPCs has seen nearly a 50% reduction in CMI over the last eight years, in that the CMI impact from WPCs has been reduced from a total of over 1,000,000 minutes in 2007 to an average total of less than 550,000 minutes in 2014.

A review of Met-Ed's five-year WPC history shows that it has eleven circuits which have appeared on the 5% WPC list within its Annual Reliability Reports for two or more years between 2010 and 2014. See ***Table 1*** for a list of Met-Ed's WPCs during this time period.

Table 1. Met-Ed WPCs for the period of 2010 to 2014

Substation	Circuit	2010	2011	2012	2013	2014	Total 2010-2014	Total 2011-2014
Newberry	576-4	X				X	2	1
Barto	705-1	X			X	X	3	2
Yorkana	708-4	X	X	X			3	2
Birdsboro	756-1	X		X	X	X	4	3
Birdsboro	757-1		X	X	X	X	4	4
Bern Church	789-1				X	X	2	2
North Bangor	813-3		X		X		2	2
Shawnee	822-3	X	X				2	1
North Bangor	826-3	X	X		X		3	2
Shawnee	860-3	X	X		X		3	2
Shawnee	895-3		X	X	X	X	4	4
Syndersville	621-3				X		1	1
Frystown	702-2			X			1	1
Hill	737-4					X	1	1
Annville	743-2					X	1	1
Gardners	752-4			X			1	1
Swatara Hill	763-2		X				1	1
Swatara Hill	764-2			X			1	1
Flying Hills	776-1				X		1	1
Broad Street	776-2				X		1	1
Bernville	786-1		X				1	1
Leesport	811-1				X		1	1
Fox Hill	816-3		X				1	1
Shawnee	837-3					X	1	1

5% WPC List 2010 - 2014
5% WPC List 2011 - 2014

[1] 2006 Focused Audit of Metropolitan Edison Company conducted by UMS Group Inc. and issued July 2007.

In addition to those eleven circuits for which targeted reliability enhancements have been designed as a part of this Plan, the Company has identified an additional eight circuits that will receive further monitoring, as they have appeared on the list once in the last four years (2011-2014) and therefore have the potential to continue to appear on the list.

Design of WPC Plan

The projects and programs identified in the WPC Plan to be implemented in 2016 through 2018 are designed to address the challenges the Company faces with respect to the identified circuits' top outage causes, with the WPC Plan comprised of five main components: i) accelerated and enhanced vegetation management; ii) targeted circuit rehabilitation; iii) porcelain cutout replacements; iv) SCADA device installations; and v) specific projects designed to create circuit ties. The WPC Plan includes investments chosen to address the specific needs of each WPC based upon its individual outage causes, the projected reliability performance improvements to be derived from those projects, and each project's estimated completion date.

Met-Ed's Plan will focus on projects to strengthen zone 1 and zone 2 portions of its WPCs in order to maximize the reliability benefit of the planned upgrades.[2] For instance, porcelain cutouts in zones 1 and 2 will be replaced with polymer cutouts, and SCADA devices will be installed at intervals that limit the number of customers on each failure. Meanwhile, enhanced vegetation management will remove overhang and danger trees[3] in zones 1 and 2, and will also clear cross country rights of way ("ROWs") with mowing in zones 1 and 2. Finally, targeted circuit rehabilitation will include replacement and installation of crossarms, poles, insulators, switches, and animal guards. These projects are expected to improve circuit reliability as well as improve overall system average interruption frequency index ("SAIFI"), system average interruption duration index ("SAIDI"), and customer average interruption duration index ("CAIDI").

Because many of the identified circuits have more exposure than an average circuit - meaning that the circuits are generally longer and may be located in areas that are difficult to access - it is sometimes challenging or very costly to improve overall reliability performance for such a circuit. Additionally, some of the longer circuits in more rural areas have less customers per mile than an average circuit; therefore, some projects that might have significant costs to improve performance only benefit a limited number of customers, reducing cost-effectiveness. These factors were taken into consideration when developing the Company's WPC Plan. Specifically, Met-Ed took into consideration the cost/benefit ratio of each project when developing the most effective solutions for each of the WPCs. Typically, projects that were considered first had the greatest impact on reliability per dollar spent. These high impact projects were usually exhausted first before considering more costly and lower impact solutions. In some cases, the higher cost solutions were

[2]Zone 1 is defined as the portion of the circuit from the substation breaker to the first protective device. Zone 2 is defined as the three phase conductor and devices after the first protective device.

[3]A danger tree is defined as a tree located adjacent to the distribution clearing zone that is either dead, diseased, declining, structurally compromised, severely leaning, or significantly encroaching on the clearing zone and poses at risk for causing an outage.

not cost effective when considered against the small reliability benefit that would result. Regardless of this challenge, every project chosen is anticipated to provide a beneficial impact to the circuits' reliability.

While Met-Ed's Plan was designed with the goal of removing those circuits appearing for two or more years from its 5% WPC list, this outcome may not be possible in all instances depending upon the unique challenges affecting certain circuits. In order to ensure that resources are being most effectively used to target these circuits' removal, the Company will continuously review its WPC Plan to assess the effectiveness of the identified projects and programs in relation to actual performance results. The Company may re-prioritize, alter completion dates, and add or remove projects based on ongoing engineering analyses to maximize the reliability and operating benefits to the affected circuits, while taking into consideration the overall impact to reliability improvement and the cost benefits to customers.

See below for the detailed plans associated with each circuit, the projects of which are also reflected in Attachment A to the Company's response to Ordering Paragraph 3.

Circuit 576-4 (Newberry)

Circuit 576-4 serves 1250 customers and has a length of 87 miles. It is located in northern York County and the terrain is mostly rural with off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in both 2010 and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include off cycle tree trimming with a focus on danger trees, fuse replacement, fault indicator installation, accelerated zone 1 and zone 2 assessments, recloser installation, radio controlled switch installation, and a comprehensive circuit assessment.

The Company's plans to address circuit 576-4's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, and SCADA installation.

Circuit 705-1 (Barto)

Circuit 705-1 serves 2093 customers and has a length of 148 miles. It is located in eastern Berks County and the terrain is mostly rural with heavily wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2013, and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include off cycle tree trimming with a focus on danger trees, fuse replacement, fault indicator installation, accelerated zone 1 and zone 2 assessments, recloser installation, crossarm replacement, protection coordination analysis, and a comprehensive circuit assessment.

The Company's plans to address circuit 705-1's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, and SCADA installation.

Circuit 708-4 (Yorkana)

Circuit 708-4 serves 575 customers and has a length of 25 miles. It is located in eastern York County and the terrain is mostly rural with some off road sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2011, and 2014. Outages on the circuit are typically driven by off ROW trees and vehicle caused outages. Previous efforts to reduce outages to this circuit include off cycle tree trimming with a focus on danger trees, fault indicator installation, accelerated zone 1 and zone 2 assessments, crossarm replacement, recloser installation, radio controlled switch installation, a comprehensive circuit assessment, reconfiguration of the circuit, and construction of a new modular substation.

The Company's plans to address circuit 708-4's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, and SCADA installation.

Circuit 756-1 (Birdsboro)

Circuit 756-1 serves 1515 customers and has a length of 100 miles. It is located in southeastern Berks County and the terrain is mostly rural with heavily wooded sections that traverse through Hopewell State Forest and French Creek State Park. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2012, 2013, and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include off cycle tree trimming with a focus on danger trees, proactive forestry inspections, fuse replacement, fault indicator installation, accelerated zone 1 and zone 2 assessments, recloser installation, crossarm replacement, and arrester repair.

The Company's plans to address circuit 756-1's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, SCADA installation, and construction of an additional circuit tie.

Circuit 757-1 (Birdsboro)

Circuit 757-1 serves 1923 customers and has a length of 83 miles. It is located in southeastern Berks County and the terrain outside of Birdsboro is rural with heavily wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2011, 2012, 2013, and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit

include off cycle tree trimming with a focus on danger trees, proactive forestry inspections, fuse replacement, fault indicator installation, accelerated zone 1 and zone 2 assessments, recloser installation, crossarm replacement, remote operated switch installation, and a comprehensive circuit assessment.

The Company's plans to address circuit 757-1's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, and SCADA installation.

Circuit 789-1 (Bern Church)

Circuit 789-1 serves 1421 customers and has a length of 97 miles. It is located in northwestern Berks County and the terrain is rural with heavily wooded sections particularly near Blue Mark Lake. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2013 and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include off cycle tree trimming with a focus on danger trees, fault indicator installation, accelerated zone 1 and zone 2 assessments, underground cable replacement, ridge pin repair, substation relay upgrades, and pole replacement.

The Company's plans to address circuit 789-1's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, SCADA installation, and the extension of the single phase at two locations to eliminate off road line sections.

Circuit 813-3 (North Bangor)

Circuit 813-3 serves 1408 customers and has a length of 56 miles. It is located in northeastern Northampton County and the terrain is rural with off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2011 and 2013. Outages on the circuit are typically driven by off ROW trees and vehicle caused outages. Previous efforts to reduce outages to this circuit include off cycle tree trimming with a focus on danger trees, accelerated zone 1 and zone 2 assessments, and step transformer upgrades.

The Company's plans to address circuit 813-3's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, and SCADA installation.

Circuit 822-3 (Shawnee)

Circuit 822-3 serves 3627 customers and has a length of 105 miles. It is located in central Pike and eastern Monroe Counties and the terrain is mostly rural with many off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the

Annual Reliability Report WPC list in 2010 and 2011. Outages on the circuit are typically driven by off ROW trees and line failures. Previous efforts to reduce outages to this circuit include off cycle tree trimming with a focus on danger trees, porcelain cutout replacement, recloser upgrades, accelerated zone 1 and zone 2 assessments, wood pole inspection and replacement, and fuse replacement on step transformers.

The Company's plans to address circuit 822-3's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, and SCADA installation.

Circuit 826-3 (North Bangor)

Circuit 826-3 serves 3155 customers and has a length of 144 miles. It is located in northern Northampton and southern Monroe Counties and the terrain is mostly rural with some off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2011, and 2013. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include off cycle tree trimming with a focus on danger trees, SCADA installation, porcelain cutout replacement, recloser installation, accelerated zone 1 and zone 2 assessments, wood pole inspection and replacements, recloser installation, and a circuit protection study.

The Company's plans to address circuit 826-3's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, and SCADA installation.

Circuit 860-3 (Shawnee)

Circuit 860-3 serves 3627 customers and has a length of 64 miles. It is located in western Pike and eastern Monroe Counties and the terrain is mostly rural with many off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2011, and 2013. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include off cycle tree trimming with a focus on danger trees, SCADA installation, porcelain cutout replacement, recloser upgrades, accelerated zone 1 and zone 2 assessments, fault indicator installation and replacement, wood pole inspection, and a circuit coordination study.

The Company's plans to address circuit 860-3's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, SCADA installation, and porcelain side post insulator replacement.

Circuit 895-3 (Shawnee)

Circuit 895-3 serves 3417 customers and has a length of 113 miles. It is located in Monroe County and the terrain is mostly rural with some off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2011, 2012, 2013, and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include off cycle tree trimming with a focus on danger trees, porcelain cutout replacement, recloser upgrades, accelerated zone 1 and zone 2 assessments, fault indicator installation, fuse installation, recloser installation, SCADA installation, wood pole inspection, and a fuse coordination study.

The Company's plans to address circuit 895-3's performance include off cycle tree trimming in zones 1 and 2 with a focus on danger trees, targeted mainline rehabilitation, porcelain cutout replacement, SCADA installation, and construction of an additional circuit tie.

Conclusion

Through the WPC Plan, Met-Ed is committed to improving the performance of circuits appearing on the 5% WPC list within its Annual Reliability Report for two or more years. Improving the performance of these WPCs will also benefit overall system reliability. Additionally, Met-Ed is committed to ongoing monitoring of WPC performance to proactively target potential circuit deficiencies in the future.

Met-Ed Projects 2016											
Project Description	Plan Type	Start Date *(Actual/Projected)*	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
776-1 Replace URD Cable, Flying Hills	WPC	January 2016	December 2016				0.0010			$ 210,571.00	
826-3 Replace with Open Wire, Spacer Cable along Meixel Valley Rd.	WPC	January 2016	December 2016				0.0005		0.059	$ 420,316.00	
860-3 Replace Porcelain Side Post Insulators with Polymer	WPC	January 2016	December 2016				0.0030		0.354	$ 177,826.00	
Porcelain Cutout Replacement (6 Circuits)	WPC	January 2016	December 2016				0.0004		0.040	$ 1,632,627.86	
SCADA (New Installations & Retrofits - 5 Circuits)	WPC	January 2016	December 2016				0.0166		2.785	$ 1,354,640.00	
SCADA (New Installations & Retrofits - 6 Circuits)	WPC	January 2016	December 2016				0.0166		2.785	$ 1,354,640.00	

Met-Ed Projects 2017											
Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
776-1 Create Circuit Tie to 754-1 Circuit	WPC	January 2017	December 2017				0.0010		0.118	$ 170,227.98	
756-1 Create Additional Circuit Tie within 756-1	WPC	January 2017	December 2017				0.0010		0.118	$ 774,513.06	
789-1 Extend Single Phase at 2 Locations to Eliminate 2 Off Road Line Sections	WPC	January 2017	December 2017				0.0005		0.059	$ 221,474.20	
895-3 Create Circuit Tie to 816-3 Circuit	WPC	January 2017	December 2017				0.0010		0.118	$ 808,300.00	
764-2 Create Tie to 763-2 Circuit	WPC	January 2017	December 2017				0.0010		0.118	$ 190,758.80	
Targeted Mainline Rehabilitation (5 Circuits)	WPC	January 2017	December 2017				0.0004		0.040	$ 2,490,590.19	
Targeted Mainline Rehabilitation (6 Circuits)	WPC	January 2017	December 2017				0.0004		0.040	$ 2,490,590.19	
Porcelain Cutout Replacement (5 Circuits)	WPC	January 2017	December 2017				0.0004		0.040	$ 1,632,627.86	
SCADA (New Installations & Retrofits - 5 Circuits)	WPC	January 2017	December 2017				0.0166		2.785	$ 1,354,640.00	
Forestry - Enhanced Tree Trimming & Danger Tree Removal (5 Circuits)	WPC	January 2017	December 2017				0.0070		0.919	$ 1,492,700.00	
Forestry - Enhanced Tree Trimming & Danger Tree Removal (6 Circuits)	WPC	January 2017	December 2017				0.0070		0.919	$ 1,793,600.00	
Forestry - Enhanced Tree Trimming & Danger Tree Removal (5 Circuits)	WPC	January 2017	December 2017				0.0070		0.919	$ 1,793,600.00	

Met-Ed Projects 2018											
Project Description	Plan Type	Start Date *(Actual/Projected)*	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Estimated Project Cost	Comments
621-3 Create Tie with 620-3	WPC	January 2018	December 2018				0.0010	-	0.118	$ 1,131,620.00	
Targeted Mainline Rehabilitation (5 Circuits)	WPC	January 2018	December 2018				0.0004	-	0.040	$ 2,189,690.19	
Porcelain Cutout Replacement (5 Circuits)	WPC	January 2018	December 2018				0.0004	-	0.040	$ 1,331,727.86	

Penelec Worst Performing Circuit ("WPC") Plan

Background and Outage Causes

In an effort to improve overall reliability, Penelec underwent a focused reliability assessment by an outside consultant between November 2008 and January 2009.[1] Initiatives undertaken following the assessment resulted in reliability improvement for Penelec. These initiatives included development of an enhanced tree trimming program, installation of additional adaptive relay and directional fault indicators, and the implementation of partial restoration procedures. Additionally, circuit protection and sectionalizing upgrades were completed which resulted in a 20% reduction to the number of customers interrupted ("CI") per outage incident. These actions, paired with routine inspection and maintenance of electrical equipment, aimed to improve overall reliability.

A review of Penelec's five-year WPC history shows that it has nineteen circuits which have appeared on the 5% WPC list within its Annual Reliability Reports for two or more years between 2010 and 2014. See ***Table 1*** for a list of Penelec's WPCs during this time period.

Table 1. Penelec WPCs for the period of 2010 to 2014

Substation	Circuit	2010	2011	2012	2013	2014	Total 2010-2014	Total 2011-2014
Salix	070-11		X	X			2	2
Timblin	103-23			X	X		2	2
DuBois	137-23	X	X		X		3	2
Philipsburg	162-22	X		X	X		3	2
Madera	166-22	X	X	X	X	X	5	4
Birmingham	168-22	X	X				2	1
Union City	206-43	X	X		X	X	4	3
Warren South	220-41	X	X	X	X		4	3
Powell Avenue	237-31	X				X	2	1
Springboro	237-52	X	X			X	3	2
Erie South	259-31	X	X	X	X		4	3
Rolling Meadows	310-31	X	X		X	X	4	3
Tiffany	435-65			X		X	2	2
Thompson	436-65			X		X	2	2
Tionesta Junction SW Sta	498-51	X			X	X	3	2
Athens	514-61	X				X	2	1
Grover	527-63	X	X	X			3	2
Tunkhannock	533-65			X	X		2	2
Starruca	744-65		X			X	2	2
Meyersdale North	022-12		X				1	1
Blairsville East	082-13		X				1	1
East Pike	095-13				X		1	1
Belleville	124-81				X		1	1
Union City	208-43					X	1	1
French Road	223-31					X	1	1
Green Garden	224-31	X					1	0
Marienville	327-51					X	1	1
Edinboro	420-34					X	1	1
East Towanda	525-62					X	1	1
Logan	701-81					X	1	1

5% WPC List 2010 - 2014
5% WPC List 2011 - 2014

[1] Penelec Focused Reliability Assessment conducted by UMS Group Inc. and issued March 2009.

In addition to those nineteen circuits identified as repeaters for which targeted reliability enhancements have been designed as part of this Plan, the Company has identified an additional thirteen circuits that will receive further monitoring, as they have appeared on the list once in the last four years (2011-2014) and therefore have the potential to continue to appear on the list.

Design of WPC Plan

Penelec's Reliability Plan has already identified projects for each of the WPCs. In some cases the projects detailed in the Reliability Plan are expected to be sufficient to remove the WPC from the Annual Reliability Report. However, in other cases, additional projects beyond the scope of the current Penelec Reliability Plan will be necessary to remove circuits from the 5% WPC list. The projects and programs identified in the WPC Plan to be implemented in 2016 through 2018 are designed to address the specific challenges the Company faces with respect to the identified circuits' top outage causes, with the WPC Plan comprised of five main components: i) accelerated and enhanced vegetation management; ii) targeted circuit rehabilitation; iii) porcelain cutout replacements; iv) supervisory control and data acquisition ("SCADA") switch installations; and v) modular substation construction as well as other substation upgrades. The WPC Plan includes investments chosen to address the specific needs of each WPC based upon its individual outage causes, the projected reliability performance improvements to be derived from those projects, and each project's estimated completion date.

Penelec's Plan will focus on projects to strengthen the zone 1 and zone 2 portions of its WPCs in order to maximize the reliability benefit of the planned upgrades.[2] For instance, porcelain cutouts in areas that would impact zone 2 will be replaced with polymer cutouts, and SCADA switches will be installed at intervals that limit the number of customers on each failure. Meanwhile, enhanced vegetation management will remove an additional eleven trees per mile[3] while trimming and will also focus on removal of off right of way ("ROW") trees. Finally, targeted circuit rehabilitation will include replacement and/or installation of crossarms, poles, insulators, switches and animal guards. Penelec will construct one modular substation in order to shorten the Philipsburg circuit and upgrade Krayn substation with a 115/23kV transformer and two one-mile line extensions, breaking the Salix - Sidman line into three separate circuits. Both of these projects will reduce the number of customers affected in the event of an outage. These projects are expected to improve circuit reliability as was as overall system average interruption frequency index ("SAIFI"), system average interruption duration index ("SAIDI"), and customer average interruption duration index ("CAIDI").

Because many of the identified circuits have more exposure than an average circuit - meaning that the circuits are generally longer and may be located in areas that are difficult to access - it is sometimes challenging or very costly to improve overall reliability performance for such a circuit. Additionally, some of the longer circuits in more rural areas have less customers per mile than an

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[2]Zone 1 is defined as the portion of the circuit from the substation breaker to the first protective device. Zone 2 is defined as the three phase conductor and devices after the first protective device.

[3] Penelec's current average for trees removed per mile is eleven. This enhanced program will double the current average on the areas which it will be performed.

average circuit; therefore, some projects that might have significant costs to improve performance only benefit a limited number of customers, reducing cost-effectiveness. These factors were taken into consideration when developing the Company's WPC Plan. Specifically, Penelec took into consideration the cost/benefit ratio of each project when developing the most effective solutions for each of the WPCs. Typically, projects that were considered first had the greatest impact on reliability per dollar spent. These high impact projects were usually exhausted first before considering more costly and lower impact solutions. In some cases, the higher cost solutions were not cost effective when considered against the small reliability benefit that would result. Regardless of this challenge, every project chosen is anticipated to provide a beneficial impact to the circuits' reliability.

While Penelec's Plan was designed with the goal of removing those circuits appearing for two or more years from its 5% WPC list, this outcome may not be possible in all instances depending upon the unique challenges affecting certain circuits. In order to ensure that resources are being most effectively used to target these circuits' removal, the Company will continuously review its WPC Plan to assess the effectiveness of the identified projects and programs in relation to actual performance results. The Company may re-prioritize, alter completion dates, and add or remove projects based on ongoing engineering analyses to maximize the reliability and operating benefits to the affected circuits, while taking into consideration the overall impact to reliability improvement and the cost benefits to customers.

See below for the detailed plans associated with each circuit, the projects of which are also reflected in Attachment B to the Company's response to Ordering Paragraph 3.

070-11 (Salix)

Circuit 070-11 serves 2346 customers and has a length of 80 miles. It is located in southern Cambria County and the terrain is mostly rural with wooded and rocky sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2011 and 2012. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, recloser restoration, and equipment repair.

The Company's plans to address circuit 070-11's performance include replacement of the underground circuit exit. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on danger trees and upgrading Krayn substation with a 115/23kV transformer and two one-mile line extensions breaking the Salix - Sidman line into three separate circuits.

103-23 (Timblin)

Circuit 103-23 serves 781 customers and has a length of 67 miles. It is located in northern Indiana and Jefferson Counties and the terrain is mostly rural with heavily wooded sections. Between 2010 and 2014, this circuit appeared on the Annual

Reliability Report WPC list in 2012 and 2013. Outages on the circuit are typically driven by off ROW trees and vehicle caused outages. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, equipment repair, a full circuit inspection, and installation of additional fault indicators.

The Company's plans to address circuit 103-23's performance include porcelain cutout replacement. An additional project beyond the Reliability Plan that will also address circuit performance is cycle tree trimming with a focus on danger trees.

137-23 (DuBois)

Circuit 137-23 serves 2980 customers and has a length of 91 miles. It is located in western Clearfield County and the terrain is mostly rural with wooded and wetland sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2011, and 2013. Outages on the circuit are typically driven by off ROW trees and line failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, equipment repair, and line repair.

The Company's plans to address circuit 137-23's performance include porcelain cutout replacement. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on danger trees, a full circuit inspection, and targeted circuit rehabilitation.

162-22 (Philipsburg)

Circuit 162-22 serves 3517 customers and has a length of 65 miles. It is located in eastern Clearfield and Centre Counties and the terrain is mostly rural with mountainous wooded sections and traverses through Black Moshannon State Park. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2012, and 2013. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, equipment repair, and replacement of deteriorated equipment identified by a circuit patrol.

The Company's plans to address circuit 162-22's performance include porcelain cutout replacement and circuit protection coordination. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on danger trees and construction of a new modular substation source.

166-22 (Madera)

Circuit 166-22 serves 3517 customers and has a length of 65 miles. It is located in southern Clearfield and Cambria Counties and the terrain is mostly rural with hilly wooded and wetland sections. Between 2010 and 2014, this circuit appeared on the

Annual Reliability Report WPC list in 2010, 2011, 2012, 2013, and 2014. Outages on the circuit are typically driven by off ROW trees and line failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, equipment repair, and line repair.

The Company's plans to address circuit 166-22's performance include off-cycle tree trimming with a focus on danger trees, targeted circuit rehabilitation, and porcelain cutout replacement. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees and the installation of SCADA.

168-22 (Birmingham)

Circuit 168-22 serves 1114 customers and has a length of 77 miles. It is located in northern Huntingdon and Blair Counties and the terrain is mostly rural with wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010 and 2011. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, equipment repair, and line repair.

The Company's plans to address circuit 168-22's performance include porcelain cutout replacement and targeted circuit rehabilitation. An additional project beyond the Reliability Plan that will also address circuit performance is cycle tree trimming with a focus on danger trees.

206-43 (Union City)

Circuit 206-43 serves 3963 customers and has a length of 226 miles. It is located in Crawford and southern Erie Counties and the terrain is mostly rural with wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2011, 2013, and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, recloser restoration, equipment repair, and line repair.

The Company's plans to address circuit 206-43's performance include off-cycle tree trimming with a focus on danger trees, construction of a backfeed, and porcelain cutout replacement. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees, a full circuit inspection, and the installation of SCADA.

220-41 (Warren South)

Circuit 220-41 serves 2970 customers and has a length of 106 miles. It is located in eastern Warren and McKean Counties and runs through the Allegheny National Forest. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2011, 2013, and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, pole replacement, equipment repair, and line repair.

The Company's plans to address circuit 220-41's performance include porcelain cutout replacement and targeted circuit rehabilitation. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees, a full circuit inspection, and the installation of SCADA.

237-31 (Powell Avenue)

Circuit 237-31 serves 1948 customers and has a length of 20 miles. It is located in Erie County and the terrain is mostly suburban with backlot lines through neighborhoods. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010 and 2014. Outages on the circuit are typically driven by equipment failures and off ROW trees. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, recloser rehabilitation, equipment repair, and line repair.

The Company's plans to address circuit 237-31's performance include porcelain cutout replacement, off cycle tree trimming with a focus on off ROW trees and circuit protection coordination. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees and targeted circuit rehabilitation.

237-52 (Springboro)

Circuit 237-52 serves 2876 customers and has a length of 125 miles. It is located in western Crawford County and the terrain is mostly rural with wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2011, and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, recloser rehabilitation, equipment repair, and line repair.

The Company's plans to address circuit 237-52's performance include porcelain cutout replacement, off cycle tree trimming with a focus on off ROW trees and targeted circuit rehabilitation. An additional project beyond the Reliability Plan that will also address circuit performance is cycle tree trimming with a focus on off ROW trees.

259-31 (Erie South)

Circuit 259-31 serves 2593 customers and has a length of 124 miles. It is located between Erie and Waterford, PA and the terrain between the two commercial areas, of Erie and Waterford, is mostly rural with wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2011, 2012, and 2013. Outages on the circuit are typically driven by equipment failures and line failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, installation of additional protection equipment, equipment repair, and line repair.

The Company's plans to address circuit 259-31's performance include porcelain cutout replacement, circuit protection coordination and off cycle tree trimming with a focus on off ROW trees. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees and the installation of SCADA. These projects are expected to improve the performance of circuit 259-31.

310-31 (Rolling Meadows)

Circuit 310-31 serves 4404 customers and has a length of 47 miles. It is located in Erie County and the terrain is mostly suburban with backlot lines through neighborhoods. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2011, 2013, and 2014. Outages on the circuit are typically driven by equipment failures and line failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, equipment repair, and line repair.

The Company's plans to address circuit 310-31's performance include porcelain cutout replacement and off cycle tree trimming with a focus on off ROW trees. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees and targeted circuit rehabilitation.

435-65 (Tiffany)

Circuit 435-65 serves 1652 customers and has a length of 61 miles. It is located in northern Susquehanna County and the terrain is mostly rural with mountainous, wet and wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2012 and 2014. Outages on the circuit are typically driven by off ROW trees and line failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, equipment repair, and line repair.

The Company's plans to address circuit 435-65's performance include porcelain cutout replacement and off cycle tree trimming with a focus on off ROW trees. Additional

projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees.

436-65 (Thompson)

Circuit 436-65 serves 1432 customers and has a length of 154 miles. It is located in northern Wayne and Susquehanna Counties and the terrain is mostly rural with mountainous, wet and wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2012 and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, full circuit inspection, equipment repair, and line repair.

The Company's plans to address circuit 436-65's performance include porcelain cutout replacement, protection and coordination work on the entire circuit and off cycle tree trimming with a focus on off ROW trees. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees.

498-51 (Tionesta Junction SW Sta)

Circuit 498-51 serves 1113 customers and has a length of 712 miles. It is located in western Forest County and the terrain is mostly rural with hilly wooded sections extending into the Allegheny National Forest. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2013, and 2014. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, full circuit inspection, installation of fault indicators, equipment repair, and line repair.

The Company's plans to address circuit 498-51's performance include porcelain cutout replacement, full circuit protection work and off cycle tree trimming with a focus on off ROW trees. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees.

514-61 (Athens)

Circuit 514-61 serves 827 customers and has a length of 47 miles. It is located in northern Bradford County and the terrain is mostly rural with mountainous wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010 and 2014. Outages on the circuit are typically driven by off ROW trees and line failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees, full circuit inspection, equipment repair, and line repair.

The Company's plans to address circuit 514-61's performance include porcelain cutout replacement and off cycle tree trimming with a focus on off ROW trees. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees.

527-63 (Grover)

Circuit 527-63 serves 1157 customers and has a length of 92 miles. It is located in northern Lycoming County and the terrain is mostly a rural valley between mountains along Lycoming Creek. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010, 2011 and 2012. Outages on the circuit are typically driven by off ROW tress and equipment failures. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees and equipment repair.

The Company's plans to address circuit 527-63's performance include porcelain cutout replacement and off cycle tree trimming with a focus on off ROW trees. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees and targeted circuit rehabilitation.

533-65 (Tunkhannock)

Circuit 533-65 serves 1272 customers and has a length of 69 miles. It is located in eastern Wyoming County and the terrain is mostly rural with mountainous, wet and wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2012 and 2013. Outages on the circuit are typically driven by off ROW trees and equipment failures. Previous efforts to reduce outages to this circuit include: cycle tree trimming with a focus on danger trees and equipment repair.

The Company's plans to address circuit 533-65's performance include porcelain cutout replacement and off cycle tree trimming with a focus on off ROW trees. Additional projects beyond the Reliability Plan that will also address circuit performance are cycle tree trimming with a focus on off ROW trees, the installation of a backfeed, and the installation of SCADA.

744-65 (Starruca)

Circuit 744-65 serves 896 customers and has a length of 78 miles. It is located in eastern Susquehanna County and the terrain is mostly rural with hilly and wooded sections. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2011 and 2014. Outages on the circuit are typically driven by off ROW trees. Previous efforts to reduce outages to this circuit include cycle tree trimming with a focus on danger trees and equipment repair.

The Company's plans to address circuit 744-65's performance include porcelain cutout replacement and cycle tree trimming with a focus on off ROW trees.

Conclusion

Through the WPC Plan and the Reliability Plan, Penelec is committed to improving the performance of circuits appearing on the 5% WPC list within the Annual Reliability Report for two or more years. Improving the performance of these WPCs will also benefit overall system reliability. Additionally, Penelec is committed to ongoing monitoring of WPC performance to proactively target potential circuit deficiencies in the future.

Penn Power Worst Performing Circuit ("WPC") Plan

A review of Penn Power's five-year WPC history reflects that Penn Power has no circuits which have appeared on the WPC 5% list within its Annual Reliability Reports for two or more years between 2010 and 2014. Nonetheless, Penn Power will continue to monitor its WPC performance so that it can proactively target potential circuit deficiencies in the future. See ***Table 1*** for a list of Penn Power's WPCs for this period.

Table 1. Penn Power WPCs for the period of 2010 to 2014

Substation	Circuit	2010	2011	2012	2013	2014	Total 2010-2014	Total 2011-2014
Bessemer	D-394					X	1	1
Evans City	D-611	X					1	0
Hartstown	W-126	X					1	0
Hermitage	W-260				X		1	1
Jamestown	W-162					X	1	1
Mercer	W-167	X					1	0
Perry	W-156	X					1	0
Stoneboro	W-130				X		1	1

While no circuits were identified as repeaters requiring targeted reliability enhancements, the Company has identified four circuits that will receive further monitoring, as they have appeared on the list once in the last four years (2011-2014) and are therefore have the potential to continue to appear on the list. Penn Power is committed to striving to continue maintaining the performance of its circuits such that they do not appear on the 5% WPC list within the Annual Reliability Report for two or more years, which will also benefit overall system reliability.

West Penn Worst Performing Circuit ("WPC") Plan

Background and Outage Causes

Since coming under its current ownership in 2011, West Penn has implemented several programs to improve overall reliability, including a five-year vegetation management program, a danger tree program – which also includes Emerald Ash Borer mitigation, and zone 1[1] circuit patrols.[2] While these enhancements were mainly aimed to improve reliability, they also have resulted in improved performance to specific WPCs.

A review of West Penn's five-year WPC history shows that West Penn has six circuits which have appeared on the 5% WPC list within its Annual Reliability Reports for two or more years between 2010 and 2014. See ***Table 1*** for a list of West Penn's WPCs.

Table 1. West Penn WPCs for the period of 2010 to 2014

Substation	Circuit	2010	2011	2012	2013	2014	Total 2010-2014	Total 2011-2014
East Millsboro	East Millsboro	X	X				2	1
Houston	McGovern				X	X	2	2
Necessity	Ohio Pyle			X	X		2	2
Vanceville	Vanceville	X				X	2	1
Waterville	Waterville	X	X				2	1
Rutan	Windridge	X		X			2	1
Fowler	Bald Eagle	X					1	0
Rutan	Bristoria			X			1	1
Kittanning	Cadogan					X	1	1
Silverville	Harrison			X			1	1
McConnellsburg	Harrisonville					X	1	1
Bethlen	Laughlintown			X			1	1
Marianna	Ten Mile		X				1	1
Avella	W. Middletown					X	1	1

5% WPC List 2010 - 2014
5% WPC List 2011 - 2014

In addition to those six circuits for which targeted reliability enhancements have been designed as a part of this Plan, the Company has identified an additional eight circuits that will receive further monitoring, as they have appeared on the list once in the last four years (2011-2014) and therefore have the potential to continue to appear on the list.

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[1] Zone 1 is defined as the portion of the circuit from the substation breaker to the first protective device. Zone 2 is defined as the three phase conductor and devices after the first protective device.

[2] Circuit patrols are generally used to describe the process of inspecting a portion of the circuit for any component that has the potential to cause an outage (examples of items that could be identified include cutouts, fuses, crossarms, or trees).

Design of WPC Plan

The projects and programs identified in the WPC Plan to be implemented in 2016 through 2018 are designed to address the challenges the Company faces with respect to the identified circuits' top outage causes, with the WPC Plan comprised of three main components: i) focused vegetation management, which will continue to mitigate Emerald Ash Borer damage; ii) circuit rehabilitation and coordination; and iii) enhanced overcurrent protection. The WPC Plan includes investments chosen to address the specific needs of each WPC based upon its individual outage causes, the projected reliability performance improvements to be derived from those projects, and each project's estimated completion date.

West Penn's Plan will focus on a program designed to strengthen zone 1 and zone 2 by completing circuit rehabilitation on each of the identified WPCs in order to maximize the reliability benefit of the planned upgrades. The circuit rehabilitation for zone 1 and zone 2 will include a circuit inspection, hardware replacement for any deficiencies found, and additional fuse installations. Two of the WPCs will also receive a program to install enhanced overcurrent protection.[3] West Penn will also accelerate its vegetation management program designed to mitigate the impact of the Ash trees due to Emerald Ash Borer damage in order to avoid future outages caused by diseased or dying Ash trees. These projects are expected to improve circuit reliability as well as improve overall system average interruption frequency index ("SAIFI"), system average interruption duration index ("SAIDI"), and customer average interruption duration index ("CAIDI").

Because many of the identified circuits have more exposure than an average circuit - meaning that the circuits are generally longer and may be located in areas that are difficult to access - it is sometimes challenging or very costly to improve overall reliability performance for such a circuit. Additionally, some of the longer circuits in more rural areas have less customers per mile than an average circuit; therefore, some projects that might have significant costs to improve performance only benefit a limited number of customers, reducing cost-effectiveness. These factors were taken into consideration when developing the Company's WPC Plan. Specifically, West Penn took into consideration the cost/benefit ratio of each project when developing the most effective solutions for each of the WPCs. Typically, projects that were considered first had the greatest impact on reliability per dollar spent. These higher impact projects were usually exhausted first before considering more costly and lower impact solutions. In some cases, the higher cost solutions were not cost effective when considered against the small reliability benefit that would result.

Regardless of this challenge, every project chosen is anticipated to provide a beneficial impact to the circuits' reliability. While West Penn's Plan was designed with the goal of removing those circuits appearing for two or more years from its 5% WPC list, this outcome may not be possible in all instances depending upon the unique challenges affecting certain circuits. In order to ensure that resources are being most effectively used to target these circuits' removal, the

[3] Enhanced overcurrent protection will consist of the installation of electronic reclosers with supervisory control and data acquisition ("SCADA") capability (which will further sectionalize the circuit and reduce the number of customers affected during an outage and allow remote switching capabilities). A full circuit protection coordination analysis will follow this installation.

Company will continuously review its WPC Plan to assess the effectiveness of the identified projects and programs in relation to actual performance results. The Company may re-prioritize, alter completion dates, and add or remove projects based on ongoing engineering analyses to maximize the reliability and operating benefits to the affected circuits, while taking into consideration the overall impact to reliability improvement and the cost benefits to customers.

See below for the detailed plans associated with each circuit, the projects of which are also reflected in Attachment B to the Company's response to Ordering Paragraph 3.

Circuit East Millsboro (East Millsboro)

The East Millsboro circuit serves 176 customers and has a length of 31.8 miles. It is located in a 4.7 square mile area in southwestern Pennsylvania and the terrain is mostly rural with off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in both 2010 and 2011. Outages on the circuit are typically driven by weather-related failures such as lightning. Previous efforts to reduce outages to this circuit include zone 1 forestry and circuit patrol and the installation of automatic air switches.

The Company's plans to address the East Millsboro circuit performance are focused vegetation management which will mitigate against Emerald Ash Borer damage and zone 1 and zone 2 hardware rehabilitation.

Circuit McGovern (Houston)

The McGovern circuit serves 1835 customers and has a length of 63 miles. It is located in a 17.5 square mile area in southwestern Pennsylvania and the terrain is mostly rural with off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2013 and 2014. Outages on the circuit are typically driven by off ROW trees. Previous efforts to reduce outages to this circuit include cycle tree trimming and a zone 1 circuit patrol.

Projects planned for the McGovern circuit to address the circuit performance are focused vegetation management which will mitigate Emerald Ash Borer damage, the replacement of all non-vacuum type reclosers on the circuit, and zone 1 and zone 2 hardware rehabilitation, and a full circuit protection coordination.

Ohio Pyle (Necessity)

The Ohio Pyle circuit serves 852 customers and has a length of 69 miles. It is located in a 26.3 square mile area in southwestern Pennsylvania and the terrain is mostly rural with off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2012 and 2013. Outages on the circuit are typically driven by off ROW trees and equipment failure. Previous efforts to reduce outages to this circuit include cycle tree trimming and a zone 1 circuit patrol.

Plans for the Ohio Pyle circuit to address circuit performance are focused vegetation management which will mitigate Emerald Ash Borer damage and zone 1 and zone 2 hardware rehabilitation.

Vanceville (Vanceville)

The Vanceville circuit serves 1371 customers and has a length of 99 miles. It is located in a 29.7 square mile area in southwestern Pennsylvania and the terrain is mostly rural with off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010 and 2014. Outages on the circuit are typically driven by animal and vehicle caused outages. Previous efforts to reduce outages to this circuit include cycle tree trimming and a zone 1 forestry and circuit patrol.

Projects planned for the Vanceville circuit to address the circuit performance are focused vegetation management which will mitigate Emerald Ash Borer damage, the addition of two additional phases in order to create two separate one-mile circuit sections, and zone 1 and zone 2 hardware rehabilitation and a full circuit protection coordination.

Waterville (Waterville)

The Waterville circuit serves 358 customers and has a length of 19 miles. It is located in a 4.7 square mile area in north central Pennsylvania and the terrain is mostly rural with off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010 and 2011. Outages on the circuit are typically driven by off ROW trees and lockouts due to a foreign feed utility[4]. Previous efforts to improve reliability to this circuit have included cycle tree trimming, fault indicator installation, line monitor installation and a zone 1 forestry and circuit patrols.

Plans to improve performance of the Waterville circuit are focused vegetation management which will mitigate Emerald Ash Borer damage and zone 1 and zone 2 hardware rehabilitation.

Windridge (Rutan)

The Windridge circuit serves 529 customers and has a length of 96 miles. It is located in a 39.9 square mile area in southwestern Pennsylvania and the terrain is mostly rural with off road sections and heavily wooded areas. Between 2010 and 2014, this circuit appeared on the Annual Reliability Report WPC list in 2010 and 2012. Outages on the circuit are typically driven by off ROW trees. Previous efforts to reduce outages on this circuit have included cycle tree trimming, zone 1 forestry and circuit patrol, installation of an additional substation, and sectionalizing of the circuit.

[4] The substation that feeds this circuit originates in a foreign utility's territory and the substation is prone to lockouts (a lockout occurs when the substation protective device trips due to a fault on the circuit causing all circuits that are served by the substation to be out of service).

Plans to improve reliability on the Windridge circuit are focused vegetation management which will mitigate Emerald Ash Borer damage and zone 1 and zone 2 hardware rehabilitation.

Conclusion

Through the WPC Plan, West Penn is committed to improving the performance of circuits appearing on the 5% WPC list within the Annual Reliability Report for two or more years. Improving the performance of these WPCs will also benefit overall system reliability. Additionally, West Penn is committed to ongoing monitoring of WPC performance to proactively target potential circuit deficiencies in the future.

Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company

Focused Management and Operations Audits

Revised Implementation Plan

Ordering Paragraph 7:

Metropolitan Edison Company, the Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company are hereby directed to provide a detailed plan on how it plans to monitor its performance against the service installation standards and reduce scheduling delays on service extensions and should address any current staffing, training or material shortages related to this service component.

Bureau of Audits Recommendation X-7

Monitor all new service installation performance to ensure new service installations are being completed within the targeted deadlines.

Response

Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company (collectively, the "Companies") will develop reports to monitor performance of new service installations consistent with the accepted recommendation as follows:

- 90% of new service installations or service upgrades requiring construction of electric facilities and excluding primary line extensions will be completed within ten business days when a customer location is ready for service and all tariff and regulatory requirements are met
- 99% of new service installations requiring no construction of electric facilities will be completed within three business days after a customer's service location is ready for service and the customer has met all tariff and regulatory requirements.

Upon final development of the reports, the Companies will begin monitoring performance of new service installations as recommended against the current Company-established performance standard. If these reports reflect trends in performance requiring improvement, the respective Company(ies) will formulate and implement gap closure plans to improve the scheduling of new service installations. These gap closure plans will address items such as any identified staffing, training or material shortages, or process improvement opportunities. The timeline targeted to create and monitor performance for the new service installation reports is outlined below.

Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company

Focused Management and Operations Audits

Revised Implementation Plan

New Service Installations Requiring No Construction Report

Action Item	Due Date
Identify reporting categories	Complete
Develop draft report	Complete
Document process and responsibilities	Complete
Review draft report	Complete
Incorporate changes from feedback and finalize report	Complete
Provide training to internal stakeholders	Complete
Distribute report monthly	Beginning May 2015
Review report monthly	Beginning May 2015
Identify process improvement opportunities and implement gap closure plan, if needed	Beginning May 2015

New Service Installations Requiring Construction Report

Action Item	Due Date
Identify reporting categories	Complete
Document process and responsibilities	Complete
Develop training	May-July 2015
Train internal stakeholders	August 2015
Develop programming to create report	May-July 2015
Implement software enhancement	September 2015
Distribute report monthly	Beginning September 2015
Review report monthly	Beginning September 2015
Identify process improvement opportunities and implement gap closure plan, if needed	Beginning September 2015

Individual Responsible

Linda Moss, President, Pennsylvania Operations

Expected Completion Date

September 30, 2015

Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company
Focused Management and Operations Audits
Implementation Plan

Ordering Paragraph 9:

Metropolitan Edison Company, the Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company are hereby directed, as more fully discussed in the body of this Order, to: (1) provide a detailed analysis of their staffing levels for craft workers and how staffing levels will reduce overtime to the target level of 15% and improve reliability while considering the impact that major storms and mutual assistance efforts have on increasing overtime for craft workers; and (2) work with managers and union leaders to develop a more detailed plan to increase acceptance of emergency call outs that, at a minimum, meets the requirements in the union contract provisions.

Bureau of Audits Recommendation VII-2

Conduct a staffing study accounting for future retirements to determine the proper staffing levels of craft workers to reduce overtime to the target level of 15% and improve reliability.

Response

The Companies' current practice is to conduct an annual staffing analysis that accounts for projected retirements and other attrition ("Annual Staffing Analysis"). As a result of these analyses, each of the Companies recently reinstated the Power Systems Institute ("PSI"), which is a unique, two-year program that combines classroom learning with the hands-on training needed to open the door to opportunities in the electric industry. Students who successfully complete the program earn an associate's degree and are classified as a mid-level line or substation worker. The objective of the PSI program is to proactively hire a diverse group that will fulfill the line worker and substation electrician staffing needs of the Companies. Qualified graduates are offered positions with one of the Companies subject to the Companies' standard hiring process.

In 2012, West Penn announced its partnership with Westmoreland County Community College to offer the line worker program, as well as a substation electrician program in partnership with Pierpont Community and Technical College located in West Virginia. The Westmoreland program yielded 10 line worker graduates in 2014; 9 of those graduates were hired by West Penn and 1 was hired by Penn Power. A total of 5 Pierpont substation electrician graduates were also hired at West Penn in 2014. In 2015, West Penn hired 17 line worker and 2 substation electrician graduates. West Penn will continue to hire PSI students as they successfully complete the program. It is expected that there will be 15 line worker graduates and 7 substation electrician graduates in 2016.

Meanwhile, the PSI program has been re-established for Met-Ed, Penelec and Penn Power, with classes beginning in fall 2015. Students enrolling in 2015 will be eligible to graduate in 2017, after which successful graduates will go through the standard hiring process. The following colleges have partnered with the Companies to support these line worker and substation electrician development programs:

- **Westmoreland County Community College:** West Penn Lines
- **Reading Area Community College:** Met-Ed Lines / Substation
- **Porreco College of Edinboro University:** Penelec Lines
- **Pennsylvania Highlands Community College:** West Penn, Penelec, Met-Ed Substation
- **Kent State University (Ohio):** Penn Power Lines
- **Stark State College (Ohio):** Penn Power Substation
- **Pierpont Community & Technical College (West Virginia)** – West Penn Substation

The projected enrollment numbers illustrated below were determined based on the Companies' most recent annual staffing analyses and the resulting hiring forecasts, taking into account capacity limitations of the programs.

PSI Enrollment Summary

	2015	2016	2017	2018	2019	5 Year Total
Line Worker Total	**77**	**75**	**52**	**37**	**12**	**253**
Met Ed	15	15	12	10	0	**52**
Penelec	24	24	24	15	10	**97**
Penn Power	10	8	6	2	2	**28**
West Penn Power	28	28	10	10	0	**76**

	2015	2016	2017	2018	2019	5 Year Total
Substation Total	**21**	**20**	**11**	**6**	**6**	**64**
Met Ed	4	4	3	0	1	**12**
Penelec	6	6	6	3	2	**23**
Penn Power	4	3	0	1	1	**9**
West Penn Power	7	7	2	2	2	**20**

	2015	2016	2017	2018	2019	5 Year Total
PSI Total	**98**	**95**	**63**	**43**	**18**	**317**
Met Ed	19	19	15	10	1	**64**
Penelec	30	30	30	18	12	**120**
Penn Power	14	11	6	3	3	**37**
West Penn Power	35	35	12	12	2	**96**

Notes:

2016-2019 enrollment numbers are subject to change based on annual review/discussion and pending staffing study.

ONGOING MONITORING AND ANALYSIS

In accepting Recommendation VII-2, the Companies commit to conduct and complete a staffing study by May 1, 2016 that builds upon their existing annual staffing analysis. This study will not only incorporate those elements reviewed under the annual staffing analysis, but also take into account currently available resources, historical trends, planned process improvements, and forecasted workload, with an eye towards achieving a targeted level of 15% overtime as a percentage of straight time on an aggregate, per-company basis. By incorporating an analysis of work levels, the Companies will include such workload planning items as steady state preventative and corrective maintenance, specific program work, and projected work for known projects.

The Companies' practice is to staff their workforces to accommodate a steady state workload that includes day-to-day activity and a reasonable level of storm response, projected from historical averages, that has been normalized for "abnormal" items that are atypical and not conducive to establishing accurate projections. For those times when workload increases above steady-state levels, the Companies are able to supplement their own resources by accessing a portfolio of affiliated resources[1] that may be able to move into the area to assist on a temporary basis. The Companies also employ contractors to supplement the Companies' regular status employees, particularly during construction of large capital projects. Additionally, the same approach is considered during abnormal storm restoration events that are difficult to project staffing needs for due to their tendency to fluctuate in frequency, scope, duration and location. In those instances, the Companies look to available affiliated resources, as well as supplement with contractors or mutual assistance as an event may require. This process helps to ensure that overtime levels are maintained at a reasonable level, while enabling the Companies to provide timely response to outages during abnormal storm events that are not conducive to staffing through traditional workload planning. More specific details on the items to be analyzed through this study are reflected in the chart below.

FACTOR ANALYZED		DETAILS
WORKLOAD DEMAND	**WORKLOAD TYPES**	To develop a workload analysis by job family, the Companies will project the total number of hours of work associated with each work type.

[1] FirstEnergy Corp.'s portfolio of operating companies includes not only those four located within the Commonwealth of Pennsylvania, but an additional six operating in other jurisdictions. The consistency in standards and work practices employed across all ten of these operating companies enables streamlined resource sharing in a way that promotes both safety and cost efficiency for those companies under this umbrella.

		Generally, all work falls into one of the following categories: • Customer requested work • Preventative and corrective maintenance • Storm restoration and emergency response • Specific programs/long-term initiatives • Capacity/load growth The Companies will use assumptions appropriate to each workload type, including historical 10-year averages (where applicable and available) to project future workload, also taking into account trends that might influence projections for the future (such as an increase in new service connects as projected housing starts increase).
	WORKLOAD BY RESOURCE TYPE	Workload will be further analyzed to distribute projected workload hours based on resource-type, so that accurate staffing needs can be identified at a job function level.
RESOURCE PLANNING	**PROJECTED ATTRITION**	To develop the total attrition plan by year, the following steps will be executed: • Historical attrition rates will be analyzed as available and applicable by job family to develop an attrition forecast, which incorporates: o Retirement risk analysis o Transfers / Promotions o Separations • Workforce age demographic reports are to be updated and analyzed by job family (i.e. line worker, substation, etc.) in order to alert short- and long-term risks associated with retirement eligibility for each Company. • The Companies will also review and apply locally known personnel information (i.e., contract changes, known attrition).
	PROCESS IMPROVEMENTS	Any known process improvements and projected available resources as a result of these improvements identified will be incorporated into the plans and inform the known resources of the Companies.

	OVERTIME TARGETS	A review of ten years' worth of historical data, where available, will be undertaken to identify overtime trends that may inform forward-looking staffing decisions, including: • Aggregate per-Company overtime as a percentage of straight time • Analysis of storm events, including the impact of abnormal storm events as opposed to typical storm events on overtime levels • Impact of mutual assistance on overtime levels • Review of any work flow delinquencies for correlation to overtime levels
	KNOWN RESOURCES	After identifying projected attrition, existing and known resources will be adjusted for those losses. This adjusted resource level will enable the Companies to identify, on a job-level basis: • Calculations of total available hours • Calculations of total non-productive hours

Once complete, this staffing study will help inform each Company of projected available resources as compared to workload demand projections, with any identified gaps driving resulting staffing plans, including future PSI enrollment levels, while maintaining a focus on operating within their targeted aggregate levels of 15% overtime.

In addition to completing a staffing study consistent with Recommendation VII-2, the Companies have identified additional opportunities for process improvement that are targeted towards reducing or more equitably distributing overtime hours. These include:

- Leveraging additional shifts for trouble workers where it would serve to reduce overtime in geographic areas where it makes operational sense.
- Employing contractors as a supplement to the Companies' regular status employees, particularly during construction of large capital projects that tend to fluctuate in scope, duration and location.
- Initiating an effort, as a coordinated approach involving union leadership, to improving call out acceptance levels for those employees with low acceptance rates (See Response to Recommendation VII-3).

Finally, the Companies have established measures to more closely track and monitor overtime by implementing weekly reports, which began in July 2014. These reports are distributed to the Companies' leadership, and serves as the starting point for review and

discussion of overtime levels and distribution. Further review monitoring and analysis of overtime performance then occurs on a monthly basis by the Executive Leadership Team. Through these reviews, the Companies target achievement of a level of overtime performance at or below 15% as a percentage of straight time labor for their field operations in aggregate (including field support employees).[2] By pairing this strategic workforce planning process with efforts to more equitably distribute overtime, track for trends, deploy process improvements and leverage their existing portfolio of resources, the Companies anticipate that they will be able to effectively achieve their goals.

Bureau of Audits Recommendation VII-3

Initiate policies to enforce union contract provisions which require craft worker acceptance of emergency call outs.

Response

Since the time of the audit, some of the PA Companies have ratified new collective bargaining agreements in which the callout language has been modified in an effort to establish consistent call out requirements across the Companies' territories. As a result, the Companies' current contracts consistently state that employees are expected to work overtime when requested by the Company and respond promptly when called out for emergency work. The expectation is that employees respond when called.

It is incorrect that the Companies' contracts have previously included "mandatory" provisions. In fact, the Companies have been unsuccessful in treating previous provisions as mandatory once escalated through arbitration. As a result, the Companies have made an effort through recent negotiations to restructure language regarding call outs into a format that is consistent across the Companies' affiliates and is more conducive to administration and enforcement.

As a result of the significant changes resulting from recent contract ratifications that some of the Companies have experienced, the Companies and their union leadership continue to work through ongoing contract implementation and adjustments to previous practices. Establishing a final agreement with respect to the process to be followed regarding this recommendation by the end of May has not been possible. However, the Companies have outlined a plan below that involves coordination and discussion with union leaders on a timeline that can be reasonably accomplished, given the number of recent changes still being implemented and the significant level of coordination that must take place with all union leadership on this issue:

[2] *While the Companies consider the five immediately preceding years' non-catastrophic storm activity when* projecting staffing needs, they do not staff their workforces to anticipate exceptions to the average. Therefore, the Companies do not budget staffing for abnormal storm events (e.g., Hurricane Sandy) or voluntary mutual assistance.

1. The Companies' leadership will work with employees and union leadership to address those workers with low acceptance of emergency call outs as permitted by applicable union contracts. To this end, the Companies have initiated discussions with local union leadership in May 2015 to evaluate and discuss strategies and processes to streamline and improve call out responses.

2. As strategies and processes are agreed upon with union leaders, the Companies will work with their respective union leadership to determine and develop effective and appropriate communication plans and set expectations with employees by December 31, 2015. Taking into consideration the fact that other contract provisions may be implicated (and may not be fully consistent amongst the Companies), these plans may differ depending on the issues and applicable union contract provisions. Because three of the Companies' bargaining agreements have been updated very recently, changing any current practices may require additional discussions and time with the respective union leaders. If any Company is not able to finalize a mutually agreed upon plan with any of the unions to address workers with low callout acceptance rates by December 31, 2015, the Companies will provide an update in their annual report to the Commission summarizing progress made to date and plans for future action.

3. Once the improvement plans are in place, a review will be completed twice annually to assess progress towards the goals.

4. If poor acceptance rates continue after the plans are executed, the Companies will enforce the communicated expectations after evaluation of each individual's rates following currently established performance management processes and consistent with the terms of the applicable collective bargaining agreement.

Individual Responsible

Linda Moss, President, Pennsylvania Operations

Expected Completion Date

Ongoing

Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company
Focused Management and Operations Audits
Implementation Plan

Ordering Paragraph 11:

Metropolitan Edison Company, the Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company are hereby directed, as more fully discussed in the body of this Order, to ensure that they are in compliance with section 56.151(5) of the Commission's regulations, 52 Pa. Code § 56.151(5). If, however, the Companies' performance relating residential customer dispute response times does not improve by December 31, 2015, the Commission will so notify the Companies by Secretarial Letter and the Companies will be directed to file a supplemental plan with the Commission's Bureau of Consumer Services to address this issue within sixty (60) days of such notification.

Bureau of Audits Recommendation X-5:

Initiate measures to eliminate or substantially reduce the frequency of residential disputes that are not responded to in 30 days as required by PUC regulations.

Response

Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power") and West Penn Power Company ("West Penn") (collectively, the "Companies") are not obligated to submit a supplemental plan at this time. However, the Companies recognized that their performance levels as reported with respect to this metric at the time that fieldwork concluded under this audit demonstrated an opportunity for improvement. Therefore, the Companies undertook a concerted effort in late 2013 to target reductions of such outstanding disputes. As a result, the Companies' figures, as reported to the Pennsylvania Public Utility Commission's ("Commission") Bureau of Consumer Services ("BCS") for year-end 2014 performance reflected significant improvement over those figures reported in this audit:

	Annual Total			
	2013	2014	Reduction	Percent Reduction
Met-Ed	2,109	1,296	813	39%
Penelec	1,379	874	505	37%
Penn Power	167	100	67	40%
West Penn	1,580	479	1,101	70%

This positive trend has continued through 2015 year to date, with average figures as of May 31 demonstrating a continued improvement in performance:

	Year to Date May			
	2014	2015	Reduction	Percent Reduction
Met-Ed	611	198	413	68%
Penelec	337	128	209	62%
Penn Power	37	26	11	30%
West Penn	187	97	90	48%

The Companies will report to the BCS on their performance related to residential disputes that are not responded to in thirty days consistent with the terms of the Commission's March 30, 2015 Order ("March 30 Order"). Should a Secretarial Letter be issued under the terms of Ordering Paragraph 11 of the March 30 Order, the Companies will at that point submit a supplemental plan to improve their performance with regard to this metric.

Individual Responsible

Gary Grant, Director, Customer Contact Centers

Expected Completion Date

December 31, 2015

Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company
Focused Management and Operations Audits
Implementation Plan

Ordering Paragraph 12:

FirstEnergy is directed to report to the Commission how it is specifically aligning management performance metrics with the Commission's guidelines, policy statements and regulations as they relate to reliability, safety, operational efficiency and customer service deficiency issues identified in this Audit. For reliability, performance metrics should be targeted at the Commission Benchmarks. If targets are not at the Commission Benchmark, FirstEnergy must provide detailed explanations as to why.

Bureau of Audits Recommendation III-1

Establish target goals for metrics used in the Executive Leadership Team Reports and/or Key Performance Indicators that are linked to the FE-PA Companies' stated performance objectives and/or other regulatory requirements.

Response

Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power"), and West Penn Power Company ("West Penn") (individually, a "Company" or collectively, the "Companies") are committed to establishing annual goals and metrics that are linked to the Companies' performance objectives, commitments, and regulatory requirements within the framework of their existing performance monitoring process, as outlined below.

As described in the Management Audit Report, the Companies use Executive Leadership Team Reports ("ELTRs") to review targeted performance on a monthly basis. These reports are programmed to reflect a consistent approach for the Companies and their affiliated distribution utilities operating outside of Pennsylvania. These ELTRs will continue to track those data points currently used today in order to maintain consistency across the FirstEnergy operating company system, including metrics related to safety and reliability, as discussed below. Typically, a monthly Executive Leadership Team ("ELT") meeting is held where leadership representing each Company reviews the previous month's performance related to those metrics included in that report.[1]

Safety is a top priority for the Companies and safety performance is tracked on a regular basis in the ELTRs, through metrics related to each Company's OSHA incidents, Days Away/Restricted Time ("DART") incident rate, and Motor Vehicle Accident Rate ("MVAR"). Typically, the monthly ELT meeting reviews the previous month's performance related to safety, addresses trending (where applicable), safety programs, employee engagement initiatives or process improvements, sharing information and lessons learned to minimize safety incidents for the employees of the Companies.

[1] The ELT includes but is not limited to the President and Vice Presidents of FirstEnergy Utilities, the President of Pennsylvania Operations, and the presidents of each of the FirstEnergy distribution operating companies.

In addition to the Companies' regular, more detailed reviews (i.e., more frequent than monthly) of reliability performance, reliability performance is also monitored by the ELT on a monthly basis. ELTRs also include reliability tracking reports for SAIDI, CAIDI and SAIFI by Company. The Companies' individual reliability reports specifically track year to date ("YTD") and rolling twelve-month performance for these metrics. Monthly reviews address contributors to actual performance and opportunities identified to improve reliability performance. As discussed in further detail in response to Ordering Paragraphs 3 and 4, the Companies have each submitted detailed plans intended to facilitate the Companies in meeting their respective twelve-month and three-year performance standards, achieving benchmark performance by year-end 2018, and reducing the frequency with which certain circuits appear on the Worst Performing Circuit ("WPC") list. To support the Companies' success in executing these plans, the Companies' reliability ELTRs will reflect incremental changes to set goals for performance during the 2016 – 2018 period consistent with the projected improvement resulting from the execution of those plans. By the year 2019, when the Companies' reliability improvement plans will have been fully executed, the reliability ELTRs will have goals set to equal the Companies' respective benchmark performance standards.

In order to address other Company-specific performance objectives and other regulatory requirements, a new set of reports called the Pennsylvania ("PA") Management Reports ("PMRs") are being created and will be reviewed at regular intervals by those ELT participants that have Pennsylvania responsibilities, as discussed in more detail below. These reports will reflect actual year-to-date performance against each Company's stated targets, with the intention of managing towards top-level specified performance goals.

Specifically, the PMRs will include the following components:

- WPC report
- Priority 3 ("P3") Transmission Backlog Reduction report
- Damage Prevention Tracking report
- New Service Installation report
- Meter Reading 6 and 12 Month No-Read reports
- No-Read by Reason report
- Meters without a Meter Location report
- Residential Customer Disputes report
- YTD Service Level reports
- Callout Acceptance tracking by Union

The new reporting structure described above will help link the Companies' performance to stated performance requirements and commitments. A more detailed discussion of the various components of the PMRs follows, along with an outline of the frequency and start date of these reports.

Reliability

The WPC report will summarize progress by Company as it relates to meeting completion dates for projects identified in each Company's WPC Plan, as discussed in detail in response to Ordering Paragraph 4. This report will be reviewed monthly to ensure each Company is meeting objectives necessary to complete the projects identified. For any project failing to meet projected in-service dates, an action plan will be created and reviewed to ensure project completion.

The P3 Transmission Repairs Backlog Reduction report will summarize and track, on a monthly basis, actual completed repairs versus the targeted number of repairs identified to be completed during each year of the Companies' five-year plan, which has been outlined in detail in response to Ordering Paragraph 5. As new patrols are completed, updates will be made to account for additional work identified in the given year. Targets will be established to match those identified in the Companies' backlog reduction plan for years 2015 – 2019, and the report targets will be adjusted to accommodate any plan acceleration that may occur.

Safety (Damage Prevention)

A monthly Damage Prevention report will track and measure third party underground line hit incidents by root cause. As trending becomes available through the use of the new STARS Enterprise Claims Management system, additional reporting will be added to the report showing closure rates and payments/receivables amounts, as described in further detail in response to Ordering Paragraph 6.

Customer Service

The New Service Installation Report will be created to review performance against a Company-established three-day new service standard for non-construction requests, and a ten-day new service standard for requests that require construction (not including primary line extensions). Targeted performance levels of 99% for non-construction orders and 90% for construction orders will be managed to, as described in further detail in response to Ordering Paragraph 7. If these reports reflect trends in performance requiring improvement, the respective Company will formulate and implement gap closure plans to facilitate the execution of new service installations within these targeted timelines.

Four reports reflecting meter reading performance will be reviewed on a monthly basis to reflect compliance with Chapter 56 of the Commission's regulations and the Companies' respective tariffs, as discussed more fully in response to Ordering Paragraph 8.

- Meter Reading 6 and 12 Month No-Read reports will monitor meter reading metrics for the Companies, identifying meters that have not been read in six and twelve months during the smart meters deployment process.

- A No-Read by Reason report will be generated, summarizing each Company's performance and causes for any missed reads. This visibility will ensure the Companies continue to focus on behaviors and process improvements that help them reduce all improper estimates through the smart meter deployment period.

- A Meters without a Meter Location report will summarize those meters without a designated meter location for active customers in order to monitor the Companies' progress towards identifying unknown meter locations.

The Residential Customer Disputes Report will provide a monthly summary of YTD performance by Company of all residential disputes, indicating the category of the dispute and the number of disputes with a response of more than thirty days. Goals will target no more than sixty disputes taking more than thirty days per Company, per year.

The Companies' YTD Service Level report currently tracks year-to-date performance against the average speed of answer ("ASA") standard of 80% of calls to be answered in thirty seconds for Met-Ed, Penelec and Penn Power. In order to ensure that West Penn meets the metrics committed to in the FirstEnergy-Allegheny merger and West Penn's most recent base rate case settlement agreements, and to ensure that West Penn's performance is brought into alignment with its Pennsylvania counterparts, a separate report has been created to independently track West Penn's ASA. Both of these reports will become a part of the PMRs. Per West Penn's current commitments, it should achieve the same ASA performance by year-end 2016, at which point these two separate reports will be combined into one to replace the existing PA YTD Service Level ELT report as a combined tracking of all four Companies.

Operational Efficiency Reports

Callout Acceptance reporting has been in place for many years within the Companies. A plan to identify initiatives to increase callout acceptance for those workers with low acceptance rates of emergency call outs has been created, communicated and is being executed. After completing discussions with bargaining unit leadership, results will be tracked and updated twice annually, as discussed in detail in response to Ordering Paragraph 9.

Reporting Start Dates and Frequency

The PMRs will be reviewed during the monthly PA ELT meeting, in conjunction with the FirstEnergy-wide ELT process (with the Callout Acceptance report generated on a less-frequent basis as described above). While some of these reports exist today and will require only minor adjustments to meet this new reporting structure, others are new and are currently under development. The reports will therefore commence at different times, depending on current status, and in some cases will be revised as progress develops and additional data becomes available, as discussed earlier in this response. The projected commencement of the reports is as follows:

Beginning with June 2015 performance data:

- Meter Reading 6 Month No-Read report (Attachment A)
- YTD Service Level reports (Attachments B and C)

Beginning with July 2015 performance data:

- Meter Reading 12 Month No-Read report
- No-Read by Reason report
- Meters without a Meter Location report
- Residential Customer Disputes report
- Callout Acceptance tracking by Union
- WPC report
- Priority 3 ("P3") Transmission Backlog Reduction report
- Damage Prevention Tracking report

Beginning with September 2015 performance data:

- New Service Installation report

Sample templates of those reports which are ready for reporting of June 2015 data are enclosed as Attachments A through C to this response for illustrative purposes. The new reporting and review structure described above, in conjunction with the existing ELTRs and associated review, will help link the Companies' individual performance to stated regulatory performance requirements and commitments.

Individual Responsible

Linda Moss, President, Pennsylvania Operations

Expected Completion Date

Ongoing

Attachment A

FirstEnergy Operating Company - Met-Ed

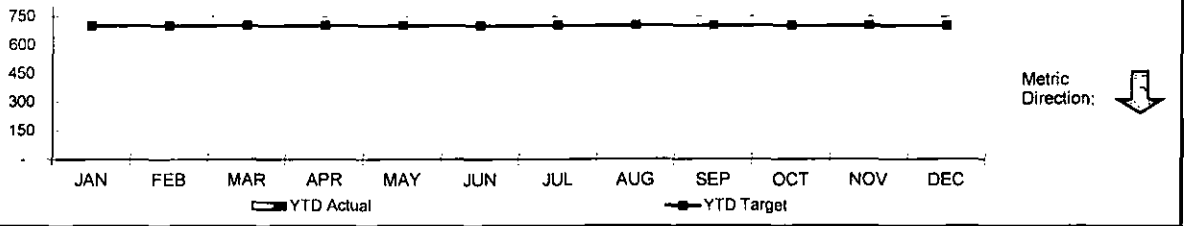
CUSTOMER SATISFACTION

Sponsor:	Owner:	Month:	Number:
tba	tba	MAY 2015	ME-CS-18

Average number of residential meters with no actual reading within last 6 months per PUC Quality of Service Annual Report. Figures exclude meters which cannot be disconnected per regulatory guidelines (e.g., instances where it is determined that cutting service at the pole will impact other customers).

Consecutive Meter No-Reads - 6+ Months

Target = 700



PERFORMANCE

YTD: Green Year-end Expectancy: Green

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
YTD Actual	-	-	-	-	-	-						
YTD Target	700	700	700	700	700	700	700	700	700	700	700	700

RANKING CRITERIA

	Green	White	Yellow	Red
Rate Qualification	200 or More Below Target	Up to 200 Below Target	Up to 200 Over Target	More than 200 Over Target
Low	0	500	701	901
High	499	700	900	-

MONTH ANALYSIS

Type your month analysis comments here.

GAP CLOSURE PLAN

Task	Responsibility	Anticipated Result	Target Date
Plans to correct negative ,, Or maintain positive results	tba		tba
You can add additional rows if needed	tba		tba

RELATED INFORMATION

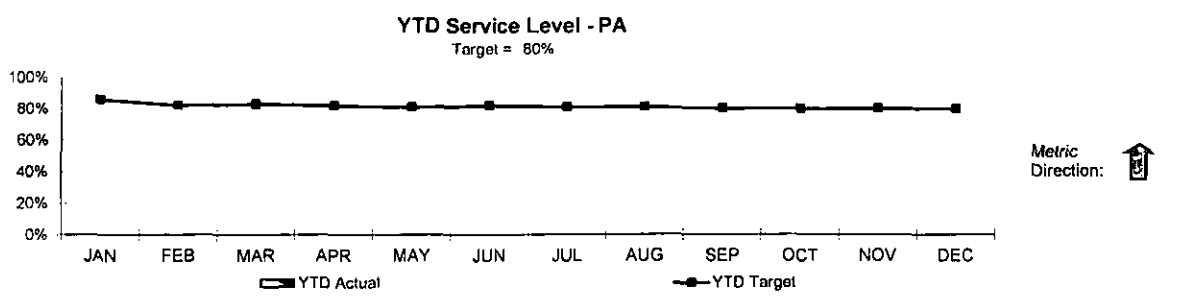
Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Month Actual												
Year-End Expectancy	700	700	700	700	700							

FirstEnergy Operating Company - (Specific OpCo)

CUSTOMER SATISFACTION

Sponsor:	Owner:	Month:	Number:
Regional President	Director, Ops Svcs.	MAY 2015	XX-CS-03

YTD Service Level is defined as the percentage of calls from customers answered within a certain time factor. The target compliance level is 80% of all customer calls answered within 30 seconds at an FE Contact Center or at ROCC. YTD Service Level is reported to the respective state utility commission.



PERFORMANCE

YTD: Green Year-end Expectancy: Green

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
YTD Actual	0%	0%	0%	0%	0%							
YTD Target	86%	82%	83%	82%	81%	82%	81%	81%	80%	80%	80%	80%

RANKING CRITERIA

	Green	White	Yellow	Red
Rate Qualification	Target or Greater	n/a	n/a	< Target
Low	81%	0%	0%	0%
High	100%	0%	0%	80%

MONTH ANALYSIS

Type your month analysis comments here.

GAP CLOSURE PLAN

Task	Responsibility	Anticipated Result	Target Date
Plans to correct negative .. Or maintain positive results	tba		tba
You can add additional rows if needed	tba		tba

RELATED INFORMATION

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Month Actual	0%	0%	0%	0%	0%							
Year-End Expectancy	80%	80%	80%	80%	80%							

Attachment C

FirstEnergy Operating Company - (Specific OpCo)

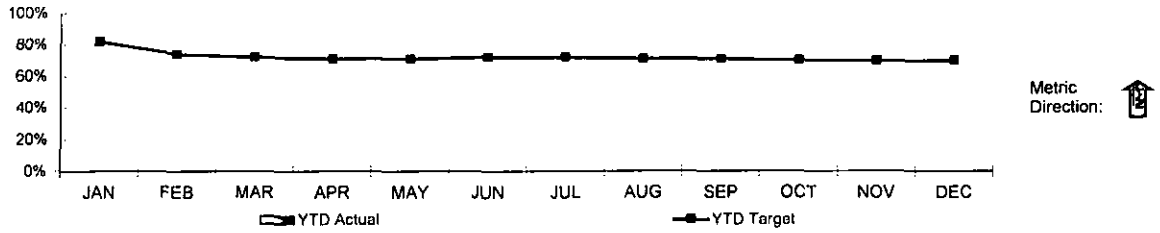
CUSTOMER SATISFACTION

Sponsor:	Owner:	Month:	Number:
Regional President	**Director, Ops Svcs.**	**MAY 2015**	**XX-CS-05c**

YTD Service Level is defined as the percentage of calls from customers answered within a certain time factor. The target compliance level is 80% of all customer calls answered within 30 seconds at an FE Contact Center or at ROCC. YTD Service Level is reported to the respective state utility commission

YTD Service Level - WPP

Target = 70%



PERFORMANCE

YTD: Green Year-end Expectancy: Green

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
YTD Actual	*0%*	*0%*	*0%*	*0%*	*0%*							
YTD Target	82%	74%	72%	71%	71%	72%	72%	71%	71%	70%	70%	70%

RANKING CRITERIA

	Green	White	Yellow	Red
Rate Qualification	*Target or Greater*	*n/a*	*n/a*	*< Target*
Low	71%	0%	0%	0%
High	100%	0%	0%	70%

MONTH ANALYSIS

Type your month analysis comments here.

GAP CLOSURE PLAN

Task	Responsibility	Anticipated Result	Target Date
Plans to correct negative .. Or maintain positive results	tba		tba
You can add additional rows if needed	tba		tba

RELATED INFORMATION

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Month Actual	0%	0%	0%	0%	0%							
Year-End Expectancy	70%	70%	70%	70%	70%							

MAIL ROOM
(610) 921-6633
AE-1440
2800 POTTSVILLE PIKE
READING PA 19605-2459

LTR 1 OF 1

SHIP TO:
ROSEMARY CHIAVETTA, SECRETARY
PA PUBLIC UTILITY COMMISSION
2ND FLOOR
COMMONWEALTH KEYSTONE BUILDING
400 NORTH STREET
HARRISBURG PA 17120-0079

PA 171 9-20

UPS NEXT DAY AIR 1

TRACKING #: 1Z AE1 440 01 5638 7473

BILLING: P/P

REF 1:CC # 503003
REF 2:TORI GIESLER REAP - 37

WS 18.0.30 LP2844 63.0A 04/2015

PUBLIC UTILITY COMMISSION
400 NORTH ST
FL 2
HARRISBURG PA 17120-1002

P:SILVER S:BBLUE I:B52

54B-RDL 7473 1030

1ZAE1440016808 JUL 14 04:37:50 2015

HTRBOAC PAHPR121 ZEBRA24HP
US 1711 HIP 15.3.3

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