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M-2016-2522508

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August 1, 2018

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PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

VIA UNITED PARCEL SERVICE

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

**Re: Joint 2nd Quarter 2018 Reliability Report – Metropolitan Edison Company,
Pennsylvania Electric Company, Pennsylvania Power Company and West Penn
Power Company – Public Version**

Dear Secretary Chiavetta:

Pursuant to 52 Pa. Code § 57.195(d) and (e), enclosed for filing on behalf of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company (collectively, the “Companies”) are two copies of the Joint 2nd Quarter 2018 Reliability Report – Public Version (“Joint Report”). Please date stamp the additional copy and return it in the postage-prepaid envelope provided.

On December 22, 2004, the Companies filed an Application for Protective Order at Docket No. L-00030161. The Application was granted, allowing the Companies to file proprietary versions of the quarterly reliability reports. The Proprietary Version of this Joint Report is being filed under separate cover.

Please feel free to contact me if you have any questions or need additional information regarding this matter.

Sincerely,

Tori L. Giesler /dm
Tori L. Giesler

Enclosures

- c: As Per Certificate of Service
D. Searfoorce - Bureau of Technical Utility Services (via email and first class mail)
D. Washko – Bureau of Technical Utility Services (via email and first class mail)
J. Van Zant – Bureau of Technical Utility Services (via email and first class mail)

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Joint 2nd Quarter 2018 Reliability Report – :
Metropolitan Edison Company, :
Pennsylvania Electric Company :
Pennsylvania Power Company and West :
Penn Power Company – Public Version :

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SECRETARY'S BUREAU

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true and correct copy of the foregoing document upon the individuals listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

Service by first class mail, as follows:

John R. Evans
Office of Small Business Advocate
Suite 1102, Commerce Building
300 North Second Street
Harrisburg, PA 17101

Tanya McCloskey
Office of Consumer Advocate
555 Walnut Street – 5th Floor
Harrisburg, PA 17101-1923

Richard A. Kanaskie
Bureau of Investigation & Enforcement
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

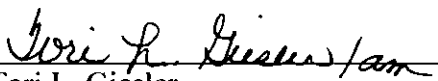
Scott Rubin
Utility Workers Union of America
333 Oak Lane
Bloomsburg, PA 17815-2036

Service by electronic mail, as follows:

David Dulick, General Counsel
David Dulick@ccsenergy.com

Rich Geosits, Manager, Power Delivery
Rich Geosits@ccsenergy.com

Dated: August 1, 2018



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

Met-Ed
A FirstEnergy Company

Penelec
A FirstEnergy Company

PennPower
A FirstEnergy Company

**WestPenn
Power**
A FirstEnergy Company



Joint 2018 2nd Quarter Reliability Report

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

Pursuant to 52 Pa. Code § 57.195(d) and (e)

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PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

**Joint 2nd Quarter 2018 Reliability Report –
Metropolitan Edison Company (“Met-Ed”),
Pennsylvania Electric Company (“Penelec”),
Pennsylvania Power Company (“Penn Power”), and
West Penn Power Company (“West Penn”)**

Section 57.195(e)(1): A description of each major event that occurred during the preceding quarter, including the time and duration of the event, the number of customers affected, the cause of the event and any modified procedures adopted in order to avoid or minimize the impact of similar events in the future.¹

Major Event(s)

FirstEnergy Company	Customers Affected	Time and Duration of the Event		Cause of the Event	Commission Approval Status
Penelec	62,262	Duration	64 hrs 49 min	Thunderstorms and High Winds	Approved June 14, 2018
		Start Date/Time	April 3, 2018 2126		
		End Date/Time	April 6, 2018 1415		
Met-Ed	111,894	Duration	126 hrs 17 min	Thunderstorms and High Winds	Approved July 9, 2018
		Start Date/Time	May 15, 2018 1428		
		End Date/Time	May 20, 2015 2045		
West Penn	1,122	Duration	19 hrs 35 min	Heavy Rains and Flash Flooding	Pending Approval
		Start Date/Time	June 20, 2018 1716		
		End Date/Time	June 21, 2018 1251		
Penn Power	24,867	Duration	26 min	Transmission Outage	Pending Approval
		Start Date/Time	June 23, 2018 1119		
		End Date/Time	June 23, 2018 1145		

¹ For purposes of this Joint Report, all reliability reporting is based upon the Pennsylvania Public Utility Commission’s definitions for momentary outages and major events pursuant to 52 Pa. Code § 57.192.

Section 57.195(e)(2): Rolling 12-month reliability index values (SAIFI, CAIDI, SAIDI, and if available MAIFI) for the EDC's service territory for the preceding quarter. The report shall include the data used in calculating the indices, namely the average number of customers served, the number of sustained customer interruptions, the number of customers affected, and the customer minutes of interruption. If MAIFI values are provided, the report shall also include the number of customer momentary interruptions.

Reliability Index Values²

2Q 2018 (12-Mo Rolling)	Met-Ed			Penelec			Penn Power			West Penn		
	Benchmark	12-Month Standard	12-Month Actual	Benchmark	12-Month Standard	12-Month Actual	Benchmark	12-Month Standard	12-Month Actual	Benchmark	12-Month Standard	12-Month Actual
SAIFI	1.15	1.38	1.19	1.26	1.52	1.56	1.12	1.34	1.24	1.05	1.26	1.25
CAIDI	117	140	147	117	141	127	101	121	101	170	204	176
SAIDI	135	194	175	148	213	198	113	162	126	179	257	220
MAIFI³			1.87			3.48			0.64			
Customers Served⁴	563,155			580,454			163,408			715,647		
Number of Sustained Interruptions	11,094			12,898			3,077			13,108		
Customers Affected	670,392			905,263			202,758			896,493		
Customer Minutes	98,707,618			115,076,149			20,530,270			157,487,196		
Number of Customer Momentary Interruptions	1,052,070			2,018,403			103,973					

² Pending major events are included in the reliability information.

³ MAIFI values are not available for West Penn.

⁴ Represents the average number of customers served during the reporting period.

Unique Events Occurring in 2Q 2018:

Met-Ed

- On April 4, 2018, thunderstorms and damaging winds resulted in outages impacting 13,784 customers (2.5% of Met-Ed's total customers). Recorded wind gusts were in excess of fifty-eight miles per hour, and sustained winds of forty to fifty miles per hour remained in the area for approximately eight hours after the front passed through the area. Preliminary data indicates that this storm resulted in approximately 5.9 minutes of SAIDI, 240.1 minutes of CAIDI, and a 0.02 SAIFI impact.
- On June 17, 2018, a large off right-of-way tree fell, knocking over numerous trees in a cascading fashion until the last tree came to rest on the primary wires of the Fox Hill 00851-3 circuit. Because this circuit sources the Snyder'sville substation, two additional circuits experienced a loss of supply. The restoration posed a significant challenge due to the very rough terrain. Preliminary data indicates that this outage resulted in approximately 2.8 minutes of SAIDI and 615.6 minutes of CAIDI and less than 0.01 SAIFI impact.

Penelec

- On May 4, 2018, thunderstorms and damaging winds in excess of fifty-five miles per hour resulted in outages impacting 16,369 customers (2.8% of Penelec's total customers). The Oil City district experienced the greatest damage with numerous broken poles and off right-of-way trees and downed wires. Preliminary data indicates that this storm resulted in approximately 5.4 minutes of SAIDI, 190 minutes of CAIDI, and a 0.03 SAIFI impact.
- On May 15, 2018, dangerous thunderstorms and straight line winds with recorded wind gusts reaching sixty miles per hour resulted in outages impacting 15,307 customers (2.6% of Penelec's total customers). Cambria, Clearfield, Forest, Tioga and Wyoming Counties were among the hardest hit. Preliminary data indicates that this storm resulted in approximately 7.5 minutes of SAIDI, 284.9 minutes of CAIDI, and a 0.03 SAIFI impact.

West Penn

- On April 3, 2018, thunderstorms and damaging winds resulted in outages impacting 35,435 customers (5.0% of West Penn's customers). Recorded wind gusts were in excess of fifty-five miles per hour and sustained winds of forty to fifty-five miles per hour remained in the area for approximately eight hours after the front passed through the area. Preliminary data indicates that this storm resulted in approximately 9.8 minutes of SAIDI, 198.3 minutes of CAIDI, and a 0.05 SAIFI impact.
- On May 4, 2018, thunderstorms and damaging winds in excess of fifty-five miles per hour resulted in outages impacting 7,176 customers (1.0% of West Penn's total customers). The St. Marys district experienced the greatest damage with numerous broken poles and off right-of-way trees and downed wires. Preliminary data indicates that this storm resulted in approximately 6.3 minutes of SAIDI, 625.9 minutes of CAIDI, and a 0.01 SAIFI impact.

- On May 15, 2018, dangerous thunderstorms and straight line winds with recorded wind gusts in excess of forty miles per hour resulted in outages impacting 23,143 customers (3.2% of West Penn's total customers). The St. Marys district experienced the greatest damage with numerous downed wires and broken poles. Preliminary data indicates that this storm resulted in approximately 15.9 minutes of SAIDI, 491.9 minutes of CAIDI, and a 0.03 SAIFI impact.

Section 57.195(e)(3): Rolling 12-month reliability index values (SAIFI, CAIDI, SAIDI, and if available, MAIFI) and other pertinent information such as customers served, number of interruptions, customer minutes interrupted, number of lockouts, and so forth, for the worst performing 5% of the circuits in the system. An explanation of how the EDC defines its worst performing circuits shall be included.

Worst Performing Circuits – Reliability Indices

The methodology used to identify worst performing circuits is based on both System Average Interruption Frequency Index (“SAIFI”) and System Average Interruption Duration Index (“SAIDI”). The methodology consists of the following steps:

1. For each circuit calculate a circuit SAIFI using only distribution-caused outages.
2. Select the worst 20% of circuits based on the highest circuit SAIFI.
3. Rank the selected circuits based on SAIDI using only distribution-caused customer minutes.
4. Select 5% of the circuits based on the highest customer minutes. These circuits are then identified as the worst performing circuits.

Met-Ed, Penelec, Penn Power, and West Penn’s rankings of the 5% Worst Performing Circuits are provided in Attachment A to this report.

Submitted Pursuant to 52 Pa. Code § 57.195(d) and (e)

Section 57.195(e)(4): Specific remedial efforts taken and planned for the worst performing 5% of the circuits identified in paragraph (3).

Worst Performing Circuits – Remedial Actions

Met-Ed, Penelec, Penn Power, and West Penn’s Remedial Actions for Worst Performing Circuits are provided in Attachment B to this report.

Section 57.195(e)(5): A rolling 12-month breakdown and analysis of outage causes during the preceding quarter, including the number and percentage of service outages, the number of customers interrupted, and customer interruption minutes categorized by outage cause such as equipment failure, animal contact, tree related, and so forth. Proposed solutions to identified service problems shall be reported.

Outages by Cause⁵

Outages by Cause – Met-Ed

Outage by Cause				
2nd Quarter 2018 12-Month Rolling	Met-Ed			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
Equipment failure	20,920,871	2,565	162,827	23.12%
Trees off ROW - tree	33,383,294	1,677	149,175	15.12%
Animal	2,222,261	1,677	22,823	15.11%
Unknown	5,940,860	1,387	63,746	12.50%
Line failure	7,537,500	807	51,886	7.27%
Bird	392,694	458	3,939	4.13%
Trees - sec/service	771,054	448	1,419	4.04%
Trees off ROW - limb	4,232,745	424	28,809	3.82%
Forced outage	3,335,452	401	53,059	3.61%
Trees on ROW	4,372,600	349	10,701	3.15%
Vehicle	9,443,352	330	65,622	2.97%
Lightning	2,891,089	276	21,933	2.49%
Human error - non-company	735,985	71	9,632	0.64%
Overload	659,952	45	5,285	0.41%
Object contact with line	917,910	45	9,902	0.41%
Previous lightning	154,599	29	1,193	0.26%
Human error - company	140,138	29	2,387	0.26%
UG dig-up	52,594	22	344	0.20%
Customer equipment	2,166	15	23	0.14%
Wind	328,249	14	1,796	0.14%
Vandalism	1,857	7	13	0.06%
Ice	11,015	6	130	0.05%
Fire	10,383	5	61	0.05%
Other electric utility	38,395	3	527	0.03%
Other utility - non-electric	210,257	2	3,158	0.02%
Contamination	346	2	2	0.02%
Total	98,707,618	11,094	670,392	100%

⁵ Pending major events are included in the reliability information

Proposed Solutions – Met-Ed

Met-Ed analyzes its outage data to develop solutions for improving reliability. The following paragraphs identify the top outage causes for the rolling twelve-month period ending June 30, 2018, and associated actions designed to address these outage causes.

To reduce the likelihood of equipment-caused outages, Met-Ed follows Inspection and Maintenance (“I&M”) programs⁶ that set forth schedules for regular inspections of distribution and substation facilities. These programs are geared towards specific components such as capacitors, poles, circuits, transformers, radio-controlled switches, substations, and reclosers. Equipment identified is repaired or replaced as appropriate.

To address outages caused by trees, Met-Ed performs cycle-based tree trimming and enhanced tree trimming in select locations. Enhanced tree trimming removes healthy limbs overhanging primary conductors. Trees identified as a potential cause of a future outage are removed to prevent an interruption of electrical service to Met-Ed’s customers.

Animal guards are installed on equipment where a high frequency of animal-related outages are experienced. When possible, animal guards are installed at the time service is restored for outages caused by animals. In addition, Met-Ed requires animal guards to be installed on all new overhead and underground riser installations.

Generally speaking, there are a number of other reliability projects that have been identified to help reduce the number of, and limit the duration and impact of, interruptions to customers. These include:

- **Circuit ties and loops** – Circuit ties and loops continue to be built between radial sections of circuits. When ties and loops are available, circuits can be switched during outages to enable faster service restoration.

⁶ Pursuant to 52 Pa. Code § 57.198, every two years an electric distribution company shall file, and receive approval from the Commission of, a biennial plan for the periodic inspection, maintenance, repair and replacement of its facilities. On December 30, 2013, Paul Diskin, Director, Technical Utility Services, issued a letter approving the Company’s biennial inspection, maintenance, repair, and replacement plan effective January 1, 2015 through December 31, 2016. Further, on March 4, 2016 an additional letter was issued approving the plans effective January 1, 2017 – December 31, 2018.

- **Targeted circuit rehabilitation** – Targeted circuit rehabilitation is being performed in zones one and two⁷ focusing on circuits having a high rate of equipment and line failure and animal-caused outages. Equipment that may be replaced includes crossarms, capacitors, insulators, lightning arresters and connectors.
- **Wood Pole Reinforcement/Replacement** – Wood poles identified by a qualified inspector as having degraded beyond restorable condition are being replaced, while poles that are restorable are being reinforced.
- **Underground Residential Distribution (“URD”) Cable Replacement** – Bare concentric neutral cable is being replaced as part of Met-Ed’s underground distribution residential cable replacement program. This type of cable was manufactured without an insulating jacket, thereby causing the concentric neutral wire to corrode and fail prematurely.
- **Fuse Replacement** – To reduce the scope of outages, fuses and other protective devices are being installed on circuits selected based on overall performance as well as protection needs.
- **Porcelain cutout replacement** – Porcelain cutouts are being replaced with more robust polymer to reduce the number of recloser and circuit breaker lockouts and other equipment damage.
- **Substation Transformer Replacement** – The transformers at the Swamp and School Lane substations will be replaced with pad-mounted transformers and line regulators for voltage control. The projects are expected to be completed by July and November, respectively.
- **Installation of supervisory control and data acquisition (“SCADA”) devices** – Existing gang operated air brakes switches, disconnect switches and oil circuit reclosers are being replaced with supervisory control and data acquisition controlled switches that will allow for remote operation to restore service to customers when an outage occurs. Remote switching eliminates the need to dispatch crews to manually operate the switches. The result is fewer customers affected and reduced outage durations.

⁷ Zone one is defined as the portion of the circuit from the substation breaker to the first protective device. Zone two is defined as the three-phase conductor and devices after the first protective device.

Outages by Cause – Penelec

Outage by Cause				
2nd Quarter 2018 12-Month Rolling	Penelec			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
Equipment failure	22,480,148	2,925	259,087	22.68%
Unknown	9,491,049	2,038	104,006	15.80%
Animal	3,021,573	1,557	32,369	12.07%
Trees off ROW - tree	42,474,629	1,343	175,271	10.41%
Line failure	11,877,680	1,260	103,019	9.77%
Forced outage	6,975,047	948	69,491	7.35%
Trees - sec/service	453,228	560	1,385	4.34%
Lightning	3,210,267	507	27,075	3.94%
Bird	1,118,188	406	24,907	3.15%
Trees off ROW - limb	2,981,926	320	17,280	2.48%
Vehicle	7,610,026	311	53,430	2.41%
Ice	71,396	131	210	1.02%
Trees on ROW	346,163	125	2,104	0.97%
Human error - non-company	646,318	101	8,798	0.78%
Other electric utility	348,919	80	4,618	0.62%
Overload	608,894	80	13,715	0.62%
UG dig-up	84,555	44	418	0.34%
Human error - company	438,297	42	5,033	0.33%
Object contact with line	725,036	40	2,103	0.31%
Previous lightning	23,225	28	116	0.22%
Vandalism	3,920	19	19	0.15%
Fire	40,679	13	618	0.10%
Customer equipment	27,816	11	154	0.09%
Other utility - non-electric	1,501	5	10	0.04%
Contamination	216	3	3	0.02%
Wind	15,453	1	24	0.01%
Total	115,076,149	12,898	905,263	100%

Proposed Solutions – Penelec

Penelec analyzes its outage data to develop solutions for improving reliability. The following paragraphs identify the top outage causes for the rolling twelve-month period ending June 30, 2018 and the associated actions designed to address these outage causes.

To reduce the likelihood of equipment-caused outages, Penelec follows I&M programs that set forth schedules for regular inspections of distribution and substation facilities. These programs are geared towards specific components such as capacitors, poles, circuits, transformers, radio-controlled switches, substations, and reclosers. Equipment identified is repaired or replaced as appropriate.

Outages caused by unknown factors are patrolled by a troubleman and recorded as having an unknown cause. During 2Q 2018, 16% of unknown outages occurred during minor storm weather days and accounted for 2% of the total customers affected. For certain unknown outages, engineering may conduct a post-outage circuit inspection as needed to determine if additional actions are necessary.

To address animal-caused outages, Penelec installs animal guards on equipment that experience a high frequency of animal related outages. When possible, animal guards are installed at the time service is restored to prevent future animal-related outages.

Generally speaking, there are a number of other reliability projects that have been identified to help reduce the number of, and limit the duration and impact of, interruptions to customers. These include:

- **Circuit rehabilitation** – Targeted circuit rehabilitation is being performed in zones one and two, focusing on circuits having a high rate of equipment and line failure and animal-caused outages. Equipment that may be replaced includes crossarms, capacitors, insulators, lightning arresters and connectors.
- **Porcelain cutout replacement** – Porcelain cutouts are being replaced with a more robust version constructed from polymer which is likely to reduce the number of recloser and circuit breaker lockouts and other equipment damage.

- **Circuit ties and loops** – Circuit ties and loops continue to be built between radial sections of circuits. When ties and loops are available, circuits can be switched during outages to enable faster service restoration.
- **Customer Service Improvement program** – Reliability improvements are being performed on clusters of customers that experience frequent or repeated outages. The Customer Service Improvement program is designed to reduce the frequency of outages at the customer level and is often initiated from customer complaints. In addition to enhancing system performance, the program is a means to reduce the frequency of outages at the customer level that might not otherwise be addressed when targeting overall system metrics.
- **Advanced protective devices** - Advanced protective devices such as electronically controlled reclosers and switches with modernized communication are being installed to allow for additional protection coordination.
- **Fuse protection** – To reduce the scope of outages, fuse protection and coordination recommendations on the 34.5 kV system will be constructed and implemented based on full circuit coordination studies.
- **Cap and Pin Insulator Replacement program** – Brown porcelain cap and pin style insulators that are prone to failure, as well as switch insulators and arresters, are being replaced.
- **Substation Breakers** – Penelec has identified a brand of circuit breaker that fails to operate properly causing unreliable breaker operations during line outages. As a result, these select circuit breakers at 34.5 kV substations are being replaced.
- **Installation of SCADA devices** – Additional SCADA controlled devices are being installed at locations on both the distribution and 34.5 kV systems that will allow for remote operation to restore service to customers when an outage occurs. Remote switching eliminates the need to dispatch crews to manually operate the switches. The result is fewer customers affected and reduced outage durations.

Outages by Cause – Penn Power

Outage by Cause				
2nd Quarter 2018 12-Month Rolling	Penn Power			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
Trees off ROW - tree	7,651,564	676	34,000	22.12%
Animal	2,016,866	482	21,312	15.77%
Line failure	2,477,707	328	42,353	10.05%
Equipment failure	2,619,266	298	26,812	9.75%
Bird	395,253	276	5,047	9.03%
Trees off ROW - limb	1,491,476	169	8,910	5.53%
Unknown	729,701	169	7,838	5.53%
Trees - sec/service	173,276	150	567	4.91%
Lightning	407,389	135	4,974	4.42%
Vehicle	1,178,800	98	9,116	3.21%
Forced outage	330,782	95	12,659	3.11%
Overload	186,150	47	2,531	1.54%
Previous lightning	194,186	35	7,082	1.15%
Human error - company	312,789	32	15,037	1.05%
Human error - non-company	252,170	24	3,408	0.79%
Trees on ROW	34,705	16	293	0.52%
UG dig-up	21,185	13	292	0.43%
Object contact with line	23,589	12	260	0.39%
Ice	15,564	7	140	0.23%
Customer equipment	3,247	6	28	0.20%
Vandalism	7,601	4	20	0.13%
Fire	219	1	1	0.03%
Wind	3,966	1	43	0.03%
Other utility - non-electric	1,384	1	8	0.03%
Other electric utility	1,248	1	24	0.03%
Contamination	187	1	3	0.03%
Total	20,530,270	3,077	202,758	100%

Proposed Solutions – Penn Power

Penn Power analyzes its outage data to develop solutions for improving reliability. The following paragraphs identify the top outage causes for the rolling twelve-month period ending June 30, 2018 and the associated actions designed to address these outage causes.

To address outages caused by trees, Penn Power performs cycle based tree trimming which removes selected incompatible trees within the clearing zone corridor, removes certain defective limbs that are overhanging primary conductors, controls selected incompatible brush, and removes off right-of-way priority trees. In addition, Penn Power performs enhanced trimming, which removes healthy limbs overhanging primary conductors, and is increasing priority tree removal on selected circuits.

To address outages caused by animals, Penn Power installs animal guards on equipment that experiences a high frequency of animal-related outages. When possible, animal guards are installed at the time service is restored to prevent future outages caused by animals and birds.

To reduce the likelihood of outages caused by line failure, Penn Power follows I&M programs that set forth schedules for regular inspections of distribution facilities. These programs are geared towards specific components such as capacitors, poles, circuits, transformers, and reclosers. Equipment identified is repaired or replaced as appropriate.

Generally speaking, there are several other reliability projects that have been identified to help reduce the number of, and limit the duration and impact of, interruptions to customers. These include:

- **Line Sectionalizing** – Switches and fuses are being installed on unprotected overhead circuits for improved line sectionalizing capability, reducing the scope of an outage and allowing for quicker isolation and restoration. In addition, poles, reclosers, cutouts, arresters, fault indicators and animal guards may be replaced or installed to ensure proper line sectionalizing.
- **Circuit ties, loops and sources** – Circuit ties and loops continue to be built between radial sections of circuits. When ties and loops are available, circuits can be switched during outages to enable faster restoration. In addition, Penn Power continues to add new substations which provide a new source to serve customers and additional capacity.
- **Overhead Conductor Replacement** – Smaller, aging overhead conductors are being replaced to improve energy efficiency, increase capacity and improve operational flexibility.

- **URD Cable Replacement** – Bare concentric neutral cable is being replaced as part of Penn Power’s URD cable replacement program. This type of cable was manufactured without an insulating jacket, thereby causing the concentric neutral wire to corrode and fail prematurely.
- **Wood Pole Reinforcement/Replacement** – Wood poles identified by a qualified inspector as having degraded beyond restorable condition are being replaced, while poles that are restorable are being reinforced.
- **Substation Equipment Replacement** – Circuit breakers, station transformers and other substation equipment, such as insulators, switches, buses, arresters and conductors that are obsolete or in poor condition are being replaced with new equipment. Proactively replacing older equipment increases substation reliability and reduces the occurrence of equipment failure.
- **Installation of SCADA devices** – Additional SCADA devices are being installed where circuit conditions and system performance warrant. Remote SCADA controlled devices allow for remote operation to restore service to customers when an outage occurs. Remote switching eliminates the need to dispatch crews to manually operate the switches. The result is fewer customers affected and reduced outage durations.

Outages by Cause – West Penn

Outage by Cause				
2nd Quarter 2018 12-Month Rolling	West Penn			
Cause	Customer Minutes	Number of Sustained Interruptions	Customers Affected	% Based on Number of Outages
Trees off ROW - tree	66,346,069	3,214	253,476	24.52%
Equipment failure	22,245,304	2,445	159,307	18.65%
Unknown	9,722,724	1,799	83,480	13.72%
Line failure	15,095,985	1,374	102,063	10.48%
Animal	2,346,351	1,356	25,867	10.34%
Forced outage	5,288,470	726	84,794	5.54%
Trees on ROW	7,402,868	448	37,136	3.42%
Trees - sec/service	327,793	423	908	3.23%
Vehicle	9,045,874	352	59,001	2.69%
Bird	689,871	296	8,756	2.26%
Trees off ROW - limb	3,299,066	233	23,885	1.78%
Wind	11,880,285	133	17,447	1.01%
Human error - non-company	767,051	62	7,357	0.48%
Lightning	1,010,773	53	7,793	0.40%
Human error - company	324,105	52	9,173	0.40%
UG dig-up	197,345	47	1,136	0.36%
Object contact with line	469,945	37	4,691	0.28%
Overload	169,082	15	1,953	0.11%
Customer equipment	138,717	13	763	0.10%
Other electric utility	321,665	10	2,100	0.08%
Fire	10,006	5	64	0.04%
Vandalism	172,936	5	2,685	0.04%
Contamination	102,231	5	955	0.04%
Other utility - non-electric	105,200	2	1,626	0.02%
Previous Lightning	6,049	2	24	0.02%
Switching error	1,431	1	53	0.01%
Total	157,487,196	13,108	896,493	100%

Proposed Solutions – West Penn

West Penn analyzes its outage data to develop solutions for improving reliability. The following paragraphs identify the top outage causes for the rolling twelve-month period ending June 30, 2018, and the associated actions designed to address these outage causes.

To reduce outages caused by trees, West Penn performs cycle based tree trimming which removes selected incompatible trees within the clearing zone corridor, removes certain defective limbs that are overhanging primary conductors, controls selected incompatible brush, and removes off right-of-way priority trees. West Penn continues its program to accelerate the mitigation of trees subject to damage from the Emerald Ash Borer.

To reduce the likelihood of equipment-caused outages, West Penn follows I&M programs that set forth schedules for regular inspections of distribution and substation facilities. These programs are geared towards specific components such as capacitors, poles, circuits, transformers, substations, and reclosers. Equipment identified is repaired or replaced as appropriate.

Outages caused by unknown factors are patrolled by a troubleman and recorded as having an unknown cause. During 2Q 2018, 33% of unknown outages occurred during minor storm weather days and accounted for less than 5% of the total customers affected. For certain unknown outages, engineering may conduct a post-outage circuit inspection as needed to determine if additional actions are necessary.

Generally speaking, there are a number of other reliability projects that have been identified to help reduce the number of, and limit the duration and impact of, interruptions to customers. These include:

- **Fuse Installation** – New fused cutouts are being installed to improve circuit protection based on a coordination review. Circuits are selected based on customer count, past reliability and average customers per fuse.
- **Targeted circuit rehabilitation** - Targeted circuit rehabilitation is being performed in zones one and two, focusing on circuits having a high rate of equipment and line failure and animal-caused outages. Equipment that may be replaced includes crossarms, capacitors, insulators, lightning arresters and cutouts.

- **Worst Performing Circuit rehabilitation** - Select Worst Performing Circuits have been targeted for enhanced circuit rehabilitation in zones one and two, which can include hardware rehabilitation, coordination review, installation of additional protective devices as well as reclosers.
- **URD Cable Replacement** - Bare concentric neutral cable is being replaced as part of West Penn's URD cable replacement program. This type of cable was manufactured without an insulating jacket, thereby causing the concentric neutral wire to corrode and fail prematurely.
- **Customers Experiencing Multiple Interruptions projects** - Improvement projects focusing on clusters of customers experiencing multiple interruptions of line protection devices are being implemented to enhance system performance as well as reduce frequency of outages at the customer level that might not be addressed when targeting overall system metrics.
- **Wood pole reinforcement/replacement** - Wood poles identified by a qualified inspector as having degraded beyond restorable condition are being replaced, while poles that are restorable are being reinforced.
- **Substation batteries, reclosers and transformer arresters** – Substation batteries and reclosers reaching the end of their useful lives are being replaced. If the batteries are not replaced, the potential exists for the mis-operation of substation equipment which could cause a possible outage. Replacement of reclosers will ensure proper operation to clear line faults and work properly with upstream and downstream line equipment to prevent an unnecessary outage. Arresters on transformer banks made from silicon carbide are being replaced with polymer metal oxide varistor (“MOV”) arresters. MOV arresters provide better protection to the transformer making it less likely to have a catastrophic failure.
- **Underground substation exit cables** - Exit cables that were manufactured without an insulating jacket, thereby causing the concentric neutral wire to corrode and fail prematurely, are being replaced. By replacing these exit cables, West Penn will reduce the interruptions to a circuit associated with the cable as well as the long interruption times associated with the replacement.
- **Enhanced overcurrent protection and SCADA control** – New electronic reclosers with SCADA control are being installed at targeted substations as part of the enhanced overcurrent protection program. Adding SCADA control to electronic reclosers in select substations with existing SCADA capabilities limits the number of customers affected, provides additional

monitoring and allows for remote switching to restore customers at the circuit level more quickly.

- **Sub-transmission modernization and automation** – Aging electro-mechanical relay controls and switches and automated sub-transmission switching locations are being replaced with newer technology. The installation of SCADA controlled reclosers and switches and *automatic switch modernization* will provide *enhanced sectionalizing* for larger blocks of customers at the substation level. The SCADA controlled switches are designed to allow for remote switching to restore large blocks of customers more quickly.

Section 57.195(e)(6): Quarterly and year-to-date information on progress toward meeting transmission and distribution inspection and maintenance goals/objectives (for first, second and third quarter reports only).

Inspection and Maintenance 2018		Met-Ed			Penelec			Penn Power			West Penn		
		Planned	Completed		Planned	Completed		Planned	Completed		Planned	Completed	
		Annual	2Q	YTD	Annual	2Q	YTD	Annual	2Q	YTD	Annual	2Q	YTD
Forestry	Transmission (Miles)	258.62	43.67	124.67	417.85	42.19	77.01	77.87	28.98	33.47	527.36	99.42	205.70
	Distribution (Miles)	3,160	500	743	3,636	980	1,670	1,149	263	595	4,584	812	1,708
Transmission	Aerial Patrols	2	1	1	2	1	1	2	1	1	2	1	1
	Groundline	0	0	0	0	0	0	553	698	698	1,330	362	362
Substation	Substation Inspections Class A	424	0	212	788	0	394	148	0	74	726	1	364
	Substation Inspections Class B	424	212	212	788	394	394	148	74	74	726	364	364
	Substation Inspections Class C	1,696	424	848	3,152	788	1,576	592	148	296	2,904	730	1,456
	Transformers	245	53	121	487	121	427	103	90	90	514	222	345
	Breakers	76	15	29	325	146	214	9	3	3	406	113	140
	Relay Schemes	98	37	59	176	78	136	16	0	16	123	32	38
Distribution	Capacitors	4,758	0	4,758	8,736	0	8,736	991	2	991	1,305	0	1,305
	Poles	46,000	9,890	9,890	41,591	9,457	32,068	10,600	0	11,066	57,822	9,335	22,091
	Reclosers	1,109	111	887	2,572	0	0	812	12	812	3,898	300	3,898
	Radio-Controlled Switches	478	259	259	2,612	1,170	1,351	Penn Power has no radio-controlled switches			West Penn has no radio-controlled switches		

General Note: Unless specified otherwise, all inspections are reported on a unit basis rather than on a location basis.

Section 57.195(e)(7): Quarterly and year-to-date information on budgeted versus actual transmission and distribution operation and maintenance expenditures in total and detailed by the EDC's own functional account code as available. (For first, second and third quarter reports only).

Budgeted vs. Actual T&D Operation & Maintenance Expenditures⁸

Met-Ed T&D O&M – 2Q / YTD, June 2018 (\$)						
Transmission						
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget	
560	Operation Supervision and Engineering	0	0	0	0	0
561	Load Dispatching	8,480	170,815	22,911	340,136	680,275
562	Station Expenses	4,089	0	7,908	0	0
563	Overhead Lines Expenses	2,415	15,915	43,842	30,362	33,112
565	Transmission of Electricity by Others	(18,084,402) ⁹	2,288,312	(14,870,134)	4,546,624	9,193,248
566	Miscellaneous Transmission Expenses	(95)	(3,102)	(2,875)	(6,259)	(13,365)
567	Rents	16,063	0	33,151	0	0
568	Maintenance Supervision and Engineering	2,462	0	2,462	0	0
569	Maintenance of Structures	50,166	4,510	97,542	9,480	20,225
570	Maintenance of Station Equipment	247,760	1,500	506,964	3,000	6,000
571	Maintenance of Overhead Lines	35,519	0	21,462	0	0
572	Maintenance of Underground Lines	0	0	0	0	0
573	Maintenance of Miscellaneous Transmission Plant	(1,658)	0	(740)	0	0
575	Market Administration, Monitoring & Compliance Services	0	0	0	0	0
Transmission Total		(17,719,200)	2,477,951	(14,137,507)	4,923,342	9,919,496
Distribution						
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget	
580	Operation Supervision and Engineering	82,056	64,646	140,713	119,163	242,700
581	Load Dispatching	61,467	54,059	109,674	95,361	203,414
582	Station Expenses	367,434	182,938	524,706	335,930	641,671
583	Overhead Line Expenses	79,743	25,250	113,205	153,435	197,277
584	Underground Line Expenses	0	0	0	0	0
585	Distribution-Street Lighting & Signal System Expenses	0	0	0	0	0
586	Meter Expenses	141,373	142,450	325,890	282,788	597,543
587	Customer Installations Expenses	0	0	0	0	0
588	Miscellaneous Distribution Expenses	1,960,224	1,982,218	3,648,055	3,831,948	8,070,195
589	Rents	125,753	126,109	259,087	252,219	504,437
590	Maintenance Supervision and Engineering	119,805	52,139	209,319	98,963	193,021
591	Maintenance of Structures	492	1,667	1,425	3,364	6,817
592	Maintenance of Station Equipment	1,800,926	1,956,711	3,047,229	3,820,271	7,591,843
593	Maintenance of Overhead Lines	26,555,922	7,698,189	62,934,060	15,265,724	28,894,156
594	Maintenance of Underground Lines	611,017	446,710	374,532	747,357	1,527,965
595	Maintenance Line Transformer	34,638	469,502	75,297	939,004	1,878,008
596	Maintenance of Street Lighting and Signal Systems	146,120	136,933	316,963	269,100	582,543
597	Maintenance of Meters	603,975	602,352	1,088,507	1,113,069	2,240,327
598	Maintenance of Miscellaneous Distribution Plant	464,393	599,489	847,229	1,236,137	2,411,184
Distribution Total		33,155,340	14,541,363	74,015,891	28,563,834	55,783,100
Met-Ed Total		15,436,139	17,019,314	59,878,384	33,487,176	65,702,596

⁸ Budgets are subject to change.

⁹ A settlement agreement between Met-Ed and PJM and approved by FERC on May 31, 2018 resulted in a refund of Regional Transmission Expansion Plan costs to Met-Ed.

Penelec						
T&D O&M – 2Q / YTD June 2018 (\$)						
Transmission						
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget	
560	Operation Supervision and Engineering	0	0	0	0	0
561	Load Dispatching	5,817	172,299	(5,736)	341,108	682,278
562	Station Expenses	66,308	38,072	126,367	67,344	135,607
563	Overhead Lines Expenses	67,005	40,899	350,284	346,607	491,576
565	Transmission of Electricity by Others	(8,286,750) ¹⁰	8,345,074	120,250	16,591,523	33,478,941
566	Miscellaneous Transmission Expenses	1,328	0	1,947	0	0
567	Rents	52,433	71,299	209,991	118,246	275,000
568	Maintenance Supervision and Engineering	41,730	0	51,810	0	0
569	Maintenance of Structures	68,722	5,237	139,528	11,010	23,493
570	Maintenance of Station Equipment	(223,150)	70,849	(146,723)	141,699	283,400
571	Maintenance of Overhead Lines	10,593	(2,957)	79,397	(26,611)	0
572	Maintenance of Underground Lines	0	0	0	0	0
573	Maintenance of Miscellaneous Transmission Plant	(768)	0	(1,981)	0	0
575	Market Administration, Monitoring & Compliance Services	0	0	0	0	0
Transmission Total		(8,196,732)	8,740,774	925,135	17,590,926	35,370,294
Distribution						
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget	
580	Operation Supervision and Engineering	166,921	85,910	250,788	169,797	340,011
581	Load Dispatching	113,649	67,260	208,330	122,410	246,339
582	Station Expenses	152,034	0	279,490	0	0
583	Overhead Line Expenses	12,865	11,162	68,643	26,325	52,827
584	Underground Line Expenses	290,986	271,720	490,620	433,092	879,170
585	Distribution-Street Lighting & Signal System Expenses	0	0	0	0	0
586	Meter Expenses	166,987	141,221	324,867	290,836	610,579
587	Customer Installations Expenses	0	0	0	0	0
588	Miscellaneous Distribution Expenses	2,917,172	3,018,949	5,566,734	5,683,674	11,971,998
589	Rents	434,202	282,929	898,987	565,859	1,131,717
590	Maintenance Supervision and Engineering	131,440	59,379	223,243	112,705	219,824
591	Maintenance of Structures	0	0	0	0	0
592	Maintenance of Station Equipment	1,481,026	1,515,005	3,178,621	2,955,117	6,015,575
593	Maintenance of Overhead Lines	11,948,026	7,795,534	21,719,487	14,656,744	30,918,994
594	Maintenance of Underground Lines	587,141	55,746	1,115,610	65,737	146,143
595	Maintenance Line Transformer	30,264	60,724	65,787	121,449	242,897
596	Maintenance of Street Lighting and Signal Systems	216,488	769,506	488,238	1,552,150	3,120,417
597	Maintenance of Meters	755,685	1,016,839	1,402,582	1,940,989	3,822,304
598	Maintenance of Miscellaneous Distribution Plant	304,346	19,263	639,947	39,553	122,860
Distribution Total		19,709,233	15,171,149	36,921,974	28,736,437	59,841,657
Penelec Total		11,512,501	23,911,923	37,847,109	46,327,363	95,211,950

¹⁰ A settlement agreement between Penelec and PJM and approved by FERC on May 31, 2018 resulted in a refund of Regional Transmission Expansion Plan costs to Penelec.

Penn Power						
T&D O&M – 2Q / YTD June 2018 (\$)						
Transmission						
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget	
560	Operation Supervision and Engineering	437	566	783	1,043	2,131
561	Load Dispatching	17,921	32,525	22,916	64,651	129,499
562	Station Expenses	0	(44)	0	(80)	(187)
563	Overhead Lines Expenses	12	(76)	12	(139)	(325)
565	Transmission of Electricity by Others	(5,381,172) ¹¹	1,237,415	(3,903,494)	2,459,830	4,974,660
566	Miscellaneous Transmission Expenses	1,172	1,031	2,061	2,023	3,870
567	Rents	0	0	0	0	0
568	Maintenance Supervision and Engineering	3,540	4,292	6,481	7,991	16,147
569	Maintenance of Structures	6,342	8,339	11,598	16,043	33,199
570	Maintenance of Station Equipment	(22,524)	762	(21,410)	1,524	3,047
571	Maintenance of Overhead Lines	93,277	(19,708)	35,201	(18,737)	(80,573)
572	Maintenance of Underground Lines	0	0	0	0	0
573	Maintenance of Miscellaneous Transmission Plant	(1,113)	0	(1,339)	0	0
575	Market Administration, Monitoring & Compliance Services	0	0	0	0	0
Transmission Total		(5,282,107)	1,265,102	(3,847,191)	2,534,149	5,081,468
Distribution						
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget	
580	Operation Supervision and Engineering	0	0	0	0	0
581	Load Dispatching	0	0	0	0	0
582	Station Expenses	14,080	0	31,370	0	0
583	Overhead Line Expenses	17,435	0	106,270	0	0
584	Underground Line Expenses	58,875	131,009	103,511	262,373	524,466
585	Distribution-Street Lighting & Signal System Expenses					
586	Meter Expenses	15,745	18,888	30,638	37,410	74,938
587	Customer Installations Expenses	0	0	0	0	0
588	Miscellaneous Distribution Expenses	71,582	265,510	169,921	513,151	1,079,663
589	Rents	89,868	79,747	176,786	159,493	318,986
590	Maintenance Supervision and Engineering	26,314	14,838	51,084	28,169	54,953
591	Maintenance of Structures	0	0	0	0	0
592	Maintenance of Station Equipment	231,998	85,888	431,049	175,446	376,718
593	Maintenance of Overhead Lines	3,621,984	3,004,828	6,996,180	6,003,512	12,374,767
594	Maintenance of Underground Lines	60,211	9,745	127,970	18,965	39,187
595	Maintenance Line Transformer	6,993	12,872	14,101	25,745	51,489
596	Maintenance of Street Lighting and Signal Systems	12,040	0	25,999	0	0
597	Maintenance of Meters	135,264	148,486	246,245	294,675	598,980
598	Maintenance of Miscellaneous Distribution Plant	68,991	120,608	133,509	229,913	472,985
Distribution Total		4,431,378	3,892,418	8,644,632	7,748,853	15,967,133
Penn Power Total		(850,729)	5,157,520	4,797,442	10,283,002	21,048,601

¹¹ A settlement agreement between Penn Power and PJM and approved by FERC on May 31, 2018 resulted in a refund of Regional Transmission Expansion Plan costs to Penn Power.

West Penn						
T&D O&M – 2Q / YTD June 2018 (\$)						
Transmission						
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget	
560	Operation Supervision and Engineering	12,898	15,268	21,001	28,131	56,519
561	Load Dispatching	229,506	517,069	431,562	990,288	1,983,587
562	Station Expenses	60,106	6,408	99,513	12,103	24,140
563	Overhead Lines Expenses	11,412	0	101,822	0	0
565	Transmission of Electricity by Others	47,752,624 ¹²	15,094,112	61,946,759	30,186,700	60,377,974
566	Miscellaneous Transmission Expenses	126,706	91,319	189,043	158,952	352,998
567	Rents	5,990	6,297	12,184	12,594	25,187
568	Maintenance Supervision and Engineering	195,199	149,163	370,149	284,331	558,238
569	Maintenance of Structures	7,702	3,677	14,693	7,852	17,275
570	Maintenance of Station Equipment	926,732	536,094	1,403,164	1,013,873	2,032,207
571	Maintenance of Overhead Lines	3,621,784	3,346,385	6,291,402	6,170,726	13,267,007
572	Maintenance of Underground Lines	940	0	940	0	0
573	Maintenance of Miscellaneous Transmission Plant	0	0	0	0	0
575	Market Administration, Monitoring & Compliance Services	103	0	123	0	0
Transmission Total		52,951,703	19,765,792	70,882,354	38,865,549	78,695,132
Distribution						
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget	
580	Operation Supervision and Engineering	79,521	25,312	134,386	54,067	105,573
581	Load Dispatching	476,838	508,276	896,358	910,595	1,823,718
582	Station Expenses	156,547	275,846	301,117	602,323	1,209,878
583	Overhead Line Expenses	110,122	471,362	656,472	1,017,678	1,429,962
584	Underground Line Expenses	410,052	380,000	667,105	575,000	1,210,000
585	Distribution-Street Lighting & Signal System Expenses	0	0	0	0	0
586	Meter Expenses	302,417	505,631	585,981	948,810	1,909,499
587	Customer Installations Expenses	0	0	0	0	0
588	Miscellaneous Distribution Expenses	3,807,326	3,566,960	7,505,269	7,081,335	14,994,284
589	Rents	0	0	0	0	0
590	Maintenance Supervision and Engineering	127,753	108,689	262,989	203,316	403,051
591	Maintenance of Structures	0	0	0	0	0
592	Maintenance of Station Equipment	1,547,481	1,875,867	2,950,922	3,638,474	7,456,908
593	Maintenance of Overhead Lines	12,051,364	8,198,493	21,342,362	15,034,974	30,632,377
594	Maintenance of Underground Lines	285,988	249,243	634,229	479,446	753,257
595	Maintenance Line Transformer	12,120	72,269	27,834	144,537	289,074
596	Maintenance of Street Lighting and Signal Systems	189,916	210,281	441,617	398,607	795,037
597	Maintenance of Meters	487,816	286,558	789,899	537,064	1,070,584
598	Maintenance of Miscellaneous Distribution Plant	51,131	56,375	99,270	114,143	238,242
Distribution Total		20,096,393	16,791,161	37,295,810	31,740,369	64,321,443
West Penn Power Total		73,048,096	36,556,953	108,178,164	70,605,918	143,016,574

¹² A settlement agreement between West Penn and PJM and approved by FERC on May 31, 2018 resulted in additional Regional Transmission Expansion Plan costs to West Penn.

Section 57.195(e)(8): Quarterly and year-to-date information on budgeted versus actual transmission and distribution capital expenditures in total and detailed by the EDC's own functional account code or FERC account code as available. (For first, second and third quarter reports only).

Budgeted vs. Actual T&D Capital Expenditures^{13, 14}

Met-Ed					
T&D Capital – 2Q/YTD June 2018 (\$)					
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget
Capacity	2,104,054	2,772,385	4,272,022	6,423,340	12,046,796
Condition	5,646,504	4,318,260	8,949,656	7,776,504	15,210,656
Facilities	450,978	1,780,817	19,910	2,039,168	4,029,172
Forced	8,196,844	9,871,183	37,668,092	18,898,144	36,042,546
Meter Related	458,025	691,184	938,244	1,386,978	2,657,061
New Business	5,297,214	3,586,160	8,597,071	7,121,187	14,256,019
Other	13,902,159	6,911,038	18,363,269	14,935,054	39,834,720
Reliability	4,255,407	10,440,359	7,302,440	15,991,257	24,345,555
Street Light	321,443	477,608	818,059	1,459,494	2,048,961
Tools & Equipment	132,183	265,407	272,529	530,028	1,165,919
Vegetation Management	2,888,985	4,053,948	5,088,844	8,091,207	16,163,160
Met-Ed Total	43,653,795	45,168,350	92,290,133	84,652,364	167,800,564

Penelec					
T&D Capital – 2Q/YTD June 2018 (\$)					
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget
Capacity	1,551,537	1,952,762	2,053,970	3,506,747	6,993,475
Condition	2,913,672	2,626,571	4,685,409	4,948,297	9,625,735
Facilities	202,750	1,078,315	1,769,357	1,378,272	2,558,659
Forced	12,190,566	11,542,972	21,677,617	21,030,933	43,150,174
Meter Related	330,116	624,797	765,701	1,173,119	2,468,478
New Business	3,158,061	3,099,378	5,208,290	6,004,643	11,979,604
Other	11,474,227	3,472,722	21,528,135	10,323,586	18,159,603
Reliability	9,731,780	14,914,821	16,224,190	24,055,642	47,667,106
Street Light	374,590	546,784	751,552	1,050,289	2,090,990
Tools & Equipment	239,111	337,550	434,696	671,752	1,438,392
Vegetation Management	6,511,559	7,544,497	11,207,269	15,027,550	28,719,489
Penelec Total	48,677,968	47,741,171	86,306,186	89,170,828	174,851,705

¹³ Budgets are subject to change.

¹⁴ General note: Capital reported on Generally Accepted Accounting Principles (GAAP) basis.

Penn Power					
T&D Capital – 2Q/YTD June 2018 (\$)					
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget
Capacity	460,672	25,169	820,319	50,357	100,359
Condition	223,955	290,158	329,947	681,952	1,412,444
Facilities	3,769	49	3,769	122	122
Forced	3,267,883	4,333,418	6,082,778	8,471,714	17,722,956
Meter Related	130,064	134,811	313,854	266,686	540,010
New Business	1,684,250	1,690,381	3,152,149	3,107,124	5,666,730
Other	1,032,378	(298,344)	2,721,017	26,603	222,601
Reliability	4,614,560	5,073,307	6,688,920	7,790,424	14,271,585
Street Light	45,377	140,000	291,357	279,310	561,281
Tools & Equipment	115,212	6,452	174,932	12,796	37,747
Vegetation Management	503,088	1,334,811	1,023,914	2,661,404	5,326,085
Penn Power Total	12,081,209	12,730,211	21,602,957	23,348,494	45,861,921

West Penn					
T&D Capital – 2Q/YTD June 2018 (\$)					
Category	2Q Actuals	2Q Budget	YTD Actuals	YTD Budget	Annual Budget
Capacity	1,983,775	705,068	3,987,706	1,952,317	2,597,013
Condition	3,138,669	6,331,262	6,051,147	13,643,241	18,476,672
Facilities	2,064,792	1,589,765	3,094,245	2,738,721	3,635,875
Forced	12,907,631	10,063,431	22,785,301	18,003,960	37,132,224
Meter Related	448,889	623,251	886,795	1,218,774	2,436,480
New Business	6,967,054	5,940,082	11,883,345	11,069,516	22,623,356
Other	16,817,284	16,984,810	33,862,563	35,962,330	71,890,920
Reliability	10,760,044	12,836,699	19,063,581	22,611,667	40,754,399
Street Light	2,052,672	2,002,367	2,819,825	3,923,823	6,245,554
Tools & Equipment	642,833	833,541	982,340	1,635,059	3,244,253
Vegetation Management	10,102,400	10,791,250	19,161,121	22,953,012	41,088,498
West Penn Total	67,886,043	68,701,524	124,577,968	135,712,420	250,125,244

Section 57.195(e)(9): Dedicated staffing levels for transmission and distribution operation and maintenance at the end of the quarter, in total and by specific category (for example, linemen, technician, and electrician).¹⁵

Staffing Levels

Met-Ed 2018												
Department	Position	Staffing Level				Staff Added in Quarter			Staff Lost in Quarter			Plan to Hire in 2019 ¹⁸
		1Q	2Q	3Q	4Q	New Hire – Experienced	New Hire – PSI Student	Other ¹⁶	Retirement	Voluntary Separation	Other ¹⁷	
Distribution	Line Leader	51	50					1			2	
	Line Troubleshooter	38	38									
	Lineman	115	130			2	14				1	
Substation	Substation Leader	15	15					1		1		
	Substation Employee	56 ¹⁹	65				6	7			4	
Transmission	Line Leader	2	1								1	
	Lineman	9	8								1	
	Total	286	307			2	20	9		1	9	

¹⁵ As ordered on March 30, 2015 at Docket Nos. D-2014-2365991, D-2014-2365992, D-2014-2365993, and D-2014-2365994, *Implementation Plan of the Focused Management Audit of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company* (Appendix A) (5): FirstEnergy is directed to provide additional detail as described below in the staff reporting section in the Quarterly Reliability Reports. For each staff member added, provide information on whether they were a new hire, if they are already at the journeyman, or other experienced level of training. For each staff member lost, provide the reason for the loss (retirement, voluntary separation, etc.). The number of staff in each category that the Company is planning to hire in the next calendar year.

¹⁶ Includes transfers and promotions.

¹⁷ Includes transfers, voluntary separations, and promotions.

¹⁸ Hiring plan to be provided annually in the 4Q report.

¹⁹ The substation employee staffing level number increased by one employee due to the timing of a staffing change that occurred in 4Q 2017 but was not processed until 1Q 2018.

Penelec 2018												
Department	Position	Staffing Level				Staff Added in Quarter			Staff Lost in Quarter			Plan to Hire in 2019 ²²
		1Q	2Q	3Q	4Q	New Hire – Experienced	New Hire – PSI Student	Other ²⁰	Retirement	Voluntary Separation	Other ²¹	
Distribution	Line Leader	70	67								3	
	Line Troubleshooter	69	66			1				1	3	
	Lineman	103 ²³	130				25	3			1	
Substation	Substation Leader	33	32					2		1	2	
	Substation Employee	34	37				4	4		1	4	
Transmission	Line Leader	3	5					2				
	Lineman	25	23								2	
	Total	337	360			1	29	11		3	15	

²⁰ Includes transfers and promotions.

²¹ Includes transfers, involuntary separations, and promotions.

²² Hiring plan to be provided annually in the 4Q report.

²³ The distribution lineman staffing level numbers increased by 13 employees that were incorrectly included in the transmission lineman counts.

Penn Power 2018												
Department	Position	Staffing Level				Staff Added in Quarter			Staff Lost in Quarter			Plan to Hire in 2019 ²⁶
		1Q	2Q	3Q	4Q	New Hire – Experienced	New Hire – PSI Student	Other ²⁴	Retirement	Voluntary Separation	Other ²⁵	
Distribution	Line Leader	24	23					2		1	2	
	Line Troubleshooter	8	8									
	Lineman	43	48				8				3	
Substation	Substation Leader	5	5									
	Substation Employee	15	19				4					
Transmission	Line Leader	1	1									
	Lineman	5	3								2	
	Total	101	107				12	2		1	7	

²⁴ Includes transfers, promotions, and promotions within a position.

²⁵ Includes transfers, involuntary separations, promotions and promotions within a position.

²⁶ Hiring plan to be provided annually in the 4Q report.

West Penn 2018												
Department	Position	Staffing Level				Staff Added in Quarter			Staff Lost in Quarter			Plan to Hire in 2019 ²⁹
		1Q	2Q	3Q	4Q	New Hire – Experienced	New Hire – PSI Student	Other ²⁷	Retirement	Voluntary Separation	Other ²⁸	
Distribution	Line Leader	67	57					2			12	
	Line Troubleshooter	67	71					6		1	1	
	Lineman	90	112				26	15			19	
Substation	Substation Leader	16 ³⁰	16									
	Substation Employee	65	72				7	4			4	
Transmission	Line Leader	2 ³¹	0								2	
	Lineman	2	2									
	Total	309	330				33	27		1	38	

²⁷ Includes transfers, promotions, and promotions within a position.

²⁸ Includes transfers, involuntary separations, promotions and promotions within a position.

²⁹ Hiring plan to be provided annually in the 4Q report.

³⁰ Substation line leader staffing levels decreased by two employees that should have been included in the transmission line leader counts.

³¹ Transmission line leader staffing level numbers increased by two employees that were incorrectly included in the substation leader counts.

Section 57.195(e)(10): Quarterly and year-to-date information on contractor hours and dollars for transmission and distribution operation and maintenance.

Contractor Expenditures

Contractor expenses are billed on a lump sum basis and as such, hourly information is not available.

This portion of the report is confidential.

Section 57.195(e)(11): Monthly call-out acceptance rate for transmission and distribution maintenance workers presented in terms of both the percentage of accepted calls-out and the amount of time it takes the EDC to obtain the necessary personnel. A brief description of the EDC's call-out procedure should be included when appropriate.

Call-out Acceptance Rate

Call-out percentage is defined as the number of workers accepting to total call outs.

This portion of the report is confidential.

Submitted Pursuant to 52 Pa. Code § 57.195(d) and (e)

Call-out Response

This portion of the report is confidential.

Call-Out Procedure:

When an event occurs, Met-Ed, Penelec, Penn Power and West Penn³³ dispatch a troubleman to find and assess the cause of the outage. If the troubleman is unable to repair the damage and a crew is required, the troubleman will inform the Distribution Control Center (“DCC”). The DCC and/or the Customer Operations Center’s (“COC”) person on duty will then initiate the call-out process until desired staffing levels required to complete the restoration have been achieved.

The number of unique workers called for an outage event is recorded and represents the total calls, or opportunities, for an outage event. The number of unique workers who accept the opportunity is recorded and represents the workers accepting. The elapsed time is calculated by taking the date and time of the first employee called for an event minus the date and time of the last accepting employee for that event. The call-out results from all outages experienced during a particular month are added together to derive a total value for each field.

³³ West Penn utilizes its automated calling system to complete its call out process. Penelec and Penn Power began utilizing its automated calling systems at the end of 2Q 2018.

ATTACHMENT A

Worst Performing Circuits - Reliability Indices

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PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

Met-Ed													
Circuit Rank	Substation	Circuit	District	Average Customers	Outages	Lockouts	Customer Minutes	Customers Affected	SAIDI Impact	SAIDI	SAIFI	CAIDI	MAIFI
1	Lickdale	00625-2	Lebanon	1,000	111	1	2,051,534	4,184	3.64	2,052	4.18	490	5.97
2	Orrtanna	00764-4	Gettysburg	1,773	69	1	1,617,365	4,170	2.87	912	2.35	388	8.59
3	Myerstown	00750-2	Lebanon	1,521	25	2	1,546,609	4,704	2.75	1,017	3.09	329	0.00
4	Bath	00873-3	Easton	2,120	45	2	1,408,648	6,804	2.50	664	3.21	207	0.00
5	Mountain	00744-4	Dillsburg	1,826	76	0	1,403,778	4,033	2.49	769	2.21	348	1.16
6	Birchwood	00624-3	Stroudsburg	2,141	43	1	1,115,322	6,496	1.98	521	3.03	172	13.88
7	Shawnee	00822-3	Stroudsburg	3,561	81	1	1,037,420	8,351	1.84	291	2.35	124	3.17
8	S Nazareth	00809-3	Easton	3,174	53	2	1,032,323	6,207	1.83	325	1.96	166	6.05
9	East Prospect	00765-4	York	1,910	45	1	854,186	4,064	1.52	447	2.13	210	0.48
10	Flying Hills	00776-1	Reading	1,482	29	1	835,270	3,528	1.48	564	2.38	237	0.00
11	Bernville	00786-1	Hamburg	1,841	84	0	814,268	6,407	1.45	442	3.48	127	0.00
12	Lynnville	00735-1	Hamburg	1,361	52	3	778,117	3,706	1.38	572	2.72	210	6.00
13	Frystown	00701-2	Lebanon	1,251	58	1	738,275	7,653	1.31	590	6.12	96	5.01
14	Hill	00737-4	York	2,268	34	0	734,783	5,097	1.30	324	2.25	144	0.97
15	Straban	00676-4	Gettysburg	1,082	44	0	711,301	1,696	1.26	657	1.57	419	5.99
16	Dillsburg	00748-4	Dillsburg	1,790	71	0	710,749	4,202	1.26	397	2.35	169	0.00
17	Lynnville	00748-1	Hamburg	1,211	36	1	705,443	1,718	1.25	583	1.42	411	0.00
18	Turf Club	00724-2	Lebanon	632	35	0	677,265	2,883	1.20	1,072	4.56	235	1.00
19	Shawnee	00899-3	Stroudsburg	1,680	73	3	636,692	7,559	1.13	379	4.50	84	5.73
20	Fox Hill	00850-3	Stroudsburg	812	28	3	636,206	5,709	1.13	784	7.03	111	2.41
21	Walker	00865-3	Stroudsburg	2,123	67	0	621,963	4,332	1.10	293	2.04	144	0.00
22	Shawnee	00895-3	Stroudsburg	3,810	79	1	606,177	7,590	1.08	159	1.99	80	7.24
23	North Cornwall	00610-2	Lebanon	2,101	57	0	605,179	4,178	1.07	288	1.99	145	5.84
24	Dillsburg	00749-4	Dillsburg	1,821	70	3	602,715	4,412	1.07	331	2.42	137	2.94
25	Lorane	00560-1	Reading	1,163	24	3	588,004	4,329	1.04	506	3.72	136	8.30
26	Newberry	00586-4	York	1,627	35	1	584,323	3,781	1.04	359	2.32	155	0.00
27	Birdsboro	00756-1	Reading	1,528	77	1	569,118	7,724	1.01	372	5.05	74	10.17
28	Mt Rose	00562-4	York	1,947	22	0	565,250	2,749	1.00	290	1.41	206	2.12

Met-Ed													
Circuit Rank	Substation	Circuit	District	Average Customers	Outages	Lockouts	Customer Minutes	Customers Affected	SAIDI Impact	SAIDI	SAIFI	CAIDI	MAIFI
29	Newberry	00577-4	York	1,725	19	2	564,771	2,508	1.00	327	1.45	225	13.01
30	Violet Hill	00325-4	York	656	15	2	560,447	2,161	1.00	854	3.29	259	0.00
31	S Hamburg	00741-1	Hamburg	1,588	53	1	552,715	4,042	0.98	348	2.55	137	2.00
32	Shawnee	00837-3	Stroudsburg	1,088	36	1	536,069	4,865	0.95	493	4.47	110	11.71
33	Windsor	00316-4	York	587	20	1	528,100	1,324	0.94	900	2.26	399	1.00
34	No Bangor	00813-3	Easton	1,341	50	0	527,066	3,385	0.94	393	2.52	156	1.99
35	Lickdale	00626-2	Lebanon	2,066	50	1	505,847	3,052	0.90	245	1.48	166	2.01
36	Glenside	00535-1	Reading	1,130	26	4	500,384	4,128	0.89	443	3.65	121	4.97
37	Clearfield	00632-3	Easton	1,260	42	2	477,770	4,520	0.85	379	3.59	106	1.01
38	Northwood	00821-3	Easton	1,421	22	1	476,339	3,478	0.85	335	2.45	137	0.00
39	North Lebanon	00715-2	Lebanon	1,589	42	1	466,095	4,730	0.83	293	2.98	99	2.00

Penelec													
Circuit Rank	Substation	Circuit	District	Average Customers	Outages	Lockouts	Customer Minutes	Customers Affected	SAIDI Impact	SAIDI	SAIFI	CAIDI	MAIFI
1	Grover	00527-63	Mansfield	1,064	88	0	1,757,663	4,506	3.03	1,652	4.23	390	23.86
2	Logan	00700-81	Lewistown	1,013	40	0	1,478,141	6,161	2.55	1,459	6.08	240	9.95
3	Madera	00166-22	Philipsburg	2,139	81	0	1,410,563	6,653	2.43	659	3.11	212	5.06
4	Springboro	00237-52	Meadville	2,793	91	0	1,378,370	9,385	2.37	494	3.36	147	7.46
5	Union City	00206-43	Eric	2,775	84	1	1,356,328	12,272	2.34	489	4.42	111	7.13
6	Union City	00207-43	Eric	774	33	4	1,176,662	3,713	2.03	1,520	4.80	317	1.65
7	Hooversville	00019-12	Somerset	1,481	33	0	1,040,459	4,828	1.79	703	3.26	216	2.53
8	Mansfield	00699-63	Mansfield	762	39	2	1,007,618	3,880	1.74	1,322	5.09	260	3.01
9	Pittsburgh Avenue	00524-31	Eric	1,609	37	2	1,004,379	4,532	1.73	624	2.82	222	0.00
10	Philipsburg	00162-22	Philipsburg	3,407	70	0	996,341	10,065	1.72	292	2.95	99	13.53
11	DuBois	00137-23	DuBois	2,968	87	0	929,499	8,658	1.60	313	2.92	107	3.80
12	Warren South	00220-41	Warren	2,881	106	0	923,550	8,307	1.59	321	2.88	111	7.85
13	Blairsville East	00080-13	Indiana	1,064	21	0	862,994	2,431	1.49	811	2.28	355	0.68
14	Tyrone North	00643-22	Philipsburg	1,478	10	0	859,985	2,160	1.48	582	1.46	398	12.88
15	Lawrenceville	00326-63	Mansfield	43	6	2	769,420	440	1.33	17,893	10.23	1,749	0.00
16	Logan	00701-81	Lewistown	1,426	28	0	765,900	3,850	1.32	537	2.70	199	4.78
17	Lawrenceville	00632-63	Mansfield	642	23	0	756,950	922	1.30	1,179	1.44	821	6.54
18	Tunkhannock	00533-65	Montrose	1,228	52	0	752,355	3,843	1.30	613	3.13	196	8.26
19	Green Garden	00536-31	Eric	943	36	1	734,977	1,328	1.27	779	1.41	553	7.29
20	Brookville West	00121-23	DuBois	705	43	1	707,822	2,014	1.22	1,004	2.86	351	13.38
21	Thompson	00436-65	Montrose	1,224	65	0	688,842	3,567	1.19	563	2.91	193	8.77
22	Piney	00523-51	Oil City	1,455	45	1	683,938	5,145	1.18	470	3.54	133	25.49
23	Brooklyn	00749-65	Montrose	502	22	1	664,503	1,180	1.14	1,324	2.35	563	1.97
24	Madera	00165-22	Philipsburg	1,082	50	0	639,416	3,946	1.10	591	3.65	162	11.00
25	Lake Como	00787-65	Montrose	881	32	1	637,233	2,970	1.10	723	3.37	215	8.10
26	Youngsville	00256-41	Warren	375	24	5	617,027	2,387	1.06	1,645	6.37	258	7.95
27	East Hickory	00201-41	Warren	328	20	3	613,305	1,872	1.06	1,870	5.71	328	36.95
28	Marienville	00328-51	Oil City	1,197	44	0	590,284	3,605	1.02	493	3.01	164	22.07
29	Walnut Street	00520-31	Eric	1,820	25	1	562,034	5,558	0.97	309	3.05	101	7.17
30	Saxton	00631-73	Altoona	2,004	47	1	545,419	3,062	0.94	272	1.53	178	5.06
31	East Pike	00095-13	Indiana	3,427	29	0	544,031	5,716	0.94	159	1.67	95	3.57
32	Lake Como	00788-65	Montrose	631	27	2	540,107	3,081	0.93	856	4.88	175	38.50
33	Grandview	00354-51	Oil City	537	29	2	517,895	1,989	0.89	964	3.70	260	4.74

Penelec													
Circuit Rank	Substation	Circuit	District	Average Customers	Outages	Lockouts	Customer Minutes	Customers Affected	SAIDI Impact	SAIDI	SAIFI	CAIDI	MAIFI
34	Brookville	00125-23	DuBois	618	31	0	511,406	1,090	0.88	828	1.76	469	3.87
35	Utica Junction	00318-51	Oil City	842	45	1	493,410	1,546	0.85	586	1.84	319	1.90
36	Birmingham	00168-22	Philipsburg	1,079	59	0	470,551	2,459	0.81	436	2.28	191	2.40
37	Mansfield	00558-63	Mansfield	492	35	2	441,641	2,171	0.76	898	4.41	203	14.41
38	Two Mile	00127-42	Bradford	1,324	45	0	411,642	2,574	0.71	311	1.94	160	11.90
39	Timblin	00103-23	DuBois	716	33	0	397,409	1,827	0.68	555	2.55	218	12.34
40	Hilltop	00040-11	Johnstown	1,350	20	1	392,497	2,706	0.68	291	2.00	145	12.79
41	Mansfield	00559-63	Mansfield	512	27	1	386,676	1,709	0.67	755	3.34	226	23.95
42	Buffalo Road	00265-31	Erie	1,537	23	1	372,588	6,894	0.64	242	4.49	54	0.82
43	DuBois Central	00119-23	DuBois	1,357	42	0	372,034	2,006	0.64	274	1.48	185	0.12
44	East Pike	00094-13	Indiana	1,573	12	2	368,131	3,618	0.63	234	2.30	102	0.98
45	Church	00426-34	Erie	670	44	1	367,427	1,808	0.63	548	2.70	203	0.36
46	Fallen Timbers	00693-22	Philipsburg	265	11	1	366,789	581	0.63	1,384	2.19	631	5.18
47	Union City	00208-43	Erie	1,588	65	2	362,443	4,623	0.62	228	2.91	78	9.44
48	Susquehanna	00280-65	Montrose	523	14	0	356,345	914	0.61	681	1.75	390	15.03
49	DuBois	00131-23	DuBois	586	22	1	341,704	1,153	0.59	583	1.97	296	1.54
50	North Meshoppen	00534-65	Montrose	874	45	0	327,691	2,878	0.56	375	3.29	114	2.49
51	Madera	00167-22	Philipsburg	1,626	47	0	324,655	3,177	0.56	200	1.95	102	5.26
52	East Towanda	00525-62	Towanda	664	40	1	317,653	1,847	0.55	478	2.78	172	0.00
53	Wyalusing	00532-62	Towanda	731	49	0	317,091	3,148	0.55	434	4.31	101	9.14
54	Lewis Run	00408-42	Bradford	1,175	24	1	315,704	2,350	0.54	269	2.00	134	2.23
55	Kearsarge	00527-31	Erie	1,509	18	1	315,294	2,601	0.54	209	1.72	121	1.00
56	Thompson	00442-65	Montrose	631	36	0	306,990	1,340	0.53	487	2.12	229	9.50
57	Seward	00075-11	Johnstown	900	36	0	303,612	2,160	0.52	337	2.40	141	1.10
58	Brookville	00120-23	DuBois	292	6	1	303,081	601	0.52	1,038	2.06	504	3.14
59	Farmers Valley	00414-42	Bradford	1,260	38	1	299,409	3,646	0.52	238	2.89	82	5.50
60	Brookville	00155-23	DuBois	365	9	0	298,352	1,446	0.51	817	3.96	206	0.15
61	Ralphton	00015-12	Somerset	1,130	52	1	294,996	1,750	0.51	261	1.55	169	19.33
62	Hooversville	00018-12	Somerset	753	35	1	290,958	1,831	0.50	386	2.43	159	3.44
63	French Road	00219-31	Erie	429	7	0	290,249	1,508	0.50	677	3.52	192	3.30

Penn Power													
Circuit Rank	Substation	Circuit	District	Average Customers	Outages	Lockouts	Customer Minutes	Customers Affected	SAIDI Impact	SAIDI	SAIFI	CAIDI	MAIFI
1	Jamestown	W-162	Clark	1,042	33	0	594,647	1,969	3.64	571	1.89	302	0.0
2	Hickory	W-243	Clark	1,526	16	1	463,170	2,287	2.83	304	1.50	203	0.0
3	McDowell	W-121	Clark	700	38	1	401,616	1,714	2.46	574	2.45	234	0.0
4	Castlewood	D-325	New Castle	1,065	27	1	398,995	1,861	2.44	375	1.75	214	0.0
5	Canal	W-101	Clark	1,486	45	0	375,213	3,146	2.30	252	2.12	119	0.0
6	Perry	W-156	Clark	1,058	53	0	341,431	2,557	2.09	323	2.42	134	0.0
7	Koppel	D-531	New Castle	960	40	0	319,489	1,643	1.96	333	1.71	194	0.0
8	Mars	D616	Zelienople	1,405	32	2	267,480	4,145	1.64	190	2.95	65	0.0
9	McDowell	W-120	Clark	1,052	39	1	265,682	1,453	1.63	253	1.38	183	0.0

West Penn ³³												
Circuit Rank	Substation	Circuit	District	Average Customers	Outages	Lockouts	Customer Minutes	Customers Affected	SAIDI Impact	SAIDI	SAIFI	CAIDI
1	Rutan	Bristoria	Jefferson	1,178	86	1	1,855,780	6,351	2.59	1,575	5.39	292
2	White Valley	Export	Jeannette	2,111	27	2	1,477,419	8,955	2.06	700	4.24	165
3	White Valley	Congruity	Jeannette	1,731	31	0	1,450,972	5,039	2.03	838	2.91	288
4	Emporium	Emporium Jct	St Marys	586	23	0	1,436,439	2,384	2.01	2,451	4.07	603
5	Smith	Florence	Washington Pa	765	65	1	1,209,737	5,149	1.69	1,581	6.73	235
6	Dutch Fork	Claysville	Washington Pa	1,587	79	1	1,183,975	5,602	1.65	746	3.53	211
7	Flintstone	Chaneyville	Hyndman	564	43	1	1,128,314	2,098	1.58	2,001	3.72	538
8	Dutch Fork	W Alexander	Washington Pa	1,174	70	2	1,078,947	5,951	1.51	919	5.07	181
9	Franklin	West Waynesburg	Jefferson	1,960	27	3	969,457	6,778	1.35	495	3.46	143
10	Kersey	Shelvey	St Marys	940	22	1	960,950	1,633	1.34	1,022	1.74	588
11	Belmon	West Gate	Charleroi	1,956	15	2	920,011	4,071	1.28	470	2.08	226
12	Smith	Francis Mine	Washington Pa	1,437	52	0	918,802	4,734	1.28	639	3.29	194
13	Shaffers Corner	Seventh St Rd	Arnold	2,022	26	0	916,282	6,254	1.28	453	3.09	147
14	White Valley	Borlands Rd	Jeannette	1,351	41	1	869,920	3,837	1.21	644	2.84	227
15	Hickory	Fort Cherry	Washington Pa	1,083	58	1	855,478	2,366	1.19	790	2.18	362
16	Emporium	Town Emporium	St Marys	1,858	26	1	835,666	4,215	1.17	450	2.27	198
17	Kiski Valley Distrib	Kittanning Rd	Arnold	1,781	55	1	830,383	4,623	1.16	466	2.60	180
18	Harwick	Harmar	Arnold	946	25	1	809,876	4,674	1.13	856	4.94	173
19	Fayetteville	Bikle Road	Waynesboro	1,107	48	0	807,325	1,938	1.13	729	1.75	417
20	Waterville	Waterville	State College	360	21	1	779,220	3,426	1.09	2,165	9.52	227
21	Houston	McGovern	Washington Pa	1,322	66	0	766,280	4,430	1.07	580	3.35	173
22	North Fayette	Tyre	Boyce	1,606	40	1	757,959	4,057	1.06	472	2.53	187
23	Cooperstown	Twin Willows	Butler	1,492	37	1	737,942	4,108	1.03	495	2.75	180
24	Silverville	Cole Road	Arnold	1,938	45	1	736,115	5,072	1.03	380	2.62	145
25	Kane	Russell City	St Marys	704	17	0	722,599	2,038	1.01	1,026	2.89	355
26	Piney Fork	Gillhall	Charleroi	2,164	28	1	704,802	4,778	0.98	326	2.21	148
27	Avella	W Middletown	Washington Pa	1,145	53	0	683,473	2,839	0.95	597	2.48	241
28	Vanceville	Vanceville	Charleroi	1,402	67	0	678,284	3,126	0.95	484	2.23	217
29	Mateer	Dime Rd	Arnold	1,202	62	0	678,254	2,342	0.95	564	1.95	290
30	Cecil	Bishop	Boyce	1,602	49	0	676,837	4,087	0.95	422	2.55	166
31	Sherwin	West Sunbury	Butler	811	21	0	673,852	1,578	0.94	831	1.95	427

³³ MAIFI values not available for West Penn.

West Penn ¹³												
Circuit Rank	Substation	Circuit	District	Average Customers	Outages	Lockouts	Customer Minutes	Customers Affected	SAIDI Impact	SAIDI	SAIFI	CAIDI
32	Frazier	Star Junction	Pleasant Valley	1,751	28	1	651,391	2,792	0.91	372	1.59	233
33	Murrycrest	Sardis Road	Jeannette	1,506	34	3	650,784	5,807	0.91	432	3.86	112
34	Purcell	Artemas	Hyndman	552	30	0	638,401	1,177	0.89	1,157	2.13	542
35	Franklin	Rogersville	Jefferson	839	44	1	636,752	2,435	0.89	759	2.90	261
36	Peters	Venetia	Boyce	2,111	21	1	634,347	4,417	0.89	300	2.09	144
37	Westraver	Pittsburgh Coal	Charleroi	1,910	19	1	618,007	3,434	0.86	324	1.80	180
38	Karns City	Kaylor	Butler	1,151	31	1	614,229	2,968	0.86	534	2.58	207
39	Houston	Weavertown	Washington Pa	2,099	41	1	612,340	5,707	0.86	292	2.72	107
40	Bethlen	Darlington	Latrobe	1,242	59	2	606,593	4,477	0.85	292	3.60	135

ATTACHMENT B

Worst Performing Circuits – Remedial Actions

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PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

As ordered on March 30, 2015 at Docket Nos. D-2014-2365991, D-2014-2365992, D-2014-2365993, and D-2014-2365994, *Implementation Plan of the Focused Management Audit of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company* (Appendix A)(1): FirstEnergy is directed to provide additional detail in its reporting of the 5% of worst performing circuits in its Commission Quarterly Reliability Reports to highlight those circuits that appear multiple times on Quarterly Reliability Reports, but not necessarily in four quarters in a calendar year. For each Quarterly Reliability Report filed pursuant to 52 Pa. Code § 57.195, this additional detail shall include highlighting those worst performing circuits that have appeared in two or more Quarterly Reliability Reports in the past four quarters.

Met-Ed						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
1	Lickdale	00625-2	<i>Performance was driven by trees off ROW (54%) and trees on ROW (26%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Enhanced tree trimming	Complete	Jun-18	
			Thermovision and overhead inspection	Complete	Apr-18	
			On cycle tree trimming	To be Completed 2018	30%	
2	Orrtanna	00764-4	<i>Performance was driven by trees off ROW (60%) and trees on ROW (30%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Perform post-storm backbone and three phase circuit patrol	Complete	Mar-18	
			Perform post-storm backbone and three phase circuit patrol	Complete	Apr-18	
			Enhanced tree trimming	Complete	Jun-18	
			Post storm circuit patrol	Complete	Jul-17	
			Overhead circuit inspection	To be Completed 2018	70%	
Targeted mainline circuit rehabilitation	To be Completed 2019 ³⁴	0%				
3	Myerstown	00750-2	<i>Performance was driven by equipment failure (85%).</i>			4Q 2017 1Q 2018 2Q 2018
			Replace porcelain cutouts with polymer cutouts in lockout zone	To be Completed 2018	50%	
			Targeted overhead inspection	Complete	Apr-18	
4	Bath	00873-3	<i>Performance was driven by equipment failure (41%), vehicle accident (25%) and trees off ROW (14%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Replace crossarms from inspection	Complete	Oct-17	
			Targeted overhead inspection	Complete	Oct-17	
			Thermovision inspection	Complete	Jan-18	
			Repair items identified during Thermovision inspection	Complete	Apr-18	
			Forestry to trim circuit	To be Completed 2018	14%	

³⁴ The targeted mainline circuit rehabilitation project will carry into 2019. Met-Ed completed a review of the circuit and determined that the action will carry into 2019.

Met-Ed						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
5	Mountain	00744-4	<i>Performance was driven by trees off ROW (89%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Replace poles and repair damage caused by trees	Complete	Jul-17	
			Perform targeted three phase circuit assessment	Complete	Mar-18	
			Perform targeted three phase circuit assessment	Complete	Apr-18	
			Install Supervisory Control and Data Acquisition (SCADA) switch	Complete	Apr-18	
			On cycle tree trimming	Complete	Jun-18	
Enhanced tree trimming	Complete	Jun-18				
6	Birchwood	00624-3	<i>Performance was driven by vehicle accident (53%) and equipment failure (37%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Install additional Supervisory Control and Data Acquisition (SCADA) switches	Complete	Sep-17	
			Install additional Supervisory Control and Data Acquisition (SCADA) switch	Complete	Oct-17	
			Thermovision and overhead inspection	Complete	Feb-18	
			Install Supervisory Control and Data Acquisition (SCADA) recloser	To be Completed 2018	50%	
Forestry to trim circuit	To be Completed 2018	70%				
7	Shawnee	00822-3	<i>Performance was driven by line failure (40%), vehicle accident (26%) and unknown outages (19%).</i>			4Q 2017 1Q 2018 2Q 2018
			Enhanced three phase tree trimming	Complete	Jul-17	
			Targeted mainline circuit rehabilitation	Complete	Nov-17	
			Enhanced three phase tree trimming	Complete	Dec-17	
			Thermovision inspection	Complete	Dec-17	
			Repair items identified during Thermovision inspection	Complete	Feb-18	
			Porcelain cutout replacement	To be Completed 2018	50%	
			Porcelain cutout replacement	To be Completed 2018	25%	
Porcelain cutout replacement	To be Completed 2018	25%				
8	S. Nazareth	00809-3	<i>Performance was driven by trees off ROW (63%), equipment failure (17%) and line failure (12%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Overhead circuit inspection	Complete	Jul-17	
			Replace polymer insulators identified on circuit	Complete	Oct-17	
			Replace/repair high priority items identified during circuit assessment	Complete	Oct-17	
			Thermovision inspection	Complete	Jan-18	
			Repair items identified during Thermovision inspection	Complete	Mar-18	
Install Supervisory Control and Data Acquisition (SCADA) switch	To be Completed 2018	50%				

Met-Ed						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
9	East Prospect	00765-4	<i>Performance was driven by trees off ROW (56%), wind (19%), and trees off ROW limb (9%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Overhead circuit inspection	Complete	Jul-17	
			Post-storm patrol	Complete	Sep-17	
			On cycle tree trimming	Complete	Dec-17	
			Replace/repair high priority items identified during overhead circuit patrol	To be Completed 2018	50%	
10	Flying Hills	00776-1	<i>Performance was driven by an outage caused by trees off ROW (65%) and vehicle accident (16%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Engineering Supervisory Control and Data Acquisition (SCADA) review	Complete	Sep-17	
			Targeted forestry inspection	Complete	Nov-17	
			Repair/replace pole from inspection	Complete	Nov-17	
			Install Supervisory Control and Data Acquisition (SCADA) switches	Complete	Dec-17	
			Construct circuit tie	Complete	Dec-17	
			Relocate mainline recloser	Complete	Dec-17	
			Enhanced tree trimming	Complete	May-18	
11	Bernville	00786-1	<i>Performance was driven by outages caused by line & equipment failure (32%), trees off ROW (30%) and vehicle accident (25%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Overhead circuit inspection	Complete	Oct-17	
			Engineering Supervisory Control and Data Acquisition (SCADA) review	Complete	Oct-17	
			On cycle tree trimming	Complete	Dec-17	
			Thermovision and overhead inspection	Complete	Mar-18	
			Post-storm forestry inspection	Complete	Mar-18	
			Replace arrester on mainline switch from inspection	To be Completed 2018	50%	
			Replace crossarms from inspection #1	To be Completed 2018	25%	
			Replace crossarms from inspection #2	To be Completed 2018	25%	
			Replace crossarms from inspection #3	To be Completed 2018	25%	
			Replace pole from inspection #1	To be Completed 2018	50%	
			Replace pole from inspection #2	To be Completed 2018	25%	
			Replace pole from inspection #3	To be Completed 2018	25%	
			Replace pole from inspection #4	To be Completed 2018	50%	
			Replace porcelain cutout with polymer cutout from inspection	To be Completed 2018	25%	
Install Supervisory Control and Data Acquisition (SCADA) switch #1	To be Completed 2018	50%				
Install Supervisory Control and Data Acquisition (SCADA) switch #2	To be Completed 2018	50%				

Met-Ed						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
12	Lynnville	00735-1	<i>Performance was driven by two outages during storms caused by broken poles (76%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Engineering Supervisory Control and Data Acquisition (SCADA) review	Complete	Sep-17	
			Replace crossarm from inspection	Complete	Nov-17	
			Replace pole from inspection #1	Complete	Feb-18	
			Thermovision and overhead inspection	Complete	Feb-18	
			Replace pole from inspection #2	To be Completed 2018	50%	
			Replace pole from inspection #3	To be Completed 2018	50%	
			Replace pole from inspection #4	To be Completed 2018	50%	
			Replace pole from inspection #5	To be Completed 2018	50%	
			Replace pole from inspection #6	To be Completed 2018	50%	
			Enhanced tree trimming	To be Completed 2018	98%	
On cycle tree trimming	To be Completed 2018	98%				
13	Frystown	00701-2	<i>Performance was driven by line failure (32%), vehicle accident (17%) and trees off ROW (15%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Overhead circuit inspection	Complete	May-18	
			Install additional fuses	To be Completed 2018	25%	
			Circuit reconfiguration due to new substation	To be Completed 2018	75%	
			On cycle tree trimming	To be Completed 2018	0%	
14	Hill	00737-4	<i>Performance was driven by trees off ROW (48%) and vehicle (28%).</i>			4Q 2017 1Q 2018 2Q 2018
			Post-storm sweep	Complete	Mar-18	
			Mid-cycle targeted three phase forestry inspection	Complete	Apr-18	
			Overhead circuit inspection	Complete	Jun-18	
			Protection review	To be Completed 2018	40%	
15	Straban	00676-4	<i>Performance was driven by trees off ROW (69%) and lightning (24%).</i>			
			On cycle tree trimming	Complete	Dec-17	
			Enhanced tree trimming	Complete	Feb-18	
			Install fault indicators	Complete	Jun-18	
			Replace poles identified during wood pole inspection	Complete	Jun-18	

Met-Ed						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
16	Dillsburg	00748-4	<i>Performance was driven by trees off ROW (72%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Post-storm circuit patrol	Complete	Sep-17	
			Replace/repair high priority items identified during overhead circuit patrol	Complete	Oct-17	
			Install Supervisory Control and Data Acquisition (SCADA) switch	Complete	Apr-18	
			On cycle tree trimming	To be Completed 2018	0%	
17	Lynnville	00748-1	<i>Performance was driven by trees off ROW (90%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Overhead circuit inspection	Complete	Oct-17	
			Thermovision and overhead inspection	Complete	Feb-18	
			Replace pole from inspection #1	Complete	Mar-18	
			Replace pole from inspection #2	Complete	Mar-18	
			Replace pole from inspection #3	Complete	May-18	
			Replace arrester on mainline switch from inspection	To be Completed 2018	25%	
			Replace arrester on mainline switch from inspection	To be Completed 2018	25%	
			Replace crossarms from inspection	To be Completed 2018	25%	
			Replace crossarms from inspection	To be Completed 2018	25%	
			Replace pole from inspection #4	To be Completed 2018	50%	
			Replace pole from inspection #5	To be Completed 2018	50%	
			Replace pole from inspection #6	To be Completed 2018	50%	
			Replace pole from inspection #7	To be Completed 2018	50%	
			Replace pole from inspection #8	To be Completed 2018	50%	
On cycle tree trimming	To be Completed 2018	95%				
Enhanced tree trimming	To be Completed 2018	69%				
18	Turf Club	00724-2	<i>Performance was driven by trees off ROW (59%), equipment failure (15%) and trees on ROW (11%).</i>			4Q 2017 1Q 2018 2Q 2018
			Targeted forestry inspection	Complete	Mar-18	
			Spot tree trimming	To be Completed 2018	0%	

Net-Ed						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
19	Shawnee	00899-3	<i>Performance was driven by equipment failure (47%), and trees off ROW (34%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Forestry to trim circuit	Complete	Nov-17	
			Thermovision inspection	Complete	Dec-17	
			Repair items identified during Thermovision inspection	Complete	Feb-18	
			Install Supervisory Control and Data Acquisition (SCADA) switch #1	To be Completed 2018	50%	
			Install Supervisory Control and Data Acquisition (SCADA) switch #2	To be Completed 2018	50%	
			Install Supervisory Control and Data Acquisition (SCADA) switch #3	To be Completed 2018	50%	
20	Fox Hill	00850-3	<i>Performance was driven by trees off ROW (71%), and vehicle accident (15%).</i>			1Q 2018 2Q 2018
			Thermovision inspection	Complete	Nov-17	
			Repair items identified during Thermovision inspection	Complete	Jan-18	
			Replace recloser	To be Completed 2018	50%	
			Install Supervisory Control and Data Acquisition (SCADA) switch	To be Completed 2018	50%	
			Enhanced three phase tree trimming	To be Completed 2018	64%	
21	Walker	00865-3	<i>Performance was driven by equipment failure (49%), and trees off ROW (39%).</i>			1Q 2018 2Q 2018
			Thermovision inspection	Complete	Nov-17	
			Repair items identified during Thermovision inspection	Complete	Feb-18	
			Overhead circuit inspection	To be Completed 2018	15%	
22	Shawnee	00895-3	<i>Performance was driven by trees off ROW (70%) and equipment failure (17%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Enhanced three phase tree trimming	Complete	Jul-17	
			Replace porcelain cutouts on circuit three phase with polymer cutouts	Complete	Nov-17	
			Targeted mainline circuit rehabilitation	Complete	Dec-17	
			Enhanced three phase tree trimming	Complete	Dec-17	
			Install additional Supervisory Control and Data Acquisition (SCADA) switches	Complete	Dec-17	
			Thermovision inspection	Complete	Dec-17	
			Construct circuit tie	Complete	Dec-17	
Repair items identified during Thermovision inspection	Complete	Jan-18				

Met-Ed						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
23	North Cornwall	00610-2	<i>Performance was driven by trees off ROW (27%), vehicle accident (18%) and trees on ROW (14%).</i>			1Q 2018 2Q 2018
			Spot tree trimming	Complete	Nov-17	
			Install fuses	Complete	Dec-17	
			Repair equipment failure	Complete	Dec-17	
			Enhanced tree trimming	Complete	Jun-18	
			Protection review	To be Completed 2018	0%	
			Thermovision and overhead inspection	To be Completed 2018	0%	
			Install SCADA device #1	To be Completed 2018	25%	
			Install SCADA device #2	To be Completed 2018	25%	
			Install SCADA device #3	To be Completed 2018	25%	
			Install SCADA device #4	To be Completed 2018	25%	
			Install SCADA device #5	To be Completed 2018	25%	
			Install SCADA device #6	To be Completed 2018	25%	
			Install SCADA device #7	To be Completed 2018	25%	
			Install SCADA device #8	To be Completed 2018	25%	
Install SCADA device #9	To be Completed 2018	25%				
Install SCADA device #10	To be Completed 2018	25%				
24	Dillsburg	00749-4	<i>Performance driven by equipment failure (43%), vehicle (29%) and trees off ROW (9%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Replace/repair high priority items identified during overhead circuit patrol	Complete	Aug-17	
			On cycle tree trimming	To be Completed 2018	2%	
			Enhanced tree trimming	To be Completed 2018	0%	
25	Lorane	00560-1	<i>Performance was driven by outages caused by an outage caused by substation equipment failure (42%) and trees off ROW (38%).</i>			3Q 2017 2Q 2018
			On cycle tree trimming	Complete	Dec-17	
			Spot forester inspection #1	Complete	Apr-18	
			Engineering circuit protection review	Complete	Apr-18	
			Overhead circuit inspection	To be Completed 2018	99%	
			Spot forester inspection #2	To be Completed 2018	0%	

Met-Ed						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
26	Newberry	00586-4	<i>Performance was driven by equipment failure (51%) and trees off ROW (32%).</i>			4Q 2017 1Q 2018 2Q 2018
			Replace failed equipment	Complete	Nov-17	
			Post-storm tree patrol	Complete	Mar-18	
			On cycle tree trimming	To be Completed 2018	86%	
			Repair/replace high priority items identified during overhead inspection	To be Completed 2018	75%	
			Thermovision and overhead inspection	To be Completed 2018	0%	
			Replace porcelain cutouts on circuit backbone with polymer cutouts	To be Completed 2018	50%	
27	Birdsboro	00756-1	<i>Performance was driven by trees off ROW (33%) and an outage caused by a broken crossarm (27%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Enhanced three phase tree trimming	Complete	Oct-17	
			Install additional Supervisory Control and Data Acquisition (SCADA) switches	Complete	Dec-17	
			Construct circuit tie	Complete	Dec-17	
			Targeted mainline circuit rehabilitation	Complete	Dec-17	
			Replace crossarms from engineering inspection	Complete	Feb-18	
			Targeted mainline circuit rehabilitation	Complete	Mar-18	
			Post-storm forestry inspection	Complete	Mar-18	
			On cycle tree trimming	To be Completed 2018	0%	
			Install new mainline switch	To be Completed 2018	50%	
28	Mt Rose	00562-4	<i>Performance was driven by trees on ROW (54%) and line failure (25%).</i>			1Q 2018 2Q 2018
			Repair damage caused by trees during storm	Complete	Sep-17	
			On cycle tree trimming	To be Completed 2018	0%	
29	Newberry	00577-4	<i>Performance was driven by trees off ROW (92%).</i>			
			Replace items from 2018 capacitor inspection	Complete	Feb-18	
			Repair/replace high priority items identified during overhead inspection	To be Completed 2018	90%	
			Thermovision and overhead inspection	To be Completed 2018	0%	
			Replace pole from inspection #1	To be Completed 2018	50%	
			Replace pole from inspection #2	To be Completed 2018	50%	
			Replace pole from inspection #3	To be Completed 2018	50%	
30	Violet Hill	00325-4	<i>Performance was driven by equipment failure (58%) and trees off ROW (32%).</i>			1Q 2018 2Q 2018
			Replace pole and repair equipment	Complete	Jan-18	
			Overhead circuit inspection	Complete	May-18	

Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
31	South Hamburg	00741-1	<i>Performance was driven by outages caused by line and equipment failure (68%).</i>			
			Upgrade mainline regulators	Complete	Jan-18	
			Thermovision and overhead inspection	To be Completed 2018	0%	
			Enhanced tree trimming	To be Completed 2018	82%	
32	Shawnee	00837-3	<i>Performance was driven by equipment failure (37%) and trees off ROW (34%).</i>			
			Install Supervisory Control and Data Acquisition (SCADA) switch	Complete	Sep-17	
			Thermovision inspection	Complete	Dec-17	
			Repair items identified during Thermovision inspection	Complete	Feb-18	
33	Windsor	00316-4	<i>Performance was driven by equipment failure (72%) and trees off ROW (20%).</i>			1Q 2018 2Q 2018
			On cycle tree trimming	Complete	Dec-17	
			Overhead circuit inspection	Complete	Feb-18	
			Install new padmount transformer and regulators	To be Completed 2018	99%	
			Replace pole from inspection	To be Completed 2018	50%	
			Replace pole from inspection	To be Completed 2018	50%	
			Replace pole from inspection	To be Completed 2018	50%	
34	North Bangor	00813-3	<i>Performance was driven by trees off ROW (53%) and equipment failure (32%).</i>			
			Enhanced three phase tree trimming	Complete	Dec-17	
			Thermovision inspection	Complete	Dec-17	
			Repair items identified during Thermovision inspection	Complete	Mar-18	
35	Lickdale	00626-2	<i>Performance was driven by vehicle accident (75%).</i>			4Q 2017 1Q 2018 2Q 2018
			Thermovision and overhead inspection	Complete	Apr-18	
			On cycle tree trimming	To be Completed 2018	0%	
			Targeted mainline rehabilitation	To be Completed 2018	50%	
36	Glenside	00535-1	<i>Performance was driven by three outages caused by problems with spacer cable (67%).</i>			3Q 2017 4Q 2017 1Q 2018
			Replace spacers in mainline spacer cable section	Complete	Dec-17	
			Replace pole from inspection	To be Completed 2018	50%	
			Thermovision and overhead inspection	To be Completed 2018	0%	
			Upgrade circuit exit cables	To be Completed 2018	50%	

Met-Ed						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
37	Clearfield	00632-3	<i>Performance was driven by equipment failure (49%) and vehicle accident (32%).</i>			1Q 2018 2Q 2018
			Install Supervisory Control and Data Acquisition (SCADA) recloser	To be Completed 2018	50%	
			Construct circuit tie	To be Completed 2018	40%	
			Construct circuit tie	To be Completed 2018	25%	
38	Northwood	00821-3	<i>Performance was driven by lightning (91%).</i>			
			Replace four crossarms	Complete	Oct-17	
			Thermovision inspection	Complete	Jan-18	
			Repair items identified during Thermovision inspection	Complete	Jun-18	
39	North Lebanon	00715-2	<i>Performance was driven by vehicle accident (64%) and equipment failure (15%).</i>			
			On cycle tree trimming	To be Completed 2018	0%	

Met-Ed					
Unranked circuits appearing 2 or more quarters in the last 4 quarters					
Substation	Circuit	3Q 2017	4Q 2017	1Q 2018	2Q 2018
Allen	00501-4	X	X	X	
Belfast	00849-3	X	X	X	
Birchwood	00623-3	X	X	X	
Birdsboro	00757-1	X	X		
East Prospect	00766-4	X	X		
Friedensburg	00769-1	X	X		
Glendon	00819-3	X	X	X	
Hokes	00587-4	X	X	X	
Moselem	00779-1	X	X		
Swatara Hill	00764-2	X	X		
Taxville	00575-4	X	X		
Wind Gap	00600-3	X	X		
Windsor	00795-4	X	X	X	
Yorkana	00715-4	X	X		

Unranked circuits with remedial actions scheduled to be or recently completed				
Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed
Swatara Hill	00764-2	Overhead circuit inspection repairs	To be Completed 2018	90%
		Cycle tree trimming	To be Completed 2018	0%
Windsor	00795-4	Overhead circuit inspection	Complete	Apr-18
		Install additional Supervisory Control and Data Acquisition (SCADA) switch #2	Complete	Jun-18
		Install additional Supervisory Control and Data Acquisition (SCADA) switch #3	Complete	Jun-18
		Upgrade mainline recloser with SCADA	To be Completed 2018	50%
Birchwood	00623-3	Install Supervisory Control and Data Acquisition (SCADA) switch	To be Completed 2018	25%
		Install Supervisory Control and Data Acquisition (SCADA) recloser #1	To be Completed 2018	25%
		Install Supervisory Control and Data Acquisition (SCADA) recloser #2	To be Completed 2018	25%
		Install Supervisory Control and Data Acquisition (SCADA) recloser #3	To be Completed 2018	25%
		Forestry to trim circuit	To be Completed 2018	98%
Belfast	00849-3	Install Supervisory Control and Data Acquisition (SCADA) recloser	Complete	Jun-18
		Install Supervisory Control and Data Acquisition (SCADA) switch #1	To be Completed 2018	70%
		Install Supervisory Control and Data Acquisition (SCADA) switch #2	To be Completed 2018	70%
		Install Supervisory Control and Data Acquisition (SCADA) switch #3	To be Completed 2018	70%
		Install Supervisory Control and Data Acquisition (SCADA) switch #4	To be Completed 2018	70%
Glendon	00819-3	Repair items identified during Thermovision inspection	Complete	Apr-18
Hokes	00587-4	On cycle tree trimming	To be Completed 2018	0%
Allen	00501-4	Perform post-storm backbone and three phase circuit patrol	Complete	Apr-18
		Replace porcelain cutouts with polymer cutouts in lockout zone	Complete	Apr-18
		Enhanced tree trimming	Complete	May-18
East Prospect	00766-4	Replace/repair high priority items identified during overhead circuit patrol	To be Completed 2018	50%
Yorkana	00715-4	Replace/repair high priority items identified during overhead circuit patrol	Complete	Jun-18
Birdsboro	00757-1	Targeted mainline circuit rehabilitation	Complete	May-18
		Install additional Supervisory Control and Data Acquisition (SCADA) switches	To be Completed 2018	50%
		On cycle tree trimming	To be Completed 2018	27%

Met-Ed				
Unranked circuits with remedial actions scheduled to be or recently completed				
Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed
Friedensburg	00769-1	Install Supervisory Control and Data Acquisition (SCADA) switch #1	To be Completed 2018	50%
		Install Supervisory Control and Data Acquisition (SCADA) switch #2	To be Completed 2018	50%
		Install Supervisory Control and Data Acquisition (SCADA) switch #3	To be Completed 2018	50%
		Install Supervisory Control and Data Acquisition (SCADA) recloser #1	To be Completed 2018	50%
		Install Supervisory Control and Data Acquisition (SCADA) recloser #2	To be Completed 2018	50%
		On cycle tree trimming	To be Completed 2018	0%
Moselem	00779-1	Install additional mainline tap fusing	Complete	Apr-18
Taxville	00575-4	On cycle tree trimming	To be Completed 2018	91%
		Mainline rehabilitation improvements	To be Completed 2018	25%
		Install Supervisory Control and Data Acquisition (SCADA) switch #1	Complete	Apr-18
		Install Supervisory Control and Data Acquisition (SCADA) switch #2	Complete	Apr-18
		Install Supervisory Control and Data Acquisition (SCADA) switch #3	Complete	Apr-18
		Install Supervisory Control and Data Acquisition (SCADA) switch #4	Complete	Apr-18
Swatara Hill	00765-2	On cycle tree trimming	To be Completed 2018	0%
Leesport	00811-1	Install additional Supervisory Control and Data Acquisition (SCADA) switch	To be Completed 2018	50%
Allen	00502-4	Perform post-storm backbone and three phase circuit patrol	Complete	Apr-18
		Targeted mainline circuit rehabilitation	To be Completed 2018	25%

Penelec						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
1	Grover	00527-63	<i>Performance was driven by trees off ROW (78%) and line failure (7%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Oct-17	
			Repair damage caused by a vehicle accident	Complete	Dec-17	
			Repair line failure	Complete	May-18	
			Repair damage caused by trees during a storm	Complete	May-18	
2	Logan	00700-81	<i>Performance was driven by trees off ROW (88%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	Aug-17	
			Repair damage caused by trees	Complete	Sep-17	
			Porcelain cutout replacement	Complete	Apr-18	
3	Madera	00166-22	<i>Performance was driven by trees off ROW (64%), equipment failure (16%) and vehicle accident (15%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Porcelain cutout replacement	Complete	Feb-18	
			Repair equipment failure	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	Aug-17	
			Repair damage caused by vehicle accident	Complete	Mar-18	
			Repair damage caused by trees during a storm	Complete	May-18	
4	Springboro	00237-52	<i>Performance was driven by trees off ROW (80%) and line failure (11%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Nov-17	
			Repair line failure during a storm	Complete	Dec-17	
			Repair damage caused by trees	Complete	Mar-18	
			Repair damage caused by trees	Complete	Apr-18	
5	Union City	00206-43	<i>Performance was driven by trees off ROW (72%) and equipment failure (17%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Nov-17	
			Repair equipment failure	Complete	Feb-18	
			Repair equipment failure	Complete	May-18	
			Replace substation breaker	To be Completed 2018	50%	

Pendec						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
6	Union City	00207-43	<i>Performance was driven by vehicle accident (61%), line failure (24%) and breaker operation of unknown cause (12%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by vehicle accident	Complete	Oct-17	
			Restore breaker operation of unknown cause during a storm	Complete	Dec-17	
			Repair line failure	Complete	Jan-18	
			Repair damage caused by vehicle accident	Complete	Mar-18	
7	Hooversville	00019-12	<i>Performance was driven by trees off ROW (61%) and equipment failure (37%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	Aug-17	
			Repair equipment failure	Complete	Oct-17	
			Repair damage caused by trees	Complete	Oct-17	
Repair equipment failure	Complete	Feb-18				
8	Mansfield	00699-63	<i>Performance was driven by trees off ROW (70%) and line failure (24%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair line failure	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	May-18	
			Circuit inspection	To be Completed 2018	0%	
9	Pittsburgh Avenue	00524-31	<i>Performance was driven by trees off ROW (71%) and lightning (16%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by lightning	Complete	Aug-17	
			Repair damage caused by trees during a storm	Complete	Nov-17	
			Circuit inspection	To be Completed 2018	0%	
10	Philipsburg	00162-22	<i>Performance was driven by trees off ROW (57%), equipment failure (22%) and vehicle accident (12%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair equipment failure	Complete	Aug-17	
			Repair damage caused by trees during a storm	Complete	Aug-17	
			Repair damage caused by vehicle accident	Complete	Sep-17	
			Upgrade recloser controls	Complete	Sep-17	
			On cycle tree trimming	Complete	Dec-17	
			Repair equipment failure	Complete	Jan-18	
			Repair equipment failure	Complete	May-18	
			Targeted circuit rehabilitation	Complete	May-18	
Install advanced distribution protective devices	To be Completed 2018	50%				

Penelec						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
11	DuBois	00137-23	<i>Performance was driven by vehicle accident (48%), equipment failure (22%) and trees off ROW (14%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by vehicle accident	Complete	Jul-17	
			Repair damage caused by trees	Complete	Aug-17	
			Repair equipment failure	Complete	Aug-17	
			Targeted circuit rehabilitation	To be Completed 2018	50%	
12	Warren South	00220-41	<i>Performance was driven by trees off ROW (58%) and equipment failure (22%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees	Complete	Feb-18	
			Repair equipment failure	Complete	May-18	
			Install advanced distribution protective devices	To be Completed 2018	50%	
			Porcelain cutout replacement	To be Completed 2018	50%	
13	Blairsville East	00080-13	<i>Performance was driven by equipment failure (96%).</i>			
			Repair equipment failure	Complete	Jun-18	
14	Tyrone North Sub	00643-22	<i>Performance was driven by trees off ROW (99%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Aug-17	
			Repair damage caused by trees during a storm	Complete	Aug-17	
15	Lawrenceville	00326-63	<i>Performance was driven by trees off ROW (99%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	Jun-18	
16	Logan	00701-81	<i>Performance was driven by trees off ROW (79%) and equipment failure (16%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	Aug-17	
			Repair damage caused by trees	Complete	Sep-17	
			Repair equipment failure	Complete	May-18	
17	Lawrenceville	00632-63	<i>Performance was driven by trees off ROW (92%).</i>			3Q 2017 4Q 2017 2Q 2018
			Repair damage caused by trees during a storm	Complete	Jul-17	
			Replace substation recloser	To be Completed 2018	0%	

Penelec						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
18	Tunkhannock	00533-65	<i>Performance was driven by trees off ROW (41%), equipment failure (17%), recloser operation of unknown cause (14%) and lightning (14%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair line failure	Complete	Aug-17	
			Repair damage caused by lightning	Complete	Aug-17	
			Repair equipment failure	Complete	Sep-17	
			Restore recloser operation of unknown cause	Complete	Oct-17	
			Repair damage caused by trees during a storm	Complete	May-18	
19	Green Garden	00536-31	<i>Performance was driven by trees off ROW (92%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Nov-17	
			Circuit inspection	To be Completed 2018	0%	
			Replace cap & pin insulators	To be Completed 2018	0%	
20	Brookville West	00121-23	<i>Performance was driven by equipment failure (76%) and trees off ROW (23%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair equipment failure	Complete	Aug-17	
			Repair damage caused by trees	Complete	Aug-17	
			Repair equipment failure during a storm	Complete	Nov-17	
			On cycle tree trimming	Complete	Apr-18	
21	Thompson	00436-65	<i>Performance was driven by trees off ROW (45%) and equipment failure (43%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees	Complete	Aug-17	
			Repair damage caused by trees during a storm	Complete	Nov-17	
			Repair equipment failure	Complete	Nov-17	
			Repair equipment failure	Complete	Dec-17	
22	Piney	00523-51	<i>Performance was driven by trees off ROW (83%).</i>			
			Repair damage caused by trees during a storm	Complete	May-18	
			Repair damage caused by trees during a storm	Complete	May-18	
			Repair damage caused by trees	Complete	Jun-18	
23	Brooklyn	00749-65	<i>Performance was driven by line failure (48%) and vehicle accident (38%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair line failure during a storm	Complete	Aug-17	
			Repair damage caused by vehicle accident	Complete	Oct-17	

Penelec						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
24	Madera	00165-22	<i>Performance was driven by trees off ROW (72%) and lightning (14%).</i>			
			Repair damage caused by trees during a storm	Complete	Aug-17	
			Repair damage caused by lightning	Complete	Aug-17	
			Repair damage caused by trees during a storm	Complete	May-18	
			Circuit inspection	To be Completed 2018	0%	
25	Lake Como	00787-65	<i>Performance was driven by line failure (77%) and trees off ROW (19%).</i>			3Q 2017 1Q 2018 2Q 2018
			Repair line failure	Complete	Aug-17	
			Repair damage caused by trees	Complete	Sep-17	
			Install new radio controlled switch	Complete	Nov-17	
			Repair line failure	Complete	Feb-18	
26	Youngsville	00256-41	<i>Performance was driven by trees off ROW (78%) and non-company human error (10%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees	Complete	Oct-17	
			Repair damage caused by trees during a storm	Complete	Oct-17	
			Repair damage caused by trees	Complete	Jun-18	
			Repair damage caused by non-company human error	Complete	Jun-18	
27	East Hickory	00201-41	<i>Performance was driven by trees off ROW (94%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Oct-17	
			Repair damage caused by trees during a storm	Complete	Nov-17	
			Repair damage caused by trees	Complete	May-18	
			Replace substation recloser	To be Completed 2018	0%	
28	Marienville	00328-51	<i>Performance was driven by trees off ROW (81%).</i>			3Q 2017 4Q 2017 2Q 2018
			Install new radio controlled switch	Complete	Sep-17	
			Repair damage caused by trees during a storm	Complete	May-18	
			Repair damage caused by trees during a storm	Complete	May-18	
			Porcelain cutout replacement	Complete	May-18	
29	Walnut Street	00520-31	<i>Performance was driven by line failure (62%) and vehicle accident (34%).</i>			1Q 2018 2Q 2018
			Repair line failure	Complete	Jul-17	
			Repair damage caused by vehicle accident	Complete	Feb-18	

Pendec						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
30	Saxton Sub	00631-73	<i>Performance was driven by trees off ROW (75%) and object in contact with line (18%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees	Complete	Aug-17	
			Repair damage caused by trees	Complete	Aug-17	
			Repair damage caused by object in contact with line	Complete	Aug-17	
			Repair damage caused by trees	Complete	Nov-17	
			Repair damage caused by trees during a storm	Complete	Apr-18	
			Circuit inspection	To be Completed 2018	0%	
31	East Pike	00095-13	<i>Performance was driven by line failure (71%) and equipment failure (14%).</i>			
			Repair line failure	Complete	Apr-18	
			Repair line failure	Complete	Jun-18	
			Repair equipment failure	Complete	Jun-18	
32	Lake Como	00788-65	<i>Performance was driven by vehicle accident (31%), trees off ROW (30%), line failure (22%) and recloser operation of unknown cause (13%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Jul-17	
			Repair line failure	Complete	Aug-17	
			Install new radio controlled switch	Complete	Nov-17	
			Repair damage caused by trees during a storm	Complete	Nov-17	
			Restore recloser operation of unknown cause	Complete	Dec-17	
			Repair damage caused by vehicle accident	Complete	Dec-17	
			Repair damage caused by trees during a storm	Complete	Jun-18	
Replace substation recloser	To be Completed 2018	50%				
33	Grandview	00354-51	<i>Performance was driven by trees off ROW (61%) and line failure (30%).</i>			
			Repair line failure	Complete	Jan-18	
			Repair damage caused by trees during a storm	Complete	May-18	
			Repair damage caused by trees during a storm	Complete	Jun-18	
			On cycle tree trimming	To be Completed 2018	0%	
34	Brookville	00125-23	<i>Performance was driven by trees off ROW (76%) and vehicle accident (18%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Aug-17	
			Repair damage caused by vehicle accident	Complete	Apr-18	
			Circuit inspection	To be Completed 2018	0%	
			Replace cap & pin insulators	To be Completed 2018	0%	

Penelec						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
35	Utica Junction	00318-51	<i>Performance was driven by trees off ROW (93%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Nov-17	
			Repair damage caused by trees during a storm	Complete	Jan-18	
			Repair damage caused by trees during a storm	Complete	Jun-18	
			Replace cap & pin insulators	To be Completed 2018	50%	
36	Birmingham	00168-22	<i>Performance was driven by vehicle accident (65%), trees off ROW (16%) and fuse operation of unknown cause (10%).</i>			4Q 2017 1Q 2018 2Q 2018
			Restored fuse operation of unknown cause	Complete	Aug-17	
			Repair damage caused by vehicle accident	Complete	Nov-17	
			Repair damage caused by vehicle accident	Complete	Mar-18	
37	Mansfield	00558-63	<i>Performance was driven by trees off ROW (59%) and line failure (23%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair line failure	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	Aug-17	
			Repair damage caused by trees during a storm	Complete	May-18	
38	Two Mile	00127-42	<i>Performance was driven by line failure (41%), equipment failure (33%) and trees off ROW (19%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair line failure	Complete	Jul-17	
			Repair equipment failure	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	Aug-17	
39	Timblin	00103-23	<i>Performance was driven by trees off ROW (87%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Nov-17	
			Targeted circuit rehabilitation	Complete	Dec-17	
			Repair equipment failure	Complete	Feb-18	
			Circuit inspection	To be Completed 2018	0%	
40	Hilltop	00040-11	<i>Performance was driven by trees off ROW (83%) and vehicle accident (15%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees	Complete	Aug-17	
			Repair damage caused by vehicle accident	Complete	Oct-17	

Remedies						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
41	Mansfield	00559-63	<i>Performance was driven by equipment failure (68%), breaker operation of an unknown cause (17%) and animal contact (4%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Jul-17	
			Restored breaker operation of unknown cause	Complete	Aug-17	
			Repair equipment failure	Complete	Aug-17	
			Repair damage caused by animal contact	Complete	May-18	
			On cycle tree trimming	Complete	May-18	
			Targeted circuit rehabilitation	To be Completed 2018	50%	
42	Buffalo Road	00265-31	<i>Performance was driven by equipment failure (70%) and animal contact (12%).</i>			
			Repair damage caused by animal contact	Complete	Aug-17	
			Repair equipment failure	Complete	May-18	
			Repair equipment failure	Complete	Jun-18	
43	Dubois Central	00119-23	<i>Performance was driven by vehicle accident (50%) and equipment failure (35%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair equipment failure	Complete	Jul-17	
			Repair damage caused by vehicle accident	Complete	Aug-17	
			Restored fuse operation of unknown cause	Complete	Sep-17	
			Repair equipment failure	Complete	Feb-18	
44	East Pike	00094-13	<i>Performance was driven by circuit breaker operation of an unknown cause (58%) and equipment failure (39%).</i>			
			Repair equipment failure	Complete	Aug-17	
			Restore circuit breaker operation of unknown cause	Complete	Apr-18	
			Restore circuit breaker operation of unknown cause	Complete	Jun-18	
			Circuit inspection	To be Completed 2018	0%	
45	Church	00426-34	<i>Performance was driven by equipment failure (64%) and trees off ROW (18%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair equipment failure	Complete	Jul-17	
			Repair damage caused by trees	Complete	Oct-17	
			Repair equipment failure	Complete	Mar-18	
			Replace substation recloser	To be Completed 2018	0%	
46	Fallen Timbers	00693-22	<i>Performance was driven by trees off ROW (82%).</i>			Q1 2018 Q2 2018
			Repair damage caused by trees during a storm	Complete	Aug-17	

Pendec						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
47	Union City	00208-43	<i>Performance was driven by equipment failure (46%), fuse operation of unknown cause (27%) and trees off ROW (20%).</i>			3Q 2017 4Q 2017 2Q 2018
			Restore fuse operation of unknown cause	Complete	Aug-17	
			Repair damage caused by trees	Complete	Sep-17	
			Repair equipment failure	Complete	May-18	
			Restore fuse operation of unknown cause	Complete	May-18	
			On cycle tree trimming	To be Completed 2018	0%	
			Targeted circuit rehabilitation	To be Completed 2018	50%	
			Install advanced distribution protective devices	To be Completed 2018	50%	
48	Susquehanna	00280-65	<i>Performance was driven by line failure (57%) and fuse operation of unknown cause (28%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Restore fuse operation of unknown cause	Complete	Aug-17	
			Repair line failure	Complete	Aug-17	
49	Dubois	00131-23	<i>Performance was driven by trees off ROW (97%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Jul-17	
			Repair damage caused by trees	Complete	Apr-18	
			Porcelain cutout replacement	Complete	Oct-17	
50	N Meshoppen Tran	00534-65	<i>Performance was driven by equipment failure (53%) and trees off ROW (35%).</i>			Q1 2018 Q2 2018
			Repair damage caused by trees	Complete	Jul-17	
			Repair equipment failure	Complete	Oct-17	
			Repair equipment failure	Complete	Feb-18	
			Install radio fault indicators	Complete	Jan-18	
			Circuit inspection	To be Completed 2018	0%	
51	Madera	00167-22	<i>Performance was driven by equipment failure (30%), recloser operation of an unknown cause (28%) and lightning (19%).</i>			
			Repair damage caused by lightning	Complete	Aug-17	
			Restore recloser operation of unknown cause	Complete	Sep-17	
			Repair equipment failure	Complete	Jan-18	
52	East Towanda	00525-62	<i>Performance was driven by trees off ROW (72%) and equipment failure (15%).</i>			
			Repair equipment failure	Complete	Oct-17	
			Repair damage caused by trees during a storm	Complete	May-18	
			Repair damage caused by trees during a storm	Complete	May-18	

Penelec						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
53	Wyalusing sub	00532-62	<i>Performance was driven by trees off ROW (53%), fuse operation of unknown cause (20%) and equipment failure (17%).</i>			4Q 2017 1Q 2018 2Q 2018
			Targeted circuit rehabilitation	Complete	Jul-17	
			Circuit inspection	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	Oct-17	
			Repair equipment failure	Complete	Feb-18	
			Restore fuse operation of unknown cause	Complete	Mar-18	
54	Lewis Run	00408-42	<i>Performance was driven by trees off ROW (88%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Sep-17	
			Repair damage caused by trees during a storm	Complete	May-18	
			Repair damage caused by trees during a storm	Complete	May-18	
			Replace substation breaker	To be Completed 2018	0%	
55	Kearsarge	00527-31	<i>Performance was driven by line failure (87%).</i>			Q1 2018 Q2 2018
			Repair line failure	Complete	Jul-17	
			Repair line failure	Complete	Nov-17	
			Repair line failure	Complete	Jun-18	
56	Thompson	00442-65	<i>Performance was driven by trees off ROW (41%), recloser operation of unknown cause (21%) and line failure (10%).</i>			
			Restore recloser operation of unknown cause	Complete	Jul-17	
			Repair line failure	Complete	Sep-17	
			Repair damage caused by trees	Complete	Apr-18	
57	Seward	00075-11	<i>Performance was driven by trees off ROW (82%).</i>			
			Repair damage caused by trees	Complete	Jul-17	
			Repair damage caused by trees during a storm	Complete	Apr-18	
58	Brookville	00120-23	<i>Performance was driven by non-company object contacting line (80%).</i>			Q1 2018 Q2 2018
			Repair damage caused by roof contacting line	Complete	Aug-17	
			Circuit inspection	To be Completed 2018	0%	

Penelec						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
59	Farmers Valley	00414-42	<i>Performance was driven by vehicle accident (51%) and trees off ROW (33%).</i>			
			Repair damage caused by vehicle accident	Complete	Nov-17	
			Repair damage caused by vehicle accident	Complete	Apr-18	
			Repair damage caused by trees during a storm	Complete	May-18	
			On cycle tree trimming	To be Completed 2018	0%	
Circuit inspection	To be Completed 2018	0%				
60	Brookville	00155-23	<i>Performance was driven by trees off ROW (85%).</i>			3Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Aug-17	
			Repair damage caused by trees during a storm	Complete	May-18	
61	Ralphton	00015-12	<i>Performance was driven by trees off ROW (69%) and line failure (20%).</i>			
			Repair line failure	Complete	Dec-17	
			Repair damage caused by trees during a storm	Complete	May-18	
62	Hooversville	00018-12	<i>Performance was driven by trees off ROW (91%).</i>			
			Repair damage caused by trees during a storm	Complete	May-18	
			Repair damage caused by trees	Complete	Jun-18	
			Repair damage caused by trees	Complete	Jun-18	
63	French Road	00219-31	<i>Performance was driven by line failure (98%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair line failure during a storm	Complete	Nov-17	
			Replace substation breaker	To be Completed 2018	50%	

Penelec					
Unranked circuits appearing 2 or more quarters in the last 4 quarters					
Substation	Circuit	3Q 2017	4Q 2017	1Q 2018	2Q 2018
Athens	00514-61	X	X	X	
Blairsville East	00081-13	X	X	X	
Bradford South	00106-42	X	X		
Brockway	00127-23	X		X	
East Sayre	00518-61		X	X	
Edgewood	00089-13	X	X		
Emlenton	00121-51	X	X	X	
Emlenton	00322-51	X		X	
Erie East	00234-31	X	X	X	
Erie South	00259-31	X	X		
Greenwood	00041-71		X	X	
N Meshoppen Tran	00437-65	X	X		
Natl Forge Sw Sta	00577-41	X	X	X	
North Warren	00207-41	X	X		
Pemberton	00096-82	X	X		
Phillipsburg	00164-22	X	X		
Somerset	00017-12	X	X		
Somerset	00030-12	X	X		
Summit Hall	00500-31	X	X		
Tiffany	00440-65	X	X	X	
Tionesta Sw St	00498-51	X	X	X	

Penelec				
Unranked circuits with remedial actions scheduled to be or recently completed				
Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed
Erie East	00234-31	Replace substation breaker	Complete	Jun-18
Athens	00514-61	Replace substation breaker	Complete	May-18
		Replace cap & pin insulators	To be Completed 2018	50%
Emlenton	00121-51	Circuit inspection	To be Completed 2018	0%
East Sayre	00518-61	Targeted circuit rehabilitation	To be Completed 2018	50%
		Replace substation breaker	To be Completed 2018	50%
Meshoppen	00283-65	On cycle tree trimming	To be Completed 2018	0%
Tiffany	00440-65	Circuit inspection	To be Completed 2018	0%
Russell Hill	00765-65	Circuit inspection	To be Completed 2018	0%
Patton	00060-72	On cycle tree trimming	To be Completed 2018	0%
Philipsburg	00164-22	On cycle tree trimming	To be Completed 2018	0%
Bradford South	00106-42	Porcelain cutout replacement	To be Completed 2018	99%
Eric South	00259-31	On cycle tree trimming	To be Completed 2018	0%
		Install advanced distribution protective devices	To be Completed 2018	50%
North Warren	00207-41	Replace substation recloser	To be Completed 2018	50%
Somerset	00030-12	Porcelain cutout replacement	To be Completed 2018	50%
Somerset	00017-12	Install advanced distribution protective devices	To be Completed 2018	50%
Fairviews East	00242-34	On cycle tree trimming	To be Completed 2018	0%

Penn Power						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
1	Jamestown	W-162	<i>Performance was driven by trees on/off ROW (72%), line failure (14%) and human error (6%).</i>			
			Repair damage due to human error (contractor installed wrong fuses)	Complete	Dec-17	
			Pole was replaced and equipment repaired following tree damage during storm	Complete	Mar-18	
			Repair damage caused by trees during a storm	Complete	Jun-18	
			Replace switch and repair line failure	Complete	Jun-18	
2	Hickory	W-243	<i>Performance was driven by trees on/off ROW (87%) and animal (6%).</i>			1Q 2018 2Q 2018
			Repair damage caused by animal contact	Complete	Nov-17	
			Restore breaker operation caused by line fault/trees during storm	Complete	Mar-18	
3	McDowell	W-121	<i>Performance was driven by trees on/off ROW (68%), vehicle (15%) and human error (12%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage due to human error (jumpers were cut)	Complete	Sep-17	
			Repair damage caused by vehicle.	Complete	Nov-17	
			Pole was replaced and equipment repaired following tree damage during storm	Complete	Mar-18	
			Patrol entire circuit for Off ROW hazard trees. (Extensive off-ROW removals.)	To be Completed 2018	59%	
4	Castlewood	D-325	<i>Performance was driven by trees on/off ROW (98%).</i>			
			Repair damage caused by tree	Complete	Jul-17	
			Repair damage caused by tree	Complete	Apr-18	
5	Canal	W-101	<i>Performance was driven by trees on/off ROW (68%) and equipment failure (22%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by trees during a storm	Complete	Jan-18	
			Repair damage caused by trees during a storm	Complete	Mar-18	
6	Perry	W-156	<i>Performance was driven by animal (41%), trees on/off ROW (36%) and line failure (11%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by tree	Complete	Jul-17	
			Porcelain cutout replacement	Complete	Feb-18	
			Repair damage caused by animal contact	Complete	Apr-18	
			Repair damage caused by animal contact	Complete	May-18	
			Repair damage caused by animal contact	Complete	Jun-18	
			Repair damage caused by trees during a storm	Complete	Jun-18	
			Patrol entire circuit for Off ROW hazard trees. (Extensive off-ROW removals.)	To be Completed 2018	94%	

Penn Power						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
7	Koppel	D-531	<i>Performance was driven by trees on/off ROW (79%) and vehicle (14%).</i>			
			Repair damage caused by tree during a storm	Complete	Jul-17	
			Repair damage caused by tree	Complete	Jul-17	
			Repair damage caused by tree	Complete	Oct-17	
			Repair damage caused by vehicle accident	Complete	Feb-18	
8	Mars	D616	<i>Performance was driven by equipment failure (36%), trees on/off ROW (24%) and unknown (22%).</i>			
			Repair damage caused by tree during a storm	Complete	Jul-17	
			Pole was replaced and equipment repaired	Complete	Jul-17	
			Replace crossarm	Complete	May-18	
			Restore breaker operation of unknown cause	Complete	May-18	
9	McDowell	W-120	<i>Performance was driven by equipment failure (71%) and trees on/off ROW (16%).</i>			4Q 2017 2Q 2018
			Porcelain cutout replacement	Complete	Oct-17	
			Repair damage caused by trees during a storm	Complete	Mar-18	

Penn Power					
Unranked circuits appearing 2 or more quarters in the last 4 quarters					
Substation	Circuit	3Q 2017	4Q 2017	1Q 2018	2Q 2018
Camp Reynolds	W-134	X	X	X	
Hadley	W-195	X	X	X	
Leesburg	D-452	X	X	X	
Seneca	W-701	X	X		
Silver Street	W-268	X		X	
Stoneboro	W-132	X	X	X	

Penn Power				
Unranked circuits with remedial actions scheduled to be or recently completed				
Substation	Circuit	Remedial Action Planned	Status of Remedial Work	Progress of Remedial Work
Camp Reynolds	W-134	Patrol entire circuit for Off ROW hazard trees. (Extensive off-ROW removals.)	To be Completed 2018	50%
Hadley	W-195	Patrol entire circuit for Off ROW hazard trees. (Extensive off-ROW removals.)	To be Completed 2018	58%
Stoneboro	W-132	Patrol entire circuit for Off ROW hazard trees. (Extensive off-ROW removals.)	To be Completed 2018	83%

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
1	Rutan	Bristoria	<i>Performance was driven by trees off ROW (76%) and equipment failure (10%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree during a storm	Complete	Jul-17	
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Repair damage caused by a tree	Complete	Oct-17	
			Repair damage caused by a vehicle accident	Complete	Nov-17	
			Repair damage caused by a tree	Complete	Dec-17	
			On cycle tree trimming	Complete	Dec-17	
			Repair damage caused by a tree during a storm	Complete	Feb-18	
			Repair damage caused by a tree during a storm	Complete	Feb-18	
			Repair equipment failure during a storm	Complete	Feb-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			2	White Valley	Export	
Repair line failure	Complete	Aug-17				
Repair damage caused by a tree during a storm	Complete	Aug-17				
Repair damage caused by a tree during a storm	Complete	Aug-17				
Repair equipment failure	Complete	Nov-17				
Repair damage caused by a tree	Complete	Nov-17				
Repair damage caused by a tree during a storm	Complete	Dec-17				
Repair damage caused by a vehicle accident during a storm	Complete	Feb-18				
Repair damage caused by a tree during a storm	Complete	Mar-18				
Forced outage to repair damage	Complete	Apr-18				
Repair damage caused by a tree during a storm	Complete	Apr-18				
Forced outage to repair damage during a storm	Complete	May-18				
On cycle tree trimming	To be Completed 2018	27%				

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
3	White Valley	Congruity	<i>Performance was driven by trees off ROW (76%) and line failure (19%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Repair line failure	Complete	Sep-17	
			Reliability job to install fuses	Complete	Oct-17	
			Repair damage caused by a tree	Complete	Oct-17	
			Repair line failure	Complete	Dec-17	
			Repair line failure	Complete	Dec-17	
			Repair damage caused by a tree during a storm	Complete	Mar-18	
			Restore unknown outage	Complete	May-18	
			Repair damage caused by a tree	Complete	Jun-18	
4	Emporium	Emporium Jct	<i>Performance was driven by trees off ROW (69%) and wind (26%).</i>			3Q 2017 2Q 2018
			Repair damage caused by a vehicle accident	Complete	Aug-17	
			On cycle tree trimming	Complete	Dec-17	
			Repair damage caused by a tree	Complete	May-18	
			Repair damage caused by a tree during a storm	Complete	May-18	
			Repair damage caused by wind during a storm	Complete	May-18	
			Repair damage caused by a tree	Complete	Jun-18	
5	Smith	Florence	<i>Performance was driven by trees off ROW (34%), unknown (26%) and trees on ROW (22%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree during a storm	Complete	Jul-17	
			Restore unknown outage	Complete	Oct-17	
			Restore unknown outage during a storm	Complete	Nov-17	
			Repair damage caused by a tree during a storm	Complete	Dec-17	
			Zone 2 Ash removal	Complete	Dec-17	
			Repair damage caused by a vehicle accident	Complete	Jan-18	
			Repair damage caused by a tree	Complete	Feb-18	
			Restore unknown outage	Complete	Feb-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
Forced outage to repair damage	Complete	Jun-18				

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
6	Dutch Fork	Claysville	<i>Performance was driven by trees off ROW (70%) and unknown (13%).</i>			1Q 2018 2Q 2018
			Overhead circuit inspection	Complete	Oct-17	
			Repair damage caused by a tree	Complete	Jan-18	
			Forced outage to repair damage	Complete	Feb-18	
			Repair damage caused by a tree during a storm	Complete	Feb-18	
			Forced outage to repair damage during a storm	Complete	May-18	
			Repair damage caused by a tree during a storm	Complete	May-18	
			Restore unknown outage during a storm	Complete	Jun-18	
	Enhanced WPC remediation	To be Completed 2018	85%			
7	Flintstone	Chaneysville	<i>Performance was driven by trees off ROW (84%) and line failure (11%).</i>			
			Repair line failure	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Repair damage caused by a tree	Complete	Jun-18	
	Repair damage caused by a tree during a storm	Complete	Jun-18			
8	Dutch Fork	W Alexander	<i>Performance was driven by trees off ROW (62%), unknown (14%) and forced outages (7%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree during a storm	Complete	Jul-17	
			Restore unknown outage during a storm	Complete	Jul-17	
			Repair damage caused by a tree	Complete	Aug-17	
			Repair damage caused by a tree	Complete	Oct-17	
			Install Tollgrade monitors	Complete	Nov-17	
			Restore unknown outage during a storm	Complete	Nov-17	
			Repair line failure during a storm	Complete	Jan-18	
			Repair damage caused by a tree during a storm	Complete	Feb-18	
			Repair damage caused by a tree	Complete	Apr-18	
			Restore unknown outage	Complete	May-18	
Repair damage caused by a tree	Complete	Jun-18				
9	Franklin	West Waynesburg	<i>Performance was driven by vehicle accident (44%) and trees off ROW (40%).</i>			1Q 2018 2Q 2018
			Forced outage to repair damage	Complete	Jan-18	
			Repair damage caused by a vehicle accident	Complete	Jan-18	
			Repair damage caused by a tree	Complete	May-18	
			Repair damage caused by a tree during a storm	Complete	May-18	
	Zone 1 infrared inspection	To be Completed 2018	0%			

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
10	Kersey	Shelvey	<i>Performance was driven by wind (82%) and trees on ROW (12%).</i>			
			Repair damage caused by a tree during a storm	Complete	May-18	
			Repair damage caused by wind during a storm	Complete	May-18	
			Repair damage caused by a tree during a storm	Complete	Jun-18	
11	Belmon	West Gate	<i>Performance was driven by equipment failure (99%).</i>			
			Repair equipment failure	Complete	Jun-18	
12	Smith	Francis Mine	<i>Performance was driven by trees off ROW (44%), line failure (33%) and vehicle accident (16%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a vehicle	Complete	Jul-17	
			Repair damage caused by a tree	Complete	Oct-17	
			Repair damage caused by a tree during a storm	Complete	Nov-17	
			Repair damage caused by a tree during a storm	Complete	Dec-17	
			Repair damage caused by a tree during a storm	Complete	Jan-18	
			Repair damage caused by a tree	Complete	May-18	
			Reliability job to install fuses	To be Completed 2018	0%	
13	Shaffers Corner	Seventh St Rd	<i>Performance was driven by trees off ROW (67%) and trees on ROW (26%).</i>			
			Repair damage caused by a tree	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Overhead circuit inspection	To be Completed 2018	41%	
14	White Valley	Borlands	<i>Performance was driven by trees off ROW (78%) and line failure (14%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree during a storm	Complete	Jul-17	
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Repair damage caused by a tree	Complete	Oct-17	
			Forced outage to repair damage	Complete	Mar-18	
			Repair damage caused by a tree during a storm	Complete	Mar-18	
			Restore unknown outage during a storm	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	May-18	
			Repair line failure during a storm	Complete	Jun-18	
			Overhead circuit inspection	To be Completed 2018	0%	

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
15	Hickory	Fort Cherry	<i>Performance was driven by trees off ROW (79%) and equipment failure (9%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Restore unknown outage during a storm	Complete	Aug-17	
			Repair damage caused by a tree during a storm	Complete	Nov-17	
			Repair damage caused by a tree	Complete	Feb-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Repair equipment failure during a storm	Complete	Jun-18	
			Zone 1 infrared inspection	To be Completed 2018	0%	
16	Emporium	Town Emporium	<i>Performance was driven by vehicle accident (54%), forced outages (26%) and trees off ROW (17%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree	Complete	Oct-17	
			Repair damage caused by a vehicle accident	Complete	Oct-17	
			On cycle tree trimming	Complete	Dec-17	
			Repair equipment failure	Complete	Jan-18	
			Forced outage to repair damage	Complete	May-18	
			Repair damage caused by a tree during a storm	Complete	May-18	
17	Kiski Valley	Kittanning Rd	<i>Performance was driven by trees off ROW (71%) and line failure (20%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair line failure during a storm	Complete	Jul-17	
			Repair damage caused by a tree during a storm	Complete	Jul-17	
			Repair damage caused by a tree	Complete	Aug-17	
			On cycle tree trimming	Complete	Oct-17	
			Repair damage caused by a tree	Complete	Oct-17	
			Repair line failure during a storm	Complete	Nov-17	
			Repair damage caused by a tree during a storm	Complete	Jan-18	
			Repair line failure	Complete	Mar-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
Forced outage to repair damage	Complete	Jun-18				

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
18	Harwick	Harmar	<i>Performance was driven by trees off ROW (50%), equipment failure (17%) and vehicle accident (13%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree	Complete	Jul-17	
			Repair equipment failure during a storm	Complete	Jul-17	
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Repair damage caused by a tree during a storm	Complete	Nov-17	
			Repair damage caused by a vehicle accident	Complete	Dec-17	
			Repair line failure	Complete	Jan-18	
			Repair damage caused by a tree	Complete	Mar-18	
			Repair equipment failure during a storm	Complete	Apr-18	
			Restore unknown outage	Complete	Jun-18	
Zone 1 infrared inspection	To be Completed 2018	0%				
19	Fayetteville	Bikle Road	<i>Performance was driven by trees off ROW (90%) and forced outage (7%).</i>			1Q 2018 2Q 2018
			Repair line failure	Complete	Feb-18	
			Repair damage caused by a tree during a storm	Complete	Mar-18	
			Repair damage caused by a tree during a storm	Complete	Mar-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
Repair damage caused by a tree	Complete	Jun-18				
20	Waterville	Waterville	<i>Performance was driven by trees off ROW (59%) and other electric utility (40%).</i>			4Q 2017 1Q 2018 2Q 2018
			Restore outage caused by other electric utility	Complete	Oct-17	
			Restore outage caused by other electric utility	Complete	Dec-17	
			Repair damage caused by a tree during a storm	Complete	Jan-18	
			Restore outage caused by other electric utility	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
Zone 2 fuse installation	Complete	May-18				

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
21	Houston	McGovern	<i>Performance was driven by trees off ROW (55%) and line failure (35%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair line failure	Complete	Jul-17	
			Repair damage caused by a tree	Complete	Jul-17	
			Repair line failure during a storm	Complete	Aug-17	
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Repair damage caused by a tree during a storm	Complete	Nov-17	
			Repair damage caused by a tree	Complete	Feb-18	
			Repair line failure	Complete	May-18	
			Repair line failure during a storm	Complete	Jun-18	
			Zone 1 infrared inspection	To be Completed 2018	0%	
22	North Fayette	Tyre	<i>Performance was driven by trees off ROW (29%), trees on ROW (26%) and line failure (25%).</i>			
			Repair line failure	Complete	May-18	
			Repair line failure	Complete	May-18	
			Repair damage caused by a tree during a storm	Complete	Jun-18	
			Repair damage caused by a tree during a storm	Complete	Jun-18	
			Zone 1 infrared inspection	To be Completed 2018	0%	
23	Cooperstown	Twin Willows	<i>Performance was driven by trees off ROW (60%) and line failure (35%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree during a storm	Complete	Jul-17	
			Repair damage caused by a tree	Complete	Sep-17	
			Repair damage caused by a tree during a storm	Complete	Nov-17	
			Repair damage caused by a tree during a storm	Complete	Dec-17	
			On cycle tree trimming	Complete	Dec-17	
			Repair damage caused by a tree during a storm	Complete	Jan-18	
			Forced outage to repair damage	Complete	Mar-18	
			Repair line failure	Complete	Jun-18	
Repair damage caused by a tree	Complete	Jun-18				
24	Silverville	Cole Road	<i>Performance was driven by trees off ROW (89%) and line failure (8%).</i>			
			Repair equipment failure	Complete	May-18	
			Repair line failure during a storm	Complete	May-18	
			Repair damage caused by a tree during a storm	Complete	May-18	
			Repair damage caused by a tree during a storm	Complete	May-18	

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
25	Kane	Russell City	<i>Performance was driven by trees off ROW (90%) and equipment failure (6%).</i>			
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	May-18	
26	Piney Fork	Gillhall	<i>Performance was driven by trees off ROW (74%) and line failure (17%).</i>			
			Repair damage caused by a tree during a storm	Complete	Nov-17	4Q 2017 1Q 2018 2Q 2018
			Repair equipment failure	Complete	Feb-18	
			Repair line failure	Complete	Mar-18	
			Forced outage to repair damage during a storm	Complete	Apr-18	
			Repair line failure during a storm	Complete	Apr-18	
			Line rehabilitation	To be Completed 2018	0%	
27	Avella	W Middletown	<i>Performance was driven by trees off ROW (41%), line failure (36%) and equipment failure (10%).</i>			
			Repair damage caused by a tree	Complete	Jul-17	3Q2017 4Q2017 1Q2018 2Q2018
			Repair damage caused by a tree	Complete	Oct-17	
			Repair equipment failure	Complete	Dec-17	
			Repair damage caused by a tree during a storm	Complete	Jan-18	
			Repair damage caused by a tree	Complete	Feb-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Repair line failure during a storm	Complete	Jun-18	
			Repair line failure during a storm	Complete	Jun-18	
Line rehabilitation	To be Completed 2018	0%				
28	Vanceville	Vanceville	<i>Performance was driven by vehicle accident (41%), trees off ROW (19%), line failure (14%) and unknown (8%).</i>			
			Repair damage caused by a tree	Complete	Aug-17	3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair line failure during a storm	Complete	Aug-17	
			Repair damage caused by a tree	Complete	Aug-17	
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Repair damage caused by a vehicle accident	Complete	Nov-17	
			Repair line failure	Complete	Dec-17	
			Restore unknown outage during a storm	Complete	Jan-18	
			Repair line failure during a storm	Complete	Jan-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			On cycle tree trimming	To be Completed 2018	61%	

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
29	Mateer	Dime Rd	<i>Performance was driven by trees off ROW (46%) and equipment failure (39%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair equipment failure	Complete	Jul-17	
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Repair equipment failure	Complete	Sep-17	
			Repair damage caused by a tree	Complete	Oct-17	
			Repair damage caused by a tree during a storm	Complete	Nov-17	
			Zone 2 Ash removal	Complete	Dec-17	
			Repair damage caused by a tree	Complete	Jan-18	
			Repair equipment failure	Complete	May-18	
			Repair damage caused by a tree during a storm	Complete	Jun-18	
30	Cecil	Bishop	<i>Performance was driven by trees off ROW (85%) and trees on ROW (9%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree during a storm	Complete	Jul-17	
			Repair damage caused by a tree	Complete	Aug-17	
			Repair damage caused by a tree	Complete	Oct-17	
			Repair line failure	Complete	Dec-17	
			Repair damage caused by a tree during a storm	Complete	Jan-18	
			Forced outage to repair damage	Complete	Mar-18	
			Repair damage caused by a tree during a storm	Complete	May-18	
			Reliability job to install fuses	To be Completed 2018	0%	
31	Sherwin	West Sunbury	<i>Performance was driven by line failure (50%) and trees off ROW (48%).</i>			1Q 2018 2Q 2018
			Repair line failure	Complete	Jan-18	
			Repair damage caused by a tree	Complete	Feb-18	
			Repair line failure during a storm	Complete	Mar-18	
			Repair line failure	Complete	Apr-18	
			Repair damage caused by a tree	Complete	Jun-18	
			Zone 1 infrared inspection	To be Completed 2018	0%	
32	Frazier	Star Junction	<i>Performance was driven by trees off ROW (87%) and line failure (9%).</i>			
			Repair line failure during a storm	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	May-18	

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
33	Murrycrest	Sardis Road	<i>Performance was driven by trees off ROW (84%) and line failure (10%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair line failure	Complete	Aug-17	
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Repair damage caused by a tree	Complete	Aug-17	
			Repair damage caused by a tree during a storm	Complete	Nov-17	
			Repair damage caused by a tree during a storm	Complete	Jan-18	
			Repair damage caused by a vehicle accident	Complete	Feb-18	
			Repair damage caused by a tree during a storm	Complete	May-18	
			Repair line failure	Complete	Jun-18	
			Overhead circuit inspection	To be Completed 2018	0%	
34	Purcell	Artemas	<i>Performance was driven by trees off ROW (80%) and line failure (16%).</i>			
			Repair line failure during a storm	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
35	Franklin	Rogersville	<i>Performance was driven by trees off ROW (48%), line failure (23%) and forced outages (14%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree during a storm	Complete	Jul-17	
			Repair damage caused by a tree during a storm	Complete	Jul-17	
			Repair line failure	Complete	Aug-17	
			Restore unknown outage during a storm	Complete	Nov-17	
			Repair damage caused by a tree during a storm	Complete	Dec-17	
			Repair damage caused by a tree	Complete	Feb-18	
			Restore unknown outage during a storm	Complete	Apr-18	
			Repair damage caused by a tree	Complete	May-18	
			Zone 1 infrared inspection	To be Completed 2018	0%	
36	Peters	Venetia	<i>Performance was driven by equipment failure (77%) and trees off ROW (14%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair equipment failure during a storm	Complete	Jul-17	
			Repair equipment failure during a storm	Complete	Jul-17	
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Overhead circuit inspection	Complete	Sep-17	
			Restore unknown outage	Complete	Dec-17	
			Restore unknown outage during a storm	Complete	Mar-18	
			Restore unknown outage during a storm	Complete	Apr-18	
Repair damage caused by a tree during a storm	Complete	Jun-18				

West Penn						
Rank	Substation	Circuit	Remedial Action Planned or Taken	Status of Remedial Work Completed	Progress of Remedial Work or Date Completed	Appeared in 2 of 4 Quarters
37	Westraver	Pittsburgh Coal	<i>Performance was driven by trees off ROW (98%).</i>			3Q 2017 4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree during a storm	Complete	Aug-17	
			Repair damage caused by a tree	Complete	Sep-17	
			Repair damage caused by a tree	Complete	Feb-18	
			Repair damage caused by a tree during a storm	Complete	Feb-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
38	Karns City	Kaylor	<i>Performance was driven by trees off ROW (49%) and vehicle accident (42%).</i>			
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Repair damage caused by a vehicle accident during a storm	Complete	May-18	
			Overhead circuit inspection	To be Completed 2018	25%	
39	Houston	Weavertown	<i>Performance was driven by equipment failure (54%), forced outage (28%) and trees off ROW (14%).</i>			3Q 2017 2Q 2018
			Repair equipment failure during a storm	Complete	Jul-17	
			Repair equipment failure during a storm	Complete	Aug-17	
			Repair damage caused by a tree	Complete	Sep-17	
			Forced outage to repair damage	Complete	Jun-18	
			Repair equipment failure during a storm	Complete	Jun-18	
			Zone 1 infrared inspection	To be Completed 2018	0%	
40	Bethlen	Darlington	<i>Performance was driven by off ROW trees (55%) and vehicle accident (23%).</i>			4Q 2017 1Q 2018 2Q 2018
			Repair damage caused by a tree	Complete	Oct-17	
			Repair damage caused by a tree during a storm	Complete	Nov-17	
			Repair damage caused by a vehicle accident	Complete	Jan-18	
			Repair damage caused by a tree during a storm	Complete	Mar-18	
			Restore unknown outage	Complete	Mar-18	
			Repair damage caused by a tree during a storm	Complete	Apr-18	
			Overhead circuit inspection	To be Completed 2018	4%	

West Penn					
Unranked circuits appearing 2 or more quarters in the last 4 quarters					
Substation	Circuit	3Q 2017	4Q 2017	1Q 2018	2Q 2018
Amity	Banetown		X	X	
Bethel Park	Dashwood	X	X	X	
Crossgates	Peters Twp		X	X	
Driftwood	Driftwood	X	X		
Fort Palmer	West Fairfield	X	X		
Gobain	Pittsburgh Street	X	X		
Huntingdon	Shawtown	X	X	X	
Krendale	Unionville	X	X		
Normalville	Mill Run	X	X		
North Fayette	Beechcliff	X	X	X	
Pangburn Hill	Pangburn Hill		X	X	
Piney Fork	Stoltz	X	X		
Saltsburg	Salina		X	X	
Saltsburg	Saltsburg		X	X	
Smithton	Smithton	X	X		

West Penn				
Unranked circuits with remedial actions scheduled to be or recently completed				
Substation	Circuit	Remedial Action Planned	Status of Remedial Work	Progress of Remedial Work
Buckeye No. 3	Paisley	Zone 2 fuse installation	To be Completed 2018	0%
Huntingdon	Shawtown	Zone 1 infrared inspection	To be Completed 2018	0%
Krendale	Meridian	Reliability job to install fuses	To be Completed 2018	0%
Pangburn Hill	Pangburn Hill	On cycle tree trimming	To be Completed 2018	97%
Saltsburg	Salina	On cycle tree trimming	To be Completed 2018	37%
White Valley	Cloverleaf	Line rehabilitation	To be Completed 2018	0%

ATTACHMENT C

FirstEnergy's Compliance with Terms of the March 30, 2015 Management Audit Order

Pursuant to Docket Nos. D-2014-2365991 and D-2014-2365992, (Appendix A)(2): Met-Ed and Penelec are directed to provide a quarterly report that shall consist of a chart documenting the Open Priority 3 repairs and the Overdue Priority 3 (P3) Repairs for each company each quarter.

	Met-Ed		Penelec	
	Open P3 Conditions	Overdue P3 Conditions	Open P3 Conditions	Overdue P3 Conditions
1Q	979	930	951	725
2Q	679	634	639	479
3Q				
4Q				

Pursuant to Docket Nos. D-2014-2365991, D-2014-2365992, D-2014-2365993, and D-2014-2365994, (Appendix A)(3): FirstEnergy is directed to track and measure line hit incidents, causes of line hits, and damage recovery amounts for all third-party line hit incidents for each company.

Met-Ed – Third Party Line Hit Incidents 2nd Quarter 2018 12-Month Rolling³⁵			
Cause of Line Hit	Number of Incidents	Invoice Amount (\$)	Recovery Amount (\$)
Dig In - Other	14	10,836	0
Excavated in Tolerance	50	161,040	40,835
Excavation Inconsistent with Ticket Scope	9	28,009	2,817
Excavation Prior to Lawful Start Date	0	0	0
Expired Ticket	2	2,865	1,947
Hand Digging	0	0	0
Marked Improperly	11	20,607	14,929
No Ticket	22	20,285	10,917
Total	108	243,642	71,445

Penelec – Third Party Line Hit Incidents 2nd Quarter 2018 12-Month Rolling³⁶			
Cause of Line Hit	Number of Incidents	Invoice Amount (\$)	Recovery Amount (\$)
Dig In - Other	8	0	0
Excavated in Tolerance	48	125,584	114,264
Excavation Inconsistent with Ticket Scope	2	470	0
Excavation Prior to Lawful Start Date	3	2,582	0
Expired Ticket	8	4,599	4,853
Hand Digging	9	5,209	4,497
Marked Improperly	33	58,258	45,408
No Ticket	57	81,593	39,609
Total	168	278,295	208,631

³⁵ Data includes line hits closed during the rolling twelve-month reporting period as well as line hits that are still open as of June 30, 2018.

³⁶ Data includes line hits closed during the rolling twelve-month reporting period as well as line hits that are still open as of June 30, 2018.

Penn Power – Third Party Line Hit Incidents 2nd Quarter 2018 12-Month Rolling³⁷			
Cause of Line Hit	Number of Incidents	Invoice Amount (\$)	Recovery Amount (\$)
Dig In - Other	11	11,143	0
Excavated in Tolerance	8	8,426	4,494
Excavation Inconsistent with Ticket Scope	1	2,313	0
Excavation Prior to Lawful Start Date	0	0	0
Expired Ticket	4	8,117	3,287
Hand Digging	0	0	0
Marked Improperly	4	4,189	4,189
No Ticket	9	17,496	8,002
Total	37	51,684	19,972

West Penn – Third Party Line Hit Incidents 2nd Quarter 2018 12-Month Rolling³⁸			
Cause of Line Hit	Number of Incidents	Invoice Amount (\$)	Recovery Amount (\$)
Dig In - Other	44	45,161	18,003
Excavated in Tolerance	11	27,068	16,419
Excavation Inconsistent with Ticket Scope	9	20,136	8,286
Excavation Prior to Lawful Start Date	1	1,476	1,476
Expired Ticket	5	12,525	9,794
Hand Digging	10	22,080	16,348
Marked Improperly	17	72,846	39,672
No Ticket	30	105,701	80,482
Total	127	306,993	190,480

Cause of Line Hit	Definition
Dig In - Other	Still under investigation
Excavated in Tolerance	Excavator didn't use prudent digging techniques within the Tolerance Zone
Excavation Inconsistent with Ticket Scope	Excavation outside dig box and/or scope of ticket
Excavation Prior to Lawful Start Date	Three business days prior to start of excavation from when the ticket was called in to mark
Expired Ticket	After ten business days have passed, the ticket is considered expired
Hand Digging	Excavator was hand digging within the Tolerance Zone, however the facility was still hit
Marked Improperly	Ticket called in, facility and/or equipment was not marked properly
No Ticket	No contact was made to create a dig-request ticket

³⁷ Data includes line hits closed during the rolling twelve-month reporting period as well as line hits that are still open as of June 30, 2018.

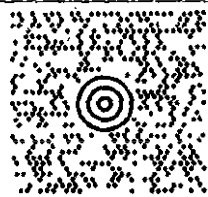
³⁸ Data includes line hits closed during the rolling twelve-month reporting period as well as line hits that are still open as of June 30, 2018.

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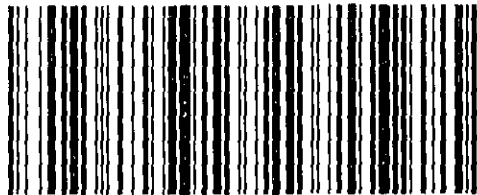
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