FirstEnergy

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April 30, 2019

VIA UNITED PARCEL SERVICE

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

Re: Joint 2018 Annual Reliability Report – Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company and West Penn Power Company

M-2016-2522508

Dear Secretary Chiavetta,

Pursuant to 52 Pa. Code § 57.195(a) and (b), enclosed for filing are two copies of the Joint 2018 Annual Reliability Report ("Joint Report") of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company (collectively, the "Companies"). Please date-stamp the additional copy and return it in the postage-paid envelope provided.

Please contact me if you have any questions.

Sincerely,

Tori L. Giesler

kbw
Enclosures

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

Met-Ed A FirstEnergy Company | Penelec A FirstEnergy Company | PennPower A FirstEnergy Company | WestPenn Power A FirstEnergy Company

Joint 2018 Annual Reliability Report

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

Pursuant to 52 Pa. Code § 57.195(a) and (b)

Joint 2018 Annual Reliability Report
Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company
Pursuant to 52 Pa. Code Chapter § 57.195(a) and (b)

The following Joint 2018 Report ("Report") is submitted to the Pennsylvania Public Utility Commission ("PaPUC" or "Commission") on behalf of Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power"), and West Penn Power Company ("West Penn") (collectively, the "Companies").

Section 57.195(b)(1) *An overall current assessment of the state of the system reliability in the EDC's service territory including a discussion of the EDC's current programs and procedures for providing reliable electric service.*

The Companies serve more than two million Pennsylvania customers and their service territory covers more than 20,000 square miles. From the physical field employees up to and including top management, the Companies are committed to providing customers with safe and reliable electric service. Methods to improve the efficiency, adequacy and reliability of the distribution system are a continual focus and every employee has an investment in each of the Companies' respective reliability metrics. The Companies utilize core programs to support cost-effective and reliable service. These programs include, but are not limited to:

- Inspection and Maintenance
  - The Distribution Inspection & Maintenance (I&M) Practices[1] are designed to assist in determining the need for, and prioritization of, the repair or replacement of distribution system components and facilities.
- Vegetation Management
  - Routine cycle tree trimming 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.[2]

[1] Pursuant to 52 Pa. Code § 57.198(a), every two years an electric distribution company shall file with the Commission a biennial plan for the periodic inspection, maintenance, repair and replacement of its facilities. The Companies submitted their Biennial Inspection, Maintenance, Repair and Replacement Plan for the period January 1, 2019 through December 31, 2020 on September 29, 2017, which was deemed approved pursuant to 52 Pa. Code § 57.198(i).

[2] Trees located off the right-of-way that are either dead, diseased, declining, structurally compromised, severely leaning or significantly encroaching onto the right-of-way.

  - Enhanced tree trimming complements the routine cycle tree trimming by removing healthy limbs overhanging primary conductors on areas where it's determined to be beneficial.
  - In response to damage caused by the Emerald Ash Borer, a program to proactively remove Ash Trees off right-of-way was implemented.
  - Post-storm circuit patrols target the areas with high tree-related outages. Circuit patrols identify trees damaged in a storm that may eventually lead a future outage. Once identified, the tree is removed. In addition, damaged equipment identified as part of the circuit patrol is repaired or replaced.
- Customers Experiencing Multiple Interruptions ("CEMI")
  - The CEMI program is aimed to reduce frequent or repeated outages for affected clusters of customers or frequently operated devices.
- Load Forecasting and Distribution Planning
  - The load forecasting application is used to estimate future substation and circuit loading based upon historical load data and the planning criteria guidelines are then used to provide a consistent approach for planning the safe, reliable, orderly, and economic expansion of the distribution system.
- Circuit Protection
  - The circuit protection practices are aimed at achieving safety and security for the public and employees, maximizing service reliability to customers, minimizing damage to distribution equipment, and establishing a consistent process and set of application standards for distribution circuit protection.
- Long-Term Infrastructure Improvement Plans ("LTIIP")
  - The Companies first began to execute their respective LTIIP programs in 2016. These plans include expenditures and programs designed to adequately maintain and improve the efficiency, safety, adequacy and reliability of the distribution system. Most recently, the Companies filed modifications for the 2019 program year to increase overall spending.

In addition to the reliability programs above, the Companies also utilize various strategies to efficiently respond to customer and equipment outages. These include, but are not limited to:

- Minimizing Outage Impact
    - The Companies incorporate design philosophies that support grid operation resulting in maximized reliability. These philosophies include instantaneous breaker tripping on select circuits, circuit sectionalizing devices, and remote device operation (such as supervisory control and data acquisition) to minimize the impact of an outage when possible.
- Storm Exercises
    - Each Company performs an annual storm exercise. A well-designed exercise provides a low-risk environment to test and validate capabilities, familiarize personnel with plans, procedures, roles, and responsibilities, and foster meaningful interaction and communication across internal and external organizations.
- Smart Meters
    - The Companies continue to deploy smart meters to customers across Pennsylvania. The Penn Power and Penelec mass deployment is complete and the Met-Ed and West Penn deployment continues. Smart meter installation is a step toward a more modernized electric system that will enable automated meter readings. Smart meters also assist during outage restoration periods, especially when there are a significant number of single customer outages, by allowing the Companies to ping the meter to determine if a customer has been restored.
- Incident Command System ("ICS")
    - The Companies are beginning to utilize a more formalized ICS structure, which is designed to enable effective and efficient incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organization. By expanding the use of ICS, the Companies' incident response ability is improved, and reliability is enhanced by utilizing a common system for incident response personnel (both intrastate and interstate).

To support best industry practices, the Companies participate in various external organizations such as the Electric Power Research Institute, the Institute of Electrical and Electronics Engineers, and the Energy Association of Pennsylvania, which focus on topics like reliability, power quality, regulatory issues, distribution planning, vegetation management, risk mitigation, distributed energy resources and more. Lastly, to ensure continuous improvement, the Companies formed a

team comprised of reliability engineers to perform an internal review of reliability projects, expenditures, and performance, and to develop an overarching strategy for long-term reliability maintenance and improvement.

In 2018, the Companies generally met the twelve-month standard for System Average Interruption Duration Index ("SAIDI"), System Average Interruption Frequency Index ("SAIFI"), and Customer Average Interruption Duration Index ("CAIDI").[3] The top outage causes continue to be trees, mainly from outside the right-of-way, and equipment failure. The Companies are using the strategies and tools, as laid out above, to address these outage causes and continue to make improvements to reliability performance.

[3] There are two exceptions. Penelec did not meet its twelve-month SAIFI standard and Penn Power did not meet its twelve-month CAIDI standard.

Reliability Results

The table below, taken from the 4th Quarter 2018 Joint Reliability Report, shows that ten of twelve reliability indices in 2018 were better than the Commission's twelve-month standards with two of the indices being better than benchmark.

4Q 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	1.27	1.26	1.52	1.71	1.12	1.34	1.10[4]	1.05	1.26	1.22
CAIDI	117	140	130	117	141	114[5]	101	121	138	170	204	171
SAIDI	135	194	165	148	213	195	113	162	152	179	257	209
MAIFI[6]			1.71			2.82			0.22			
Customers Served[7]	565,359			580,198			163,633			716,367		
Number of Sustained Interruptions	11,367			13,771			3,382			13,689		
Customers Affected	718,902			993,665			180,247			874,505		
Customer Minutes	93,214,096			113,145,011			24,939,341			149,491,577		
Number of Customer Momentary Interruptions	963,949			1,637,726			36,404					

[4] Penn Power's SAIFI achieved benchmark performance or better.

[5] Penelec's CAIDI achieved benchmark performance or better.

[6] MAIFI values are not available for West Penn.

[7] Represents the average number of customers served during the reporting period.

Section 57.195(b)(2) *A description of each major event that occurred during the year being reported on, including the time and duration of the event, the number of customers affected, the cause of the event and any modified procedures adopted to avoid or minimize the impact of similar events in the future.*[8]

Major Events

FirstEnergy Company	Customers Affected	Time and Duration of the Event		Cause of the Event	Commission Approval Status
Penelec	187	Duration	24 hours, 57 minutes	Flooding	Approved April 10, 2018
		Start Date/Time	January 12, 2018 1201		
		End Date/Time	January 13, 2018 1258		
Penn Power	2,456	Duration	20 hours, 35 minutes	Substation transformer fuse	Approved May 17, 2018
		Start Date/Time	January 18, 2018 2243		
		End Date/Time	January 19, 2018 1918		
Met-Ed	408	Duration	28 hours, 11 minutes	Flooding	Approved April 6, 2018
		Start Date/Time	January 23, 2018 1503		
		End Date/Time	January 24, 2018 1914		
West Penn	194	Duration	18 hours, 39 minutes	Flooding	Approved May 16, 2018
		Start Date/Time	February 15, 2018 1847		
		End Date/Time	February 16, 2018 1326		
Penelec	76,703	Duration	97 hours, 20 minutes	Winter Storm Riley	Approved May 10, 2018
		Start Date/Time	March 1, 2018 1830		
		End Date/Time	March 5, 2018 1950		
Met-Ed	273,398	Duration	230 hours, 15 minutes	Winter Storms Riley and Quinn	Approved May 6, 2018
		Start Date/Time	March 2, 2018 0600		
		End Date/Time	March 11, 2018 2015		
Penelec	62,262	Duration	64 hours, 49 minutes	Thunderstorms and high winds	Approved June 14, 2018
		Start Date/Time	April 3, 2018 2126		
		End Date/Time	April 6, 2018 1415		

[8] For purposes of this Joint Report, all reliability figures are based upon the Pennsylvania Public Utility Commission's definitions for momentary outages and major events pursuant to 52 Pa. Code § 57.192.

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

FirstEnergy Company	Customers Affected	Time and Duration of the Event		Cause of the Event	Commission Approval Status
Met-Ed	111,894	Duration	126 hours, 17 minutes	Thunderstorms	Approved July 9, 2018
		Start Date/Time	May 15, 2018 1428		
		End Date/Time	May 20, 2018 2045		
West Penn	1,122	Duration	19 hours, 35 minutes	Flooding	Approved August 8, 2018
		Start Date/Time	June 20, 2018 1716		
		End Date/Time	June 21, 2018 1251		
Penn Power	24,867	Duration	26 minutes	Y-300 69 kV breaker failure	Approved August 24, 2018
		Start Date/Time	June 23, 2018 1119		
		End Date/Time	June 23, 2018 1145		
Met-Ed	62,511	Duration	145 hours, 25 minutes	Heavy rains	Pending[9]
		Start Date/Time	July 21, 2018 1530		
		End Date/Time	July 27, 2018 1655		
Penelec	2,863	Duration	85 hours, 3 minutes	Flooding	Approved October 4, 2018
		Start Date/Time	August 13, 2018 0753		
		End Date/Time	August 16, 2018 2056		
West Penn	72,408	Duration	116 hours, 25 minutes	Tropical Storm Gordon	Pending[10]
		Start Date/Time	September 8, 2018 0340		
		End Date/Time	September 13, 2018 0005		
West Penn	75,332	Duration	141 hours, 14 minutes	Freezing rain, ice and snow	Approved January 4, 2019
		Start Date/Time	November 15, 2018 1213		
		End Date/Time	November 21, 2018 0927		
Penn Power	43,919	Duration	101 hours, 41 minutes	Snow and ice	Approved January 4, 2019
		Start Date/Time	November 15, 2018 1257		
		End Date/Time	November 19, 2109 1838		

[9] Met-Ed filed a major event exclusion request on September 5, 2018 which was denied by the Pennsylvania Public Utility Commission in a Secretarial letter dated September 25, 2018. Met-Ed filed a Petition for Appeal on October 5, 2018. The matter has been referred to the Bureau of Technical Utility Services for additional review. Reliability metrics within this report contain customers interrupted and customer minutes interrupted associated with the event.

[10] West Penn filed a major event exclusion request on October 8, 2018 which was denied by the Pennsylvania Public Utilities Commission in a Secretarial Letter dated October 26, 2018. West Penn filed a Petition for Appeal on November 5, 2018. The matter has been referred to the Bureau of Technical Utility Services for additional review. Reliability metrics within this report contain customers interrupted and customer minutes interrupted associated with the event.

Section 57.195(b)(3) *A table showing the actual values of each of the reliability indices (SAIFI, CAIDI, SAIDI, and if available, MAIFI) for the EDC's service territory for each of the preceding 3 calendar years. The report shall include the data used in calculating the indices, namely the average number of customers served, the number of sustained customer minutes interruptions, the number of customers affected and the minutes of interruption. If MAIFI values are provided, the number of customer momentary interruptions shall also be reported.*

Reliability Indices

Historic 12-Month Rolling Reliability Indices				
	Index	**2016**	**2017**	**2018**
Met-Ed	SAIFI	1.44	1.47	1.27
	CAIDI	124	147	130
	SAIDI	178	217	165
	MAIFI	1.10	1.29	1.71
	Customer Minutes	99,559,235	121,882,261	93,214,096
	Customers Affected	804,947	827,461	718,902
	Minutes of Interruption	2,627,337	3,469,122	3,175,276
	Customers Served[11]	558,363	561,039	565,359
Penelec	SAIFI	1.43	1.73	1.71
	CAIDI	120	138	114
	SAIDI	171	239	195
	MAIFI	3.85	3.76	2.82
	Customer Minutes	99,584,395	138,523,052	113,145,011
	Customers Affected	833,315	1,001,129	993,665
	Minutes of Interruption	2,806,020	3,540,860	3,461,761
	Customers Served[12]	581,260	580,349	580,198
Penn Power	SAIFI	1.09	1.06	1.10
	CAIDI	95	150	138
	SAIDI	104	160	152
	MAIFI	0.81	0.89	0.22
	Customer Minutes	16,841,199	26,001,026	24,939,341
	Customers Affected	176,968	173,036	180,247
	Minutes of Interruption	703,768	1,196,734	1,009,636
	Customers Served[13]	161,850	162,868	163,633

[11] Represents the average number of customers served during the reporting period.
[12] Represents the average number of customers served during the reporting period.
[13] Represents the average number of customers served during the reporting period.

Historic 12-Month Rolling Reliability Indices				
	Index	**2016**	**2017**	**2018**
West Penn	SAIFI	1.08	1.29	1.22
	CAIDI	147	166	171
	SAIDI	159	214	209
	Customer Minutes	113,097,150	152,701,813	149,491,577
	Customers Affected	772,206	919,673	874,505
	Minutes of Interruption	3,263,252	4,589,540	5,168,949
	Customers Served[14]	712,703	714,821	716,367

The tables below show that four of twelve reliability indices in 2018 were better than the Commission's three-year standards.

Three-Year Rolling Year-End 2018	Met-Ed		Penelec	
	Three-Year Standard	Three-Year Actual	Three-Year Standard	Three-Year Actual
SAIFI	1.27	1.39	1.39	1.62
CAIDI	129	134	129	124
SAIDI	163	187	179	202

Three-Year Rolling Year-End 2018	Penn Power		West Penn	
	Three-Year Standard	Three-Year Actual	Three-Year Standard	Three-Year Actual
SAIFI	1.23	1.08	1.16	1.20
CAIDI	111	128	187	161
SAIDI	136	139	217	194

[14] Represents the average number of customers served during the reporting period.

Section 57.195(b)(4) *A breakdown and analysis of outage causes during the year being reported on, including the number and percentage of service outages, the number of customers interrupted, the 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 Cause

Outages by Cause – Met-Ed

Outage by Cause				
4th Quarter 2018 12-Month Rolling	**Met-Ed**			
Cause	**Customer Minutes**	**Number of Sustained Interruptions**	**Customers Affected**	**% Based on Customer Minutes**
Trees off ROW - tree	30,734,394	1,795	137,942	32.97%
Equipment failure	20,088,736	2,754	168,925	21.55%
Vehicle	8,240,190	295	60,087	8.84%
Unknown	7,118,836	1,412	83,214	7.64%
Line failure	6,925,441	958	45,505	7.43%
Forced outage	4,179,426	413	69,522	4.48%
Trees off ROW - limb	3,498,025	481	24,945	3.75%
Animal	3,476,471	1,618	34,164	3.73%
Lightning	2,866,144	255	25,270	3.07%
Trees on ROW	1,898,356	301	7,887	2.04%
Human error - non-company	1,002,114	74	12,704	1.08%
Overload	710,440	49	5,820	0.76%
Human error - company	599,727	44	16,745	0.64%
Bird	440,840	319	4,886	0.47%
Trees - sec/service	381,998	436	1,016	0.41%
Object contact with line	346,796	40	6,179	0.37%
Other utility - non-electric	163,996	6	2,380	0.18%
Previous lightning	154,459	19	1,153	0.17%
UG dig-up	116,292	26	462	0.12%
Wind	92,513	10	162	0.10%
Other electric utility	68,872	13	6,180	0.07%
Customer equipment	62,374	26	3,446	0.07%
Fire	31,629	8	162	0.03%
Ice	11,780	7	131	0.01%
Vandalism	2,487	5	9	0.00%
Switching error	1,344	1	4	0.00%
Contamination	416	2	2	0.00%
Total	**93,214,096**	**11,367**	**718,902**	**100%**

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 December 31, 2018, and associated actions designed to address these outage causes.

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. Met-Ed continues its cycle-based program to mitigate trees subject to damage from the Emerald Ash Borer.

To reduce the likelihood of equipment-caused outages, Met-Ed follows I&M programs that 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.

Met-Ed reviews vehicle caused outages to identify repeat locations warranting remedial action, which could include modifying attachment height for communications, installing a taller pole, relocating the pole or installing sectionalizing equipment to minimize customer impact.

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

Outages by Cause – Penelec

Outage by Cause				
4th Quarter 2018 12-Month Rolling	**Penelec**			
Cause	**Customer Minutes**	**Number of Sustained Interruptions**	**Customers Affected**	**% Based on Customer Minutes**
Trees off ROW - tree	38,229,095	1,544	197,922	33.79%
Equipment failure	25,131,347	3,083	296,123	22.21%
Line failure	13,521,894	1,414	119,043	11.95%
Unknown	6,674,113	2,008	83,075	5.90%
Forced outage	6,632,570	1,034	72,366	5.86%
Vehicle	5,964,286	305	46,703	5.27%
Lightning	3,555,876	748	33,274	3.14%
Animal	3,502,715	1,567	31,637	3.10%
Trees off ROW - limb	1,880,421	310	16,787	1.66%
Human error - company	1,799,328	99	36,535	1.59%
Bird	976,266	361	16,536	0.86%
Overload	886,436	85	19,978	0.78%
Wind	808,644	8	1,959	0.71%
Human error - non-company	788,418	82	5,520	0.70%
Object contact with line	573,211	36	1,675	0.51%
Trees - sec/service	470,414	609	1,799	0.42%
Trees on ROW	361,148	108	3,573	0.32%
Ice	302,919	135	2,126	0.27%
Other electric utility	280,647	85	1,705	0.25%
Other utility - non-electric	218,276	4	697	0.19%
Previous lightning	199,498	37	970	0.18%
UG dig-up	180,580	55	1,648	0.16%
Fire	106,850	14	912	0.09%
Contamination	48,910	7	122	0.04%
Switching Error	36,820	4	909	0.03%
Customer equipment	10,885	10	52	0.01%
Vandalism	3,444	19	19	0.00%
Total	**113,145,011**	**13,771**	**993,665**	**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 December 31, 2018, and the associated actions designed to address these outage causes.

To reduce outages caused by trees, Penelec 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.

To reduce the likelihood of outages caused by equipment and line failure, 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.

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

Outages by Cause – Penn Power

Outage by Cause				
4th Quarter 2018 12-Month Rolling	**Penn Power**			
Cause	**Customer Minutes**	**Number of Sustained Interruptions**	**Customers Affected**	**% Based on Customer Minutes**
Trees off ROW - tree	10,123,540	749	39,067	40.59%
Vehicle	3,170,655	102	14,230	12.71%
Equipment failure	2,385,778	344	23,747	9.57%
Line failure	1,924,304	325	12,920	7.72%
Animal	1,920,215	502	22,287	7.70%
Trees off ROW - limb	1,372,430	187	8,138	5.50%
Unknown	1,142,810	208	16,146	4.58%
Lightning	741,694	219	9,635	2.97%
Overload	621,616	69	7,929	2.49%
Bird	484,057	308	5,516	1.94%
Forced outage	294,948	84	8,254	1.18%
Human error - non-company	227,079	26	2,163	0.91%
Previous lightning	198,586	28	7,121	0.80%
Trees - sec/service	140,931	150	429	0.57%
Human error - company	86,281	20	1,604	0.35%
UG dig-up	34,888	16	385	0.14%
Trees on ROW	27,740	18	255	0.11%
Object contact with line	22,376	7	246	0.09%
Ice	15,564	7	140	0.06%
Vandalism	2,633	3	25	0.01%
Customer equipment	1,151	9	9	0.00%
Fire	65	1	1	0.00%
Total	**24,939,341**	**3,382**	**180,247**	**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 December 31, 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 heathy limbs overhanging primary conductors.

Penn Power reviews each vehicle caused outage to determine if it is a repeat location warranting remedial action, which could include modifying attachment height for communications, installing a taller pole or relocating the pole.

To reduce the likelihood of outages caused by equipment 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.

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

Outages by Cause – West Penn

Outage by Cause				
4th Quarter 2018 12-Month Rolling	**West Penn**			
Cause	**Customer Minutes**	**Number of Sustained Interruptions**	**Customers Affected**	**% Based on Customer Minutes**
Trees off ROW - tree	62,332,133	3,242	251,187	41.70%
Equipment failure	20,174,866	2,851	157,338	13.50%
Line failure	16,651,588	1,412	109,762	11.14%
Wind	12,297,358	140	18,231	8.23%
Vehicle	9,748,591	343	62,159	6.52%
Unknown	7,694,032	1,821	73,889	5.15%
Trees on ROW	4,411,822	464	20,044	2.95%
Forced outage	4,319,946	747	75,034	2.89%
Trees off ROW - limb	3,615,794	226	24,129	2.42%
Lightning	1,905,176	111	15,249	1.27%
Animal	1,882,491	1,293	19,643	1.26%
Bird	786,263	307	8,618	0.53%
Human error - company	763,674	57	12,477	0.51%
Other utility - non-electric	511,290	3	2,046	0.34%
Human error - non-company	477,246	63	5,659	0.32%
Trees - sec/service	379,163	439	899	0.25%
Other electric utility	320,286	14	1,984	0.21%
Overload	292,226	25	5,488	0.20%
UG dig-up	195,401	47	1,075	0.13%
Object contact with line	195,340	43	1,710	0.13%
Customer equipment	181,775	20	1,111	0.12%
Vandalism	167,037	5	2,621	0.11%
Contamination	154,920	8	3,358	0.10%
Switching error	21,996	2	716	0.01%
Fire	10,143	5	63	0.01%
Previous Lightning	1,020	1	15	0.00%
Total	**149,491,577**	**13,689**	**874,505**	**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 December 31, 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 mitigation program of trees subject to damage from the Emerald Ash Borer through its normal cycle program.

To reduce the likelihood of outages caused by equipment and line failure, 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.

Section 57.195(b)(5) A list of the major remedial efforts taken to date and planned for circuits that have been on the worst performing 5% of circuits list for a year or more.

Worst Performing Circuits – Remedial Actions

Met-Ed, Penelec, Penn Power, and West Penn's Remedial Actions for Worst Performing Circuits are provided in Attachment A of this report.

Section 57.195(b)(6) *A comparison of established transmission and distribution inspections and maintenance goals/objectives versus actual results achieved during the year being reported on. Explanations of any variances shall be included.*

T&D Inspection and Maintenance Programs

Inspection and Maintenance 2018		Met-Ed		Penelec		Penn Power		West Penn	
		Planned	**Completed**	**Planned**	**Completed**	**Planned**	**Completed**	**Planned**	**Completed**
Forestry	Transmission (Miles)	258.67	258.67	418.26[15]	418.26	77.87	77.87	527.98[16]	527.98
	Distribution (Miles)	3,160	3,164	3,636	4,220	1,149	1,176	4,584	4,599
Transmission	Aerial Patrols	2	2	2	2	2	2	2	2
	Groundline	0	0	0	0	553	698	1,330	1,877
Substation	Substation Inspections Class A	424	424	788	788	148	148	726	726
	Substation Inspections Class B	424	424	788	788	148	148	726	726
	Substation Inspections Class C	1,696	1,696	3,152	3,152	592	592	2,904	2,904
	Transformers	245	245	487	487	103	103	514	514
	Breakers	76	75[17]	325	323[18]	9	9	406	406
	Relay Schemes	98	98	176	176	16	16	123	123
Distribution	Capacitors	4,758	4,758	8,736	8,736	991[19]	991	1,305	1,305
	Poles	46,000	46,026	41,591	42,118	10,600	11,066	57,822	58,024
	Reclosers	1,098[20]	1,098	2,566[21]	2,566	812[22]	812	3,898	3,898
	Radio-Controlled Switches	478	478	2,708[23]	2,708	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.

[15] Transmission miles trimmed increased by 0.41 miles due to a mapping change.
[16] Transmission miles trimmed increased by 0.62 miles due to a mapping change.
[17] One inspection was not completed due to safety issues.
[18] Two inspections have been postponed while grounding is replaced at the Blosburg Substation.
[19] Three capacitors were taken out of service.
[20] Eleven reclosers were taken out of service.
[21] Six reclosers were taken out of service.
[22] Three reclosers were taken out of service.
[23] Radio-controlled switches increased by 96 as a result of new installations.

Section 57.195(b)(7) A comparison of budgeted versus actual transmission and distribution operation and maintenance expenses for the year being reported on in total and detailed by the EDC's own functional account code of FERC account code as available. Explanations of any variances shall be included.

Budgeted vs. Actual T&D Operation & Maintenance Expenditures

Met-Ed T&D O&M - 2018 ($)					
Transmission					
	Category	2018 Actuals	2018 Budget	Variance %	Notes
560	Operation Supervision and Engineering	0	0	0%	
561	Load Dispatching	5,774	680,275	-99%	1
562	Station Expenses	12,882	0	100%	2
563	Overhead Lines Expenses	45,360	33,112	37%	3
565	Transmission of Electricity by Others	(19,635,833)	9,193,248	-314%	4
566	Miscellaneous Transmission Expenses	(180,231)	(13,365)	-1249%	5
567	Rents	65,276	0	100%	6
568	Maintenance Supervision and Engineering	2,655	0	100%	7
569	Maintenance of Structures	197,188	20,225	875%	8
570	Maintenance of Station Equipment	840,543	6,000	13909%	9
571	Maintenance of Overhead Lines	126,180	0	100%	10
572	Transmission-Maintenance of Underground Lines	198	0	100%	
573	Maintenance of Miscellaneous Transmission Plant	646	0	100%	
575	Market Administration, Monitoring & Compliance Services	(0)	0	0%	
Transmission Total		**(18,519,362)**	**9,919,496**		
Distribution					
	Category	2018 Actuals	2018 Budget	Variance %	Notes
580	Operation Supervision and Engineering	339,907	242,700	40%	11
581	Load Dispatching	244,323	203,414	20%	11
582	Station Expenses	1,642,817	641,671	156%	12
583	Overhead Line Expenses	206,780	197,277	5%	
584	Underground Line Expenses	0	0	0%	
586	Meter Expenses	647,025	597,543	8%	
587	Customer Installations Expenses	0	0	0%	
588	Miscellaneous Distribution Expenses	8,056,353	8,070,195	0%	
589	Rents	389,783	504,437	-23%	13
590	Maintenance Supervision and Engineering	448,062	193,021	132%	14
591	Maintenance of Structures	4,020	6,817	-41%	15
592	Maintenance of Station Equipment	6,105,009	7,591,843	-20%	16
593	Maintenance of Overhead Lines	88,817,725	28,894,156	207%	17
594	Maintenance of Underground Lines	1,621,598	1,527,965	6%	
595	Maintenance of Line Transformer	164,145	1,878,008	-91%	18
596	Maintenance of Street Lighting and Signal Systems	664,092	582,543	14%	19
597	Maintenance of Meters	2,143,322	2,240,327	-4%	
598	Maintenance of Miscellaneous Distribution Plant	1,636,574	2,411,184	-32%	20
Distribution Total		**113,131,534**	**55,783,100**		
Met-Ed Total		**94,612,172**	**65,702,596**		

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

	Variance Explanations (Variances 10% or greater)
1	Under budget due to contractor expenses being lower than planned.
2	Over budget due to substation drawing reviews being greater than planned.
3	Over budget due to annual fees for rights-of-way being greater than planned.
4	Under budget due to a settlement between Met-Ed and PJM (approved by FERC on May 31, 2018) resulted in a refund of Regional Transmission Expansion Plan expenses to Met-Ed.
5	Under budget due to PJM ancillary service expenses being lower than planned.
6	Over budget due to associated company lease/rentals for information technology and transmission personnel being greater than planned.
7	Over budget due to environmental labor expenses being greater than planned.
8	Over budget due to labor and computer software/hardware maintenance expenses being greater than planned.
9	Over budget due to allocation of budget dollars between transmission and distribution expenses.
10	Over budget due to contractor expenses for corrective maintenance being greater than planned.
11	Over budget due to labor expenses in corrective maintenance being greater than planned.
12	Over budget due to materials and contractor expenses for preventative maintenance greater than planned.
13	Under budget due to joint use pole attachment expenses being lower than planned.
14	Over budget due to labor allocations from electrification research/program support and associated contractor expenses being greater than planned.
15	Under budget due to material and supplies purchases being lower than planned.
16	Under budget due to lower than planned materials and contractors for corrective maintenance.
17	Over budget due to maintenance contract and internal labor expenses associated with major storm restoration being greater than planned.
18	Under budget due to contractor expenses being lower than planned.
19	Over budget due to labor expenses being greater than planned.
20	Under budget due to outside contractors and materials expenses being lower than planned.

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

Penelec T&D O&M - 2018 (S)					
Transmission					
	Category	**2018 Actuals**	**2018 Budget**	**Variance %**	**Notes**
560	Operation Supervision and Engineering	0	0	0%	
561	Load Dispatching	(16,990)	682,278	-102%	1
562	Station Expenses	223,982	135,607	65%	2
563	Overhead Lines Expenses	492,213	491,576	0%	
565	Transmission of Electricity by Others	1,692,468	33,478,941	-95%	3
566	Miscellaneous Transmission Expenses	(165,092)	0	-100%	4
567	Rents	305,764	275,000	11%	5
568	Maintenance Supervision and Engineering	115,132	(0)	100%	2
569	Maintenance of Structures	287,491	23,493	1124%	6
570	Maintenance of Station Equipment	52,612	283,400	-81%	7
571	Maintenance of Overhead Lines	147,778	0	100%	2
572	Transmission-Maintenance of Underground Lines	103	0	100%	
573	Maintenance of Miscellaneous Transmission Plant	(309)	0	-100%	
575	Market Administration, Monitoring & Compliance Services	(0)	0	0%	
Transmission Total		**3,135,151**	**35,370,294**		
Distribution					
	Category	**2018 Actuals**	**2018 Budget**	**Variance %**	**Notes**
580	Operation Supervision and Engineering	597,477	340,011	76%	8
581	Load Dispatching	430,472	246,339	75%	2
582	Station Expenses	649,966	0	100%	9
583	Overhead Line Expenses	108,587	52,827	106%	2
584	Underground Line Expenses	1,061,224	879,170	21%	10
586	Meter Expenses	707,436	610,579	16%	2
587	Customer Installations Expenses	0	0	100%	
588	Miscellaneous Distribution Expenses	12,195,895	11,971,998	2%	
589	Rents	2,069,138	1,131,717	83%	11
590	Maintenance Supervision and Engineering	474,916	219,824	116%	10
591	Maintenance of Structures	0	0	0%	
592	Maintenance of Station Equipment	7,277,631	6,015,575	21%	11
593	Maintenance of Overhead Lines	52,051,940	30,918,994	68%	11
594	Maintenance of Underground Lines	1,863,187	146,143	1175%	10
595	Maintenance of Line Transformer	143,415	242,897	-41%	12
596	Maintenance of Street Lighting and Signal Systems	1,168,960	3,120,417	-63%	13
597	Maintenance of Meters	2,857,322	3,822,304	-25%	13
598	Maintenance of Miscellaneous Distribution Plant	1,355,779	122,860	1004%	6
Distribution Total		**85,013,347**	**59,841,657**		
Penelec Total		**88,148,497**	**95,211,950**		

Variance Explanations (Variances 10% or greater)	
1	Under budget due to outside services/contractors and PJM reimbursable services being lower than planned.
2	Over budget due to labor expenses being greater than planned.
3	Under budget due to a settlement between Penelec and PJM (approved by FERC on May 31, 2018) resulted in a refund of Regional Transmission Expansion Plan expenses to Penelec.
4	Under budget due to PJM ancillary service expenses being lower than planned.
5	Over budget due to leases/rentals being greater than planned.
6	Over budget due to network costs and labor requirements being greater than planned.
7	Under budget due to outside services/contractors being lower than planned.
8	Over budget due to right of way fees being greater than planned.
9	Over budget due to internal labor required to perform the work which was not budgeted to this FERC account.
10	Over budget due to labor requirements and outside services/contractors being greater than planned.
11	Over budget due to outside services/contractors being greater than planned.
12	Under budget due to labor costs being lower than planned.
13	Under budget due to fleet costs charged to O&M and labor costs being lower than planned.

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

Penn Power T&D O&M - 2018 ($)					
Transmission					
	Category	**2018 Actuals**	**2018 Budget**	**Variance %**	**Notes**
560	Operation Supervision and Engineering	1,575	2,131	-26%	3
561	Load Dispatching	5,429	129,499	-96%	1
562	Station Expenses	0	(187)	100%	3
563	Overhead Lines Expenses	12	(325)	104%	
565	Transmission of Electricity by Others	(5,956,922)	4,974,660	-220%	2
566	Miscellaneous Transmission Expenses	5,290	3,870	37%	4
567	Rents	0	0	100%	
568	Maintenance Supervision and Engineering	13,497	16,147	-16%	5
569	Maintenance of Structures	25,418	33,199	-23%	6
570	Maintenance of Station Equipment	(18,427)	3,047	-705%	7
571	Maintenance of Overhead Lines	74,132	(80,573)	192%	4
572	Transmission-Maintenance of Underground Lines	0	0	0%	
573	Maintenance of Miscellaneous Transmission Plant	(1,856)	0	100%	3
575	Market Administration, Monitoring & Compliance Services	0	0	0%	
Transmission Total		**(5,851,851)**	**5,081,468**		
Distribution					
	Category	**2018 Actuals**	**2018 Budget**	**Variance %**	**Notes**
580	Operation Supervision and Engineering	0	0	0%	
581	Load Dispatching	0	0	0%	
582	Station Expenses	65,554	0	100%	8
583	Overhead Line Expenses	120,579	0	100%	9
584	Underground Line Expenses	233,838	524,466	-55%	6
586	Meter Expenses	64,621	74,938	-14%	10
587	Customer Installations Expenses	0	0	0%	
588	Miscellaneous Distribution Expenses	591,510	1,079,663	-45%	11
589	Rents	332,738	318,986	4%	
590	Maintenance Supervision and Engineering	121,333	54,953	121%	9
591	Maintenance of Structures	0	0	0%	
592	Maintenance of Station Equipment	865,319	376,718	130%	4
593	Maintenance of Overhead Lines	17,134,398	12,374,767	38%	12
594	Maintenance of Underground Lines	284,726	39,187	627%	4
595	Maintenance of Line Transformer	30,711	51,489	-40%	6
596	Maintenance of Street Lighting and Signal Systems	64,367	0	100%	4
597	Maintenance of Meters	513,375	598,980	-14%	6
598	Maintenance of Miscellaneous Distribution Plant	298,713	472,985	-37%	13
Distribution Total		**20,721,782**	**15,967,133**		
Penn Power Total		**14,869,931**	**21,048,601**		

Variance Explanations (Variances 10% or greater)	
1	Under budget due to transmission owner scheduling, system control and dispatching costs being lower than planned.
2	Under budget due to a settlement between Penn Power and PJM (approved by FERC on May 31, 2018) resulted in a refund of Regional Transmission Expansion Plan expenses to Penn Power.
3	Current budgeting practices do not budget directly to FERC accounts. FirstEnergy Service Company budgets to different cost collectors, which settle to FERC accounts. Actual settlements to these FERC accounts are relatively immaterial amounts.
4	Over budget due to labor costs being greater than planned.
5	Under budget due to supervision and engineering costs being lower than planned.
6	Under budget due to labor expenses being lower than planned.
7	Under budget due to prior period contractor adjustments.
8	Over budget due to telecommunications expense being greater than planned.
9	Over budget due to contractor expenses being greater than planned.
10	Under budget due to labor and material expense being lower than planned.
11	Under budget due to fleet expense being lower than planned.
12	Over budget due to labor and contractor expense being greater than planned.
13	Under budget due to material expenses being lower than planned.

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

West Penn T&D O&M - 2018 (S)					
Transmission					
	Category	**2018 Actuals**	**2018 Budget**	**Variance %**	**Notes**
560	Operation Supervision and Engineering	44,778	56,519	-21%	1
561	Load Dispatching	868,568	1,983,587	-56%	2
562	Station Expenses	223,239	24,140	825%	3
563	Overhead Lines Expenses	205,692	0	100%	4
565	Transmission of Electricity by Others	117,886,509	60,377,974	95%	5
566	Miscellaneous Transmission Expenses	396,465	352,998	12%	6
567	Rents	24,164	25,187	-4%	
568	Maintenance Supervision and Engineering	720,375	558,238	29%	7
569	Maintenance of Structures	33,325	17,275	93%	8
570	Maintenance of Station Equipment	3,577,755	2,032,207	76%	9
571	Maintenance of Overhead Lines	16,849,059	13,267,007	27%	10
572	Transmission-Maintenance of Underground Lines	(4,793)	0	-100%	11
573	Maintenance of Miscellaneous Transmission Plant	0	0	0%	
575	Market Administration, Monitoring & Compliance Services	227	0	100%	11
Transmission Total		**140,825,364**	**78,695,132**		
Distribution					
	Category	**2018 Actuals**	**2018 Budget**	**Variance %**	**Notes**
580	Operation Supervision and Engineering	252,319	105,573	139%	12
581	Load Dispatching	1,872,627	1,823,718	3%	
582	Station Expenses	683,131	1,209,878	-44%	13
583	Overhead Line Expenses	1,089,904	1,429,962	-24%	14
584	Underground Line Expenses	1,393,242	1,210,000	15%	15
586	Meter Expenses	1,269,671	1,909,499	-34%	16
587	Customer Installations Expenses	0	0	0%	
588	Miscellaneous Distribution Expenses	16,016,074	14,994,284	7%	
589	Rents	0	0	0%	
590	Maintenance Supervision and Engineering	638,834	403,051	58%	4
591	Maintenance of Structures	0	0	0%	
592	Maintenance of Station Equipment	8,970,105	7,456,908	20%	17
593	Maintenance of Overhead Lines	47,721,757	30,632,377	56%	17
594	Maintenance of Underground Lines	1,159,393	753,257	54%	17
595	Maintenance of Line Transformer	64,972	289,074	-78%	18
596	Maintenance of Street Lighting and Signal Systems	957,528	795,037	20%	19
597	Maintenance of Meters	1,558,619	1,070,584	46%	19
598	Maintenance of Miscellaneous Distribution Plant	288,040	238,242	21%	20
Distribution Total		**83,936,215**	**64,321,443**		
West Penn Total		**224,761,579**	**143,016,574**		

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

	Variance Explanations (Variances 10% or greater)
1	Under budget due to labor costs being lower than planned.
2	Under budget due to contractor costs being lower than planned.
3	Over budget due to internal labor, transportation, material, and employee expense costs being greater than planned.
4	Over budget due to internal labor, contractor, and material costs being greater than planned.
5	Over budget due to a settlement between West Penn and PJM (approved by FERC on May 31, 2018) resulted in additional Regional Transmission Expansion Plan costs to West Penn.
6	Over budget due to contractor costs being greater than planned.
7	Over budget due to internal labor and contractor costs being greater than planned.
8	Over budget due to information technology labor costs being greater than planned.
9	Over budget due to internal labor, contractor, material, and transportation costs being greater than planned.
10	Over budget due to internal labor, contractor and transportation costs for tree-trimming being greater than planned.
11	Current budgeting practices do not budget directly to FERC accounts. FirstEnergy budgets to different cost collectors, which settle to FERC accounts. Actual settlements to these FERC accounts are relatively immaterial amounts.
12	Over budget due to contractor, material, and employee expenses being greater than planned.
13	Under budget due to internal labor and transportation costs being lower than planned.
14	Under budget due to internal labor, contractor, and transportation costs being lower than planned.
15	Over budget due to contractor and administration and general costs for underground locating being greater than planned.
16	Under budget due to internal labor and material costs being lower than planned.
17	Over budget due to internal labor, contractor and transportation costs being greater than planned.
18	Under budget due to internal labor being lower than planned.
19	Over budget due to internal labor and transportation costs being greater than planned.
20	Over budget due to internal labor and computer software maintenance costs being greater than planned.

Section 57.195(b)(8) *A comparison of budgeted versus actual transmission and distribution operation and maintenance capital expenses for the year being reported on in total and detailed by the EDC's own functional account code or FERC account code as available. Explanations of any variances 10% or greater shall be included.*

Budgeted vs. Actual T&D Capital Expenditures

Met-Ed T&D Capital – 2018 ($)				
Category	**2018 Actuals**	**2018 Budget**	**Variance %**	**Notes**
Capacity	6,156,633	12,046,796	-49%	1
Condition	15,222,702	15,210,656	0%	
Facilities	5,158,813	4,029,172	28%	2
Forced	53,535,582	36,042,546	49%	3
Meter Related	1,880,385	2,657,061	-29%	4
New Business	15,470,477	14,256,019	9%	
Other	48,782,772	39,834,720	22%	5
Reliability	21,987,793	24,345,555	-10%	6
Street Light	1,060,254	2,048,961	-48%	7
Tools & Equip	780,532	1,165,919	-33%	8
Vegetation Mgt.	11,995,062	16,163,160	-26%	9
Met-Ed Total	**182,031,004**	**167,800,564**		

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

Penelec T&D Capital – 2018 ($)				
Category	**2018 Actuals**	**2018 Budget**	**Variance %**	**Notes**
Capacity	3,298,394	6,993,475	-53%	10
Condition	7,983,054	9,625,735	-17%	11
Facilities	3,757,894	2,558,659	47%	12
Forced	39,311,136	43,150,174	-9%	
Meter Related	1,568,530	2,468,478	-36%	
New Business	8,292,862	11,979,604	-31%	13
Other	48,305,374	18,159,603	166%	14
Reliability	40,808,225	47,667,106	-14%	15
Street Light	1,587,616	2,090,990	-24%	16
Tools & Equip	1,696,584	1,438,392	18%	17
Vegetation Mgt.	22,495,421	28,719,489	-22%	18
Penelec Total	**179,105,091**	**174,851,705**		

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

Penn Power T&D Capital – 2018 ($)				
Category	**2018 Actuals**	**2018 Budget**	**Variance %**	**Notes**
Capacity	2,189,386	100,359	2082%	19
Condition	794,650	1,412,444	-44%	20
Facilities	371,909	122	303996%	21
Forced	13,525,119	17,722,956	-24%	22
Meter Related	661,500	540,010	22%	23
New Business	5,500,696	5,666,730	-3%	
Other	4,289,201	222,601	1827%	24
Reliability	17,929,287	14,271,585	26%	19
Street Light	397,652	561,281	-29%	25
Tools & Equip	759,711	37,747	1913%	26
Vegetation Mgt.	1,951,542	5,326,085	-63%	27
Penn Power Total	**48,370,655**	**45,861,921**		

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

West Penn T&D Capital – 2018 ($)				
Category	**2018 Actuals**	**2018 Budget**	**Variance %**	**Notes**
Capacity	7,954,084	2,597,013	206%	28
Condition	12,446,751	18,476,672	-33%	29
Facilities	7,768,058	3,635,875	114%	30
Forced	47,728,751	37,132,224	29%	3
Meter Related	1,830,098	2,436,480	-25%	4
New Business	16,531,724	22,623,356	-27%	14
Other	84,278,859	71,890,920	17%	31
Reliability	56,528,037	40,754,399	39%	32
Street Light	4,233,056	6,245,554	-32%	7
Tools & Equip	2,234,810	3,244,253	-31%	33
Vegetation Mgt.	32,393,258	41,088,498	-21%	27
West Penn Total	**273,927,483**	**250,125,244**		

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

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

Variance Explanations (Variances 10% or greater)	
1	Under budget due to delays in construction and work scope changes for new modular substation locations.
2	Over budget due to contractor and material spend for facility repairs at numerous locations being greater than planned.
3	Over budget due to higher capitalized storm expenditures.
4	Under budget due to meter exchanges being lower than planned.
5	Over budget due to contractor and material spend being greater than planned.
6	Under budget due to capital spend and delays in remote terminal unit project being less than planned.
7	Under budget due to LED streetlight replacements being lower than planned.
8	Under budget due to timing of computer hardware purchases.
9	Under budget due to contractor spend being lower than planned.
10	Under budget due to timing differences in several construction projects and adjustment to capital related payroll overhead.
11	Under budget due to timing differences in several construction projects.
12	Over budget due to timing differences in several construction projects.
13	Under budget due to new commercial and residential business being lower than planned.
14	Over budget due to accounting adjustment impacting the categories only, but not impacting the totals overall.
15	Under budget due to timing differences in several construction projects.
16	Under budget due to unscheduled distribution streetlighting repair being lower than planned.
17	Over budget due to regional and corporate small tools purchases and fleet projects being greater than planned.
18	Under budget due to planned distribution vegetation management being lower than planned.
19	Over budget due to construction projects related expense being greater than planned.
20	Under budget due to unscheduled equipment repairs and replacements being lower than planned.
21	Over budget due to paving costs being greater than planned.
22	Under budget due to construction project replacement costs being lower than planned.
23	Over budget due to volume of meter exchanges being greater than planned.
24	Over budget due to pension costs being higher than planned and overhead credits being lower than planned.
25	Under budget due to lighting replacement related work being lower than planned.
26	Over budget due to vehicle related and small tool expenses being greater than planned.

Variance Explanations (Variances 10% or greater)	
27	Under budget due to distribution vegetation management spend being lower than planned.
28	Over budget due capacity projects for Dale Summit 230kV Install 230 kV Line Breaker and Keisters-Campbell Convert 69 to 138kV being greater than planned.
29	Under budget due to construction projects and planned unscheduled repair of overhead and underground facilities being lower than planned.
30	Over budget due to additional facilities work at the Connellsville, Waynesboro and Greensburg.
31	Over budget due to Cranberry-Wylie Ridge 500kV line repairs being greater than planned.
32	Over budget due to NERC alert mitigation transmission project, construction projects and Greensburg security upgrades being greater than planned.
33	Under budget due to tools, mobile data terminal and vehicle purchases being lower than planned.

Section 57.195(b)(9) *Quantified transmission and distribution inspection and maintenance goals/objectives for the current calendar year detailed by system area (that is, transmission, substation and distribution).*

T&D Inspection & Maintenance Programs – 2019 Goals / Objectives

T&D Inspection & Maintenance Programs - 2019				
Program/Project	**Met-Ed**	**Penelec**	**Penn Power**	**West Penn**
Forestry				
Transmission (Miles)	282.22	384.77	171.19	208.34
Distribution (Miles)	2,845	3,953	1,141	4,480
Transmission				
Aerial Patrols	2	2	2	2
Groundline (Poles)	890	981	122	1,547
Substation				
Substation Inspections Class A	422	788	148	714
Substation Inspections Class B	422	788	148	714
Substation Inspections Class C	1,688	3,152	592	2,856
Transformers	395	696	125	688
Breakers	87	437	8	379
Relay Schemes	114	146	18	185
Distribution				
Capacitors	4,761	8,702	978	1,305
Poles	28,000	41,584	10,600	45,074
Reclosers	1,115	2,581	863	3,911
Radio-Controlled Switches (2 / year)	760	2,706	Penn Power has no radio-controlled switches	West Penn has no radio-controlled switches

Section 57.195(b)(10) Budgeted transmission and distribution operation and maintenance expenses for the current year in total and detailed by the EDC's own functional account code or FERC account code as available.

2019 T&D O&M Budget[24]

Met-Ed T&D O&M - Annual 2019 ($)		
Transmission		
Category		Annual Budget
560	Operation Supervision & Engineering	0
561	Load Dispatching	(150,250)
563	Overhead Line Expenses	56,800
565	Transmission of Electricity by Others	8,436,000
566	Miscellaneous Transmission Expenses	(18,298)
567	Rents	0
568	Maintenance Supervision and Engineering	0
569	Maintenance of Structures	29,209
570	Maintenance of Station Equipment	4,500
571	Maintenance of Overhead Lines	0
573	Maintenance of Miscellaneous Transmission Plant	(4,790)
575	Market Administration, Monitoring & Compliance Services	0
Transmission Total		**8,353,172**
Distribution		
Category		Annual Budget
580	Operation Supervision & Engineering	228,234
581	Load Dispatching	231,996
582	Station Expenses	912,328
583	Overhead Line Expenses	122,451
584	Underground Line Expenses	0
586	Meter Expenses	640,356
588	Miscellaneous Distribution Expenses	6,404,140
589	Rents	523,469
590	Maintenance Supervision and Engineering	426,857
591	Maintenance of Structures	2,790
592	Maintenance of Station Equipment	7,292,017
593	Maintenance of Overhead Lines	34,016,659
594	Maintenance of Underground Lines	2,229,571
595	Maintenance of Line Transformers	1,126,594
596	Maintenance of Street Lighting and Signal Systems	400,145
597	Maintenance of Meters	2,348,044
598	Maintenance of Miscellaneous Distribution Plant	2,381,957
Distribution Total		**59,287,607**
Met-Ed Total		**67,640,780**

[24] Budgets are subject to change.

Submitted Pursuant to 52 Pa. Code § 57.195(a) and (b)

Penelec T&D O&M - Annual 2019 ($)		
Transmission		
	Category	**Annual Budget**
560	Operation Supervision & Engineering	0
561	Load Dispatching	(224,895)
562	Station Expenses	157,082
563	Overhead Line Expenses	531,051
565	Transmission of Electricity by Others	27,622,716
566	Miscellaneous Transmission Expenses	0
567	Rents	275,000
568	Maintenance Supervision and Engineering	0
569	Maintenance of Structures	31,485
570	Maintenance of Station Equipment	288,560
571	Maintenance of Overhead Lines	0
573	Maintenance of Miscellaneous Transmission Plant	0
575	Market Administration, Monitoring & Compliance Services	0
Transmission Total		**28,681,000**
Distribution		
	Category	**Annual Budget**
580	Operation Supervision & Engineering	325,625
581	Load Dispatching	311,134
583	Overhead Line Expenses	91,827
584	Underground Line Expenses	970,299
586	Meter Expenses	778,690
588	Miscellaneous Distribution Expenses	10,818,822
589	Rents	1,227,405
590	Maintenance Supervision and Engineering	457,831
592	Maintenance of Station Equipment	5,911,064
593	Maintenance of Overhead Lines	35,394,672
594	Maintenance of Underground Lines	146,475
595	Maintenance of Line Transformers	241,662
596	Maintenance of Street Lighting and Signal Systems	2,912,376
597	Maintenance of Meters	4,200,560
598	Maintenance of Miscellaneous Distribution Plant	32,545
Distribution Total		**63,820,986**
Penelec Total		**92,501,987**

Penn Power T&D O&M - Annual 2019 ($)		
Transmission		
	Category	**Annual Budget**
560	Operation Supervision & Engineering	1,325
561	Load Dispatching	125,907
562	Station Expenses	(347)
563	Overhead Line Expenses	(603)
565	Transmission of Electricity by Others	4,148,892
566	Miscellaneous Transmission Expenses	4,216
568	Maintenance Supervision and Engineering	13,054
569	Maintenance of Structures	9,575
570	Maintenance of Station Equipment	3,047
571	Maintenance of Overhead Lines	89,459
573	Maintenance of Miscellaneous Transmission Plant	0
575	Market Administration, Monitoring & Compliance Services	0
Transmission Total		**4,394,526**
Distribution		
	Category	**Annual Budget**
580	Operation Supervision & Engineering	0
582	Station Expenses	0
584	Underground Line Expenses	526,031
586	Meter Expenses	82,500
588	Miscellaneous Distribution Expenses	782,612
589	Rents	330,437
590	Maintenance Supervision and Engineering	114,777
592	Maintenance of Station Equipment	308,743
593	Maintenance of Overhead Lines	13,683,588
594	Maintenance of Underground Lines	49,513
595	Maintenance of Line Transformers	50,939
596	Maintenance of Street Lighting and Signal Systems	20,957
597	Maintenance of Meters	520,239
598	Maintenance of Miscellaneous Distribution Plant	56,497
Distribution Total		**16,526,833**
Penn Power Total		**20,921,358**

West Penn T&D O&M - Annual 2019 ($)		
Transmission		
	Category	**Annual Budget**
560	Operation Supervision & Engineering	47,984
561	Load Dispatching	987,631
562	Station Expenses	119,757
563	Overhead Line Expenses	22,127
565	Transmission of Electricity by Others	61,139,736
566	Miscellaneous Transmission Expenses	388,389
567	Rents	23,960
568	Maintenance Supervision and Engineering	617,028
569	Maintenance of Structures	34,899
570	Maintenance of Station Equipment	1,976,768
571	Maintenance of Overhead Lines	8,948,508
573	Maintenance of Miscellaneous Transmission Plant	0
575	Market Administration, Monitoring & Compliance Services	0
Transmission Total		**74,306,787**
Distribution		
	Category	**Annual Budget**
580	Operation Supervision & Engineering	40,721
581	Load Dispatching	2,032,520
582	Station Expenses	1,063,203
583	Overhead Line Expenses	1,001,275
584	Underground Line Expenses	1,300,000
586	Meter Expenses	1,699,416
588	Miscellaneous Distribution Expenses	15,053,815
589	Rents	0
590	Maintenance Supervision and Engineering	775,543
591	Maintenance of Structures	0
592	Maintenance of Station Equipment	8,738,340
593	Maintenance of Overhead Lines	35,705,974
594	Maintenance of Underground Lines	1,105,759
595	Maintenance of Line Transformers	303,198
596	Maintenance of Street Lighting and Signal Systems	663,079
597	Maintenance of Meters	1,336,071
598	Maintenance of Miscellaneous Distribution Plant	174,905
Distribution Total		**70,993,818**
West Penn Total		**145,300,605**

Section 57.195(b)(11) Budgeted transmission and distribution capital expenses for the current year in total and detailed by the EDC's own functional account code or FERC account code as available.

2019 T&D Capital Budget[25]

Met-Ed T&D Capital - Annual 2019 ($)	
Category	**Annual Budget**
Capacity	18,816,849
Condition	20,865,773
Facilities	401,995
Forced	47,374,775
Meter Related	3,184,048
New Business	17,430,231
Other	18,497,289
Reliability	35,689,750
Street Light	1,355,698
Tools & Equip	1,367,255
Vegetation Management	11,676,319
Met-Ed Total	**176,659,981**

Penelec T&D Capital - Annual 2019 ($)	
Category	**Annual Budget**
Capacity	9,232
Condition	8,025,004
Facilities	612,343
Forced	41,673,023
Meter Related	1,199,288
New Business	12,077,113
Other	28,512,226
Reliability	24,395,291
Street Light	4,152,570
Tools & Equip	4,733,828
Vegetation Management	21,136,461
Penelec Total	**146,526,379**

[25] Budgets are subject to change and are reported on a Generally Accepted Accounting Principles (GAAP) basis.

Penn Power T&D Capital - Annual 2019 ($)	
Category	**Annual Budget**
Capacity	233,499
Condition	5,028,802
Facilities	23,425
Forced	6,794,376
Meter Related	656,288
New Business	5,984,260
Other	(3,181,698)
Reliability	29,697,638
Street Light	570,580
Tools & Equip	161,646
Vegetation Management	2,971,030
Penn Power Total	**48,939,848**

West Penn T&D Capital - Annual 2019 ($)	
Category	**Annual Budget**
Capacity	(2,769,181)
Condition	21,879,413
Facilities	352,465
Forced	48,992,024
Meter Related	1,510,550
New Business	28,682,457
Other	44,082,329
Reliability	59,905,144
Street Light	1,839,136
Tools & Equip	2,981,970
Vegetation Management	26,926,912
West Penn Total	**234,383,219**

Section 57.195(b)(12) *Significant changes, if any, to the transmission and distribution maintenance programs previously submitted to the Commission.*

Changes to T&D Maintenance Programs

In 2018, the Companies made no significant revisions to their Inspection and Maintenance practices.

ATTACHMENT A

Worst Performing Circuits – Remedial Actions

Met-Ed				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work**	**Progress of Remedial Work or Date Completed**
Mountain	00744-4	*Performance was driven by trees off ROW (84%).*		
		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
		Upgrade Zone 2 recloser to emergency management system radio controlled	To be Completed 2019	0%
Lickdale	00625-2	*Performance was driven by trees off ROW (62%) and equipment failure (11%).*		
		Thermovision and overhead inspection	Complete	Apr-18
		Enhanced tree trimming	Complete	Jun-18
		Post-storm circuit patrol	Complete	Aug-18
		On cycle tree trimming	Complete	Dec-18
		Install SCADA device #1	To be Completed 2019	0%
		Install SCADA device #2	To be Completed 2019	0%
		Repair/replace high priority items identified during inspection	To be Completed 2019	0%
		Repair/replace high priority items identified during inspection	To be Completed 2019	0%
		Three-phase overhead inspection	To be Completed 2019	0%
Shawnee	00899-3	*Performance was driven by trees off ROW (34%), equipment failure (27%) and unknown outages (23%).*		
		Repair items identified during Thermovision inspection	Complete	Feb-18
		Install SCADA switch #1	Complete	Nov-18
		Install SCADA switch #2	Complete	Nov-18
		Install SCADA switch #3	Complete	Nov-18

Met-Ed				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work**	**Progress of Remedial Work or Date Completed**
S. Nazareth	00809-3	*Performance was driven by equipment failure (54%), forced outages (16%) and vehicle accidents (15%).*		
		Thermovision and overhead inspection	Complete	Jan-18
		Repair items identified during Thermovision inspection	Complete	Mar-18
		Install SCADA switch	Complete	Nov-18
		Three-phase overhead inspection	To be Completed 2019	0%
		Install SCADA recloser #1	To be Completed 2019	0%
		Install SCADA recloser #2	To be Completed 2019	0%
		Install SCADA recloser #3	To be Completed 2019	0%
		Install SCADA recloser #4	To be Completed 2019	0%
Lickdale	00626-2	*Performance was driven by equipment failure (68%).*		
		Thermovision and overhead inspection	Complete	Apr-18
		On cycle tree trimming	Complete	Dec-18
		Targeted mainline rehabilitation	Complete	Sep-18
		Install SCADA switch #1	To be Completed 2019	0%
		Install SCADA switch #2	To be Completed 2019	0%
		Install SCADA switch #3	To be Completed 2019	0%
		Install SCADA recloser #1	To be Completed 2019	0%
		Repair/replace high priority items identified during inspection	To be Completed 2019	0%
		Three-phase overhead inspection	To be Completed 2019	0%

Met-Ed				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work**	**Progress of Remedial Work or Date Completed**
Bernville	00786-1	*Performance was driven by outages caused by trees off ROW (52%) and line and equipment failure (25%).*		
		Thermovision and overhead inspection	Complete	Mar-18
		Enhanced overhead circuit inspection	Complete	Mar-18
		Post-storm forestry inspection	Complete	Mar-18
		Replace arrester on mainline switch from inspection	Complete	Oct-18
		Replace porcelain cutout with polymer cutout from inspection	Complete	Oct-18
		Replace pole from inspection #1	Complete	Oct-18
		Replace crossarm from inspection #1	Complete	Nov-18
		Replace pole from inspection #2	Complete	Nov-18
		Replace pole from inspection #3	Complete	Nov-18
		Replace crossarm from inspection #2	Complete	Dec-18
		Replace pole from inspection #4	Complete	Dec-18
		Replace crossarm from inspection #3	Complete	Dec-18
		Install SCADA switch #1	Complete	Dec-18
		Install SCADA switch #2	Complete	Dec-18
		Targeted mainline circuit rehabilitation engineering review	To be Completed 2019	0%
		Replace line clamp from Thermovision inspection	To be Completed 2019	25%
		Replace crossarm brace from Thermovision inspection	To be Completed 2019	25%
		Replace crossarm brace from Thermovision inspection	To be Completed 2019	25%
		Replace crossarm brace from Thermovision inspection	To be Completed 2019	25%
		Install SCADA recloser	To be Completed 2019	50%
		Install SCADA switch #1	To be Completed 2019	50%
		Install SCADA switch #2	To be Completed 2019	25%
		Three-phase overhead inspection	To be Completed 2019	0%

Met-Ed				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work**	**Progress of Remedial Work or Date Completed**
Shawnee	00822-3	*Performance was driven by vehicle accidents (47%), equipment failure (15%) and unknown outages (13%).*		
		Repair items identified during Thermovision inspection	Complete	Feb-18
		Porcelain cutout replacement #1	Complete	Dec-18
		Porcelain cutout replacement #2	Complete	Dec-18
		Porcelain cutout replacement #3	Complete	Dec-18
		Install SCADA switch	To be Completed 2019	0%
		Three-phase overhead inspection	To be Completed 2019	0%
Birchwood	00624-3	*Performance was driven by vehicle accidents (73%) and equipment failure (23%).*		
		Thermovision and overhead inspection	Complete	Feb-18
		Enhanced tree trimming	Complete	Aug-18
		Install SCADA recloser	Complete	Dec-18
		Install SCADA recloser	To be Completed 2019	0%
		Overhead circuit inspection	To be Completed 2019	0%

Penelec				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work Completed**	**Progress of Remedial Work or Date Completed**
Grover	00527-63	*Performance was driven by trees off ROW (83%).*		
		Repair line failure	Complete	May-18
		Repair damage caused by trees during a storm	Complete	May-18
		Repair damage caused by trees during a storm	Complete	Sep-18
Warren South	00220-41	*Performance was driven by trees off ROW (82%).*		
		Repair damage caused by trees	Complete	Feb-18
		Repair equipment failure	Complete	May-18
		Repair damage caused by trees during a storm	Complete	Jul-18
		Porcelain cutout replacement	Complete	Jul-18
		Repair damage caused by trees during a storm	Complete	Sep-18
		Install advanced distribution protective devices	Complete	Dec-18
		On cycle tree trimming	To be Completed 2019	0%
Madera	00166-22	*Performance was driven by recloser operation of an unknown cause (26%), equipment failure (25%), trees off ROW (22%) and vehicle (21%).*		
		Porcelain cutout replacement	Complete	Feb-18
		Repair damage caused by vehicle accident	Complete	Mar-18
		Repair damage caused by trees during a storm	Complete	May-18
		Restore recloser operation of unknown cause	Complete	Sep-18
		Restore recloser operation of unknown cause	Complete	Sep-18
		Repair equipment failure	Complete	Nov-18
Timblin	00103-23	*Performance was driven by trees off ROW (87%).*		
		Repair equipment failure	Complete	Feb-18
		Circuit inspection	Complete	Oct-18
		Repair damage caused by trees during a storm	Complete	Nov-18
		Targeted circuit rehabilitation	To be Completed 2019	0%
		On cycle tree trimming	To be Completed 2019	0%
Lake Como	00787-65	*Performance was driven by line failure (77%) and trees off ROW (14%).*		
		Repair line failure	Complete	Feb-18
		Repair damage caused by trees during a storm	Complete	Jun-18
		Repair line failure	Complete	Jul-18

Penelec				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work Completed**	**Progress of Remedial Work or Date Completed**
Union City	00207-43	*Performance was driven by line failure (54%), vehicle accident (22%) and trees off ROW (11%).*		
		Repair line failure	Complete	Jan-18
		Repair line failure	Complete	Mar-18
		Repair damage caused by vehicle accident	Complete	Mar-18
		Repair damage caused by trees during a storm	Complete	Nov-18
Logan	00700-81	*Performance was driven by trees off ROW (60%) and vehicle accident (32%).*		
		Porcelain cutout replacement	Complete	Apr-18
		Repair damage caused by trees	Complete	Jun-18
		Repair damage caused by trees	Complete	Sep-18
		Repair damage caused by vehicle accident	Complete	Oct-18
		Repair damage caused by vehicle accident	Complete	Nov-18
Tunkhannock	00533-65	*Performance was driven by trees off ROW (74%) and equipment failure (16%).*		
		Repair damage caused by trees during a storm	Complete	May-18
		Repair damage caused by trees during a storm	Complete	Jul-18
		Repair equipment failure	Complete	Jul-18
Springboro	00237-52	*Performance was driven by trees off ROW (67%) and vehicle accident (14%).*		
		Repair damage caused by trees	Complete	Mar-18
		Repair damage caused by vehicle accident	Complete	Apr-18
		Repair damage caused by trees	Complete	Apr-18
		Targeted circuit rehabilitation	To be Completed 2019	0%
Thompson	00436-65	*Performance was driven by trees off ROW (82%).*		
		Repair damage caused by trees during a storm	Complete	Aug-18
		Repair damage caused by trees	Complete	Oct-18
Union City	00206-43	*Performance was driven by equipment failure (61%) and trees off ROW (14%).*		
		Repair equipment failure	Complete	Feb-18
		Repair equipment failure	Complete	May-18
		Replace substation breaker	Complete	Jul-18
		Repair equipment failure	Complete	Sep-18
		Install new radio-controlled switch	To be Completed 2019	0%
		Targeted circuit rehabilitation	To be Completed 2019	0%
		Install advanced distribution protective devices	To be Completed 2019	0%

Penelec				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work Completed**	**Progress of Remedial Work or Date Completed**
N Meshoppen Tran	00534-65	*Performance was driven by trees off ROW (61%) and equipment failure (29%).*		
		Install radio fault indicators	Complete	Jan-18
		Repair equipment failure	Complete	Feb-18
		Repair damage caused by trees during a storm	Complete	May-18
		Circuit inspection	Complete	Jul-18
		Repair damage caused by trees	Complete	Jul-18
		Repair damage caused by trees during a storm	Complete	Nov-18
Birmingham	00168-22	*Performance was driven by vehicle accident (63%), trees off ROW (16%) and fuse operation of unknown cause (12%).*		
		Repair damage caused by vehicle accident	Complete	Mar-18
		Restore fuse operation of unknown cause	Complete	Jul-18
		Repair damage caused by vehicle accident	Complete	Oct-18
		Repair damage caused by trees	Complete	Dec-18
Philipsburg	00162-22	*Performance was driven by equipment failure (43%), vehicle accident (23%) and trees off ROW (15%).*		
		Repair equipment failure	Complete	Jan-18
		Repair equipment failure	Complete	May-18
		Targeted circuit rehabilitation	Complete	May-18
		Repair damage caused by vehicle accident	Complete	Aug-18
		Install advanced distribution protective devices	Complete	Dec-18
		Targeted circuit rehabilitation	To be Completed 2019	0%
		Split large circuits	To be Completed 2019	0%
Logan	00701-81	*Performance was driven by equipment failure (48%) and lightning (33%).*		
		Repair equipment failure	Complete	May-18
		Repair damage caused by trees during a storm	Complete	May-18
		Repair damage caused by lightning	Complete	Sep-18
		Repair equipment failure	Complete	Nov-18

Penelec				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work Completed**	**Progress of Remedial Work or Date Completed**
East Hickory	00201-41	*Performance was driven by trees off ROW (94%).*		
		Repair damage caused by trees	Complete	May-18
		Repair damage caused by trees during a storm	Complete	Jul-18
		Repair damage caused by trees	Complete	Sep-18
		Repair damage caused by trees	Complete	Dec-18
		Replace substation recloser	Complete	Dec-18
		On cycle tree trimming	To be Completed 2019	0%
Brookville	00125-23	*Performance was driven by trees off ROW (65%) and vehicle accident (26%).*		
		Repair damage caused by vehicle accident	Complete	Apr-18
		Repair damage caused by trees during a storm	Complete	Sep-18
		Replace cap & pin insulators	Complete	Sep-18
		Circuit inspection	Complete	Oct-18
		On cycle tree trimming	To be Completed 2019	0%

Penn Power				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work**	**Progress of Remedial Work or Date Completed**
Hickory	W-243	*Performance was driven by trees off ROW (91%).*		
		Restore breaker operation caused by line fault/trees during storm	Complete	Mar-18
		Repair damage caused by tree	Complete	Aug-18
Canal	W-101	*Performance was driven by trees off ROW (52%), equipment failure (25%) and unknown (19%).*		
		Repair damage caused by trees during a storm	Complete	Jan-18
		Repair damage caused by trees during a storm	Complete	Mar-18
		Replace broken insulators	Complete	Jul-18
		Restore breaker operation of unknown cause	Complete	Aug-18

West Penn				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work Completed**	**Progress of Remedial Work or Date Completed**
Rutan	Bristoria	*Performance driven by trees off ROW (61%) and equipment failure (24%).*		
		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
		Repair equipment failure during a storm	Complete	Jul-18
		Repair damage caused by a tree during a storm	Complete	Aug-18
		Repair equipment failure	Complete	Oct-18
		Repair damage caused by a tree during a storm	Complete	Oct-18
		Overhead circuit inspection	To be Completed 2019	0%
Smith	Francis Mine	*Performance driven by trees off ROW (78%) and unknown (16%).*		
		Repair damage caused by a tree during a storm	Complete	Jan-18
		Repair damage caused by a tree	Complete	May-18
		Repair damage caused by a tree during a storm	Complete	Jul-18
		Restore unknown outage during a storm	Complete	Aug-18
		Reliability job to install fuses	Complete	Aug-18
		Repair damage caused by a tree	Complete	Sep-18
		Repair damage caused by a tree during a storm	Complete	Dec-18
Dutch Fork	Claysville	*Performance driven by trees off ROW (62%) and unknown (12%).*		
		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
		Restore unknown outage	Complete	Aug-18
		Repair damage caused by a tree during a storm	Complete	Sep-18
		Enhanced WPC remediation	Complete	Nov-18
		Repair damage caused by a tree	Complete	Dec-18

West Penn				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work Completed**	**Progress of Remedial Work or Date Completed**
Waterville	Waterville	*Performance driven by trees off ROW (68%) and other electric utility (28%).*		
		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
		Repair damage caused by a tree during a storm	Complete	Aug-18
		Repair damage caused by a tree	Complete	Aug-18
		Restore outage caused by other electric utility	Complete	Dec-18
Smith	Florence	*Performance driven by trees off ROW (45%) and line failure (27%).*		
		Repair damage caused by a vehicle	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
		Repair line failure	Complete	Jul-18
		Repair equipment failure during a storm	Complete	Sep-18
		Repair damage caused by a tree during a storm	Complete	Sep-18
		Repair damage caused by a tree	Complete	Dec-18
		Enhanced WPC remediation	To be Completed 2019	0%
Dutch Fork	W Alexander	*Performance driven by trees off ROW (70%) and line failure (12%).*		
		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
		Repair damage caused by a tree	Complete	Jul-18
		Repair line failure during a storm	Complete	Sep-18
		Repair damage caused by a tree	Complete	Oct-18
		On cycle tree trimming	To be Completed 2019	96%

West Penn				
Substation	**Circuit**	**Remedial Action Planned or Taken**	**Status of Remedial Work Completed**	**Progress of Remedial Work or Date Completed**
Franklin	West Waynesburg	*Performance driven by vehicle (50%) and trees off ROW (30%).*		
		Forced outage to repair damage	Complete	Jan-18
		Repair damage caused by a vehicle	Complete	Jan-18
		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 a tree	Complete	Aug-18
		Forced outage to repair damage	Complete	Sep-18
		Zone 1 infrared inspection	Complete	Sep-18
		Restore unknown outage	Complete	Oct-18
Bethlen	Darlington	*Performance driven by trees off ROW (61%) and vehicle (18%).*		
		Repair damage caused by a vehicle	Complete	Jan-18
		Repair damage caused by a tree during a storm	Complete	Apr-18
		Repair damage caused by a tree	Complete	Aug-18
		Repair damage caused by a tree during a storm	Complete	Aug-18
		Forced outage to repair damage	Complete	Sep-18
		Overhead circuit inspection	Complete	Oct-18
		Repair line failure	Complete	Nov-18
		Repair damage caused by a tree	Complete	Nov-18
Kiski Valley	Kittanning Rd	*Performance driven by trees off ROW (66%) and line failure (20%).*		
		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
		Zone 1 infrared inspection	Complete	Aug-18
		Repair damage caused by a tree during a storm	Complete	Sep-18
		Repair line failure	Complete	Dec-18

ATTACHMENT B

FirstEnergy's Compliance with Terms of the March 30, 2015 Management Audit Order & Corrective Action Plan

On March 30, 2015, the Commission issued an order directing Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company to prepare and file a revised implementation plan relating to specific topics addressed in the report issued by the Commission's Bureau of Audits on February 12, 2015.[26] More specifically, Ordering Paragraphs 3 and 4 refer to reliability and worst performing circuits, respectively.

In a tentative order issued on August 20, 2015 accepting the Implementation Plans, the Companies were ordered to report progress for Ordering Paragraphs 3 and 4 on an annual basis in the Annual Reliability Report filed under 52 Pa. Code § 57.195. [27]

See Attachment C for the 2018 progress report for Ordering Paragraphs 3 and 4.

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[26] Implementation Plans for the Focused Management Audit of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company can Docket Nos. D-2013-2365991, D-2013-2365992, D-2013-2365993, D-2013-2365994.

[27] Additionally, in the tentative order, it allowed Penn Power and Penelec to consider the Annual Reliability Report as the fourth quarter CAP update. In a letter dated January 6, 2017 from Paul Diskin, Director, Technical Utility Services, Penn Power is no longer required to provide quarterly CAP updates. Please note that the projects identified as plan type "Reliability" in Attachment B also correspond with the Penelec CAP.

Met-Ed Projects 2018											
Project Description	Plan Type	Start Date *(Actual/Projected)*	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Actual Project Cost	Comments
621-3 Create Tie with 620-3	WPC	January 2018	December 2018		December 4, 2018	100%	0.0010		0.118	$ 2,125,858.00	
Targeted Mainline Rehabilitation (5 Circuits)	WPC	January 2018	December 2018		December 19, 2018	100%	0.0004		0.040	$ 1,176,643.00	
Porcelain Cutout Replacement (5 Circuits)	WPC	January 2018	December 2018		December 19, 2018	100%	0.0004		0.040	$ 1,283,274.00	

Penelec Projects 2018

Transmission Projects (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Actual Project Cost	Comments
Transmission Improvement Study - REMOVED	Reliability	January 2018	December 2018								See the response to VII-1 for an explanation for removal of this project.

Distribution Lines Projects (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Actual Project Cost	Comments
DuBois 00137-23 Line Rehabilitation 20 miles	WPC	June 2017	December 2017	November 2018	November 6, 2018	100%	0.0007		0.08	$ 218,600	
Targeted Mainline Rehabilitation of 00226-31	Reliability	March 2018	May 2018		May 9, 2018	100%	0.0020		0.23	$ 967,925	
Targeted Mainline Rehabilitation of 00201-31	Reliability	October 2018	December 2018		July 16, 2018	100%	0.0022		0.26	$ 754,891	
Finish Targeted Mainline Rehabilitation of 00222-31	*Reliability*	*May 2019*	*June 2019*		*February 7, 2018*	*100%*	*0.0020*		*0.23*	$ 86,556	
Finish protection/coordination work on 00225-31	Reliability	June 2018	July 2018	November 2018	December 6, 2018	100%	0.0007		0.08	$ 110,940	
Finish protection/coordination work on 00586-31 - REMOVED	Reliability	August 2018	September 2018		REMOVED -	0%	0.0002		0.02		
Finish protection/coordination work on 00216-34	Reliability	May 2018	August 2018		June 15, 2018	100%	0.0002		0.02	$ 15,696	
Targeted Mainline Rehabilitation of 00048-11	Reliability	February 2018	June 2018	July 2018	August 14,2018	100%	0.0018		0.21	$ 587,161	

Porcelain Cutout Replacement (Project Lead: Engineering Project Manager)

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Actual Project Cost	Comments
34kV 3 Phase Priority 4 circuit list cutout replacement (57 circuits)	Reliability	January 2018	December 2018	May 2019		99%	0.0001		0.01	$ 2,438,426	One work request remains on this project. An outage is needed to complete the work and Penelec is communicating with the affected commercial customer to coordinate timing.

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

Project Description	Plan Type	Start Date (Actual/Projected)	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Actual Project Cost	Comments
Wesley Chapel - Install SCADA - NEW	Reliability	July 2018	August 2018	June 2019		80%	0.0003		0.04	$ 88,240	Switch has been installed in the field and is operating as a manual switch while the communications installation is remaining to be completed.
Stoystown - Install SCADA - NEW	Reliability	August 2018	September 2018	June 2019		80%	0.0003		0.04	$ 88,108	Switch has been installed in the field and is operating as a manual switch while the communications installation is remaining to be completed.
Elk Run - Install SCADA - NEW	Reliability	August 2018	September 2018	November 2018	December 19,2018	100%	0.0003		0.04	$ 65,765	
Friedens - Install SCADA - NEW	Reliability	August 2018	September 2018	June 2019		80%	0.0002		0.03	$ 108,541	Switch has been installed in the field and is operating as a manual switch while the communications installation is remaining to be completed.
Mine 40 - Install SCADA	Reliability	October 2018	November 2018	June 2019		80%	0.0003		0.04	$ 171,908	Switch has been installed in the field and is operating as a manual switch while the communications installation is remaining to be completed.
Catherine Street - Install SCADA	Reliability	September 2018	October 2018	June 2019		25%	0.0002		0.02	$ 143,993	There was a delay in the substation work related to this project but it was started in February 2019.
Shade Gap - Install SCADA	Reliability	August 2018	September 2018	June 2019		90%	0.0001		0.01	$ 187,277	Deficiencies in the relays in one of the switches was discovered and additional repair is needed.
Bethlehem No 31 - Install SCADA	Reliability	March 2018	April 2018	October 2018	December 13, 2018	100%	0.0001		0.01	$ 8,991	
Loveland - Install SCADA - NEW	Reliability	October 2018	November 2018		December 6, 2018	100%	0.0000		0.00	$ 212,185	
Erie South 00239-31 Advanced Protection and Distribution Automation	WPC	September 2017	December 2018		December 6, 2018	100%	0.0041		0.4800	$ 150,722	
Warren South 00220-41 Advanced Protection and Distribution Automation	WPC	September 2017	December 2018	July 2019		95%	0.0045		0.5310	$ 103,337	Switch has been installed in the field and is operating as a manual switch while the communications installation is remaining to be completed.
Madera 00166-22 - Add Distribution Automation	WPC	September 2017	December 2018		December 31, 2018	100%	0.0035		0.4148	$ 247,916	
Union City 00206-43 Advanced Protection and Distribution Automation	WPC	September 2017	December 2018		October 9, 2018	100%	0.0059		0.6970	$ 330,700	
Pleasant Valley - Install SCADA	Reliability	August 2019	October 2019				0.0001		0.01	$ 88,500	This project is part of a larger project that has been delayed due to outages on the transmission system.
Litton - Install SCADA - REMOVED	Reliability	October 2018	November 2018		REMOVED		0.0000		0.00		
Wells Elec - Install SCADA - REMOVED	Reliability	August 2018	September 2018		REMOVED		0.0002		0.03		The addition of transmission voltage to the substation from which this circuit is served results in this project not being needed.

Buckeye Pipeline - Install SCADA - REMOVED	Reliability	July 2018	August 2018		REMOVED		0.0000		0.00		Subsequent data analysis performed during the design phase of this project determined a lower reliability benefit than originally calculated. The funds targeted to this project have been reallocated.
South Tornado - Install SCADA - REMOVED	Reliability	August 2018	September 2018		REMOVED		0.0003		0.04		Project completed in previous years. Replaced with Wesley Chapel.
Abex - Install SCADA - REMOVED	Reliability	August 2018	September 2018		REMOVED		0.0003		0.04		Subsequent data analysis performed during the design phase of this project determined a lower reliability benefit than originally calculated. The funds targeted to this project have been reallocated.
Substation (Project Lead: Substation Manager)											
Description	**Plan Type**	**Start Date** *(Actual/Projected)*	**Original Projected Completion Date**	**Updated Projected Completion Date**	**Actual Completion Date**	**Percent Complete**	**Potential SAIFI Reliability Benefit**	**Potential CAIDI Reliability Benefit**	**Potential SAIDI Reliability Benefit**	**Actual Project Cost**	**Comments**
Selk 00070-11- add 115kV/23kV at Krayn - REMOVED	WPC	September 2017	December 2018				0.0045		0.5295	$ 2,242,000	
57 - 12kV breaker/recloser replacements - NEW	WPC	March 2018	December 2018	August 2019		84%	0.0111		1.3000	$ 10,841,177	48 breakers have been completed.
Infrared scan and follow-up rehabilitation - NEW	WPC	January 2018	December 2018	December 2019		25%	0.0082		1.0000	$ 565,000	The infrared scan and remediation for priority 1 and priority 2 conditions are complete. The remaining priority 3 and priority 4 conditions are yet to be completed.
Tunhannock 00533-65 install automatic switching and provide a 10 mile backfeed to Falls substation	WPC	September 2017	December 2018	Unknown			0.0028		0.9280	$ 3,186,000	There is currently a delay in obtaining the right-of-way for this project. The completion date is currently unknown.

Penn Power Projects 2019											
Distribution Line Projects (Project Lead: Line General Manager)											
Project Description	Plan Type	Start Date *(Actual/Projected)*	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Actual Project Cost	Comments
Install Circuit Ties, Loops, or Sources (19 miles and Build Subs)	Reliability	January 2018	December 2018	November 2019		95%		0.990	1.277	$ 7,393,658.18	One project remaining that was delayed due to permitting.

West Penn Projects 2018											
Project Description	Plan Type	Start Date *(Actual/Projected)*	Original Projected Completion Date	Updated Projected Completion Date	Actual Completion Date	Percent Complete	Potential SAIFI Reliability Benefit	Potential CAIDI Reliability Benefit	Potential SAIDI Reliability Benefit	Actual Project Cost	Comments
Hardware and Coordination Rehabilitation	WPC	January 2018	December 2018		December 31, 2018	100%	0.004		0.180	$ 790,000.00	
Subtransmission Modernization and Automation	Reliability	January 2018	December 2018		December 31, 2018	100%	0.005		0.603	$ 2,570,000.00	
Enhanced Overcurrent Protection and SCADA Control	Reliability	January 2018	December 2018	March 31, 2019	March 25, 2019	100%	0.003		0.066	$ 2,160,000.00	The two circuits remaining after December 31, 2018 were completed on March 25, 2019.
Targeted Mainline Rehabilitation	Reliability	January 2018	December 2018		December 31, 2018	100%	0.006		0.090	$ 3,650,000.00	

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint 2018 Annual Reliability Report –	:
Metropolitan Edison Company,	:
Pennsylvania Electric Company and	:
Pennsylvania Power Company	:

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
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Tanya McCloskey
Office of Consumer Advocate
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Harrisburg, PA 17101-1923

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Pennsylvania Public Utility Commission
400 North Street 2nd Floor West
Harrisburg, PA 17105-3265

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

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David Dulick@ccsenergy.com

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Dated: April 30, 2019

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Pennsylvania Power Company and
West Penn Power Company

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