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April 30, 2021

VIA E-FILING

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

Re: Joint 2020 Annual Reliability Report – Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company; Docket No. M-2016-2522508

Dear Secretary Chiavetta,

Pursuant to 52 Pa. Code § 57.195(a) and (b), enclosed for filing is the Joint 2020 Annual Reliability Report ("Joint Report") of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company (collectively, the "Companies").

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 mail)
J. Van Zant – Bureau of Technical Utility Services (via electronic mail)
Derek Ruhl - PaPUC Bureau of Technical Utility Services (via electronic mail)

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

Joint 2020 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 2020 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 2020 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. In 2020, the Companies were able to maintain a focus on safe and reliable electric service while implementing measures to protect its employees and customers from exposure to COVID-19. A large portion of non-physical workers were able to work remotely using technology to perform their responsibilities safely. For those employees not able to work remotely, additional hygiene and social distancing measures were taken. This included items such as smaller reporting groups, remote reporting locations, additional vehicles, hand sanitizing or hand washing stations, extra personal protective equipment (*i.e.* masks and gloves), and more frequent surface cleaning. From the physical field employees up to and including top management, the Companies are committed to operate their distribution systems in a manner that results in safe, reasonable, and cost-effective reliable service for their customers.

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 ("I&M")

  - The Distribution Inspection & Maintenance 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]
  - Portions of a circuit that experience high customer interruption minutes due to vegetation-caused outages may be targeted to include the removal of certain healthy limbs which overhang primary conductors based on tree species and condition.
  - 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 to 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
  - Circuit protection practices are aimed at achieving safety and security for the public and employees, maximizing service reliability to customers, minimizing

[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.

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. In 2020, the Companies filed the Cost Effectiveness report at the completion of LTIIP I. In January 2020, the Commission approved the Companies' respective second LTIIP ("LTIIP II"). LTIIP II, which spans the five-year period of 2020 through 2024, focuses on two areas: asset health and outage exposure. Asset health focuses on maintaining the system in a state of good repair while outage exposure focuses on minimizing the impact of customer outages. LTIIP II includes initiatives and expenditures within these two focus areas that are designed to maximize sustained reliability over the long-term.

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.
- Summer Readiness
    - Summer is the time when most electric utilities experience the highest system loads and most damaging storms. In order to prepare for this period of the year, the Companies perform summer readiness activities such as capacitor inspections,

substation inspections, transmission system reliability and capability review, and post-storm reviews to identify and disseminate lessons learned after significant events.

- Smart Meters
    - The Companies have completed mass deployment of smart meters to customers across Pennsylvania. 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's service 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 2020, the Companies had varying performance in regard to the twelve-month standards for System Average Interruption Duration Index ("SAIDI"), System Average Interruption Frequency Index ("SAIFI"), and Customer Average Interruption Duration Index ("CAIDI"). While the performance varied, the benefits of LTIIP work are coming to fruition and improvement is taking place. The primary drivers impacting reliability performance were: 1) weather (primarily the impact

of minor storms); 2) tree-related outages, specifically off right-of-way trees, [3] occurring during inclement weather; and 3) line and equipment failures. 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] The Companies' options under the law are strictly limited when it comes to all forms of off right-of-way tree management, with the sole solution it is legally permitted to undertake being the identification of priority off right-of-way trees that are dead, dying, diseased, leaning, and significantly encroaching the corridor. The Companies are very active in pursuing this option, where available.

Reliability Results

The table below, taken from the 4th Quarter 2020 Joint Reliability Report, shows that six of twelve reliability indices in 2020 were better than the Commission's twelve-month standards with one of the indices being better than benchmark.

4Q 2020 (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	1.58	1.12	1.34	0.97[4]	1.05	1.26	1.12
CAIDI	117	140	150	117	141	136	101	121	185	170	204	216
SAIDI	135	194	190	148	213	214	113	162	179	179	257	241
MAIFI[5]			0.625			0.547			0.013			
Customers Served[6]	569,922			579,765			165,229			720,861		
Number of Sustained Interruptions	11,695			13,636			3,309			12,603		
Customers Affected	724,138			914,716			159,907			806,924		
Customer Minutes	108,430,636			124,129,511			29,576,002			173,878,127		
Number of Customer Momentary Interruptions	356,165			316,918			2,188					

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

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

[6] 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.*[7]

Major Events

FirstEnergy Company	Customers Affected	Time and Duration of the Event		Cause of the Event	Commission Approval Status
Met-Ed	88,597	Duration	101 hours, 58 minutes	Derecho	Approved August 4, 2020
		Start Date/Time	June 3, 2020 1122		
		End Date/Time	June 7, 2020 1720		
Met-Ed	101,559	Duration	105 hours, 42 minutes	Tropical Storm Isaias	Approved September 29, 2020
		Start Date/Time	August 4, 2020 0910		
		End Date/Time	August 8, 2020 1852		
Penelec	90,058	Duration	106 hours, 50 minutes	High Winds and Rain	Approved January 4, 2021
		Start Date/Time	November 15, 2020 0758		
		End Date/Time	November 19, 2020 1848		

[7] 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.

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	**2018**	**2019**	**2020**
Met-Ed	SAIFI	1.16	1.54	1.27
	CAIDI	127	164	150
	SAIDI	147	253	190
	MAIFI	1.71	0.80	0.63
	Customer Minutes	83,342,649	143,334,631	108,430,636
	Customers Affected	656,391	874,452	724,138
	Minutes of Interruption	2,868,213	4,506,031	3,869,429
	Customers Served[8]	565,359	566,218	569,922
Penelec	SAIFI	1.71	1.72	1.58
	CAIDI	114	147	136
	SAIDI	195	252	214
	MAIFI	2.82	.73	0.55
	Customer Minutes	113,145,011	146,082,071	124,129,511
	Customers Affected	993,665	995,121	914,716
	Minutes of Interruption	3,461,761	4,292,985	4,054,877
	Customers Served[9]	580,198	579,647	579,765
Penn Power	SAIFI	1.10	1.38	0.97
	CAIDI	138	129	185
	SAIDI	152	178	179
	MAIFI	0.22	0.14	0.01
	Customer Minutes	24,939,341	29,151,703	29,576,002
	Customers Affected	180,247	226,745	159,907
	Minutes of Interruption	1,009,636	1,157,569	1,456,058
	Customers Served[10]	163,633	164,199	165,229

[8] Represents the average number of customers served during the reporting period.
[9] Represents the average number of customers served during the reporting period.
[10] Represents the average number of customers served during the reporting period.

Historic 12-Month Rolling Reliability Indices				
	Index	**2018**	**2019**	**2020**
West Penn	SAIFI	1.12	1.19	1.12
	CAIDI	162	165	216
	SAIDI	182	196	241
	Customer Minutes	130,058,930	140,292,539	173,878,127
	Customers Affected	802,100	851,338	806,924
	Minutes of Interruption	4,400,773	4,667,135	5,912,584
	Customers Served[11]	716,367	717,331	720,861

The tables below show that four of twelve reliability indices in 2020 were better than the Commission's three-year standards.

Three-Year Rolling Year-End 2020	**Met-Ed**		**Penelec**	
	Three-Year Standard	Three-Year Actual	Three-Year Standard	Three-Year Actual
SAIFI	1.27	1.33	1.39	1.67
CAIDI	129	147	129	132
SAIDI	163	197	179	220

Three-Year Rolling Year-End 2020	**Penn Power**		**West Penn**	
	Three-Year Standard	Three-Year Actual	Three-Year Standard	Three-Year Actual
SAIFI	1.23	1.15	1.16	1.14
CAIDI	111	151	187	181
SAIDI	136	170	217	206

[11] 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 2020 12-Month Rolling	**Met-Ed**			
Cause	**Customer Minutes**	**Number of Sustained Interruptions**	**Customers Affected**	**% Based on Customer Minutes**
Trees off ROW - tree	48,549,233	2,649	191,603	44.77%
Equipment failure	22,581,868	2,531	210,543	20.83%
Unknown	6,576,461	1,296	52,395	6.07%
Vehicle	5,498,890	288	37,423	5.07%
Line failure	4,929,387	638	30,105	4.55%
Trees off ROW - limb	4,263,830	456	32,417	3.93%
Animal	3,385,034	1,641	34,635	3.12%
Forced outage	3,096,904	405	68,151	2.86%
Human error - company	1,743,545	44	14,051	1.61%
Lightning	1,502,403	199	16,883	1.39%
Wind	1,425,945	102	5,210	1.32%
Object contact with line	1,373,360	54	7,050	1.27%
Bird	885,374	486	6,234	0.82%
Trees on ROW	781,139	129	4,062	0.72%
Trees - sec/service	698,141	489	1,667	0.64%
Overload	533,825	82	4,522	0.49%
Human error - non-company	355,871	79	2,907	0.33%
Ice	77,199	5	90	0.07%
Other utility - non-electric	51,106	6	517	0.05%
Customer equipment	28,594	42	1,839	0.03%
Fire	28,176	10	668	0.03%
UG dig-up	25,876	26	106	0.02%
Other electric utility	12,435	5	745	0.01%
Previous lightning	11,158	25	41	0.01%
Vandalism	10,346	6	65	0.01%
Contamination	2,790	1	15	0.00%
Switching error	1,746	1	194	0.00%
Total	**108,430,636**	**11,695**	**724,138**	**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, 2020, 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. Met-Ed's options under the law are strictly limited when it comes to all forms of off-right-of-way ("ROW") tree management. However, Met-Ed is legally permitted to identify priority off-ROW trees that are dead, dying, diseased, leaning, and significantly encroaching the corridor and remove those trees when customer consent is obtained or easement rights permit. Met-Ed is very active in pursuing this option, where available. 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 program to mitigate trees subject to damage from the Emerald Ash Borer.

To reduce the likelihood of equipment failure outages, Met-Ed follows inspection and maintenance ("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.

Met-Ed reviews vehicle caused outages to determine if it is a repeat location 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.

Outages by Cause – Penelec

Outage by Cause				
4th Quarter 2020 12-Month Rolling	**Penelec**			
Cause	**Customer Minutes**	**Number of Sustained Interruptions**	**Customers Affected**	**% Based on Customer Minutes**
Trees off ROW - tree	52,288,425	1,851	218,025	42.12%
Equipment failure	22,297,624	2,542	207,549	17.96%
Line failure	12,647,351	1,576	116,363	10.19%
Unknown	6,770,019	1,828	94,806	5.45%
Forced outage	6,236,141	1,067	57,218	5.02%
Lightning	5,955,919	472	45,378	4.80%
Vehicle	4,301,987	276	31,973	3.47%
Animal	3,544,285	1,732	40,869	2.86%
Trees off ROW - limb	2,897,316	349	26,135	2.33%
Ice	1,160,046	81	3,989	0.93%
Human error - company	1,091,074	64	30,775	0.88%
Trees - sec/service	906,947	745	2,277	0.73%
Bird	859,558	452	11,195	0.69%
Human error - non-company	696,685	91	5,000	0.56%
Wind	618,531	73	2,038	0.50%
Other electric utility	595,449	111	2,865	0.48%
Object contact with line	364,945	42	3,563	0.29%
Overload	253,046	45	4,854	0.20%
Trees on ROW	242,135	78	1,953	0.20%
Vandalism	100,732	11	687	0.08%
Fire	73,903	18	646	0.06%
Other utility - non-electric	72,742	6	437	0.06%
UG dig-up	49,945	50	413	0.04%
Customer equipment	44,837	25	4,208	0.04%
Contamination	35,864	31	141	0.03%
Switching Error	17,859	4	1,325	0.01%
Previous lightning	5,988	15	33	0.00%
Call error	158	1	1	0.00%
Total	**124,129,511**	**13,636**	**914,716**	**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, 2020 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-ROW priority trees. Penelec's options under the law are strictly limited when it comes to all forms of off-ROW tree management. However, Penelec is legally permitted to identify priority off-ROW trees that are dead, dying, diseased, leaning, and significantly encroaching the corridor and remove those trees when customer consent is obtained or easement rights permit. Penelec is very active in pursuing this option, where available. Trees identified as a potential cause of a future outage are removed to prevent an interruption of electrical service to Penelec's customers. Penelec continues its program to mitigate trees subject to damage from the Emerald Ash Borer.

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.

Outages by Cause – Penn Power

Outage by Cause				
4th Quarter 2020 12-Month Rolling	**Penn Power**			
Cause	**Customer Minutes**	**Number of Sustained Interruptions**	**Customers Affected**	**% Based on Customer Minutes**
Trees off ROW - tree	18,160,342	955	64,830	61.40%
Equipment failure	2,504,223	344	21,390	8.47%
Lightning	1,960,314	188	12,013	6.63%
Line failure	1,848,398	295	12,110	6.25%
Vehicle	1,783,784	108	15,507	6.03%
Trees off ROW - limb	1,184,689	177	8,543	4.01%
Animal	716,852	439	8,519	2.42%
Unknown	430,209	112	5,011	1.45%
Bird	312,081	360	3,526	1.06%
Trees - sec/service	239,505	196	518	0.81%
Forced outage	186,090	56	3,018	0.63%
Human error - non-company	83,423	20	768	0.28%
Human error - company	73,449	11	3,179	0.25%
Overload	53,779	12	694	0.18%
Ice	15,525	3	23	0.05%
Object contact with line	10,083	5	114	0.03%
UG dig-up	6,283	10	73	0.02%
Trees on ROW	3,501	4	27	0.01%
Fire	1,395	2	13	0.00%
Customer equipment	1,101	7	9	0.00%
Previous lightning	720	4	14	0.00%
Contamination	256	1	8	0.00%
Total	**29,576,002**	**3,309**	**159,907**	**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, 2020 and the associated actions designed to address these outage causes.

To address outages caused by trees, Penn Power performs 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-ROW priority trees. Penn Power's options under the law are strictly limited when it comes to all forms of off-ROW tree management. However, Penn Power is legally permitted to identify priority off-ROW trees that are dead, dying, diseased, leaning, and significantly encroaching the corridor and remove those trees when customer consent is obtained or easement rights permit. Penn Power is very active in pursuing this option, where available. Trees identified as a potential cause of a future outage are removed to prevent an interruption of electrical service to Penn Power's customers. In addition, Penn Power performs enhanced trimming to circuits that experience high customer interruption minutes due to vegetation, which removes limbs overhanging primary conductors.

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

Outages by Cause – West Penn

Outage by Cause				
4th Quarter 2020 12-Month Rolling	**West Penn**			
Cause	**Customer Minutes**	**Number of Sustained Interruptions**	**Customers Affected**	**% Based on Customer Minutes**
Trees off ROW - tree	98,131,899	3,377	292,690	56.44%
Equipment failure	16,761,688	1,993	113,674	9.64%
Unknown	13,485,815	1,668	95,580	7.76%
Line failure	11,845,950	1,294	69,706	6.81%
Vehicle	7,460,060	295	57,578	4.29%
Trees on ROW	6,819,284	464	23,900	3.92%
Forced outage	4,934,014	513	57,945	2.84%
Wind	4,454,155	195	16,072	2.56%
Trees off ROW - limb	3,020,726	193	21,738	1.74%
Animal	2,244,348	1,424	25,196	1.29%
Lightning	1,073,444	130	10,380	0.62%
Human error - non-company	749,389	65	7,158	0.43%
Object contact with line	685,260	40	2,507	0.39%
Human error - company	529,883	36	3,772	0.30%
Trees - sec/service	499,388	440	757	0.29%
Other electric utility	381,977	9	1,140	0.22%
Bird	256,169	383	3,657	0.15%
Vandalism	192,375	4	485	0.11%
Fire	129,083	5	655	0.07%
UG dig-up	73,974	38	1,524	0.04%
Overload	43,072	5	462	0.02%
Ice	38,930	7	84	0.02%
Customer equipment	31,174	16	147	0.02%
Other utility - non-electric	25,713	6	92	0.01%
Previous Lightning	10,357	3	25	0.01%
Total	**173,878,127**	**12,603**	**806,924**	**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, 2020, 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-ROW priority trees. West Penn 's options under the law are strictly limited when it comes to all forms of off-ROW tree management. However, West Penn is legally permitted to identify priority off-ROW trees that are dead, dying, diseased, leaning, and significantly encroaching the corridor and remove those trees when customer consent is obtained or easement rights permit. West Penn is very active in pursuing this option, where available. Trees identified as a potential cause of a future outage are removed to prevent an interruption of electrical service to West Penn's customers. West Penn continues its program to mitigate trees subject to damage from the Emerald Ash Borer.

To reduce the likelihood of equipment and line failures, 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 2020		Met-Ed		Penelec		Penn Power		West Penn	
		Planned	Completed	Planned	Completed	Planned	Completed	Planned	Completed
Forestry	Transmission (Miles)	272.38[12]	272.38	517.98	517.98	56.05	56.05	195.18	195.18
	Distribution (Miles)	2,878	2,878	3,746	3,746	1,126	1126	4,440	4,335[13]
Transmission	Aerial Patrols	2	2	2	2	2	2	2	2
	Groundline	772	990	1,600	2,387	1,902	2,036	76	102
Substation	Substation Inspections Class A	418	418	784	784	148	148	950	950
	Substation Inspections Class B	418	418	784	784	148	148	950	950
	Substation Inspections Class C	1,672	1,672	3,137	3,137	592	592	3,800	3,800
	Transformers	143	143	401	401	9	9	381	381
	Breakers	74	74	338	338	12	12	369	369
	Relay Schemes	58	58	180	180	32	32	100	100
Distribution	Capacitors	4,758	4,758	8,683	8,683	978	978	1,315	1,315
	Poles	36,000	45,470	41,584	41,639	11,027	11,045	38,373	38,453
	Reclosers	1,220[14]	1,220	2,591	2,594	925[15]	925	3,947	3,947
	Radio-Controlled Switches	1,010	1,134	2,652	2,672	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.

[12] Transmission miles trimmed decreased by 0.32 miles due to a mapping change.
[13] The remaining distribution miles trimmed were completed in February 2021.
[14] Thirteen reclosers were taken out of service.
[15] Five reclosers were taken out of service.

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 - 2020 ($)					
Transmission					
Category		**2020 Actuals**	**2020 Budget**	**Variance %**	**Notes**
560	Operation Supervision and Engineering	0	0	N/A	
561	Load Dispatching	(55,796)	(149,211)	-63%	1
562	Station Expenses	5,395	0	Over 100%	2
563	Overhead Lines Expenses	42,377	46,000	-8%	
565	Transmission of Electricity by Others	11,414,058	8,880,000	29%	3
566	Miscellaneous Transmission Expenses	(53,439)	(32,629)	64%	4
567	Rents	0	0	N/A	
568	Maintenance Supervision and Engineering	3,772	(0)	Over 100%	5
569	Maintenance of Structures	123,544	19,095	547%	6
570	Maintenance of Station Equipment	506,124	109,948	360%	7
571	Maintenance of Overhead Lines	76,048	0	Over 100%	8
572	Transmission-Maintenance of Underground Lines	342	0	Over 100%	
573	Maintenance of Miscellaneous Transmission Plant	0	(3,894)	-100%	9
575	Market Administration, Monitoring & Compliance Services	(0)	0	N/A	
Transmission Total		**12,062,423**	**8,869,309**		
Distribution					
Category		**2020 Actuals**	**2020 Budget**	**Variance %**	**Notes**
580	Operation Supervision and Engineering	308,650	168,316	83%	10
581	Load Dispatching	229,067	209,424	9%	
582	Station Expenses	614,426	395,722	55%	11
583	Overhead Line Expenses	464,637	148,000	214%	12
584	Underground Line Expenses	2,353	0	Over 100%	13
586	Meter Expenses	672,723	621,587	8%	
587	Customer Installations Expenses	0	0	N/A	
588	Miscellaneous Distribution Expenses	9,171,354	4,198,904	118%	14
589	Rents	579,390	469,783	23%	15
590	Maintenance Supervision and Engineering	670,699	459,618	46%	16
591	Maintenance of Structures	(11,258)	(4,461)	152%	17
592	Maintenance of Station Equipment	4,679,618	6,453,280	-27%	18
593	Maintenance of Overhead Lines	56,225,445	44,446,914	27%	19
594	Maintenance of Underground Lines	2,446,905	2,196,709	11%	20
595	Maintenance of Line Transformer	128,743	183,305	-30%	21
596	Maintenance of Street Lighting and Signal Systems	901,134	490,782	84%	22
597	Maintenance of Meters	1,660,615	2,917,943	-43%	23
598	Maintenance of Miscellaneous Distribution Plant	1,273,883	1,952,187	-35%	24
Distribution Total		**80,018,385**	**65,308,012**		
Met-Ed Total		**92,080,809**	**74,177,320**		

Variance Explanations (Variances 10% or greater)	
1	Under budget due to the number of load studies being less than planned.
2	Over budget due to substation telecommunication equipment repairs being greater than planned.
3	Over budget due to PJM Transmission Enhancement and Ancillary Service costs being greater than planned.
4	Over budget due to Information Technology (IT) related costs associated with communications being greater than planned.
5	Over budget due to environmental permits and labor being greater than planned.
6	Over budget due to labor and computer software/hardware maintenance expense being greater than planned.
7	Over budget due to allocation of budget dollars between transmission and distribution expenses.
8	Over budget due to the utilization of outside contractors for preventive/corrective maintenance work being greater than planned.
9	Under budget due to tool purchases being less than planned.
10	Over budget due to the use of contract labor, communication expenses, and permitting fees being greater than planned.
11	Over budget due to vegetation management around substations being greater than planned.
12	Over budget due to labor and equipment costs being greater than planned.
13	Over budget due to budget for underground line is not budgeted directly to this cost collector.
14	Over budget due to contractors, leases, and employee expenses due to COVID being greater than planned.
15	Over budget due to lease charges for transmission buildings being greater than planned.
16	Over budget due to contractor spend being greater than planned.
17	Over budget due to materials and supplies being greater than planned.
18	Under budget due to labor, contractor, and material spend being less than planned.
19	Over budget due to internal labor and contractor costs being greater than planned.
20	Over budget due to internal labor being greater than planned.
21	Under budget due to internal labor and materials associated with transformer repair being less than planned.
22	Over budget due to internal labor for street light replacement/repair being greater than planned.
23	Under budget due to the labor associated with meter replacements/exchanges being less than planned.
24	Under budget due to labor being less than planned.

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

Penelec T&D O&M - 2020 ($)					
Transmission					
Category		**2020 Actuals**	**2020 Budget**	**Variance %**	**Notes**
560	Operation Supervision and Engineering	0	0	N/A	
561	Load Dispatching	1,853	(232,142)	-101%	1
562	Station Expenses	210,299	195,446	8%	2
563	Overhead Lines Expenses	272,753	195,820	39%	3
565	Transmission of Electricity by Others	33,957,908	31,200,000	9%	
566	Miscellaneous Transmission Expenses	(1,779)	(0)	Over 100%	4
567	Rents	150,704	275,000	-45%	5
568	Maintenance Supervision and Engineering	105,843	0	Over 100%	2
569	Maintenance of Structures	171,360	20,583	733%	6
570	Maintenance of Station Equipment	339,204	60,000	465%	2
571	Maintenance of Overhead Lines	83,057	0	Over 100%	2
572	Transmission-Maintenance of Underground Lines	0	0	N/A	
573	Maintenance of Miscellaneous Transmission Plant	30,085	0	Over 100%	7
575	Market Administration, Monitoring & Compliance Services	(0)	0	N/A	
Transmission Total		**35,321,285**	**31,714,707**		
Distribution					
Category		**2020 Actuals**	**2020 Budget**	**Variance %**	**Notes**
580	Operation Supervision and Engineering	207,797	279,282	-26%	8
581	Load Dispatching	407,862	246,623	65%	2
582	Station Expenses	543,131	0	Over 100%	9
583	Overhead Line Expenses	183,707	91,827	100%	10
584	Underground Line Expenses	872,074	970,299	-10%	11
586	Meter Expenses	1,066,270	694,595	54%	2
587	Customer Installations Expenses	0	0	N/A	
588	Miscellaneous Distribution Expenses	11,721,007	6,775,939	73%	12
589	Rents	2,691,339	1,506,486	79%	13
590	Maintenance Supervision and Engineering	713,875	492,950	45%	13
591	Maintenance of Structures	0	0	N/A	
592	Maintenance of Station Equipment	6,143,839	6,268,188	-2%	
593	Maintenance of Overhead Lines	40,121,847	42,994,587	-7%	
594	Maintenance of Underground Lines	1,699,259	(8,479)	-20140%	14
595	Maintenance of Line Transformer	112,484	160,155	-30%	8
596	Maintenance of Street Lighting and Signal Systems	1,289,618	1,236,957	4%	
597	Maintenance of Meters	2,579,786	4,214,354	-39%	15
598	Maintenance of Miscellaneous Distribution Plant	936,025	32,948	2741%	16
Distribution Total		**71,289,918**	**65,956,709**		
Penelec Total		**106,611,203**	**97,671,416**		

Variance Explanations (Variances 10% or greater)	
1	Over budget due to higher PJM reimbursable services settling to load dispatching.
2	Over budget due to labor requirements being greater than planned.
3	Over budget due to license, permits, and labor requirements being greater than planned.
4	Under budget due to hardware maintenance and software costs being less than planned.
5	Under budget due to planned leases/rentals being less than planned.
6	Over due to network costs and labor requirements being greater than planned.
7	Over budget due to materials required for this work being greater than planned.
8	Under budget due to labor requirements being less than planned.
9	Over budget due to internal labor required to complete this work, which was not budgeted to this FERC account.
10	Over budget due to contractors and telecom equipment service being greater than planned.
11	Under budget due to outside services/contractors and labor requirements being less than planned.
12	Over budget due to material, leases/rentals, and labor requirements being greater than planned.
13	Over budget due to outside services/contractors being greater than planned.
14	Over budget due to outside services/contractors and labor requirements being greater than planned.
15	Under budget due to fleet costs charged to O&M and labor costs being less than planned.
16	Over budget due to material and labor requirements being greater than planned.

Penn Power T&D O&M - 2020 ($)					
Transmission					
	Category	**2020 Actuals**	**2020 Budget**	**Variance %**	**Notes**
560	Operation Supervision and Engineering	2,029	1,408	44%	1
561	Load Dispatching	(11,777)	6,278	-288%	2
562	Station Expenses	0	(346)	-100%	
563	Overhead Lines Expenses	0	(602)	-100%	
565	Transmission of Electricity by Others	4,588,138	4,440,000	3%	
566	Miscellaneous Transmission Expenses	4,556	3,337	37%	1
567	Rents	0	0	N/A	
568	Maintenance Supervision and Engineering	17,476	13,103	33%	3
569	Maintenance of Structures	19,290	5,838	230%	1
570	Maintenance of Station Equipment	4,497	3,047	48%	4
571	Maintenance of Overhead Lines	23,640	94,372	-75%	5
572	Transmission-Maintenance of Underground Lines	0	0	N/A	
573	Maintenance of Miscellaneous Transmission Plant	(1,238)	0	Over 100%	5
575	Market Administration, Monitoring & Compliance Services	0	0	N/A	
Transmission Total		**4,646,612**	**4,566,436**		
Distribution					
	Category	**2020 Actuals**	**2020 Budget**	**Variance %**	**Notes**
580	Operation Supervision and Engineering	0	0	N/A	
581	Load Dispatching	0	0	N/A	
582	Station Expenses	67,750	0	Over 100%	6
583	Overhead Line Expenses	122,782	0	Over 100%	3
584	Underground Line Expenses	245,882	494,414	-50%	7
586	Meter Expenses	65,765	66,187	-1%	
587	Customer Installations Expenses	0	0	N/A	
588	Miscellaneous Distribution Expenses	2,180,076	760,811	187%	8
589	Rents	370,310	250,000	48%	9
590	Maintenance Supervision and Engineering	177,411	123,276	44%	3
591	Maintenance of Structures	0	0	N/A	
592	Maintenance of Station Equipment	871,880	796,177	10%	10
593	Maintenance of Overhead Lines	14,750,247	15,394,375	-4%	
594	Maintenance of Underground Lines	298,239	49,513	502%	1
595	Maintenance of Line Transformer	38,860	41,570	-7%	
596	Maintenance of Street Lighting and Signal Systems	68,435	20,957	227%	11
597	Maintenance of Meters	544,864	588,624	-7%	
598	Maintenance of Miscellaneous Distribution Plant	206,734	30,330	582%	12
Distribution Total		**20,009,234**	**18,616,234**		
Penn Power Total		**24,655,846**	**23,182,670**		

Variance Explanations (Variances 10% or greater)	
1	Over budget due to allocation of labor being greater than planned.
2	Under budget due to reimbursements being less than planned.
3	Over budget due to outside contractor expense being greater than planned.
4	Over budget due to lease expense and labor being greater than planned.
5	Under budget due to overheads being lower than planned.
6	Over budget due to telecom expenses being greater than planned.
7	Under budget due to outside contractor expense being less than planned.
8	Over budget due to COVID related expenses being greater than planned.
9	Over budget due to joint use rental expense being greater than planned.
10	Over budget due to preventative maintenance / corrective maintenance being greater than planned.
11	Over budget due to overheads being greater than planned.
12	Over budget due to materials being greater than planned.

West Penn Power T&D O&M - 2020 ($)					
Transmission					
	Category	**2020 Actuals**	**2020 Budget**	**Variance %**	**Notes**
560	Operation Supervision and Engineering	75,288	50,927	48%	1
561	Load Dispatching	1,079,053	1,030,305	5%	
562	Station Expenses	401,875	198,189	103%	2
563	Overhead Lines Expenses	134,232	16,761	701%	3
565	Transmission of Electricity by Others	62,856,361	52,181,944	20%	4
566	Miscellaneous Transmission Expenses	644,332	772,849	-17%	5
567	Rents	244,681	23,960	921%	6
568	Maintenance Supervision and Engineering	729,929	739,655	-1%	
569	Maintenance of Structures	39,995	22,815	75%	7
570	Maintenance of Station Equipment	3,172,230	1,834,188	73%	8
571	Maintenance of Overhead Lines	8,342,365	10,777,379	-23%	9
572	Transmission-Maintenance of Underground Lines	3,781	0	Over 100%	10
573	Maintenance of Miscellaneous Transmission Plant	355,671	144,888	145%	11
575	Market Administration, Monitoring & Compliance Services	168	0	100%	
Transmission Total		**78,079,961**	**67,793,859**		
Distribution					
	Category	**2020 Actuals**	**2020 Budget**	**Variance %**	**Notes**
580	Operation Supervision and Engineering	55,026	(38,358)	-243%	12
581	Load Dispatching	1,926,282	2,198,998	-12%	13
582	Station Expenses	778,907	858,331	-9%	
583	Overhead Line Expenses	1,044,214	1,124,430	-7%	
584	Underground Line Expenses	1,329,728	1,373,000	-3%	
586	Meter Expenses	1,371,307	1,660,912	-17%	14
587	Customer Installations Expenses	0	0	N/A	
588	Miscellaneous Distribution Expenses	18,819,406	12,393,788	52%	15
589	Rents	0	0	N/A	
590	Maintenance Supervision and Engineering	912,379	822,373	11%	16
591	Maintenance of Structures	0	0	N/A	
592	Maintenance of Station Equipment	9,517,182	5,329,928	79%	17
593	Maintenance of Overhead Lines	35,221,580	48,860,118	-28%	18
594	Maintenance of Underground Lines	1,244,964	951,989	31%	19
595	Maintenance of Line Transformer	207,232	252,445	-18%	20
596	Maintenance of Street Lighting and Signal Systems	953,547	671,178	42%	2
597	Maintenance of Meters	1,718,058	2,005,585	-14%	21
598	Maintenance of Miscellaneous Distribution Plant	202,941	131,498	54%	22
Distribution Total		**75,302,753**	**78,596,216**		
West Penn Power Total		**153,382,714**	**146,390,075**		

Variance Explanations (Variances 10% or greater)	
1	Over budget due to internal labor and contractor costs being greater than planned.
2	Over budget due to internal labor and transportation costs being greater than planned.
3	Over budget due to internal labor being greater than planned.
4	Over budget due to Remand Transmission Enhancement Charge, greater Schedule D and PJM Ancillary Service Transmission Enhancement "Schedule 12" charges, and PJM Transmission Loss Expense being greater than planned.
5	Under budget due to internal labor, benefits, contractors, materials, and other cost being less than planned.
6	Over budget due to lease/rental costs for Transmission Control Center Wadsworth and Akron Control Center being greater than planned.
7	Over budget due to Information Technology (IT) labor costs being greater than planned.
8	Over budget due to internal labor, benefits, contractor, material, lease, employee expenses, and transportation costs being greater than planned.
9	Under budget due to contractor costs for tree-trimming begin lower than planned.
10	Over budget due to budget for underground line is not budgeted directly to this cost collector.
11	Over budget due to internal labor, contractor, material, and employee expense costs being greater than planned.
12	Over budget due to internal labor, contractor, and telecommunications equipment costs being greater than planned.
13	Under budget due to internal labor, employee expense, contractor, and material costs being lower than planned.
14	Under budget due to contractor costs being lower than planned.
15	Over budget due to internal labor, benefits, contractor, material, and all other costs being greater than planned.
16	Over budget due to contractor, material, and all other costs being greater than planned.
17	Over budget due to internal labor, benefits, employee expense, contractor, material, transportation, lease, and all other costs being greater than planned.
18	Under budget due to internal labor, employee expense, contractor, and transportation costs being lower than planned.
19	Over budget due to internal labor, benefits, employee expense, and transportation costs being greater than planned.
20	Under budget due to internal labor and material costs being lower than planned.
21	Under budget due to internal labor and transportation costs being lower than planned.
22	Over budget due to internal labor and material 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 – 2020 ($)					
Category	**2020 Actuals**	**2020 Budget**	**Annual Budget**	**Variance %**	**Notes**
Capacity	14,877,986	18,843,783	18,843,783	-21%	1
Condition	11,308,818	14,934,949	14,934,949	-24%	2
Facilities	3,598,588	599,219	599,219	501%	3
Forced	41,224,143	35,985,578	35,985,578	15%	4
Meter Related	1,708,593	2,613,158	2,613,158	-35%	5
New Business	22,667,478	17,856,375	17,856,375	27%	6
Other	12,752,214	13,717,061	13,717,061	-7%	
Reliability	35,025,727	38,878,438	38,878,438	-10%	7
Street Light	980,066	1,227,753	1,227,753	-20%	8
Tools & Equip	1,475,400	1,056,666	1,056,666	40%	9
Vegetation Management	16,528,468	16,611,837	16,611,837	-1%	
Penn Power Total	**162,147,483**	**162,324,819**	**162,324,819**		

Penelec T&D Capital – 2020 ($)					
Category	**2020 Actuals**	**2020 Budget**	**Annual Budget**	**Variance %**	**Notes**
Capacity	3,195,314	169,478	169,478	1785%	10
Condition	11,181,711	9,460,580	9,460,580	18%	11
Facilities	1,485,277	780,231	780,231	90%	11
Forced	48,872,361	41,183,474	41,183,474	19%	12
Meter Related	1,560,638	1,073,505	1,073,505	45%	13
New Business	13,905,539	12,277,430	12,277,430	13%	14
Other	14,616,410	24,083,471	24,083,471	-39%	15
Reliability	43,854,028	50,406,842	50,406,842	-13%	16
Street Light	2,314,638	3,529,403	3,529,403	-34%	17
Tools & Equip	5,655,903	4,998,948	4,998,948	13%	18
Vegetation Management	15,860,862	16,744,604	16,744,604	-5%	
Penn Power Total	**162,502,681**	**164,707,966**	**164,707,966**		

Penn Power T&D Capital – 2020 ($)					
Category	**2020 Actuals**	**2020 Budget**	**Annual Budget**	**Variance %**	**Notes**
Capacity	1,856,511	896,804	896,804	107%	19
Condition	532,243	848,917	848,917	-37%	20
Facilities	172,590	22,652	22,652	662%	21
Forced	8,822,097	7,386,959	7,386,959	19%	22
Meter Related	579,679	558,967	558,967	4%	
New Business	5,038,603	6,697,959	6,697,959	-25%	23
Other	5,394,055	3,397,203	3,397,203	59%	24
Reliability	19,395,456	21,340,388	21,340,388	-9%	
Street Light	391,957	590,450	590,450	-34%	25
Tools & Equip	406,586	126,698	126,698	221%	26
Vegetation Management	2,495,647	2,729,687	2,729,687	-9%	
Penn Power Total	**45,085,425**	**44,596,684**	**44,596,684**		

West Penn Power T&D Capital – 2020 ($)					
Category	**2020 Actuals**	**2020 Budget**	**Annual Budget**	**Variance %**	**Notes**
Capacity	60,595,927	71,190,991	71,190,991	-15%	27
Condition	14,790,292	12,034,310	12,034,310	23%	28
Facilities	2,919,277	534,507	534,507	446%	29
Forced	50,235,452	39,790,997	39,790,997	26%	30
Meter Related	1,278,552	760,290	760,290	68%	13
New Business	22,885,749	28,322,170	28,322,170	-19%	31
Other	24,813,790	21,462,951	21,462,951	16%	32
Reliability	52,134,515	54,925,716	54,925,716	-5%	
Street Light	1,877,609	1,569,338	1,569,338	20%	33
Tools & Equip	2,108,947	2,260,973	2,260,973	-7%	
Vegetation Management	24,336,361	27,386,787	27,386,787	-11%	34
Penn Power Total	**257,976,469**	**260,239,031**	**260,239,031**		

Variance Explanations (Variances 10% or greater)	
1	Under budget due to delays in construction and work scope changes for new substations.
2	Under budget due to labor for overhead inspections and unscheduled overhead and underground repairs being less than planned.
3	Over budget due to contractor costs associated with underground storage tank removal at various locations being greater than planned.
4	Over budget due to contractor costs associated with preventive/corrective maintenance, inspections, and highway relocations being greater than planned.
5	Under budget due to meter exchanges being less than planned.
6	Over budget due to contractor, labor, and material costs for commercial and residential new business being greater than planned.
7	Under budget due to timing differences in several Long-Term Infrastructure Improvement Plan (LTIIP) projects.
8	Under budget due to contractor and material costs for LED streetlight replacements being less than planned.
9	Over budget due to regional tool purchases being greater than planned.
10	Over budget due to Towanda-Rp Robert Packer Hosp Padmount Switches and adjustment to capital related payroll Overhead being greater than planned.
11	Over budget due to timing differences in several construction projects.
12	Over budget due to higher capitalized storm expenditures and timing differences in several construction projects.
13	Over budget due to meter and smart meter exchanges being greater than planned.
14	Over budget due to new commercial business and emergent projects being greater than planned.
15	Under budget due to smart meter implementation, joint use make ready, and emergent projects being less than planned.
16	Under budget due to timing differences in several Long-Term Infrastructure Improvement Plan (LTIIP) projects.
17	Under budget due to LED conversion and new projects being less than planned.
18	Over budget due to PA state radio project being greater than planned.
19	Over budget due to capital related payroll overhead being greater than planned.
20	Under budget due to unscheduled maintenance being lower than planned.
21	Over budget due to facility repairs being greater than planned.
22	Over budget due to storm related labor, contractor expenditures, and Long-Term Infrastructure Improvement Plan (LTIIP) contractors being greater than planned.
23	Under budget due to commercial new business being lower than planned.
24	Over budget due to joint use costs being greater than planned.
25	Under budget due to unplanned streetlight repairs being lower than planned.
26	Over budget due to vehicle and tool purchases being greater than planned.
27	Under budget due to timing differences in several construction projects and capital related payroll adjustment being lower than planned.
28	Over budget due to misoperation relays (Pittsburg Mills-Springdale, Shawville-Shingletown, Elko-Shawville, & Layton JCT) and FE-South Re-architecture-Cabot costs being greater than planned.
29	Over budget due to more facilities repair work being done at numerous locations and Connellsville West SDC Reconfigure being greater than planned.
30	Over budget due to storm costs being greater than planned.
31	Under budget due to commercial and residential new business being lower than planned.
32	Over budget due to Cranberry Wylie Ridge 500kV repairs and payroll/vacation accruals being greater than planned.
33	Over budget due to unscheduled streetlight repairs being greater than planned.
34	Under budget due to planned and unplanned distribution and transmission vegetation management spend 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 – 2021 Goals / Objectives

T&D Inspection & Maintenance Programs - 2021				
Program/Project	**Met-Ed**	**Penelec**	**Penn Power**	**West Penn**
Forestry				
Transmission (Miles)	288.35	485.79	137.78	167.08
Distribution (Miles)	2,925	3,703	1,162	4,675
Transmission				
Aerial Patrols	2	2	2	2
Groundline (Poles)	1,167	3,049	484	2,072
Substation				
Substation Inspections Class A	418	784	148	950
Substation Inspections Class B	418	784	148	950
Substation Inspections Class C	1,672	3,136	592	3,800
Transformers	148	419	14	347
Breakers	78	433	9	388
Relay Schemes	276	259	22	106
Distribution				
Capacitors	4,767	8,667	984	1,312
Poles	28,001	41,584	10,960	49,815
Reclosers	1,200	2,586	966	4,020
Radio-Controlled Switches (2 / year)	1,308	2,646	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.

2021 T&D O&M Budget[16]

Met-Ed T&D O&M - Annual 2021 ($)		
Transmission		
Category		**Annual Budget**
560	Operation Supervision & Engineering	0
561	Load Dispatching	83,851
563	Overhead Line Expenses	46,000
565	Transmission of Electricity by Others	9,654,000
566	Miscellaneous Transmission Expenses	(29,899)
567	Rents	50,637
568	Maintenance Supervision and Engineering	0
569	Maintenance of Structures	0
570	Maintenance of Station Equipment	106,269
571	Maintenance of Overhead Lines	0
573	Maintenance of Miscellaneous Transmission Plant	0
575	Market Administration, Monitoring & Compliance Services	0
Transmission Total		**9,910,858**
Distribution		
Category		**Annual Budget**
580	Operation Supervision & Engineering	191,692
581	Load Dispatching	241,073
582	Station Expenses	1,119,815
583	Overhead Line Expenses	223,000
584	Underground Line Expenses	0
586	Meter Expenses	655,148
588	Miscellaneous Distribution Expenses	6,234,111
589	Rents	475,926
590	Maintenance Supervision and Engineering	665,511
591	Maintenance of Structures	81,644
592	Maintenance of Station Equipment	4,856,629
593	Maintenance of Overhead Lines	43,863,296
594	Maintenance of Underground Lines	1,660,312
595	Maintenance of Line Transformers	0
596	Maintenance of Street Lighting and Signal Systems	565,238
597	Maintenance of Meters	2,453,820
598	Maintenance of Miscellaneous Distribution Plant	1,705,457
Distribution Total		**64,992,673**
Met-Ed Total		**74,903,531**

[16] Budgets are subject to change.

Penelec T&D O&M - Annual 2021 ($)		
Transmission		
Category		**Annual Budget**
560	Operation Supervision & Engineering	0
561	Load Dispatching	229,196
562	Station Expenses	208,261
563	Overhead Line Expenses	208,635
565	Transmission of Electricity by Others	33,165,600
566	Miscellaneous Transmission Expenses	0
567	Rents	422,815
568	Maintenance Supervision and Engineering	(0)
569	Maintenance of Structures	0
570	Maintenance of Station Equipment	0
571	Maintenance of Overhead Lines	0
573	Maintenance of Miscellaneous Transmission Plant	0
575	Market Administration, Monitoring & Compliance Services	0
Transmission Total		**34,234,507**
Distribution		
Category		**Annual Budget**
580	Operation Supervision & Engineering	913,025
581	Load Dispatching	315,159
583	Overhead Line Expenses	91,827
584	Underground Line Expenses	970,299
586	Meter Expenses	1,016,003
588	Miscellaneous Distribution Expenses	8,874,450
589	Rents	1,856,532
590	Maintenance Supervision and Engineering	727,862
592	Maintenance of Station Equipment	7,399,141
593	Maintenance of Overhead Lines	41,540,622
594	Maintenance of Underground Lines	135,761
595	Maintenance of Line Transformers	0
596	Maintenance of Street Lighting and Signal Systems	1,261,662
597	Maintenance of Meters	4,111,789
598	Maintenance of Miscellaneous Distribution Plant	302,508
Distribution Total		**69,516,641**
Penelec Total		**103,751,148**

Penn Power T&D O&M - Annual 2021 ($)		
Transmission		
Category		**Annual Budget**
560	Operation Supervision & Engineering	1,473
561	Load Dispatching	6,567
562	Station Expenses	(345)
563	Overhead Line Expenses	(600)
565	Transmission of Electricity by Others	4,249,620
566	Miscellaneous Transmission Expenses	0
568	Maintenance Supervision and Engineering	13,568
569	Maintenance of Structures	7,747
570	Maintenance of Station Equipment	3,047
571	Maintenance of Overhead Lines	87,267
573	Maintenance of Miscellaneous Transmission Plant	0
575	Market Administration, Monitoring & Compliance Services	0
Transmission Total		**4,368,345**
Distribution		
Category		**Annual Budget**
580	Operation Supervision & Engineering	0
582	Station Expenses	0
584	Underground Line Expenses	506,660
586	Meter Expenses	70,669
588	Miscellaneous Distribution Expenses	445,027
589	Rents	330,437
590	Maintenance Supervision and Engineering	186,982
592	Maintenance of Station Equipment	1,271,581
593	Maintenance of Overhead Lines	13,770,610
594	Maintenance of Underground Lines	65,072
596	Maintenance of Street Lighting and Signal Systems	26,586
597	Maintenance of Meters	600,788
598	Maintenance of Miscellaneous Distribution Plant	49,185
Distribution Total		**17,323,597**
Penn Power Total		**21,691,943**

West Penn Power T&D O&M - Annual 2021 ($)		
Transmission		
Category		**Annual Budget**
560	Operation Supervision & Engineering	52,457
561	Load Dispatching	1,222,531
562	Station Expenses	524,643
563	Overhead Line Expenses	23,969
565	Transmission of Electricity by Others	60,074,862
566	Miscellaneous Transmission Expenses	910,255
567	Rents	671,982
568	Maintenance Supervision and Engineering	696,411
569	Maintenance of Structures	24,893
570	Maintenance of Station Equipment	3,122,870
571	Maintenance of Overhead Lines	9,689,966
573	Maintenance of Miscellaneous Transmission Plant	318,456
575	Market Administration, Monitoring & Compliance Services	0
Transmission Total		**77,333,295**
Distribution		
Category		**Annual Budget**
580	Operation Supervision & Engineering	21,992
581	Load Dispatching	2,094,610
582	Station Expenses	818,109
583	Overhead Line Expenses	1,189,458
584	Underground Line Expenses	1,375,000
586	Meter Expenses	1,544,436
588	Miscellaneous Distribution Expenses	13,307,246
589	Rents	0
590	Maintenance Supervision and Engineering	1,178,550
591	Maintenance of Structures	0
592	Maintenance of Station Equipment	7,735,477
593	Maintenance of Overhead Lines	44,180,141
594	Maintenance of Underground Lines	941,187
595	Maintenance of Line Transformers	0
596	Maintenance of Street Lighting and Signal Systems	856,169
597	Maintenance of Meters	2,167,883
598	Maintenance of Miscellaneous Distribution Plant	178,955
Distribution Total		**77,589,213**
West Penn Power Total		**154,922,509**

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.

2021 T&D Capital Budget[17]

Met-Ed T&D Capital - Annual 2021 ($)	
Category	**Annual Budget**
Capacity	19,641,678
Condition	14,262,983
Facilities	4,599,326
Forced	39,772,118
Meter Related	1,853,704
New Business	16,807,022
Other	8,765,923
Reliability	39,760,817
Street Light	1,112,376
Tools & Equip	1,222,115
Vegetation Management	16,535,002
Met-Ed Total	**164,333,062**

Penelec T&D Capital - Annual 2021 ($)	
Category	**Annual Budget**
Capacity	1,137,596
Condition	9,374,740
Facilities	1,842,946
Forced	55,493,013
Meter Related	821,818
New Business	12,826,889
Other	18,317,725
Reliability	36,441,024
Street Light	4,041,894
Tools & Equip	3,359,782
Vegetation Management	17,411,516
Penelec Total	**161,068,943**

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

Penn Power T&D Capital - Annual 2021 ($)	
Category	**Annual Budget**
Capacity	42,247
Condition	1,630,032
Facilities	2,878,281
Forced	7,429,486
Meter Related	589,262
New Business	6,128,800
Other	1,709,483
Reliability	19,993,080
Street Light	639,087
Tools & Equip	116,581
Vegetation Management	3,893,721
Penn Power Total	**45,050,062**

West Penn Power T&D Capital - Annual 2021 ($)	
Category	**Annual Budget**
Capacity	31,422,982
Condition	18,983,127
Facilities	2,065,361
Forced	53,911,936
Meter Related	1,372,184
New Business	31,349,040
Other	11,759,971
Reliability	36,991,154
Street Light	2,299,815
Tools & Equip	3,229,737
Vegetation Management	27,755,805
West Penn Power Total	**221,141,112**

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 2020, the Companies made no significant revisions to their Inspection and Maintenance practices.

ATTACHMENT A

Worst Performing Circuits – Remedial Actions

Met-Ed				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Barto	00706-1	Boyertown	2,926	137
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	2.44	Trees Off ROW-Tree	46%	1Q 2020
SAIDI	475.37	Unknown	17%	2Q 2020
SAIFI	3.43	Vehicle	15%	3Q 2020
CAIDI	139	All Other	22%	4Q 2020
Customer Minutes	1,390,941			
Customers Affected	10,029			
Remedial Action Planned or Taken			**Status**	**Progress**
Install Supervisory Control and Data Acquisition (SCADA) switch #1			Complete	Jan-20
Install Supervisory Control and Data Acquisition (SCADA) switch #2			Complete	Jan-20
Install Supervisory Control and Data Acquisition (SCADA) switch #4			Complete	Jan-20
Install Supervisory Control and Data Acquisition (SCADA) switch #5			Complete	Jan-20
Install Supervisory Control and Data Acquisition (SCADA) recloser #1			Complete	Feb-20
Mainline pole replacement from inspection #1			Complete	Jun-20
Mainline pole replacement from inspection #2			Complete	Jul-20
On cycle tree trimming			Complete	Nov-20
Overhead circuit inspection			Complete	Sep-20
Replace/repair high priority items identified during overhead circuit inspection			To be Completed 2021	25%
Substation	**Circuit**	**District**	**Customers**	**Outages**
Flying Hills	00777-1	Reading	1,786	88
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1.64	Trees Off ROW-Tree	52%	1Q 2020
SAIDI	524.15	Equipment Failure	20%	2Q 2020
SAIFI	1.71	Unknown	11%	3Q 2020
CAIDI	306	All Other	18%	4Q 2020
Customer Minutes	936,135			
Customers Affected	3,056			
Remedial Action Planned or Taken			**Status**	**Progress**
Overhead circuit inspection			Complete	Mar-20
On cycle tree trimming			Complete	Mar-20
Replace/repair high priority items identified during overhead circuit inspection			Complete	Mar-20
Install TripSaver Recloser #1			Complete	Dec-20
Install TripSaver Recloser #2			Complete	Dec-20
Install TripSaver Recloser #3			Complete	Dec-20
Replace/repair high priority items identified during overhead circuit inspection			To be Completed 2021	50%

Met-Ed				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Mohnton	00144-1	Reading	973	15
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	0.98	Trees Off ROW-Tree	90%	1Q 2020
SAIDI	572.54	Line Failure	5%	2Q 2020
SAIFI	1.68	Forced Outage	4%	3Q 2020
CAIDI	341	All Other	1%	4Q 2020
Customer Minutes	557,080			
Customers Affected	1,632			
Remedial Action Planned or Taken			**Status**	**Progress**
Overhead circuit inspection			Complete	Jan-20
Targeted forestry inspection			Complete	Feb-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
Mountain	00744-4	Dillsburg	1,845	57
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	2.84	Trees Off ROW-Tree	57%	1Q 2020
SAIDI	876.36	Equipment Failure	38%	2Q 2020
SAIFI	2.77	Vehicle	2%	3Q 2020
CAIDI	316	All Other	4%	4Q 2020
Customer Minutes	1,616,876			
Customers Affected	5,113			
Remedial Action Planned or Taken			**Status**	**Progress**
Enhanced tree trimming			Complete	Dec-19
Overhead circuit inspection			Complete	Jul-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
No Bangor	00826-3	Easton	3,229	104
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	3.23	Trees Off ROW-Tree	71%	1Q 2020
SAIDI	570.91	Equipment Failure	12%	2Q 2020
SAIFI	2.53	Trees Off ROW-Limb	7%	3Q 2020
CAIDI	226	All Other	10%	4Q 2020
Customer Minutes	1,843,469			
Customers Affected	8,154			
Remedial Action Planned or Taken			**Status**	**Progress**
Install Supervisory Control and Data Acquisition (SCADA) on recloser			Complete	Jan-20
Mid-cycle ash tree removal			Complete	May-20
Mainline forestry aerial patrol			Complete	Jul-20
Mid-cycle tree trimming from aerial patrol			Complete	Sep-20
Install TripSaver Recloser			Complete	Dec-20
Construct circuit tie Phase 1			To be Completed 2021	50%
Construct circuit tie Phase 2			To be Completed 2021	50%
Construct circuit tie Phase 3			To be Completed 2021	50%

Met-Ed				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Shawnee	00833-3	Stroudsburg	1,437	28
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1.80	Equipment Failure	44%	1Q 2020
SAIDI	712.78	Trees Off ROW-Tree	31%	2Q 2020
SAIFI	3.83	Unknown	16%	3Q 2020
CAIDI	186	All Other	8%	4Q 2020
Customer Minutes	1,024,266			
Customers Affected	5,502			
Remedial Action Planned or Taken			**Status**	**Progress**
Install Supervisory Control and Data Acquisition (SCADA) recloser			Complete	Mar-20
Construct circuit tie			Complete	Mar-20
Mainline forestry aerial patrol			Complete	Jul-20
Post storm aerial patrol			Complete	Aug-20
Repair items identified during post storm aerial patrol			Complete	Aug-20
Thermovision and overhead inspection			Complete	May-20
Replace recloser			To be Completed 2021	75%
On cycle tree trimming			To be Completed 2021	0%
Substation	**Circuit**	**District**	**Customers**	**Outages**
Shawnee	00899-3	Stroudsburg	1,754	56
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1.55	Trees Off ROW-Tree	59%	1Q 2020
SAIDI	502.18	Equipment Failure	27%	2Q 2020
SAIFI	1.45	Wind	5%	3Q 2020
CAIDI	345	All Other	10%	4Q 2020
Customer Minutes	880,819			
Customers Affected	2,551			
Remedial Action Planned or Taken			**Status**	**Progress**
Install Supervisory Control and Data Acquisition (SCADA) recloser #2			Complete	Jan-20
Install Supervisory Control and Data Acquisition (SCADA) recloser #3			Complete	Jan-20
Install Supervisory Control and Data Acquisition (SCADA) recloser #4			Complete	Jan-20
Mainline forestry aerial patrol			Complete	Jul-20
Post storm aerial patrol			Complete	Aug-20
Repair items identified during post storm aerial patrol			Complete	Aug-20
On cycle tree trimming			To be Completed 2021	0%

Met-Ed				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Windsor	00795-4	York	1,028	70
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	0.92	Trees Off ROW-Tree	72%	1Q 2020
SAIDI	508.52	Trees Off ROW-Limb	13%	2Q 2020
SAIFI	2.71	Equipment Failure	7%	3Q 2020
CAIDI	188	All Other	8%	4Q 2020
Customer Minutes	522,757			
Customers Affected	2,783			
Remedial Action Planned or Taken			**Status**	**Progress**
Enhanced Tree Removal			Complete	Dec-19
Replace/repair high priority items identified during overhead circuit patrol			Complete	Mar-20
Targeted Mainline Circuit Rehabilitation			Complete	Jun-20
Install Animal Guard			Complete	Nov-20

Penelec				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Birmingham	00168-22	Philipsburg	1,080	55
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	421.64	Forced Outage	59%	1Q 2020
SAIDI	1.48	Trees Off ROW-Tree	20%	2Q 2020
SAIFI	284.78	Lightning	17%	3Q 2020
CAIDI	0.00	All Other	5%	4Q 2020
Customer Minutes	455,366			
Customers Affected	1,599			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by vehicle accident			Complete	Jan-20
Install advanced Dx protective devices			Complete	Aug-20
Repair damage from lightning			Complete	Aug-20
Repair damage caused by trees during a storm			Complete	Aug-20
Circuit inspection			To be Completed 2021	0%
Install advanced Dx protective devices			To be Completed 2021	0%
Substation	**Circuit**	**District**	**Customers**	**Outages**
Brookville	00125-23	Dubois	563	27
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1,115.59	Trees Off ROW-Tree	81%	1Q 2020
SAIDI	6.97	Vehicle	11%	2Q 2020
SAIFI	160.06	Forced Outage	3%	3Q 2020
CAIDI	4.34	All Other	5%	4Q 2020
Customer Minutes	628,076			
Customers Affected	3,924			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by vehicle accident			Complete	Jan-20
Repair damage caused by trees during a storm			Complete	May-20
Repair damage caused by trees during a storm			Complete	Nov-20
Targeted circuit rehabilitation			To be Completed 2021	0%

Penelec				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Dubois	00137-23	Dubois	3,149	108
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	549.04	Trees Off ROW-Tree	51%	1Q 2020
SAIDI	3.62	Equipment Failure	19%	2Q 2020
SAIFI	151.73	Line Failure	14%	3Q 2020
CAIDI	1.02	All Other	16%	4Q 2020
Customer Minutes	1,728,930			
Customers Affected	11,395			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by line failure			Complete	Jan-20
Circuit inspection			Complete	Mar-20
Repair equipment failure			Complete	May-20
Install advanced Dx protective devices			Complete	Jun-20
Repair damage caused by trees during a storm			Complete	Nov-20
Install advanced Dx protective devices			To be Completed 2021	0%
Substation	**Circuit**	**District**	**Customers**	**Outages**
East Sayre	00518-61	Towanda	946	36
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	391.12	Equipment Failure	46%	1Q 2020
SAIDI	2.82	Lightning	17%	2Q 2020
SAIFI	138.68	Unknown	16%	3Q 2020
CAIDI	0.60	All Other	21%	4Q 2020
Customer Minutes	369,995			
Customers Affected	2,668			
Remedial Action Planned or Taken			**Status**	**Progress**
Circuit inspection			Complete	Apr-20
Repair equipment failure			Complete	May-20
Targeted circuit rehabilitation			To be Completed 2021	0%
Substation	**Circuit**	**District**	**Customers**	**Outages**
Grover	00527-63	Towanda	1,054	73
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	665.05	Trees Off ROW-Tree	54%	1Q 2020
SAIDI	2.18	Trees Off ROW-Limb	25%	2Q 2020
SAIFI	305.03	Ice	9%	3Q 2020
CAIDI	0.00	All Other	12%	4Q 2020
Customer Minutes	700,965			
Customers Affected	2,298			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Apr-20
Circuit inspection			Complete	May-20
Repair damage caused by trees during a storm			Complete	Jul-20
Repair damage caused by trees during a storm			Complete	Nov-20
Targeted circuit rehabilitation			To be Completed 2021	0%
Install advanced Dx protective devices			To be Completed 2021	0%

Penelec				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Laurel Lake Sub Tran	00449-65	Montrose	516	35
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	860.63	Trees Off ROW-Tree	36%	1Q 2020
SAIDI	5.13	Line Failure	34%	2Q 2020
SAIFI	167.77	Equipment Failure	23%	3Q 2020
CAIDI	2.55	All Other	7%	4Q 2020
Customer Minutes	444,085			
Customers Affected	2,647			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair equipment failure			Complete	Feb-20
Repair line failure			Complete	Apr-20
Repair damage caused by trees during a storm			Complete	Aug-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
Logan	00700-81	Lewistown	1,047	38
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	593.29	Trees Off ROW-Tree	74%	1Q 2020
SAIDI	5.31	Vehicle	10%	2Q 2020
SAIFI	111.70	Lightning	9%	3Q 2020
CAIDI	0.97	All Other	7%	4Q 2020
Customer Minutes	621,174			
Customers Affected	5,561			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Mar-20
Circuit inspection			Complete	Apr-20
Repair damage caused by a vehicle accident			Complete	May-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
Mansfield	00559-63	Mansfield Pa	493	29
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	866.53	Equipment Failure	29%	1Q 2020
SAIDI	3.18	Vehicle	23%	2Q 2020
SAIFI	272.10	Other Electric Utility	22%	3Q 2020
CAIDI	1.12	All Other	26%	4Q 2020
Customer Minutes	427,198			
Customers Affected	1,570			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair equipment failure			Complete	Apr-20
Targeted circuit rehabilitation			Complete	Nov-20
Repair damage caused by vehicle accident			Complete	Dec-20
Circuit inspection			To be Completed 2021	0%

Penelec				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Marienville	00328-51	Oil City	1,200	66
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	882.43	Trees Off ROW-Tree	77%	1Q 2020
SAIDI	3.81	Unknown	13%	2Q 2020
SAIFI	231.66	Trees Off ROW-Limb	3%	3Q 2020
CAIDI	1.36	All Other	7%	4Q 2020
Customer Minutes	1,058,916			
Customers Affected	4,571			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Jan-20
Install advanced Dx protective devices			Complete	May-20
Circuit inspection			Complete	Sep-20
Repair damage caused by trees during a storm			Complete	Nov-20
Install advanced Dx protective devices			To be Completed 2021	0%
Substation	**Circuit**	**District**	**Customers**	**Outages**
Meyersdale North	00022-12	Somerset	1,547	45
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	889.45	Trees Off ROW-Tree	97%	1Q 2020
SAIDI	2.61	Lightning	1%	2Q 2020
SAIFI	340.34	Unknown	1%	3Q 2020
CAIDI	0.00	All Other	1%	4Q 2020
Customer Minutes	1,375,980			
Customers Affected	4,043			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Feb-20
Repair damage caused by trees during a storm			Complete	Apr-20
Repair damage caused by trees during a storm			Complete	Jun-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
N Meshoppen Tran	00534-65	Montrose	825	50
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	805.85	Trees Off ROW-Tree	78%	1Q 2020
SAIDI	2.45	Equipment Failure	10%	2Q 2020
SAIFI	329.12	Human Error -Non-Company	6%	3Q 2020
CAIDI	0.00	All Other	6%	4Q 2020
Customer Minutes	664,824			
Customers Affected	2,020			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Jul-20
Repair damage caused by trees during a storm			Complete	Nov-20

Penelec				
Substation	**Circuit**	**District**	**Customers**	**Outages**
North Warren	00207-41	Warren	1,362	93
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1,153.44	Trees Off ROW-Tree	69%	1Q 2020
SAIDI	6.02	Ice	15%	2Q 2020
SAIFI	191.63	Trees On ROW	6%	3Q 2020
CAIDI	3.20	All Other	10%	4Q 2020
Customer Minutes	1,570,982			
Customers Affected	8,198			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Jan-20
Repair damage caused by ice			Complete	Feb-20
Circuit inspection			Complete	Apr-20
Repair damage caused by trees during a storm			Complete	May-20
Targeted circuit rehabilitation			Complete	Aug-20
Install advanced Dx protective devices			Complete	Oct-20
Install new radio-controlled switch			Complete	Jan-21
Install advanced Dx protective devices			To be Completed 2021	0%
On cycle tree clearing			To be Completed 2021	0%
Substation	**Circuit**	**District**	**Customers**	**Outages**
Piney	00523-51	Oil City	1,503	61
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	658.46	Trees Off ROW-Tree	47%	1Q 2020
SAIDI	3.86	Unknown	17%	2Q 2020
SAIFI	170.37	Lightning	16%	3Q 2020
CAIDI	1.55	All Other	20%	4Q 2020
Customer Minutes	989,672			
Customers Affected	5,809			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Jan-20
Restore breaker operation of unknown cause			Complete	Jan-20
Repair damage caused by trees during a storm			Complete	Mar-20
Install advanced Dx protective devices			Complete	Aug-20
Repair damage caused by lightning			Complete	Sep-20
Install new radio-controlled switch			Complete	Sep-20
On cycle tree clearing			Complete	Dec-20
Targeted circuit rehabilitation			To be Completed 2021	0%

Penelec				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Russell Hill	00282-65	Montrose	1,002	75
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	511.81	Trees Off ROW-Tree	42%	1Q 2020
SAIDI	2.41	Line Failure	30%	2Q 2020
SAIFI	212.00	Vehicle	13%	3Q 2020
CAIDI	0.00	All Other	15%	4Q 2020
Customer Minutes	512,837			
Customers Affected	2,419			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Jul-20
Repair damage caused by a vehicle accident			Complete	Jul-20
Repair line failure			Complete	Dec-20
Install advanced Dx protective devices			To be Completed 2021	0%
Substation	**Circuit**	**District**	**Customers**	**Outages**
Springboro	00237-52	Meadville	2,534	78
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	357.36	Trees Off ROW-Tree	35%	1Q 2020
SAIDI	3.07	Line Failure	33%	2Q 2020
SAIFI	116.34	Ice	9%	3Q 2020
CAIDI	2.97	All Other	23%	4Q 2020
Customer Minutes	905,560			
Customers Affected	7,784			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Mar-20
Repair line failure			Complete	Sep-20
Install advanced Dx protective devices			Complete	Oct-20
Repair damage caused by ice			Complete	Dec-20
Circuit inspection			To be Completed 2021	0%
Install advanced Dx protective devices			To be Completed 2021	0%

Penelec				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Two Mile	00127-42	Bradford	1,280	41
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1,730.89	Trees Off ROW-Tree	81%	1Q 2020
SAIDI	2.77	Trees - Sec/Service	7%	2Q 2020
SAIFI	623.92	Equipment Failure	6%	3Q 2020
CAIDI	0.00	All Other	6%	4Q 2020
Customer Minutes	2,215,534			
Customers Affected	3,551			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair equipment failure			Complete	Feb-20
Repair line failure			Complete	Apr-20
Repair damage caused by trees			Complete	Jul-20
Install advanced Dx protective devices			Complete	Aug-20
Repair damage caused by trees during a storm			Complete	Aug-20
Circuit inspection			Complete	Sep-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
Union City Sub	00206-43	Erie	2,856	109
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	188.01	Trees Off ROW-Tree	60%	1Q 2020
SAIDI	2.08	Equipment Failure	15%	2Q 2020
SAIFI	90.41	Unknown	7%	3Q 2020
CAIDI	0.84	All Other	18%	4Q 2020
Customer Minutes	536,956			
Customers Affected	5,939			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Jan-20
Repair equipment failure			Complete	Jun-20
Repair damage caused by trees during a storm			Complete	Aug-20
Targeted circuit rehabilitation			Complete	Oct-20
Install new radio-controlled switch			Complete	Dec-20
Install advanced Dx protective devices			To be Completed 2021	0%

Penelec				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Warren South	00220-41	Warren	2,493	98
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1,005.23	Trees Off ROW-Tree	84%	1Q 2020
SAIDI	1.91	Equipment Failure	9%	2Q 2020
SAIFI	527.59	Lightning	4%	3Q 2020
CAIDI	0.59	All Other	3%	4Q 2020
Customer Minutes	2,506,043			
Customers Affected	4,750			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair equipment failure			Complete	Jan-20
Repair damage caused by trees			Complete	Mar-20
Repair damage caused by trees during a storm			Complete	Aug-20
Repair damage caused by trees during a storm			Complete	Aug-20
Circuit inspection			Complete	Sep-20
Install advanced Dx protective devices			Complete	Nov-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
Wellsboro	00324-63	Mansfield Pa	255	21
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1,342.73	Trees Off ROW-Tree	57%	1Q 2020
SAIDI	4.47	Unknown	24%	2Q 2020
SAIFI	300.61	Equipment Failure	9%	3Q 2020
CAIDI	2.91	All Other	10%	4Q 2020
Customer Minutes	342,397			
Customers Affected	1,139			
Remedial Action Planned or Taken			**Status**	**Progress**
Restored fuse operation of unknown cause			Complete	Apr-20
Repair damage caused by trees			Complete	Aug-20

Penn Power				
Substation	**Circuit**	**District**	**Customers**	**Outages**
BMF	W760	Zelienople	6431	14
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	4.3	Trees Off ROW-Tree	72%	1Q 2020
SAIDI	295	Trees Off ROW-Limb	23%	2Q 2020
SAIFI	2.70	Line Failure	4%	3Q 2020
CAIDI	109	All Other	1%	4Q 2020
Customer Minutes	702,919			
Customers Affected	6,431			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by trees during a storm			Complete	Mar-20
Repair damage caused by trees during a storm			Complete	Jun-20
Repair damage caused by trees			Complete	Jul-20

West Penn Power				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Bethlen	Darlington	Latrobe	1245	64
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1.4	Trees off ROW	80%	Q1 2020
SAIDI	796	Wind	16%	Q2 2020
SAIFI	2.14	Unknown	2%	Q3 2020
CAIDI	372	All Other	2%	Q4 2020
Customer Minutes	2,666			
Customers Affected	991,493			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by a tree			Complete	Jan-20
Repair damage caused by wind during a storm			Complete	Apr-20
Repair damage caused by a tree during a storm			Complete	Jul-20
Repair damage caused by a tree			Complete	Dec-20
On Cycle Tree Trimming			To be completed 2021	0%
Substation	**Circuit**	**District**	**Customers**	**Outages**
Dutch Fork	Claysville	Washington	1611	64
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1.6	Trees off ROW	83%	Q1 2020
SAIDI	736	Equipment Failure	10%	Q2 2020
SAIFI	1.55	Unknown	3%	Q3 2020
CAIDI	474	All Other	4%	Q4 2020
Customer Minutes	2,501			
Customers Affected	1,185,302			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by a tree during a storm			Complete	Jan-20
Repair damage caused by a tree			Complete	Jun-20
Zone 1 Infrared Inspection			Complete	Jul-20
Repair damage caused by a tree during a storm			Complete	Aug-20
Repair damage caused by a tree during a storm			Complete	Nov-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
Franklin	Rogersville	Jefferson	833	67
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1	Trees off ROW	75%	Q1 2020
SAIDI	878	Unknown	11%	Q2 2020
SAIFI	3.67	Forced Outage	8%	Q3 2020
CAIDI	239	All Other	6%	Q4 2020
Customer Minutes	3,059			
Customers Affected	731,237			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by a tree during a storm			Complete	Mar-20
Repair damage caused by a tree during a storm			Complete	Apr-20
Zone 1 Infrared Inspection			Complete	Jul-20
Restore unknown outage			Complete	Sep-20
Repair damage caused by a tree			Complete	Oct-20

West Penn Power				
Substation	**Circuit**	**District**	**Customers**	**Outages**
Hilliards	Hilliards	Butler	891	34
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1.3	Trees off ROW	93%	Q1 2020
SAIDI	1014	Wind	3%	Q2 2020
SAIFI	3.04	Unknown	3%	Q3 2020
CAIDI	333	All Other	1%	Q4 2020
Customer Minutes	2,711			
Customers Affected	903,888			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by a tree during a storm			Complete	Jan-20
Repair damage caused by a tree during a storm			Complete	Mar-20
Repair damage caused by a tree during a storm			Complete	May-20
Repair damage caused by a tree during a storm			Complete	Aug-20
Repair damage caused by a tree during a storm			Complete	Nov-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
Lovedale	Township	Charleroi	1,633	46
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	2	Unknown	38%	Q1 2020
SAIDI	865	Object Contact with Line	21%	Q2 2020
SAIFI	3.09	Trees off ROW	20%	Q3 2020
CAIDI	280	All Other	21%	Q4 2020
Customer Minutes	5,038			
Customers Affected	1,413,035			
Remedial Action Planned or Taken			**Status**	**Progress**
Restore unknown outage during a storm			Complete	Jan-20
Repair damage caused by a tree during a storm			Complete	Mar-20
Repair damage caused by a tree during a storm			Complete	Apr-20
Restore unknown outage during a storm			Complete	Apr-20
Restore unknown outage			Complete	Jul-20
Overhead circuit inspection			Complete	Dec-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
Rutan	Bristoria	Jefferson	1141	102
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1.8	Trees off ROW	73%	Q1 2020
SAIDI	1,165	Line Failure	15%	Q2 2020
SAIFI	2.45	Equipment Failure	8%	Q3 2020
CAIDI	476	All Other	4%	Q4 2020
Customer Minutes	2,795			
Customers Affected	1,329,614			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by a tree			Complete	Jan-20
Repair line failure			Complete	May-20
Repair damage caused by a tree during a storm			Complete	Jul-20

West Penn Power				
Repair equipment failure during a storm			Complete	Nov-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
Waterville	Waterville	State College	355	17
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	0.9	Other Electric Utility	56%	Q1 2020
SAIDI	1839	Trees off ROW	41%	Q2 2020
SAIFI	7.09	Unknown	2%	Q3 2020
CAIDI	259	All Other	1%	Q4 2020
Customer Minutes	2,518			
Customers Affected	652,729			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by a tree during a storm			Complete	Feb-20
Restore outage caused by other electric utility			Complete	Jun-20
Restore outage caused by other electric utility			Complete	Jul-20
On cycle tree trimming			Complete	Nov-20
Substation	**Circuit**	**District**	**Customers**	**Outages**
Westraver	Pittsburgh Coal	Charleroi	1,912	30
Reliability		**Outage by Cause**		**Previously Ranked**
SAIDI Impact	1.1	Trees off ROW	95%	Q1 2020
SAIDI	407	Equipment Failure	2%	Q2 2020
SAIFI	2.33	Trees on ROW	1%	Q3 2020
CAIDI	174	All Other	2%	Q4 2020
Customer Minutes	4,459			
Customers Affected	777,827			
Remedial Action Planned or Taken			**Status**	**Progress**
Repair damage caused by a tree during a storm			Complete	Mar-20
Repair damage caused by a tree during a storm			Complete	Apr-20
Repair damage caused by a tree during a storm			Complete	Dec-20

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint 2020 Annual Reliability Report –	**:**
Metropolitan Edison Company,	**:**
Pennsylvania Electric Company,	**:**
Pennsylvania Power Company, and	**:**
West Penn 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).

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Dated: April 30, 2021

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