

Lower Makefield Township  
Electric Reliability Committee (ERC)  
April 16, 2015  
Meeting Minutes

Present: Kristin Tyler  
William Bogdan  
Bernard Griga  
John Kingham  
James Kirlin  
Valerie Liggett (Boucher & James, Inc.)

Apologies: Richard Gorelick

The April 16, 2015 meeting of the Lower Makefield Township Electric Reliability Committee (ERC) was called to order at 7:03 PM in the Township Offices by Chairman Kingham. (Note: meeting rescheduled from April 9, 2015)

1. **Approval of past minutes:** The minutes of the meeting of March, 2015 were approved and are posted. **Agenda:** The meeting agenda is appended to these minutes. ([Attachment 1](#)).
2. **Old Business:**
  - a. **PECO Vegetation Management:**
    - i. The acceptance by Mr. Dorand of PECO of the committee's invitation to a meeting together with the PECO arborist was acknowledged with satisfaction. It was agreed that the arrangements and an agenda for the meeting would be established when the committee has had the benefit of advice and guidance from the Township arborist.
    - ii. Valerie Liggett of Boucher & James was welcomed to the meeting with the broad understanding that the committee is in need of advice and guidance in relation to trees and vegetation in the vicinity of power lines.
      1. Mr. Bogdan opened the discussion with reference to [Attachment 2](#) (ERC Guidelines for ANSI Conformance Evaluation) with an emphasis on the requirement for PECO to provide safe and reliable electric power. Mr. Bogdan referenced the number of trees planned for trimming in the PECO 2014 maintenance program ([page 6 attachment 2](#)) and spoke of his concern that PECO may not be trimming trees in accordance with ANSI standards.  
In response to Mr. Bogdan Ms. Liggett explained that, since she has no connection with PECO, she is not in a position to comment on the extent of the PECO program but, as an arborist, it does appear that the power company trimming is done to meet the ANSI standards. She explained that, even though the end result may not be aesthetically pleasing, the object of the trimming is to cut limbs in the vicinity of the power lines back to "terminal" growth. This is the point at which there will be no new growth to fill-in and interfere with the lines in future growing seasons.

2. Mr. Kirlin questioned the wisdom of trimming trees so that there is minimal growth on the road side and full growth on the non-road side. Ms. Liggett was unable to provide a conclusive reason other than that it may be due to access, private property infringement or perhaps to clear road traffic.
3. The on-going discussion included the following questions and comments from the committee:
  - a. Is PECO is doing what it should be doing?
  - b. Where is the wisdom in planting tall pines with shallow root systems?
  - c. The Township should restrict planting in the vicinity of power lines by developing appropriate ordinances.
  - d. Planting should follow the guidelines published by PECO.
  - e. What power line provisions are included in accepted Subdivision and Land Development Ordinances (SALDO) related to tree planting?
  - f. What does ANSI call for?
4. To bring focus to the discussion Supervisor Tyler asked Ms. Liggett to do the following:
  - a. Advise LMT what it should do in relation to trees and vegetation in the vicinity of power lines; specifically:
    - i. What is LMT's responsibility?
    - ii. What is the resident's responsibility?
  - b. Provide LMT and the ERC committee with advice what to include in its upcoming discussions with the PECO arborist.
  - c. Provide LMT with advice on the best management practices and ordinances of neighboring townships.
5. In further discussion it was agreed that the following information is needed from PECO:
  - a. Mr. Griga: The conclusions from the analysis reported by PECO at its briefing to municipal leaders in Yardley on September 9, 2014. The analysis had arrived at around thirty engineering measures which could be taken to weather harden the system, particularly against impingement by trees. At the very least it would be useful to know what changes have been made as far as vegetation management is concerned.

- b. Griga/Tyler: How does PECO work with its tree management contractor (Asplundh)? Does PECO inspect the trees and give instructions on tree trimming based on outages or does the contractor provide the advice and the service?
  - c. Bogdan: it would be good to see samples of the tree inspection reports.
6. The committee extended its gratitude to Ms. Liggett for her attendance and stated that it looks forward to her advice before the meeting with PECO.
- b. **PECO Outage Questionnaire:** In the absence of Mr. Ferraro it was agreed to table the item until the next meeting.
  - c. **ERC Outreach to the PUC:** In the absence of Mr. Gorelick it was agreed to table the item until the next meeting.
  - d. **Planning Approach:** It was agreed to table discussions and the related documentation on the achievement of 1<sup>st</sup> quartile Reliability until contact has been made with the PUC.

**3. New Business:**

- a. **PECO Rate Increase Application:** Kirlin/Bogdan: It was agreed that the ERC will not participate in the forthcoming debate regarding Peco's application to the PUC for a rate increase.

**4. Next ERC Meeting:**

It was confirmed that the next meeting will be on May 4, 2015 at 7:00pm following the agreed 2015 schedule for meetings.

5. **Motion for Adjournment:** The meeting was adjourned at 8:48 pm.

**Attachments:**

- 1. Agenda
- 2. ERC Guidelines for ANSI Conformance Evaluation

ERC Agenda Apr 16, 2015 Meeting:

1. Approval of minutes of March 12, 2014 meeting
2. Old business:
  - a. PECO Vegetation management
    - i. Upcoming meeting with Mr. Dorand and Ms. Benner
    - ii. LMT arborist meeting
  - b. PECO outage questionnaire development - Ferraro
  - c. Planning approach – 1<sup>st</sup> Quartile reliability achievement Bogdan/Kirlin
3. New business
4. Set date, time, place for next ERC meeting
5. Motion for adjournment

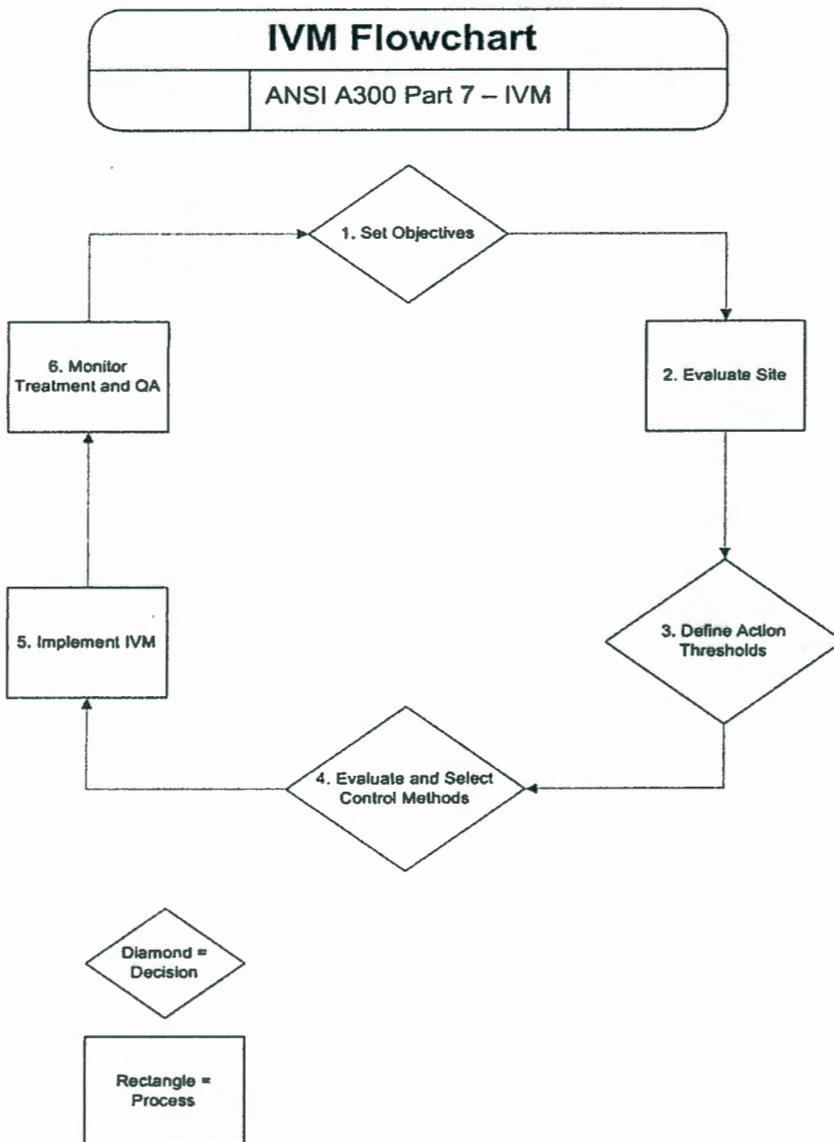
# Empowering Lower Makefield Township

## ERC Guidelines for ANSI Conformance Evaluation

ERC Draft April 10, 2015

Inserted from <<http://tcia.org/files/IVM%20Flow%20Chart.jpg>>

IVM (Integrated Vegetation Management) Conformance Flow Chart



## **Draft ERC Guidelines: for ANSI A300 Conformance**

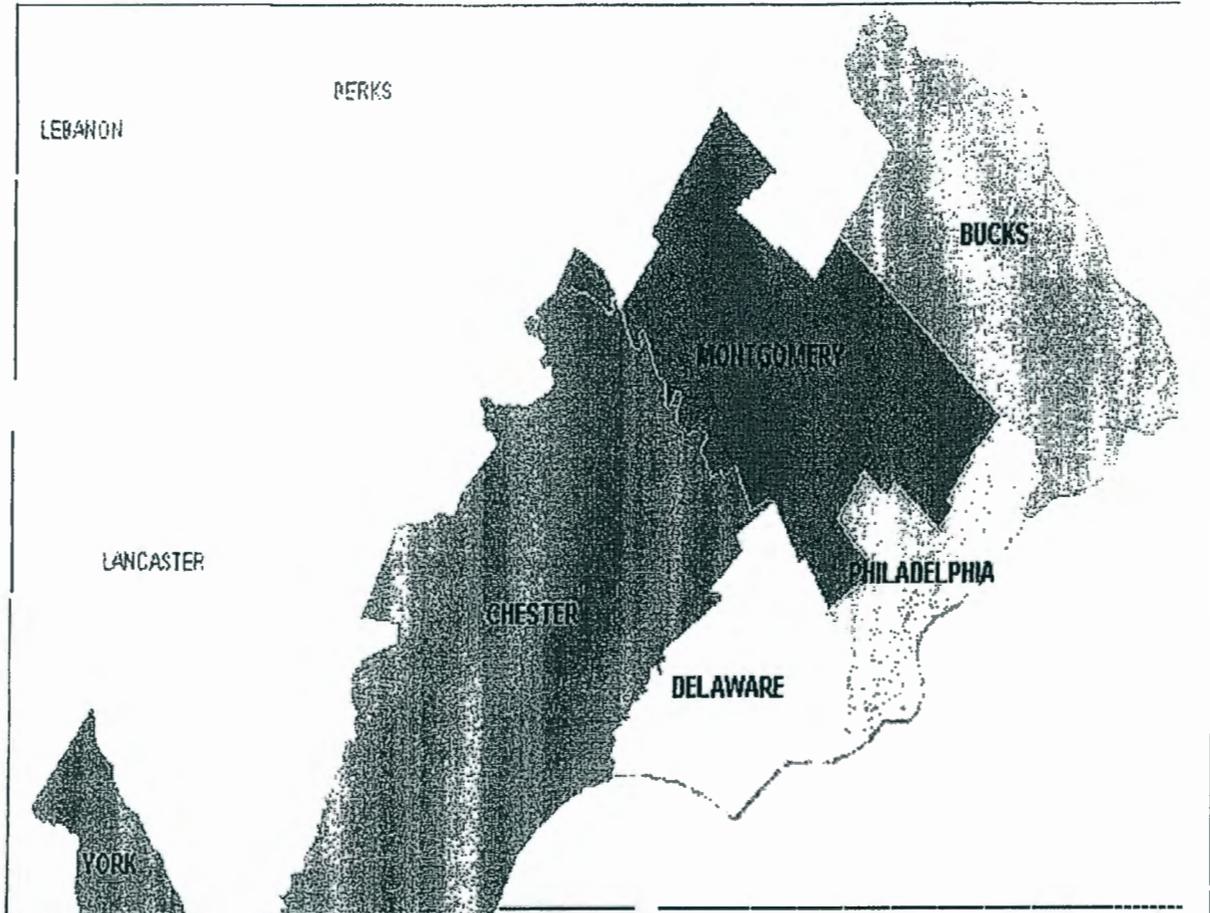
### **What are the Objectives for the PECO Vegetation Management(VM) Program**

- Objectives such as: customer safety, reduction in number of circuit outages, reduction of circuit power restoration time, protect circuit infrastructure? Primary objective? Other?
- are sustaining tree life and maintaining natural tree structure and foliage density among PECO VM objectives? Do PECO VM practices encourage the health of trees?
- are there quantified thresholds or levels that the VM objectives must satisfy?
- what control methods are established to ensure that the VM is meeting its objectives?
- how could LMT support PECO to satisfy and improve the outcome of its VM objectives?

### **VM for Trees Hazardous to PECO Aerial Power Lines**

- how are trees selected for trimming? Selected for tree removal? What tree defects in LMT are Inspection and Maintenance Crews on the alert-for?
- is there any consideration for strengthening trees with guy wire, cables, bracing, or propping devices?
- what inspection tools are used? Any advance technologies used?
- are certified Arborists included in the work crews? In the inspections? Are these crews given written directives? Could the Township review these directives?
- what considerations are given to maintaining the attractive tree ambience of LMT? Is the Township regarded as a proper authority to contribute to this kind of assessment? Township Arborist?
- are written work-completion reports required? Could the Township review these reports?
- how can the Township support PECO in controlling LMT vegetation hazardous to overhead power lines?

PECO Energy Company  
Quarterly Reliability Report  
For Period Ending June 30, 2014



August 1, 2014

PECO Energy ("PECO")

Quarterly Reliability Report for the Period Ending June 30, 2014 filed with the Pennsylvania Public Utility Commission.

Submitted per Rulemaking Re: Amending Electric Service, Docket No. L-00030161 Reliability Regulations at 52 Pa.Code Chapter 57

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

No major events occurred during the 2<sup>nd</sup> quarter 2014

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

PECO Customers	Sustained Customer Interruptions	Sustained Customer Hours	Momentary Customer Interruptions	Sustained Customer Minutes	SAIFI	CAIDI	SAIDI	MAIFI
1,713,056	1,416,809	2,252,835	737,505	135,170,122	0.83	95	79	0.43

Data reflects 12 months ending 06/30/2014.

PECO Benchmarks and Rolling 12-Month Standards				
	SAIFI	CAIDI	SAIDI	MAIFI
Benchmark	1.23	112	138	N/A
Rolling 12-Month Standard	1.48	134	198	N/A

SAIFI, CAIDI and SAIDI are below their respective benchmarks and standards established on May 7, 2004. No benchmark or standard was established for MAIFI.

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

PECO's worst performing 5% circuits for 2014 were selected based on a weighted score combining customer interruptions, customer hours, SAIFI and SAIDI, due to outages on each circuit in a 12 month period. This measure is oriented toward contributions to system SAIFI, SAIDI and CAIDI, and local areas with high outage frequency or duration. In addition, circuits with a history of repeat appearance on worst performing lists were selectively included in the 5% list.

Worst circuits and the rolling 12-month reliability index values requested are shown in Appendix A.

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

Remedial efforts taken or planned to date for PECO's worst performing 5% of circuits are shown in Appendix B.

Section 57.195(e)(5) "A Rolling 12-month breakdown and analysis of outage causes during the preceding quarter, including the number and percentage of service outages, the number of customers

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 included."

12 Months Ending June 30, 2014					
Cause	Service Outages	% of Service Outages	Customer Interruptions	% of Customer Interruptions	Customer Minutes
Animal	1,041	9.10%	33,083	2.30%	2,505,402
Contact/Dig-In	121	1.10%	16,127	1.10%	1,218,597
Equipment Failure	4,507	39.30%	626,065	44.20%	58,701,656
i., lightning	320	2.80%	34,915	2.50%	5,102,141
Other	1,399	12.20%	157,896	11.10%	12,266,104
T&S	13	0.10%	68,537	4.80%	3,687,821
Unknown	473	4.10%	52,473	3.70%	4,092,541
Vegetation-Broken/Uprooted	2,285	19.90%	267,665	18.90%	31,301,834
Vegetation-Ingrowth	939	8.20%	68,385	4.80%	8,547,027
Vehicles	362	3.20%	91,975	6.50%	7,772,582

\*The data supplied is the number of interrupted customers for each interruption event summed for all events, also known as customer interruptions. A customer interrupted by three separate trouble cases represents three customer interruptions, but only one customer interrupted.

The largest contributors to customer interruptions were equipment failure and tree-related interruptions. The leading groups within the equipment failure category were aerial equipment and underground equipment. Most customer interruptions caused by trees came from broken branches and tree trunks or uprooted trees (19% of all outages), as opposed to ingrowth (4.8%) of all outages). PECO has continued to supplement its regularly scheduled vegetation management cycle with mid-cycle and 34 kV pruning programs and a hazard tree removal program.

**Section 57.195(e)(6).** "Quarterly and year to date information on progress toward meeting transmission and distribution inspection and maintenance goals/objectives" (For First, Second and Third Quarter reports only)."

Predictive and Preventive Maintenance Program – status as of 6/30/2014					
	2nd Quarter Tasks		YTD Tasks		2014 Total Planned
	Planned	Complete	Planned	Complete	
Recloser Inspections (Number of reclosers inspected)	39	138	78	201	152
Circuit Patrol & Thermography (Number of circuits patrolled )	342	1,129	942	1,884	942
Pole Inspections (Number of poles visually inspected)	12,839	16,836	32,099	39,248	32,099
Padmount Transformers (Number of transformers visually inspected)	2,550	3,591	4,250	4,769	8,667
Below Ground Transformers (Number of transformers visually inspected)	600	1,078	1,050	1,903	1,601
Substations (Number of substations inspections performed.(e.g. visual inspection, reading of currents, voltages, temperature etc) for a variety of substation components)	330	351	660	683	1,320
Unit Substations ( Number of unit substations inspections performed .(e.g. visual inspection, reading of currents, voltages, temperature etc) for a variety of substation components)	770	797	1,539	1,617	3,090

Vegetation Management Preventive Maintenance Program - status as of 6/30/14					
	2m <sup>1</sup> Quarter Miles		YTD Miles		2014 Total Planned
	Planned	Complete	Planned	Complete	
Distribution Lift and Manual Trimming	552	726	1,252	1,425	2,128
Transmission Trimming and Removals	49	66	99	110	200

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

\$Millions	Budgeted 2nd Quarter	Actual 2nd Quarter	Budgeted Year-to-Date	Actual Year-to-Date
New Business Connections	\$0.4	\$0.4	\$0.7	\$0.6
Capacity Expansion	\$0.4	\$0.2	\$0.8	\$0.4
System Performance	\$10.8	\$7.5	\$21.8	\$15.4
Facility Relocation	\$0.4	\$0.5	\$0.5	\$0.8
Maintenance	\$41.5	\$53.9	\$86.8	\$104.9
Total	\$53.5	\$62.5	\$110.6	\$122.1

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

\$Millions	Budgeted 2nd Quarter	Actual 2nd Quarter	Budgeted Year-to-Date	Actual Year-to-Date
New Business Connections	\$10.4	\$10.3	\$20.2	\$19.4
Capacity Expansion	\$21.2	\$15.1	\$36.0	\$27.5
System Performance	\$22.0	\$22.0	\$38.3	\$33.5
Facility Relocation	\$4.8	\$2.2	\$6.9	\$2.9
Maintenance	\$21.7	\$25.7	\$43.5	\$51.7
Total	\$80.1	\$75.3	\$144.9	\$134.4

**Section 57.195(e)(9).** *"Dedicated staffing levels for transmission and distribution operation and maintenance at the end of the quarter, in total and by specific category" (e.g., lineman, technician and electrician)*

PECO's full-time trade staff as of June 30, 2014 was as follows:

Aerial Lineman	355
Underground Lineman (Include UTS)	48
Transmission / Substation Mechanics, Operators	100
Energy Technicians	96
Aerial Foreman	62
Underground Foreman	18
Transmission / Substation Foreman	29
ET Foreman	5
	713

**Contact Persons:**

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**Appendix A**

**Rolling 12-month reliability index values for 50% worst performing circuits**

CIRCUIT	CUSTOMERS ON CIRCUIT	12 Month Rolling Circuit SAIFI	12 Month Rolling Circuit CAIDI	12 Month Rolling Circuit SAIDI	12 Month Rolling Circuit MAIFI	12 Month Rolling Customers Interrupted	12 Month Rolling Customer Hours	12 Month Rolling Momentary Customers Interrupted
AIRY 004	755	4.06	43	176	1.00	3,068	2,217	755
AMBLER_001	563	3.80	154	585	0.00	2,140	5,488	0
AQUE 000	350	0.47	59	28	3.00	164	162	1050
ARDMORE 017	417	4.78	232	1108	0.00	1,994	7,701	0
AVONDALE 002	252	1.99	43	86	1.98	501	359	500
BIG OAK 002	805	2.58	120	311	1.00	2,080	4,172	805
BLUE GRASS_140	1,677	2.46	51	126	0.00	4,131	3,518	1
BLUE GRASS 136	1,218	4.43	53	236	0.67	5,398	4,789	810
BRISTOL 012	882	0.05	48	2	1.00	41	33	882
BRYAN 001	485	2.70	317	856	0.00	1,311	6,916	0
BRYAN 002	398	4.56	278	1266	0.00	1,816	8,400	0
BRYN MAWR 012	197	3.18	106	338	0.98	626	1,109	194
BUCKNELL 000	477	0.32	51	16	0.00	151	128	0
BURHOLME 135	934	2.03	34	70	0.00	1,898	1,089	0
BYBERRY 132	737	2.46	88	217	0.00	1,816	2,671	2
BYBERRY 142	771	3.52	76	268	0.55	2,713	3,441	421
BYBERRY 146	528	1.07	77	83	0.01	567	727	3
CARVER_000	371	2.32	127	294	0.26	860	1,817	97
CLAY 343	1,452	2.24	169	380	1.11	3,254	9,192	1605
CLAY 352	1,409	1.23	123	151	0.05	1,727	3,538	69
CONCORD 348	1,498	0.01	94	1	0.00	14	22	3
DALEVILLE 342	696	1.04	125	130	0.91	724	1,513	632
DAVISVILLE 008	211	0.12	52	6	2.01	26	22	424
DELTA 001	370	4.05	163	660	1.00	1,500	4,069	370
DELTA 002	341	2.98	118	353	1.11	1,016	2,005	379
DOWNINGTOWN 003	986	0.73	96	70	1.02	724	1,155	1002
EAGLE 352	1,625	1.03	82	85	1.31	1,677	2,306	2126
EDGELY 003	465	4.44	84	372	1.00	2,065	2,884	465
EMILIE 131	474	1.75	18	32	0.00	828	254	0
FALLS 011	327	2.35	192	453	0.00	770	2,467	0
FLINT 147	166	2.45	114	279	0.01	407	771	1
FOX CHASE 136	844	0.11	326	37	0.00	96	521	0
HAGYS 001	277	3.04	120	364	0.00	843	1,681	0
HARMONY 004	389	6.41	93	594	2.68	2,492	3,850	1041
HARMONY 005	1,082	4.20	18	75	1.81	4,540	1,348	1963
HARVEY 002	680	0.01	117	2	0.00	9	18	0
HAYES 000	403	1.53	69	106	2.97	616	709	1195
HEARTWOOD .001	588	1.25	159	198	0.00	733	1,939	2
HEATON_160	222	1.34	84	112	0.00	298	416	0
HENDERSON 001	516	0.17	415	72	1.00	89	616	516
ISLAND ROAD J36	1,601	2.29	205	468	0.00	3,665	12,499	0
JAMISON 000	312	2.01	20	40	0.00	627	209	0
JARRETI 143	735	0.25	145	37	0.00	186	451	0
JENKINTOWN 131	1,247	4.36	53	230	0.83	5,438	4,787	1040
KELLER_000	400	2.03	51	104	2.42	810	692	968
KENNETT SQUAR 001	414	1.23	142	175	0.98	509	1,205	404



CIRCUIT	CUSTOMERS ON CIRCUIT	12 Month Rolling Circuit SAIFI	12 Month Rolling Circuit	12 Month Rolling Circuit	12 Month Rolling Circuit	12 Month Rolling Customers Interrupted	12 Month Rolling Customer Hours	12 Month Rolling Momentary Customers Interrupted
KING 003	218	3.52	161	566	0.00	767	2,056	0
KING 004	212	2.54	68	173	1.00	539	612	212
KNOWLTON 004	633	2.02	124	250	0.00	1,278	2,633	0
LENAPE_OOO	476	1.03	210	216	0.05	489	1,710	23
LENAPE 344	1,866	0.20	153	31	0.58	382	976	1081
LENAPE 351	1,646	1.08	145	155	1.77	1,770	4,264	2918
LEOPARD 001	467	1.77	72	128	1.00	828	996	467
LINE_1098	703	1.25	49	61	0.00	876	714	0
LINE 162 00	1,164	0.89	198	176	0.00	1,039	3,423	0
LINE_175 00CO	338	0.62	179	112	0.00	211	630	0
LINE 2235	2,121	3.01	61	185	1.95	6,375	6,528	4128
LINE 2284	338	3.26	60	195	0.10	1,102	1,097	34
LINE_2295	246	2.00	272	542	0.00	491	2,223	0
LINE 2445	525	2.93	164	481	0.06	1,539	4,209	30
LINE 2471	1,131	2.29	69	158	0.00	2,586	2,970	0
LINE_3307NT	1,787	2.36	195	461	4.16	4,219	13,735	7428
LINE 3308NT	961	5.00	131	657	0.12	4,809	10,525	115
LINE 3341	43	1.21	39	48	0.00	52	34	0
LINE 5800	417	2.06	65	134	2.00	858	929	834
LLANERCH 161	1,299	4.13	62	258	0.61	5,360	5,581	790
MACDADE 141	1,178	0.83	81	67	0.11	979	1,319	133
MACDADE 143	1,808	1.01	64	65	1.27	1,823	1,956	2302
MAIN 000	71	3.38	157	531	0.00	240	628	0
MARPLE 002	284	1.00	205	205	1.00	284	973	284
MATSON.. 131	798	7.38	51	377	0.59	5,887	5,019	472
MIDDLETOWN_349	2,042	3.01	74	224	1.97	6,150	7,631	4021
MORGAN 001	247	1.02	75	77	4.05	253	317	1001
MORGAN 004	321	3.38	53	179	4.93	1,086	957	1583
MORTON 133	785	3.16	46	146	1.00	2,478	1,904	782
MOSER 341	981	3.93	47	184	0.06	3,853	3,013	60
NEWLINVILLE_353	2,512	0.71	57	40	1.30	1,771	1,689	3270
NEWTOWN_SQUAR_143	1,056	1.30	123	160	1.09	1,369	2,816	1154
NEWTOWN_SQUAR_144	1,549	2.50	37	93	0.90	3,865	2,408	1395
NEWTOWN_SQUAR_146	1,143	1.61	65	105	1.29	1,843	1,996	1479
OAKMONT 002	631	2.01	94	189	1.00	1,270	1,993	631
OVERBROOK 029	163	2.24	27	60	0.00	365	162	0
OVERBROOK 037	1,912	2.04	38	77	0.00	3,892	2,445	0
PHOENIXVILLE_005	990	3.20	77	247	0.60	3,168	4,071	592
PLUMSTEAD 001	337	1.37	84	116	1.00	462	650	337
PLYMOUTH 136	707	5.58	67	376	0.00	3,945	4,431	0
PLYMOUTH_138	986	3.57	58	206	0.40	3,523	3,385	391
PLYMOUTH 139	709	1.90	95	180	1.15	1,349	2,127	813
PLYMOUTH 145	741	3.16	49	153	0.42	2,338	1,891	313
PLYMOUTH_146	1,384	2.69	38	102	0.48	3,723	2,348	667
PLYMOUTH 164	1,369	2.41	25	60	0.32	3,299	1,370	440
RADNOR 131	39	6.18	63	388	0.00	241	252	0
SAVILLE 136	2,585	1.39	89	124	0.40	3,592	5,330	1037
SECANE 003	1,020	1.00	120	120	0.00	1,018	2,036	0
SHEEDER 000	435	2.71	147	399	0.53	1,177	2,893	230
SILES 004	516	0.13	181	23	0.00	66	199	0

CIRCUIT	CUSTOMER S ON	12 Month Rolling Circuit SAIFI	12 Month Rolling Circuit CAIDI	12 Month Rolling Circuit SAIDI	12 Month Rolling Circuit MAJFI	12 Month Rolling Customers Interrupted	12 Month Rolling Customer Hours	12 Month Rolling Momentary Customers Interrupted
SMITHBRIDGE 000	481	2.32	62	145	0.00	1,118	1,160	0
SPROUL_003	591	1.31	132	173	1.00	776	1,704	590
STONY_001	413	2.35	159	373	3.35	969	2,566	1382
TAYLOR 002	576	4.01	53	212	0.00	2,310	2,037	0
TREDYFFRIN 132	636	3.06	120	367	1.98	1,947	3,894	1259
TULIP_000	457	2.00	30	60	0.00	913	458	0
TUNA 143	760	1.09	80	87	0.00	825	1,104	0
UNIVERSITY 011	371	0.07	197	14	0.00	26	85	0
UPPER MERION 132	1,458	0.53	146	77	0.00	774	1,881	0
UPPER MERION 133	1,152	0.26	315	82	0.00	298	1,566	0
WARMINSTER 132	1,001	1.22	158	193	0.31	1,217	3,215	310
WARMINSTER 161	1,539	1.68	55	92	0.59	2,590	2,357	910
WAYNE 134	684	4.19	80	336	1.79	2,867	3,830	1221
WAYNE 136	881	2.90	69	199	2.95	2,556	2,920	2600
WAYNE 146	588	7.67	88	678	2.22	4,511	6,649	1307
WHITAKER 000	245	3.91	88	343	0.00	957	1,401	0
WICKER 001	381	1.01	118	119	1.00	385	757	380
WYNCOTE_003	210	3.18	148	471	0.02	668	1,648	4

The data supplied is the number of interrupted customers for each interruption event summed for all events, also known as customer interruptions. If a customer is interrupted by three separate trouble cases, they represent three customer interruptions, but only one customer interrupted.

## Appendix B

Remedial efforts taken and planned for 5% worst performing circuits as of 06/30/14

### AIRY\_004

Montgomery County

#### Completed:

Inspected circuit visually and with thermographic camera

Completed reliability corrective workorders

#### Planned:

Remedial efforts completed

### AMBLER\_OOI

Montgomery County

#### Completed:

Inspected circuit visually and with thermographic camera

Completed reliability corrective workorders

Inspected selected areas of circuit for vegetation issues and corrected as needed

Upgraded wire

#### Planned:

Install sectionalizer

Complete reliability corrective workorders

Inspect selected areas of circuit for vegetation issues and corrected as needed

### AQUE\_OOO

Bucks County

#### Completed:

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Upgraded transformer

#### Planned:

Remedial efforts completed

### ARDMORE\_OI7

Delaware County

#### Completed:

Completed reliability corrective workorders

Inspected/ repaired switch

#### Planned

Remedial efforts completed

### AVONDALE\_002

Chester County

#### Completed:

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed additional fuses

Upgraded transformer

#### Planned:

Remedial efforts completed

**BIG OAK\_002**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera

Completed reliability corrective workorders

Inspect selected areas of circuit for vegetation issues and corrected as needed

Upgraded transformer

**Planned:**

Install additional fuses

Install faulted circuit indicators

Complete reliability corrective workorders

**BLUE GRASS\_136**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Replaced//Upgraded cable

Installed additional fuses

**Planned:**

Complete reliability corrective workorders

Inspect selected areas of circuit for vegetation issues and corrected as needed

Install three phase recloser

**BLUE GRASS\_140**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed / upgraded fuses

**Planned:**

Remedial efforts completed

**BRISTOL\_012**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed regularly scheduled tree trimming

Completed reliability corrective workorders

Upgraded wires

**Planned:**

Remedial efforts completed

**BRYAN\_001**

York County

**Completed:**

Inspected circuit visually and with thermographic camera

Completed reliability corrective workorders

Installed additional fuses

Installed Faulted circuit indicators

**Planned:**

Remedial efforts completed

**BRYAN\_002**

York County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed additional fuses

**Planned:**

Remedial efforts completed

**BRYN MAWR\_012**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Completed reliability corrective workorders

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed regularly scheduled tree trimming

**Planned:**

Remedial efforts completed

**BUCKNELL\_000**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspect selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Replace aerial cable

**Planned:**

Remedial efforts completed

**BURHOLME\_135**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera

Completed reliability corrective workorders

Inspect selected areas of circuit for vegetation issues and corrected as needed

Install additional fuses

**Planned:**

Upgrade cable

Install 3 phaserecloser

**BYBERRY\_132**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed (2) three phase reclosers

**Planned:**

Remedial efforts completed

**BYBERRY\_142**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed additional fuses

Repaired cable

**Planned:**

Install 3 phase recloser

**BYBERRY\_146**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Replaced switch

Upgraded lightning protection

Installed cable

**Planned:**

Remedial efforts completed

**CARVER\_000**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Upgraded fuses

**Planned:**

Remedial efforts completed

**CLAY\_343**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Completed regularly scheduled tree trimming

**Planned:**

Inspected selected areas of circuit for vegetation issues and corrected as needed

**CLAY\_352**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Completed regularly scheduled tree trimming

**Planned:**

Remedial efforts completed

**CONCORD\_348**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Completed regularly scheduled tree trimming

**Planned:**

Remedial efforts completed

**DALEVILLE\_342**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Upgraded lightning protection  
Installed additional fuses  
Completed regularly scheduled tree trimming

**Planned:**

Remedial efforts completed

**DAVISVILLE\_008**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Installed breakdown  
Completed reliability corrective workorders

**Planned:**

Remedial efforts completed

**DELTA\_OOI**

York County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders

**Planned:**

Remedial efforts completed

**DELTA\_002**

York County

**Completed:**

Inspected circuit visually and with thermographic camera  
Completed reliability corrective workorders  
Inspected selected areas of circuit for vegetation issues and corrected as needed

**Planned:**

Inspect selected areas of circuit for vegetation issues and corrected as needed

**DOWNINGTOWN 003**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Install additional fuses

**Planned:**

Remedial efforts completed

**EAGLE\_352**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed regularly scheduled tree clearance  
Completed reliability corrective workorders  
Installed additional fuses

**Planned:**

Remedial efforts completed

**EDGELY\_003**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Completed regularly scheduled tree clearance

**Planned:**

Remedial efforts completed

**EMILIE\_131**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Complete regularly scheduled tree trimming  
Upgrade transformer

**Planned:**

Remedial efforts completed

**FALLS\_OII**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Installed additional fuses  
Upgraded transformer

**Planned:**

Inspected selected areas of circuit for vegetation issues and corrected as needed  
Install 2 - 3 phase reclosers

**FLINT\_147**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Install tree wire

**FOX\_CHASE\_136**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Upgraded transformer

Upgraded lightning protection

**Planned:**

Install 3 phase recloser

**HAGYS\_OOI**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Install faulted circuit indicators

Modify fuse coordination

**Planned:**

Remedial efforts completed

**HARMONY\_004**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Inspect Breaker Operation

**HARMONY\_005**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed additional fuses

Upgraded transformer

**Planned**

Remedial efforts completed

**HARVEY\_002**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Install additional fuses

**Planned:**

Remedial efforts completed

**HAYES\_000**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Remedial efforts completed

**HEARTWOOD\_001**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Remedial efforts completed

**HEATON\_160**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Install additional fuses

**HENDERSON\_001**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed additional fuses

Installed faulted circuit indicators

**Planned:**

Remedial efforts completed

### **ISLAND\_ROAD\_136**

Philadelphia County

#### **Completed:**

Inspected circuit visually and with thermographic camera

Completed reliability corrective workorders

Installed additional fusing

Replaced cable

#### **Planned:**

Complete reliability corrective workorders

### **JAMISON\_OOO**

Bucks County

#### **Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Upgraded fuses

Upgraded transformer

#### **Planned:**

Remedial efforts completed

### **JARRETT 143**

Montgomery County

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Replaced cable

Completed reliability corrective workorders

#### **Planned:**

Remedial efforts completed

### **JENKINTOWN 131**

Montgomery County

#### **Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Upgraded transformer

#### **Planned:**

Install 2-3 phasereclosers

Inspect selected areas of circuit for vegetation issues and corrected as needed

Install additional fuses

Complete reliability corrective workorders

### **KELLER\_OOO**

Bucks County

#### **Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

#### **Planned:**

Install 3 phase recloser on supply circuit

**KENNETT\_SQUARE\_001**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Remedial efforts completed

**KING\_003**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Test recloser operation

**Planned:**

Remedial efforts complete

**KING\_004**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Coordinated fusing

Upgraded fuses

Upgraded transformer

**Planned:**

Remedial efforts complete

**KNOWLTON\_004**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Upgraded transformer

**Planned:**

Remedial efforts complete

**LENAPE\_000**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Install faulted circuit indicators

Upgraded transformer

Replaced cable

**Planned:**

Remedial efforts complete

**LENAPE\_344**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Install 2-3 Phase reclosers

**LENAPE\_351**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Upgraded transformer

Installed 3 phase recloser

**Planned:**

Remedial efforts completed

**LEOPARD\_OOI**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Completed regularly scheduled tree clearance

Upgraded transformer

**Planned:**

Install tree wire

Complete reliability corrective workorders

**LINE\_1098**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Replace cable section

Test / Inspect breaker

**LINE\_162\_00**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Test / Inspect recloser operation,

Replaced cable

Installed lightning protection

**Planned:**

Remedial efforts completed

**LINE\_175\_00CO**

Chester County

**Completed:**

Completed regularly scheduled tree trimming  
Inspected circuit visually and with thermographic camera  
Installed 3 phase recloser  
Upgraded fuses

**Planned:**

Completed reliability corrective workorders

**LINE\_2235**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Repaired station leg cable

**Planned:**

Extend circuit  
Upgrade mains and services  
Install additional fuses

**LINE\_2284**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders

**Planned:**

Replace cable

**LINE\_2295**

Philadelphia County

**Completed:**

Completed reliability corrective workorders  
Replaced cable

**Planned:**

Complete reliability corrective workorders

**LINE\_2445**

Philadelphia County

**Completed:**

Completed reliability corrective workorders  
Replaced cable  
Replaced switches

**Planned:**

Complete reliability corrective workorders

**LINE\_2471**

Philadelphia County

**Completed:**

Completed reliability corrective workorders  
Replaced cable section

**Planned:**

Remedial efforts completed

**LINE\_3307NT**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Complete reliability corrective workorders

**Planned:**

Upgrade transformer

Complete reliability corrective workorders

Inspect selected areas of circuit for vegetation issues and corrected as needed

**LINE\_3308NT**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Repaired switch

**Planned:**

Remedial efforts completed

**LINE\_3341**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed recloser

Replaced switch

**Planned:**

Remedial efforts completed

**LINE\_5800**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Inspected/ tested recloser operation

**Planned:**

Remedial efforts completed

**LLANERCH\_161**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Completed regularly scheduled tree trimming

Installed additional fuses

Tested / Inspected recloser operation

Upgraded lightning protection

Upgraded secondary wires

Installed 3 single phase reclosers

**Planned:**

Remedial efforts complete

**MAC.DADE\_141**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Upgraded lightning protection  
Installed additional fuses  
Installed wildlife protection

**Planned:**

Install 3 phase recloser

**MACDADE\_143**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera  
Completed reliability corrective workorders  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Upgraded wildlife protection  
Installed additional fuses

**Planned:**

Remedial efforts completed

**MAIN\_000**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera  
Completed reliability corrective workorders

**Planned:**

Install additional fuses  
Complete reliability corrective workorders  
Inspect selected areas of circuit for vegetation issues and corrected as needed

**MARPLE\_002**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Completed regularly scheduled tree trimming  
Installed additional fuses  
Installed 3 phase recloser  
Upgraded transformer  
Installed lightning protection

**Planned:**

Install tree wire

**MATSON\_131**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Installed tree wire  
Completed regularly scheduled tree trimming

**Planned:**

Upgrade wildlife protection

**MIDDLETOWN\_349**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Upgraded fuse coordination  
Replaced switch  
Installed additional fuses  
Upgraded lightning protection  
Upgraded transformer  
Inspect recloser operation

**Planned:**

Complete reliability corrective workorders

**MORGAN\_001**

Bucks County

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Installed trip saver  
Installed additional fuses

**Planned:**

Remedial efforts completed

**MORGAN\_004**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera  
Completed reliability corrective workorders  
Installed additional fuses  
Coordinate fuses  
Upgraded transformer

**Planned:**

Install 3 phase recloser

**MORTON\_133**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed additional animal protection

Installed additional fuses

Completed regularly scheduled tree trimming

**Planned:**

Install 3 phase recloser

**MOSER\_341**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Completed regularly scheduled tree trimming

**Planned:**

Upgrade secondary wires

**NEWLINVILLE-353**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed trip saver

Upgraded fuse

**Planned:**

Complete reliability corrective workorders

Inspect selected areas of circuit for vegetation issues and corrected as needed

Upgrade wildlife protection

**NEWTOWN\_SQUARE\_143**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed additional fuses

Installed wildlife protection

Upgraded transformer

Completed regularly scheduled tree trimming

**Planned:**

Remedial efforts completed

**NEWTOWN\_SQUARE\_144**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Test / Inspect recloser operation  
Completed regularly schedule tree trimming  
Upgrade animal protection

**Planned:**

Remedial efforts completed

**NEWTOWN\_SQUARE\_146**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective workorders  
Completed regularly schedule tree trimming  
Installed additional fuses  
Replaced cable section

**Planned:**

Remedial efforts completed

**OAKMONT\_002**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera  
Installed switch  
Completed reliability corrective work orders  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed regularly schedule tree trimming  
Upgraded lightning protection on supply line

**Planned:**

Remedial efforts completed

**OVERBROOK\_029**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera  
Completed reliability corrective work orders

**Planned:**

Inspect selected areas of circuit for vegetation issues and corrected as needed  
Complete reliability corrective work orders

**OVERBROOK\_037**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Installed additional fuses  
Completed reliability corrective work orders

**Planned:**

Complete reliability corrective work orders  
Installed additional fuses

**PHOENIXVILLE\_005**

Chester County

**Completed:**

Inspected circuit visually and with thennographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective work orders  
Upgraded transformer

**Planned:**

Complete reliability corrective work orders  
Inspect selected areas of circuit for vegetation issues and corrected as needed

**PLUMSTEAD\_OOI**

Bucks County

**Completed:**

Inspected circuit visually and with thennographic camera  
Completed reliability corrective work orders  
Inspect selected areas of circuit for vegetation issues and corrected as needed  
Install lightning protection

**Planned:**

Remedial efforts completed

**PLYMOUTH\_136**

Montgomery County

**Completed:**

Inspected circuit visually and with thennographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective work orders  
Upgraded lightning protection  
Installed additional fuses  
Upgraded transformers

**Planned:**

Remedial efforts completed

**PLYMOUTH\_138**

Montgomery County

**Completed:**

Inspected circuit visually and with thennographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective work orders  
Repaired station leg cable  
Replaced secondary mains  
Installed additional fuses

**Planned:**

Remedial efforts completed

**PLYMOUTH\_139**

Montgomery County

**Completed:**

Inspected circuit visually and with thennographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective work orders  
Upgraded lightning protection

**Planned:**

Remedial efforts completed

PLYMOUTH\_145

Montgomery County

Completed:

Inspected circuit visually and with thennographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability correcti ve work orders

Installed addi tional fuses

U pgraded transformer

Planned:

Remedial efforts completed

PLYMOUTH\_146

M ontgomery County

Completed:

Inspected circuit visually and with thennographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliabili ty correcti ve work orders

Installed additional fuses

Upgraded secondary main

Planned:

Remedial efforts completed

PLYMOUTH\_164

Montgomery County

Completed:

Inspected circuit visually and with thennographic camera

Inspected selected areas of circui t for vegetation issues and corrected as needed

Completed reliability corrective work orders

Installed additional fuses

Planned:

Remedial efforts completed

RADNOR\_131

Delaware County

Completed:

Inspected circuit visually and wi th thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Planned:

Inspect selected areas of circuit for vegetation issues and corrected as needed

Complete reliabi lity corrective workorders

Check recloser coordination

SAVILLE\_136

Delaware County

Completed:

Inspected circuit visually and with thennographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective work orders

Repaired station leg cable

Test / Inspect recloser

Planned:

Install three phase recloser

**SECANE\_003**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective work orders

Repaired station leg cable

**Planned:**

Remedial efforts completed

**SHEEDER\_000**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective work orders

Coordinate fusing

Upgrade lightning protection

Completed regularly schedule tree trimming

**Planned:**

Complete reliability corrective work orders

**SILES\_004**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective work orders

Installed additional fuses

Upgraded transformer

**Planned:**

Remedial efforts completed

**SMITHBRIDGE\_000**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective work orders

Installed additional lightning protection

Installed additional transformer

**Planned:**

Remedial efforts completed

**SPROUL\_003**

Delaware County

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective work orders

Completed regularly schedule tree trimming

**Planned:**

Reconfigure circuit

**STONY\_001**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective work orders  
Replaced cable  
Installed additional fuses

**Planned:**

Remedial efforts completed

**TAYLOR\_002**

Philadelphia County

**Completed:**

Completed reliability corrective work orders  
Tested / Inspected switch

**Planned:**

Completed reliability corrective work orders

**TREDYFFRIN\_132**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed  
Completed reliability corrective work orders  
Installed additional fuses

**Planned:**

Install tree wire

**TULIP\_000**

Philadelphia County

**Completed:**

Completed reliability corrective work orders  
Installed Faulted Circuit Interrupters  
Replaced cable  
Installed breakdown

**Planned:**

Remedial efforts completed

**TUNA\_143**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera  
Inspected selected areas of circuit for vegetation issues and corrected as needed

**Planned:**

Install breakdown  
Install Circuit Indicators  
Replace switch

**UNIVERSITY\_OH**

Philadelphia County

**Completed:**

Installed Faulted Circuit Indicators

Completed reliability corrective workorders

Repaired station leg cable

**Planned:**

Remedial efforts complete

**UPPER\_MERION\_132**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Inspect selected areas of circuit for vegetation issues and collected as needed

Complete reliability corrective workorders

**UPPER\_MERION\_133**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Upgrade mains and services

Installed wildlife protection

**Planned:**

Remedial efforts complete

**WARMINSTER\_132**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Install additional fuses

Upgrade secondary wires

Complete reliability corrective workorders

**WARMINSTER\_161**

Bucks County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Complete reliability corrective workorders

Upgrade secondary wires

Inspect selected areas of circuit for vegetation issues and corrected as needed

**WAYNE\_134**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed transformer

Replaced tree wire

**Planned:**

Remedial efforts complete

**WAYNE\_136**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Upgraded lightning protection

Installed additional animal protection

**Planned:**

Remedial efforts complete

**WAYNE\_146**

Delaware County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Remedial efforts complete

**WHITAKER\_OOO**

Philadelphia County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Remedial efforts complete

**WICKER\_OOI**

Chester County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

**Planned:**

Remedial efforts complete

**WYNCOTE\_003**

Montgomery County

**Completed:**

Inspected circuit visually and with thermographic camera

Inspected selected areas of circuit for vegetation issues and corrected as needed

Completed reliability corrective workorders

Installed transformer

**Planned:**

Complete reliability corrective workorders

## Appendix C

### **New Business Connections**

This work category includes all the facility work required to add a new customer or to increase the load to an existing customer. The facility work will include the facilities required to directly connect the customer to the system and the upgrade/replacement of any existing facility to serve the requested additional load.

### **Capacity Expansion**

This work category includes only capacity work generated by the system design engineer to prevent system failure and to assure the delivery of voltage as specified in the tariff. The addition of new substations and substation enlargements for future load growth will also be included in this project.

### **System Performance**

This work category includes projects designed to upgrade, modify or improve the performance of the distribution system. Also included in this category are indirect costs in support of all categories and one-time accounting adjustment items.

### **Facility Relocation**

This work category includes all requests for relocation of PECO facilities including municipal as well as customer related relocation requests.

### **Maintenance**

This work category includes work performed to repair and restore equipment to its normal state of operation, along with planned preventive maintenance work such as visual and thermographic inspections and tree trimming around transmission and distribution lines.

### **Storm Funds**

Incremental costs (primarily; overtime, contractors, mutual assistance, and meals) incurred while responding to major storms (storms that meet customer outage and duration criteria).