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FEDERAL EXPRESS

April 30, 2010

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

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APR 30 2010

PA PUBLIC UTILITY COMMISSION SECRETARY'S BUREAU

L-00030101

Re: PPL Electric Utilities Corporation 2010 Annual Reliability Report

Dear Ms. Chiavetta:

Enclosed for filing on behalf of PPL Electric Utilities Corporation ("PPL Electric") are an original and five (5) copies of PPL Electric's 2010 Annual Reliability Report to the Pennsylvania Public Utility Commission. This report is being filed pursuant to the Commission's regulations at 52 Pa. Code § 57.191, <u>et seq</u>.

As required by the Commission's regulations, copies of the enclosed report have been served upon the Office of Consumer Advocate ("OCA") and the Office of Small Business Advocate ("OSBA").

Pursuant to 52 Pa. Code § 1.11, the enclosed document is to be deemed filed on April 30, 2010, which is the date it was deposited with an overnight express delivery service as shown on the delivery receipt attached to the mailing envelope.

In addition, please date and time-stamp the enclosed extra copy of this letter and return it to me in the envelope provided.

- 2 -

If you have any questions regarding the enclosed report, please call me or Joseph M. Kleha, PPL Electric's Manager - Regulatory Compliance and Rates at (610) 774-4486.

Very truly yours,

Paul E. Russell

Enclosures

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cc: Irwin A. Popowsky, Esquire William R. Lloyd, Esquire Elizabeth H. Barnes, Esquire Mr. Wayne Williams Mr. Blaine J. Loper

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PPL Electric Utilities

APR 30 2010

PA PUBLIC UTILITY COMMISSION SECRETARY'S BUREAU

PPL Electric Utilities Corporation Annual Reliability Report to the Pennsylvania Public Utility Commission

April 2010

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.

In 2009, the annual SAIFI, CAIDI, and SAIDI metrics showed significant improvement over the prior year and were below both their respective 12-month standards and benchmarks for PPL Electric Utilities Corporation ("PPL Electric").

The three-year rolling average SAIFI, CAIDI and SAIDI metrics also improved significantly, with CAIDI moving below benchmark, and SAIFI and SAIDI well below their three-year standards.

After three years (2006-2008) of abnormally high storm activity that negatively affected reliability, PPL Electric's 2009 storm experience approached historical norms. Specifically, PPL Electric experienced four (4) PUC-reportable storms ($\geq 2,500$ customers interrupted for ≥ 6 hr.) during 2009 which is comparable to the average of 4.2 storms per year occurring during the benchmark years (1994-1998). In addition, PPL Electric experienced 16 storms that were not reportable, but which did require opening one or more area emergency centers to manage restoration efforts. This level is about 50% higher than the 10.7 storm average recorded from 2000 through 2005.

PPL Electric is committed to maintaining acceptable levels of electric delivery service to its customers. Maintenance programs are one of the key elements that focus on maintaining system and circuit reliability, equipment performance and interruption prevention. The scope of these maintenance programs, procedures and activities covers all areas of the electrical infrastructure.

These programs include:

Transmission

Transmission inspection programs include aerial patrols and wood pole inspection and treatment. The patrols focus on comprehensive inspections, routine inspections and identification of emergency work. The patrols include inspection of all equipment, including poles, arms, line switches, interrupters, arresters, grounding, guying, anchors and other key transmission components.

Substation

Substation maintenance programs include inspections and overhauls of equipment, such as breakers, disconnects, power cables, and security equipment. Some equipment is maintained on a time basis; other equipment is condition monitored. These two methods help ensure that maintenance work is performed in a timely manner. Besides time and condition-based maintenance, thermo-graphic inspections help ensure that substation equipment does not operate at elevated temperature levels for an extended period of time, which could lead to a catastrophic failure.

Distribution

Distribution encompasses many maintenance aspects similar to transmission and substations, but also includes load surveys that help engineers determine peak load requirements, circuit analyses that help engineers identify lines requiring maintenance work, voltage relief, or other capital improvements. Overhead line inspections identify the weak links in the system so that damaged or deteriorated equipment can be repaired or replaced. In addition, distribution maintenance includes inspections of poles, voltage regulators, line switches, capacitors, and other key distribution equipment. PPL Electric also tests underground cable for integrity to determine if the cable needs to be replaced, repaired or cured to prevent future failures.

Vegetation

The vegetation on PPL Electric's transmission and distribution rights-of-way ("ROW") is maintained utilizing a combination of several management techniques. These include tree pruning, tree removal, re-clearing and herbicide application. Lines are field-surveyed on a regular basis. The work is scheduled/budgeted based on the conditions observed and past performance.

Each of these programs is more fully described in Appendices A through D.

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 in order to avoid or minimize the impact of similar events in the future.

There were no events in 2009 that met the criteria for a major event.

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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 interruptions, the number of customers affected, and the customer minutes of interruption. If MAIFI values are provided, the number of customer momentary interruptions shall also be reported.

Year	2007	2008	2009 ¹	3 Yr. Avg.
SAIFI (Benchmark = 0.98; Rolling 12-month Std. = 1.18; Rolling 3-yr. Std. = 1.08)	1.110	1.053	0.885	1.016
CAIDI (Benchmark = 145; Rolling 12-month Std. = 174; Rolling 3-yr. Std. = 160)	140 ′	169	117	143
SAIDI (Benchmark = 142; Rolling 12-month Std. = 205; Rolling 3-yr. Std. = 172)	156	178	104	146
MAIFI ²	6.238	5.255	4.994	5.494
Customers Served ³	1,373,650	1,379,479	1,384,072	1,379,067
Number of Sustained Customer Interruptions (Trouble Cases)	20,485	20,796	17,470	19,584
Number of Customers Affected ⁴	1,525,324	1,452,677	1,225,421	1,401,141
Customer Minutes of Interruptions	214,115,056	244,863,407	143,351,898	200,776,787
Number of Customer Momentary Interruptions	8,568,264	7,248,677	6,912,711	7,576,551

¹ Any slight variations from data provided in the 2009 fourth quarter report are the result of error corrections.

² MAIFI data are obtained at the substation breaker and do not include momentaries at lower level devices.

 $^{^{3}}$ PPL Electric calculates the annual indices using customers served at the end of the period. This is consistent with the method used to calculate PPL Electric's benchmarks.

⁴ The data reflects the number of customers interrupted for each interruption event summed for all events, also known as customer interruptions. If a customer is affected by three separate cases of trouble, that customer represents three customer interruptions, but only one customer interrupted.

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, and customer interruption minutes categorized by outage cause such as equipment failure, animal contact, tree related, and so forth. Proposed solutions to identified service problems shall be reported.

The table shows a breakdown of service outage causes for 2009.⁵ The top three causes (Animals, Equipment Failure, and Trees - Not Trimming Related), which are based on the percent of cases of trouble, are highlighted in the table. Service interruption definitions are provided in Appendix E. PPL Electric has maintenance programs to address controllable service outages. Those programs are detailed in Appendices A through D.

Cause Description	Cases of Trouble ⁶	Percent of Cases of Trouble	Customer Interruptions ⁷	Percent of Customer Interruptions	Customer Minutes	Percent of Customer Minutes
Improper Design	0	0.00%	0	0.00%	0	0.00%
Improper Installation	2	0.01%	1,576	0.13%	139,668	0.10%
Improper Operation	1	0.01%	1,342	0.11%	10,749	0.01%
Trees - Trimming Related	630	3.61%	27,832	2.27%	4,181,678	2.92%
Trees - Not Trimming Related	4262	24.40%	353,734	28.87%	61,132,760	42.65%
Animals	3904	22.35%	98,734	8.06%	6,297,864	4.39%
Vehicles	700	4.01%	125,320	10.23%	11,662,691	8.14%
Contact/Dig-in	167	0.96%	22,904	1.87%	1,147,492	0.80%
Equipment Failure	5288	30.27%	422,248	34.46%	43,460,905	30.32%
Directed by Non-PPL Authority	142	0.81%	5,890	0.48%	563,643	0.39%
Other - Controllable	114	0.65%	2,367	0.19%	315,428	0.22%
Nothing Found	1,666	9.54%	94,416	7.70%	7,443,073	5.19%
Other - Public	113	0.65%	10,858	0.89%	902,014	0.63%
Other - Non-Controllable	481	2.75%	58,200	4.75%	6,093,931	4.25%
Total	17,470	100.00%	1,225,421	100.00%	143,351,898	100.00%

⁵ Any slight variations from data provided in the 2009 fourth quarter report are the result of error corrections.

⁶ Cases of trouble are the number of sustained customer service interruptions (i.e., service outages).

⁷ The data reflects the number of customers interrupted for each interruption event summed for all events, also known as customer interruptions. If a customer is affected by three separate cases of trouble, that customer represents three customer interruptions, but only one customer interrupted.

Analysis of causes contributing to the majority of service interruptions:

Weather Conditions: PPL Electric records weather conditions, such as wind or lightning, as contributing factors to service interruptions, but does not code them as direct interruption causes. Therefore, some fluctuations in cause categories, especially tree- and equipment-related causes, are attributable to weather variations. PPL Electric has experienced a reduced level of both reportable and non-reportable storms during 2009, when compared to the previous three years.

Trees – Trimming Related: On January 1, 2010, PPL Electric initiated a prescriptive treetrimming program that moved maintenance trimming cycles to five years for all circuits in PPL Electric's northern territory and four years for all circuits in PPL Electric's southern territory. These cycles are inclusive of both urban and rural circuits, and will shorten the overall average trimming cycle for the system. Several more years will be required for the program to reach its full effectiveness on all circuits

Trees – Not Trimming Related: Although their effect on reliability is significant, tree service outages not related to trimming generally are caused by trees falling from outside of PPL Electric's rights-of-way, and generally are not controllable. However, these service outages provide an indication of the level of storm activity because they are predominantly weather-related. During storm conditions these service outages typically are responsible for over 50% of the cases of trouble and 70% of customer minutes lost.

Animals: Animals accounted for about 22% of PPL Electric's cases of trouble. Although this represents a significant number of cases, the effect on SAIFI and CAIDI is small because nearly 85% of the number of cases of trouble were associated with individual distribution transformers. However, when animal contacts affect substation equipment, the effect may be widespread and potentially can interrupt thousands of customers on multiple circuits. In addition to guarding new distribution transformers and substations, in 2009, PPL Electric initiated distribution and substation animal guarding programs to systematically focus on protecting existing facilities most at risk of incurring animal-caused interruptions.

Vehicles: Although vehicles caused a small percentage of the number of cases of trouble, they accounted for a large percentage of customer interruptions and customer minutes, because main distribution lines generally are located along major thoroughfares with higher traffic densities. In addition, vehicle-related cases often result in extended repair times to replace broken poles. Service interruptions due to vehicles are on the rise as a result of an increasing number of drivers and vehicles on the road. PPL Electric has a program to identify and relocate poles that are subject to multiple vehicle hits.

Equipment Failure: Equipment failure is one of the largest single contributors to the number of cases of trouble, customer interruptions and customer minutes. However, approximately 46% of the cases of trouble, 50% of the customer interruptions and 58% of the customer minutes attributed to equipment failure were weather-related and, as such, are not considered to be indicators of equipment condition or performance. In 2009, to help reduce the risk of incurring interruptions due to equipment failures, PPL Electric initiated an Asset Optimization Strategy ("AOS") project to assess equipment health and generate a long-term

plan for proactive infrastructure replacement and enhanced maintenance practices. It is anticipated that, over time, implementation of this strategy will improve reliability performance as it pertains to PPL Electric's distribution, substation and transmission assets.

Nothing Found: This description is recorded when the responding crew can find no cause for the interruption. That is, when there is no evidence of equipment failure, damage, or contact after a line patrol is completed. For example, during heavy thunderstorms, when a line fuse blows or a single-phase OCR locks open and when closed for test, the fuse holds, or the OCR remains closed, and a patrol reveals nothing.

Ra	nk Action	Status	Due/Comple	te Result	
1	Circuit ID: 22402 MORGAN 24-02			Location: Scranton	CPI: 889
	8/14/2007: Install fault indicators	Canceled	8/31/2009	Reduced outage duration. Inaccessible section	of line being removed.
	1/1/2008: Expanded Operational Review.	Completed	8/8/2008	Reduced outage risk.	
	10/8/2008; Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2008	There were three breaker outages on this line. experienced 4 outages. The breaker outages w failure and animal contact causes. One of the to CAIDI of over 400 minutes.	At least 537 customers vere due to equipment breaker outages had a
	1/19/2009: Additional projects are being reviewed for inclusion of the budget to increase reliability.	Completed	12/15/2009	Project to relocate an inaccessible section of 3 and will be completed in 2010.	phase has been identified
	12/15/2009: Relocate inaccessible section of 3 phase line.	Scheduled for	12/31/2010		
	10/15/2009: Circuit outage data analysis.	Completed	1/14 <i>/</i> 2010	Inconclusive. Monitor future performance. There outages and one large OCR outage during isola 2009. The outages were caused by trees from 2009 there has been one breaker outage cause the substation. There were no major outages in	re were three breaker ated thunder storms in Q2 outside the ROW. In Q3 ad by an animal contact at n Q4 2009.
6	Circuit ID: 43101 SOUTH MILTON 31-0	1		Location: Sunbury	CPI: 657
	1/1/2008: Expanded Operational Review.	Completed	6/30/2008	CYME study has been completed with adequat sectionalizing will be reviewed and WRs will be	e voltage. Additional taken out.
	3/24/2008: Test underground cable. Replace UG cable per Test Recommendations	Completed	12/5 / 2008	Reduced outage risk.	
	8/1/2008: Install fuse(s), 5 new fuses will be installed as a result of the EOR. WR numbers for the fuses are 443125, 443134, 443101, 443105, 443117.	Completed	9/1/2008	Reduced customer count affected by each outa	ige.
	10/8/2008: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/6/2008	South Milton 31-01 - The 31-01 circuit is categor to customers experiencing more than 3 outages toward the system SAIDI. This circuit was revie expanded operational reviews for Sunbury Area projects were identified during the review. An a planned for this circuit to improve sectionalizing	rized as a WPC circuit due s and high contribution awed in 2008 as part of the a. Two improvement udditional air break is also g capabilities.
	10/15/2008: Relocate inaccessible line.	Scheduled for	12/31/2010		
	1/28/2009: Improve sectionalizing capability. Automate OCR 24363N30970 by replacing with VCR with Telemetrics.	Completed	9/1 0/2 009	Reduced outage duration.	
	1/28/2009: Install LBAS(s). Install new Air Break with motor Operator and Telemetrics control for remote operation at 23868N30531.	Completed	9/10/2009	Reduced outage duration.	
	1/28/2009: Improve sectionalizing capability. Add automation to two existing Air Breaks.	Completed	9/1 0/2 009	Reduced outage duration.	

(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.

Ra	nk 🛛	Action		Status	Due/Comple	te Result	
11	Circui	t ID: 22406	MORGAN 24-06			Location: Scranton	CPI: 591
	1/1/2008:	Expanded Oper	ational Review.	Completed	<i>8/8/</i> 2008	Reduced outage risk.	
	7/9/2008: qtr. list.	Circuit outage d	ata analysis - WPC not on preceding	Completed	8/15/2008	Three breaker outages occurred on 3/9/08, 6/2/ OCR outages created a greater than 3 outages customers on the line.	08, 6/29/08. Additional situation for many
	1/19/2009 preceding inclusion	9: Circuit outage g qtr. list. Addition of the budget to i	data analysis - WPC not on nal projects are being reviewed for ncrease reliability.	Completed	4 / 27/2009	Inconclusive. Monitor future performance. Proj- an inaccessable portion of 2/0 Cu along the roa 11/2012.	ect SP51414- Will rebuild d with 477 AI. RIS is
	1/19/2009	9: Rebuild an ina	ccessible portion of 2/0 with 477 AL.	Scheduled for	11/30/2012		
	4/15/2009 block 533	9: Pole inspection 3N492.	n of inaccessible line section in grid	Completed	4/ 30/2009	Section of line is old and in poor condition. Inve Remote Operator Controlled Switches to section section.	stigating the addition of nalize the inaccessible
	4/26/2010 Controller section.): Investigate the d Switches (ROC	addition of Remote Operator S) to sectionalize an inaccessible	Scheduled for	12/31/2010		
	4/16/2009 guards in	9: Investigate if ti stalled.	ne substation equipment has animal	Completed	4/30/2009	Animal guards are installed at the substation.	
	1/14/2010	0: Monitor future	performance.	Ongoing		High CPI caused by three breaker outages. Two one due to a vehicle hit and one due to equipm outage occured in Q3 2009 and was caused by substation.	o occured during Q2 2009, ent failure. One breaker a animal contact at the
20	Circui	t ID: 25501	MADISONVILLE 55-01			Location: Pocono	CPI: 471
	5/31/200 installed installed	5: Install animal g on a single phase as necessary.	guard(s). Animal guards were tap. Additional animal guards are	Ongoing		Reduced outage risk. Installation of animal gua outages on sections of line.	ards will prevent repeated
	1/1/2008:	Expanded Oper	ational Review.	Completed	5/29/2009	Two single phase sections will be checked for a	overloads.
	1/19/2009 preceding	9: Circuit outage g qtr. list.	data analysis - WPC πot on	Completed	2/28/2009	Many long duration outages during storms in Ju December of 2008 significantly contributed to the large customer count outages occured in Q2 20 customer minutes were lost during the storms in	ine, October, and te CPt for this cricuit. Two 008. Over 2.8 million n Q4 2008.
	7/13/2009	9: Circuit outage	data analysis.	Completed	7/13/2009	There was one circuit breaker outage in Q1 200 has improved in Q1 and Q2 of 2009	9. Circuit performance
	1/14/2010): Install tie.		Completed	12/1/2009	Reduced customer count affected by each outa substation went into service early December 20 customers and line length of 2-55-01 (Madison)	ge. New Jefferson 109 reducing the amount of ville Sub)
	1/14/2010 possibility ROCS an customer	 Improve section of adding section of telemetric OCR s effected by an of 	nalizing capability. Investigate the nalizing devices to the circuits ie. ts to reduce duration and number of butage.	Scheduled for	5/3/2010		

Rank Action	Status	Due/Comple	ete Result		
22 Circuit ID: 40502 CRESSONA 05-02			Location: Central	CPI:	460
3/7/2008: Install sectionalizers. Install five new single phase tap switches along SR 895 near Summit Station.	Completed	5/2/2008	Reduced customer count affected by each outage.		
1/13/2009: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	2/28/2009	Inconclusive. Monitor future performance. Two projects in the budget to provide transfer capability to this circuit, the 5-3 line will be reconductored in 2010 and the tie line will be reconductored in 2011.	have been p The tie line with the 59-	laced with 1 line
2/28/2009: Reconductor the tie with the 05-03 line.	Scheduled for	12/31/2010			
2/28/2009: Reconductor the tie with the 59-01 line.	Scheduled for	12/30/2011			
4/2/2009: Expanded Operational Review,	Completed	5/4/2009	Identified several locations to replace failed equipment, break, install tap fuses, and install new fault indicators to performance.	install a new o monitor futi	air Ire
5/4/2009: Install fuse(s). Install fuse to protect exposure to circuit breaker.	Scheduled for	6/30/2010			
5/4/2009: Install 2 fault indicators to help improve response time during outages.	Completed	5/8/2009	Reduced outage duration.		
5/4/2009: Install LBAS(s). Install air break to lower number of customers between sectionalizing devices and allow for more switching opportunities.	Completed	12/15/2009	Reduced outage duration. Reduced number of custome sectionalizing points.	ers between	
5/4/2009: Perform line maintenance identified by line inspection. Identified several locations to replace failed equipment.	Completed	6/12/2009	Reduced outage risk.		
2/24/2010: Install new line and terminal. Add #5 line from Cressona to relieve #2/#3 lines.	Scheduled for	12/31/2012			
8 Circuit ID: 16802 WAGNERS 68-02			Location: Pocono	CPI:	443
1/13/2009: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	2 /28/ 2009	Two long duration breaker outages during storms in Q4 contributed to the CPI of this circuit. Also, there were moutages during the October 2008 snowstorm. This circu 2008 which will help reduce tree related outages which of the outages.	2008 signific any long dur it was trimme acounted for	antly ation ed in 91%
7/14/2009: Monitor future performance.	Completed	12/31/2009	There was a breaker outage in Q1 of 2009 due to trees ROW during a wind storm. There was another breaker 2009 due to trees from outside the ROW during thunder OCR outage occurred in Q4 2009 and was caused by a the ROW.	from outside outage in Q2 storms. A la tree from ou	the of rge tside
1/14/2010: Install tie. SP50718 will create a tie to the Lake Harmony 54-3 line, RIS 5/2012. 1000 customers will be transferred from 68-2 to 54-3.	Scheduled for	5/31/2012	Reduced customer count affected by each outage.		
1/14/2010: Circuit outage data analysis.	Completed	3/31/2010	A large number of long outages effecting small numbers greatly contributed to the high CPI of this circuit.	of custome	s

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Rank Action	Status	Due/Comple	te Result	
51 Circuit ID: 28001 TAFTON 80-01			Location: Pocono	CPI: 340
1/2/2007: Load balancing. Identified 3 phase swaps with single phase taps to balance current and voltage on the 3 phase line.	Completed	5/30/2008	Reduced outage risk.	
4/8/2008: Circuit outage data analysis.	Completed	5/31/2008	A large long duration OCR outage in Q1 200- this circuit.	8 contributed to the CPI for
1/13/2009: Circuit outage data analysis.	Completed	2 <i>1</i> 28/2009	09 This circuit exprienced a long duration breaker outage and many smaller long duration outages during the October 2008 snowstorm which significantly contributed to the CPI for this circuit. Over 1.3 million customer minutes were lost during this storm.	
4/20/2009: Monitor future performance.	Ongoing		Inconclusive. Monitor future performance. C in Q1 2009. In Q2 2009 there have been sev outages due to trees from outside the ROW thunderstorms. Circuit performance improved	ircuit performance improved eral small long duration contacting the line during d in Q3 2009.

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

Inspection & Maintenance Goals/Objectives	2009 Budget	2009 Actual	Variance (%)
Transmission			
Transmission C-tag poles (# of poles)	222	181	-18.5
Transmission arm replacements (# of sets)	300	300	0
Transmission air break switch inspections (# of)	10	11	10
Transmission tree side trimming (# of linear feet)	567,534	521,395	-8.1
Transmission herbicide (# of acres)	6,645	5,769	-13.2
Transmission reclearing (# of acres)	828	811	-2.1
Transmission danger tree removals (# of trees)	14,698	14,046	-4.4
Substation			
Substation batteries (# of activities)	213	229	6.5
Circuit breakers (# of activities)	2,636	2,919	10.7
Substation inspections (# of activities)	1,775	1,1838	-33.4
Transformer maintenance (# of activities)	1,764	2,036	15.6
Distribution			
Distribution C-tag poles replaced (# of poles)	1,857	1,588	-14.5
C-truss distribution poles (# of poles)	1,241	2,812	126
Capacitor (MVAR added)	33	56	71.4
OCR replacements (# of)	255	253	1.0
Distribution pole inspections (# of poles)	89,422	85,144	-2.4
Distribution line inspections (# of miles)	3,000	2,791	-7.0
Test sections of underground distribution cable	400	476	19.0
Distribution tree trimming (# of miles)	4,587	4,631	1.0
LTN manhole inspections (# of)	0	2	N/A
LTN vault inspections (# of)	316	343	7.4
LTN network protector overhauls (# of)	81	30	-63.6
LTN reverse power trip testing (# of)	116	91	-21.6

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⁸ The variations from data provided in the 2009 third quarter report are the result of error corrections.

Explanation of variances of 10% or greater:

Transmission C-tag poles is below budget. Pole replacements were reduced as a result of a pilot to implement trussing (reinforcement) of transmission wood poles.

Transmission air break switch inspections are above budget. Additional work identified throughout the year was completed.

Transmission herbicide is below budget. Using LiDAR (Light Detection and Ranging) airborne laser technology that precisely measures vegetation encroachment, PPL Electric identified areas at-risk of incurring vegetation-related contact on its transmission system. These identified risk areas were then mitigated from late fall 2008 through spring 2009. In June 2009, scheduled vegetation maintenance in all categories was reduced on those lines where the unscheduled LiDAR-based mitigation maintenance overlapped.

Substation Circuit Breakers is above budget. Additional scope was able to be completed throughout the year.

Substation Inspections is below budget. Scope deferred to the following year.

Transformer Maintenance is above budget. Additional maintenance activities were able to be completed throughout the year.

Distribution C-tag poles replaced is below budget. Pole replacements were reduced by 269 poles and pole truss scope was increased by 1,571 poles.

Distribution C-truss poles is above budget. Reduction in C-tag replacements allowed for an increase in c-truss work scope by an additional 1,571 poles.

Capacitor (MVAR added) is above budget. 23 MVAR was advanced from the 2010 budget.

Test sections of underground distribution cable are above budget. Resource availability allowed for work scope to be increased by 76 sections.

LTN network protector overhauls are below budget. Resources deployed to other, higherpriority work.

LTN reverse power trip testing is below budget. The authorized plan was reduced by 30; moved scope into the next budget cycle.

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 or FERC account code as available. Explanations of any variances 10% or greater shall be included.

Activity	2009 Budget (\$000)	2009 Actual (\$000)	Variance (%)
Provide Electric Service	13,774	10,778	-21.8
Vegetation Management	26,276	25,522	-2.9
Customer Response	59,194	52,173	-11.9
Reliability & Maintenance	61,912	43,375	-29.9
System Upgrade	3,916	2,137	-45.4
Customer Services/Accounts	92,810	100,880	8.7
Other	50,873	51,166	.6
Total O&M Expenses	308,755	286,031	-7.4

The following table provides operation and maintenance expenses for PPL Electric, as a whole, and includes the work identified in the response to Item (6).

Explanation of variances of 10% or greater:

Provide Electric Service is below budget by 21.8% due to lower than projected Underground Residential Development requests, Service Requests - New Residential, Distribution Transformers, 12kV Revenue Extension - Overhead and 12kV Revenue Extension Underground and Low Tension Network Revenue Extension.

Customer Response is below budget by 11.9% due to lower than projected No Light Calls, Non-PUC Storms and a reduction in Property Damage Billing Job Orders.

Reliability & Maintenance is lower than budget by 29.9% due an under run in Replace Deteriorated UG Cable, Pole Replacements - 23kV and Under, Pole Replacement - 69kV and above, and Distribution Substation Replace Fail/Deteriorated Equipment.

System Upgrade is lower than budget by 45.4% due to timing and cost efficiencies in material and contract labor.

8) A comparison of budgeted versus actual transmission and distribution capital expenditures 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.

Activity	2009 Budget (\$000)	2009 Actual (\$000)	Variance (%)
New Service/Revenue	77,606	56,167	-27.6
System Upgrade	88, 445 ⁹	105,285	19.0
Reliability & Maintenance	51,666 ¹⁰	67,887	31.4
Customer Response	19,235	18,333	-4.7
Other	24,418	18,301	-25.1
Total	261,370	265,973	1.8

The following table provides capital expenditures for PPL Electric, as a whole, which includes transmission and distribution activities.

Explanation of variances of 10% or greater:

New Service/Revenue was lower than budgeted due to a lower volume of residential and commercial/industrial service requests as a result of economic conditions.

System Upgrade was higher than budgeted due to pool purchases (transformers), distribution specific projects, and additional spending on the Susquehanna-Roseland project.

Reliability & Maintenance was higher than budget as a result of start-up spending on the AOS project and reliability programs, including transformer purchases, circuit breakers, substation animal guards, replacement of failed cable and equipment, distribution animal guards, distribution pole reinforcements, and reliability preservation.

Other was lower than budgeted in vehicles, furniture, and meters.

⁹ This entry differs from that provided in the 2008 report because of a reclassification of an activity from System Upgrade to Reliability & Maintenance of \$1,646.

¹⁰ This entry differs from that provided in the 2008 report because of a reclassification of an activity to Reliability & Maintenance from System Upgrade of \$1,646.

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

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Inspection & Maintenance Goals/Objectives	2010 Budget
Transmission	
Transmission C-tag poles (# of poles)	200
Transmission arm replacements (# of sets)	300
Transmission air break switch inspections (# of)	110
Transmission lightning arrestor installations (# of sets)	100
Transmission tree side trimming (# of linear feet)	446,043
Transmission herbicide (# of acres)	6,300
Transmission reclearing (# of acres)	3,200
Transmission danger tree removals (# of trees)	11,244
Substation	,
Substation batteries (# of activities)	842
Circuit breakers (# of activities)	1,995
Substation inspections (# of activities)	2,428
Transformer maintenance (# of activities)	2,121
Distribution	
Distribution C-tag poles replaced (# of poles)	2,000
C-truss distribution poles (# of poles)	1,800
Capacitor (MVAR added)	82
OCR replacements (# of)	715
Distribution pole inspections (# of poles)	95,000
Distribution line inspections (# of miles)	3,000
Group relamping (# of lamps)	16,029
Test sections of underground distribution cable	430
Distribution tree trimming (# of miles)	6,659
Distribution herbicide (# of acres)	1,326
Distribution >18" removals within R/W (# of trees)	903
Distribution hazard tree removals outside R/W (# of trees)	12,069
LTN manhole inspections (# of)	494
LTN vault inspections (# of)	821
LTN network protector overhauls (# of)	79
LTN reverse power trip testing (# of)	132

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.

Activity	2010 Budget (\$000)
Provide Electric Service	11,459
Vegetation Management	31,402
Customer Response	65,497
Reliability & Maintenance	61,825
System Upgrade	3,243
Customer Services/Accounts	118,404
Other	55,067
Total O&M Expenses	346,898

The following table provides budgeted operation and maintenance expenses for PPL Electric, as a whole, and includes the work identified in the response to Item (9).

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

The following table provides budgeted capital expenditures for PPL Electric, as a whole, and includes transmission and distribution activities.

Activity	2010 Budget (\$000)
New Service/Revenue	67,185
System Upgrade	131,769
Reliability & Maintenance	121,315
Customer Response	23,109
Other	26,682
Total	370,060

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12) Significant changes, if any, to the transmission and distribution inspection and maintenance programs previously submitted to the Commission.

Transmission

Transmission air-break switch inspections increased to maintain an eight-year inspection cycle and incorporate deferred scope from 2009.

Transmission lightning arrestor installation program was increased to improve overall circuit performance.

Transmission re-clearing program is moving to a wire zone, border zone strategy over the next three years.

In 2009, PPL Electric initiated a new Transmission wood pole inspect and treat program which inspects transmission wood poles on a four-year cycle.

PPL Electric initiated a pilot program to C-Truss transmission wood poles.

Substation

Substation batteries and battery charger maintenance and inspection activities were added to area-supply substation in 2010.

Substation inspection cycle was increased from quarterly to monthly at bulk power and regional supply substations.

In 2009, PPL Electric initiated substation animal guarding programs to systematically focus on protecting existing facilities most at risk of incurring animal-caused interruptions.

Distribution

C-Truss poles increased due to increase in the number of inspections planned in 2010.

Capacitor scope increased due to anticipated load growth.

OCR replacement scope increased to maintain a ten-year replacement cycle and position the move to an eight-year replacement cycle.

PPL Electric is initiating a new six-year cycle of streetlight group relamping in 2010.

On January 1, 2010, PPL Electric initiated a prescriptive tree-trimming program that moved maintenance trimming cycles to five years for all circuits in PPL Electric's northern territory and four years for all circuits in PPL Electric's southern territory. These cycles are inclusive of both urban and rural circuits, and will shorten the overall average trimming cycle for the system. Contractor performance will be measured against new key indicators related to safety, reliability, customer service, productivity and efficiency. Goals for PPL Electric's foresters will align with these key performance indicators.

In 2009, to help reduce the risk of incurring interruptions due to equipment failures, PPL Electric initiated a Distribution Circuit Performance Improvement Program ("DCPIP"). This program consists of prioritizing lines based upon non-storm equipment failure cases and systematically replacing the equipment on those lines known to have excessive failure rates.

Distribution herbicide application program is being reinstated in 2010.

Distribution >18" tree-removal program is being reinstated in 2010.

Distribution hazard tree-removal program is being reinstated in 2010.

In 2009, PPL Electric initiated distribution animal guarding programs to systematically focus on protecting existing facilities most at risk of incurring animal-caused interruptions.

No other significant program changes have occurred since the April 2009 Annual Reliability Report. Quantity differences in the transmission, substation and distribution inspection and maintenance goals/objectives are the results of normal variations in workload, backlog carryover from the prior year, and/or advancement of work from future years.

PPL Electric Utilities Corporation
Transmission Programs & Procedures

Program	Activity
Helicopter Inspections – Routine	Aerial linemen perform annual routine transmission line patrols from a helicopter. They identify damaged or deteriorated equipment. Engineers review the findings and develop plans for repair or replacement.
Helicopter Inspections - Comprehensive	Aerial linemen perform an overhead comprehensive inspection of transmission line facilities on a four-year cycle. Detailed condition reports with close-up digital photos are prepared for each specific component problem found along the transmission line and right-of-way. Engineers review the findings and schedule corrective maintenance as needed.
Helicopter Inspections – Emergency	Aerial linemen perform patrols of transmission lines that operate abnormally. This inspection focuses on identifying damage that may have been caused by lightning, inclement weather, equipment failure or vandalism. Because of the nature of this work, corrective actions usually are expedited.
Field Inspections – Emergency	Line personnel perform emergency foot-patrols to inspect transmission lines that operated abnormally. This inspection focuses on identifying damage that may have been caused by lightning, inclement weather, equipment failure or vandalism. Due to the nature of this damage, corrective actions generally are expedited.
Wood Pole – Inspection, Treatment, Replacement, Trussing (reinforcement)	Line personnel examine wood poles for deterioration and measure the degree of rot. Based on the results, the pole is either scheduled for a future inspection, reinforcement for extended life or replacement.
Equipment Maintenance	During helicopter and foot-patrols, equipment and facilities are identified that require repairs. Based on need and criticality, repairs are either scheduled or completed as soon as possible.
Planned Replacement Programs	Line personnel and aerial linemen have completed the planned replacement of all deteriorated spacers and dampers on 500kV circuits. Line personnel also replace deteriorated wood arms identified during condition monitoring inspections.
Line Switches – Maintenance & Inspection	Line personnel inspect, maintain and perform operational tests on 138kV and 69kV line air break switches to assure proper operation.

<u>Appendix A</u>

Program	Activity
Line Switch Upgrades	Line personnel install lightning arresters on 138kV and 69kV line switches to increase system reliability.
Circuit Analysis	Engineers analyze circuit loading and performance to identify areas needing increased line capacity or improved line reliability.

PPL Electric Utilities Corporation Substation Programs & Procedures

Program	Activity
Load Survey	Automatic monitoring devices such as SCADA provide continuous, real-time loading information. Engineers review equipment loading and identify facilities and transfer capabilities approaching capacity limits. A portion of the load may be supplied from a different source, the existing facilities may be upgraded, new lines and equipment may be added, or a new substation may be built to address capacity deficiencies.
Substation Inspection/Repair	Electricians inspect substations for security and equipment reliability on a time-based maintenance cycle. They attempt to identify and correct potential equipment problems before a failure or interruption of service occurs.
Equipment Service	Electricians perform operational tests on power transformers, load tap changers ("LTC"), voltage regulators, circuit breakers, circuit switchers, vacuum switches, air break switches and transformer protective switches on a time-based maintenance cycle to assure that equipment is operating within established parameters. Equipment serviced includes batteries, battery chargers, protective relays, HV fuses and high-speed automatic grounding switches. Depending on the type of equipment, "service" can include actions other than operational testing.
Inspection & Overhaul	Electricians inspect and overhaul circuit breakers, wave traps, ground switches, stick-operated disconnects, gang-operated disconnects and motor-operated disconnects on a time-based maintenance cycle to assure proper operation.
Insulation Testing	Electricians perform power factor testing on power transformer, potential transformers, lightning arresters, current transformers, circuit breakers and power cables on a time-based maintenance cycle. Testing also includes other instrument transformers (CCVTs, coupling capacitors, potential devices, etc.). They also perform high-potential testing on air and vacuum circuit breakers to assure proper operation.
Condition Monitoring of Station Equipment	Technicians perform dissolved gas-in-oil, dielectric, oxygen, and oil acidity tests for oil in power transformers and impedance and capacity tests on station batteries to assure equipment is within normal parameters. Periodically, AC power factor tests, hi-potential tests, contact resistance tests and motion tests are performed on circuit breakers. Oil dielectric testing is conducted for oil-circuit breakers.

<u>Appendix B</u>

Program	Activity
Thermographic Inspections	Technicians perform thermography surveys of substation facilities to identify components operating at elevated temperature. Based on the findings, engineers develop plans to repair or replace the component(s) prior to failure.
Minor Improvements	Maintenance activities may identify conditions where additions or upgrades are needed to assure reliability. Engineers evaluate need and develop action plans and schedules to complete the work.
DC Station Service Improvements	Repairmen identify deteriorated station batteries, battery chargers and battery components. Engineers schedule repair or replacement as necessary.
Capacitor Bank Protection	Engineers monitor the need for synchronous closing schemes on vacuum switches on 69kV capacitor banks. They plan and schedule installations as needed.
Area/Regional Supply	Engineers develop specific projects aimed at improving capacity shortfalls or replacing deteriorated or substandard station equipment.
SCADA Replacement	Engineers identify deteriorating substation SCADA equipment and develop plans to repair or replace it.

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PPL Electric Utilities Corporation Distribution Programs & Procedures

Program	Activity
Load Survey – of equipment that is not continuously monitored	Line personnel measure the loading of facilities during peak periods. Engineers use this data for system studies.
Load Survey – by automatic monitoring devices	Automatic monitoring devices such as SCADA provide continuous, real-time loading information. Operators use this data to assure that loads do not exceed design limits. Engineers use this data for system studies.
Circuit Analysis	Engineers analyze circuit voltage profiles to balance loads and to identify areas requiring voltage support to maintain required voltage at the customer facility.
Capacitor – Inspection & Maintenance	Line personnel inspect existing capacitor installations for potential failure, and inspect and maintain associated electronic control equipment to assure proper operation. Line personnel repair or replace any defective equipment.
Voltage Regulator – Inspection & Maintenance	Line personnel inspect existing equipment for potential failure, and inspect and maintain controls and tap changers to assure proper operation. Line personnel repair or replace any defective equipment.
Overhead Line Switch – Inspection & Maintenance	Line personnel inspect switch installations to identify cracked or broken insulators / bushings, stuck or misaligned blades, insulation or gasket deterioration or other operational problems. Line personnel repair or replace any defective equipment.
Transformer Maintenance	Engineers analyze customer usage data to identify overloaded transformers. Transformers that are heavily loaded are replaced with higher capacity units or part of the load is transferred to other nearby transformers.
Wood Pole – Inspection, Maintenance, Replacement, Trussing (reinforcement)	Inspectors examine wood poles for deterioration and measure the degree of rot. Based on the results, the pole is either scheduled for a future inspection, reinforcement for extended life or replacement.
Overhead Line Inspection	Line inspectors examine overhead facilities to identify damaged, deteriorated or substandard equipment. Line personnel repair or replace any defective equipment.

<u>Appendix C</u>

Program	Activity
Circuit Performance Review	Engineers use the PPL Electric's Circuit Performance Index to ascertain the need for additional circuit reviews / inspections. The index is a composite of SAIFI, CAIDI, and Trouble Cases.
Underground Primary Cable Testing, Maintenance, Replacement, Curing	Line personnel perform insulation and neutral tests on cable in residential developments with potential problems to identify deteriorated cable. Based on the results, the cable is placed back in service, repaired or replaced.
LTN Maintenance	Electricians will inspect service, maintain and overhaul LTN vaults, manholes, cables, transformers, low-voltage network protectors and primary transformer disconnect switches. Based on results, defective equipment is either repaired or replaced.
Public Damaged Facilities Review	A program aimed at identifying the locations of facilities that have been damaged by public contact more than once. Technicians evaluate those installations and, if relocation is possible, schedule work to move the facilities.
Underground Service Cable	Engineers resolve customer service problems that are due to deteriorated service conductors.
Oil Circuit Reclosers	Line personnel replace in-service oil-circuit reclosers on a time- based maintenance cycle. Removed units are overhauled, tested and returned to service.
Line Protection Equipment	Engineers perform load calculations to identify line protection devices that are approaching their capacity limits. Devices are replaced or upgraded to assure that they function properly.
Capacitor Installation	Engineers perform voltage profiles to determine the need, location and size of any new voltage support equipment required to maintain adequate service voltage levels at customer facilities and provide needed reactive support for system stability. Line personnel install the required equipment.
Upgrade System Facilities	Engineers determine the need for additional capacity and design new and upgraded facilities to assure system reinforcements are constructed by the time they are needed.

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Program	Activity
Tree Pruning	Tree pruning is scheduled based on field conditions observed and/or a system prioritization process. All pruning is done in accordance with <u>American National Standard for Tree Care</u> <u>Operations-Tree, Shrub and Other Woody Plant Maintenance –</u> <u>Standard Practices (ANSI A300)</u> .
Tree Removal	Trees located both within the rights-of-way corridors and outside the rights-of-way that represent a threat to line performance/ safety are removed when it is feasible to do so.
Herbicide Application	Tall-growing, undesirable vegetation growing within the rights- of-way corridors is selectively treated with herbicides. Low- growing vegetation that does not represent a hazard to the safe, reliable operation of PPL Electric's facilities is preserved wherever possible.
Reclearing	Tall-growing, undesirable vegetation growing within the rights- of-way corridors is selectively removed in those situations where herbicides can not be utilized. Low-growing vegetation that does not represent a hazard to the safe, reliable operation of PPL Electric's facilities is preserved wherever possible.

PPL Electric Utilities Corporation Vegetation Programs & Procedures

PPL Electric Utilities Corporation Service Interruption Definitions

Trouble Definitions: After field investigations and repairs are complete, PPL Electric linemen report the cause of each case of trouble. This information is electronically recorded as a "cause code" number when the job record is closed. PPL Electric cause codes are subdivided into four general classifications: Controllable, Non-Controllable, Public and Non-PPL. The definitions of the cause codes are:

10 – Improper Design	Controllable	• When an employee or agent of PPL Electric is responsible for an error of commission or omission in the engineering or design of the distribution system. (Facility Records personnel use only)
11 – Improper Installation	Controllable	• When an employee or agent of PPL Electric is responsible for an error of commission or omission in the construction or installation of the distribution system. (Facility Records personnel use only)
12 – Improper Operation	Controllable	• When an employee or agent of PPL Electric is responsible for an error of commission or omission in the operation or maintenance of the distribution system. (Facility Records personnel use only)
30 – Trees – Trimming Related ¹¹	Controllable	• Outages resulting from conductors contacted by tree growth within the clearance zone defined by the current trimming specification (within the Rights-of- Way).
35 – Trees – Not Trimming Related	Non- Controllable	• Outages due to trees, but not related to lack of proper tree trimming maintenance. This includes danger timber blown into PPL Electric facilities, and trees or limbs felled by the public.
40 – Animals	Controllable	• Any outage caused by an animal directly or indirectly coming in contact with PPL Electric facilities. This includes birds, squirrels, raccoons, snakes, cows, etc.
41 – Vehicles	Public	• When cars, trucks or other types of vehicles or their cargoes strike facilities causing a problem.

¹¹ The title and description of this code have been revised for clarity. The purpose and application of the code have not changed.

<u>Appendix E</u>

51 – Contact/Dig-in	Public	 When work in the vicinity of energized overhead facilities results in interruptions due to accidental contact by cranes, shovels, TV antennas, construction equipment (lumber, siding, ladders, scaffolding, roofing, etc.). When contact is made by a non-employee with an underground facility causing interruption.
60 – Equipment Failure	Controllable	 Outages resulting from equipment failures caused by corrosion or contamination from build-up of materials, such as cement dust or other pollutants. Outages resulting from a component wearing out due to age or exposure, including fuse tearing or breaking.
		 Outages resulting from a component or substance comprising a piece of equipment failing to perform its intended function. Outages resulting from a failure that appears to be the result of a manufacturer's defect or can not be
		described by any other code indicating the specific type of failure.
77 – Non-PPL Problem – Other	Non-PPL	• Where no PPL Electric or customer facilities were affected, and no repair or restoration was carried out on PPL Electric equipment.
78 – Non-PPL Problem – Customer Facility	Non-PPL	• Where no PPL Electric facilities were affected, and no repair or restoration was carried out on PPL Electric equipment.
80 – Scheduled Outage ¹²	Controllable	• Interruptions under the control of a PPL Electric switchman or direction of a PPL Electric System Operator for the purpose of performing <u>scheduled</u> maintenance, repairs and capacity replacements for the safety of personnel and the protection of equipment.
		• Includes requests from customers for interruption of PPL Electric facilities.

¹² Interruptions under the control of a PPL Electric switchman or the direction of a PPL Electric System Operator for the purpose of isolating damaged facilities to make repairs are reported using the initial cause of the damage when the interruption is taken <u>immediately</u>, but are reported as scheduled outage when the interruption is <u>postponed</u>.

<u>Appendix E</u>

85 – Directed by Non- PPL Authority ¹³	Non- Controllable	• Interruptions under the control of a PPL Electric switchman or direction of a PPL Electric System Operator for the purpose of dropping load or isolating facilities upon request during emergency situations.
		• Interruptions which cannot be postponed or scheduled for a later time, and include situations like load curtailment during system emergencies, and requests of civil authorities such as fire departments, police departments, civil defense, etc. for interruption of PPL Electric facilities.
90 – Other – Controllable (Lineman provides explanation)	Controllable	• Interruptions caused by phase to phase or phase to neutral contacts, resulting from sleet or ice dropping off conductors, galloping conductors, or any other phase to phase or phase to neutral contact where weather is a factor.
		• Interruptions resulting from excessive load that cause that facility to fail.
	,	• When restoration of service to a facility, which had been interrupted for repairs or other reasons, causes an additional interruption to another facility which had not been involved in the initial interruptions.
		• Controllable interruptions or Power Service Problems whose cause is not described by one of the previous controllable cause codes.
96 – Nothing Found	Non- Controllable	 When no cause for the interruption can be found. When there is no evidence of equipment failure, damage or contact after line patrol is completed. This could be the case during a period of heavy thunder and lightning, when a line fuse blows or a single phase OCR locks open. When closed for test, the fuse holds or the OCR remains closed. A natrol of the tap reveals pathing.
98 – Other Public	Public	All outages resulting from gunfire, civil disorder
(Lineman provides explanation)		objects thrown, or any other act intentionally committed for the purpose of disrupting service or damaging company facilities.

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¹³ The title of this code has been revised for clarity. The purpose and application of the code has not changed.

<u>Appendix E</u>

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99 – Other – Non- Controllable (Lineman provides explanation)	Non- Controllable	• Any outage occurring because of a fire, flood or a situation that develops as a result of a fire or flood. Do not use when facilities are de-energized at the request of civil authorities.
		• When an interruption is caused by objects other than trees, such as kites, balls, model airplanes, roofing material, or fences, being accidentally blown or thrown into overhead facilities.
		• All problems caused by contact of energized equipment with facilities of other attached companies or by trouble on customer owned equipment.
Ň		• Interruptions or Power Service Problems whose cause is not described by one of the previous non- controllable cause codes, but is not affected by a PPL Electric employee's decisions.

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