



Orange & Rockland  
a ConEdison, Inc. company

(845) 577-3341

Orange and Rockland Utilities, Inc.  
390 West Route 59  
Spring Valley NY 10977-5300  
www.oru.com

ORIGINAL

January 10, 2007

Pennsylvania Public Utility Commission  
P.O. Box 3265  
Harrisburg, PA 17105-3265

Attention: Secretary James J. McNulty

DOCUMENT  
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SECRETARY'S OFFICE

2007 JAN 12 PM 1:05

REC'D

Re: Fourth Quarter 2006 Quarterly Report for Pike County Light and Power  
PUC Docket No. L-00030161; Rulemaking Re Amending Electric  
Service Reliability Regulations At 52 Pa. Code Chapter 57

Dear Secretary McNulty:

Pike County Light & Power Company ("Pike") hereby submits six copies of its Fourth Quarter 2006 quarterly report as set forth in the Pennsylvania Public Utility Commission's ("Commission, PUC") Docket No. L-00030161 adopted Rulemaking Re Amending Electric Service Reliability Regulations At 52 Pa. Code Chapter 57 ("Order"). As such, Pike's quarterly reporting Requirements, as set forth in Section 57.195(e) (1) (2) and (5) of the Order, are enclosed. At a Public hearing on August 17th, the Commission ordered that the Pike Reliability Standards be modified in order to reflect major events that were improperly excluded from the years on which the standards were based. O&R received formal notice of this Order on October 11th. This Filing reflects the revised Standards.

Please contact me if you have any questions regarding this report or require any additional Information.

Very truly yours,

Timothy T. Garvin  
Manager - Performance & Operational  
Engineering  
Pike County Light and Power  
(Orange and Rockland Utilities, Inc.)

Enclosures

cc: Office of Consumer Advocate  
Office of Small Business Advocate

45

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2007 JAN 12 PM 1:06

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Pike County Light and Power Company  
(Orange and Rockland Utilities, Inc.)

Quarterly Reliability Report

Fourth Quarter  
2006

§ 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.

**4th Quarter 2006  
Major Events**

Date	Time	Circuit	Cause	Duration	Customers Affected	Cust Min of Interruption
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**Pre-Arranged Outages**

Date	Time	Circuit	Cause	Duration	Customers Affected	Cust Min of Interruption
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SECRETARY'S OFFICE  
2007 JAN 12 PM 1:06

§ 57.195. (e)(2)

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

**Interruption Data  
Rolling 12-Month Data**

<u>Year</u>	<u>Quarter</u>	<u>Customers Served Rolling 12 Mth</u>	<u>Number of Interruptions Rolling 12 Mth</u>	<u>Customers Affected Rolling 12 Mth</u>	<u>Customer Min of Interruptions Rolling 12 Mth</u>
2006	1st Qtr	4,404	92	8,276	905,440
2006	2nd Qtr	4,424	74	6,173	801,156
2006	3rd Qtr	4,444	67	5,565	551,810
2006	4th Qtr	4,461	65	5,144	622,245

**Performance Ratios  
Rolling 12-Month Data**

	<b>Frequency SAIFI</b>	<b>Restoration CAIDI (Min)</b>	<b>Duration SAIDI (Min)</b>
Benchmark	.97	159	154
Rolling 12 Mth Standard	1.31	215	282

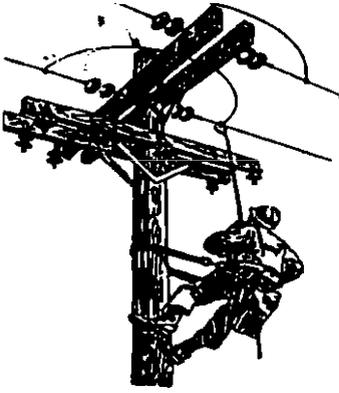
<b>Year</b>	<b>Qtr</b>	<b>Frequency SAIFI Rolling 12 Mth</b>	<b>Restoration CAIDI Rolling 12 Mth</b>	<b>Duration SAIDI Rolling 12 Mth</b>
2006	1st Qtr	1.88	109	206
2006	2nd Qtr	1.40	130	181
2006	3rd Qtr	1.25	99	124
2006	4th Qtr	1.15	121	139

§ 57.195. (e)(5)

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

**Fourth Quarter 2006  
Cause Analysis  
Rolling 12 Months Data  
\*Excludes Storms, Major Events, Pre-Arranged**

Cause	Number of Interr.	Number of Interr.	Customers Affected	Customers Affected	Customer Min. Interr.	Customer Min. Interr.
	Rolling 12 Mth.	Rolling 12 Mth. (%)	Rolling 12 Mth.	Rolling 12 Mth. (%)	Rolling 12 Mth.	Rolling 12 Mth. (%)
Animal Contact	4	6.2%	632	12.3%	80,069	12.9%
Tree Contact	38	58.5%	1,514	29.4%	401,395	64.5%
Overload	0	.0%	0	.0%	0	.0%
Work Error	1	1.5%	1,766	34.3%	10,596	1.7%
Equip. Failure	6	9.2%	137	2.7%	24,484	3.9%
Non-Comp Acc.	7	10.8%	617	12.0%	45,383	7.3%
Custmr Problem	0	.0%	0	.0%	0	.0%
Lightning	4	6.2%	218	4.2%	25,564	4.1%
Unknown-Other	5	7.7%	260	5.1%	34,754	5.6%
All Causes	65	100.0%	5,144	100.0%	622,245	100.0%



# CITIZENS' ELECTRIC COMPANY

1775 INDUSTRIAL BLVD • P.O. BOX 551 • LEWISBURG, PA 17837-0551 • (570) 524-2231 • FAX: (570) 524-5887

January 23, 2007

*h-00030161*

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**JAN 23 2007**

**PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU**

Mr. James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
PO Box 3265  
Harrisburg, PA 17105-3265

Dear Mr. McNulty,

Enclosed please find an original and six copies of the Fourth Quarter, 2006 Reliability Report for Citizens' Electric Company.

Please contact me at 570-522-6143 or [kelchnerj@citizenselectric.com](mailto:kelchnerj@citizenselectric.com) if I can answer any questions.

Sincerely,

John A. Kelchner, PE  
Vice President, Engineering & Operations

**DOCUMENT  
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cc: Pennsylvania Office of Consumer Advocate  
Pennsylvania Office of Small Business Advocate

*48*

Citizens' Electric Company  
Quarterly Service Reliability Report  
Fourth Quarter, 2006  
Prepared by John A. Kelchner, PE  
Vice President of Engineering & Operations  
570-522-6143  
[kelchnerj@citizenselectric.com](mailto:kelchnerj@citizenselectric.com)  
January 23, 2007

H-00030161

**§ 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.**

We experienced no Major Events during the preceding quarter.

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SECRETARY'S BUREAU

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

Index	Rolling 12-Month Value for Quarter	Benchmark	Standard
SAIFI	0.14	0.21	0.27
SAIDI	10	21	38
CAIDI	68	105	141

Total # of Customers Served	# of Interruptions	# of Customers Affected	Customer Minutes
6,693	58	964	65,449

The following outages were approved for exclusion as Major Events during the preceding 12-month period and are not included in the above calculations:

Date	# of Customers Affected	Customer Minutes
1/26/2006	1,252	38,812
2/17/2006	988	30,889

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

Outage Cause	Number of Interruptions	% of Interruptions	Number of Customers Affected	Customer Interruption Minutes
On R/W Trees	0	0	0	0
Animals	29	50.0	379	19,984
Equipment	11	18.9	213	24,692
Off R/W Trees	1	1.7	26	962
Weather	11	18.9	263	14,513
Vehicle	1	1.7	5	230
Other	5	8.6	78	5,068
<b>Total</b>	<b>58</b>		<b>964</b>	<b>65,449</b>

**Discussion**

During the fourth quarter, animal contact was the most common cause of outages. We are continuing our efforts to reduce animal outages through the aggressive installation of protectors and insulated leads on transformer bushings and the use of insulated equipment mounting brackets on poles. All outages this quarter affected relatively small numbers of customers and were of short duration.

**ORIGINAL**

**WELLSBORO ELECTRIC COMPANY**

**QUARTERLY RELIABILITY REPORT  
57.195 REPORTING REQUIREMENTS**

Fourth Quarter 2006

October - December 2006

*A-111200*

**DOCUMENT  
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**SUBMITTED BY**

**ROBERT S. McCARTHY  
VICE-PRESIDENT, ENGINEERING AND OPERATIONS  
570-724-3516**

[bobbym@ctenterprises.org](mailto:bobbym@ctenterprises.org)

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**JAN 31 2007**

**PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU**

Rolling 12-Month reliability index values (SAIFI,CAIDI,SAIDI) for the EDC'S service territory for the receding quarter. The report shall include the data used in calculating the indices, namely the average number of customers served, the number of sustained customers interruptions, the number of customers affected, and the customer minutes of interruption.

**WELLSBORO ELECTRIC COMPANY**

**ROLLING TWELVE MONTH INTERRUPTION INDEXS**

Fourth Quarter of 2006

SAIDI 138.9
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SAIFI 1.5
--------------

CAIDI 90.7
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**ROLLING TWELVE MONTH STANDARD AS ESTABLISHED BY THE PUC**

SAIDI 278
--------------

SAIFI 1.66
---------------

CAIDI 167
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SECRETARY'S BUREAU

57.195 Reporting Requirements

Section (e) Item (2)

Wellsboro Electric Company

Reliability Index

SAIDI

Month	Total Customer Minutes	# Customers Served
Jan-06	46000.2	5905
Feb-06	23728.8	5895
Mar-06	26127.6	5906
April-06	50821.8	5912
May-06	154202.4	5911
June-06	37702.8	5915
July-06	68925	5921
Aug-06	52734.6	5930
Sept-06	51735.6	5924
Oct-06	154756.8	5931
Nov-06	36594	5939
Dec-06	118957.8	5938
	822287.4	71027

Average # Customers Served

5919

ROLLING TWELVE MONTH AVERAGE SAIDI INDEX

138.93

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

57.195 Reporting Requirements

Section (e) Item (2)

Wellsboro Electric Company

Reliability Index

SAIFI

Month	# Customers Interrupted	# Customers Served
Jan-06	528	5905
Feb-06	361	5895
Mar-06	396	5906
April-06	2108	5912
May-06	886	5911
June-06	787	5915
July-06	753	5921
Aug-06	1022	5930
Sept-06	406	5924
Oct-06	1444	5931
Nov-06	337	5939
Dec-06	35	5938
	9063	71027

Average Customers Served

5919

**Rolling Twelve Month Average SAIFI Index**

**1.53**

## 57.195 Reporting Requirements

## Section(e) Item (2)

Wellsboro Electric Company

Reliability Index

CAIDI

Month	Total Customer Minutes	# Customers Interrupted
Jan-06	46000.2	528
Feb-06	23728.8	361
Mar-06	26127.6	396
Apr-06	50821.8	2108
May-06	154202.4	886
June-06	37702.8	787
July-06	68925	753
Aug-06	52734.6	1022
Sept-06	51735.6	406
Oct-06	154756.8	1444
Nov-06	36594	337
Sept-06	118957.8	35
	<b>822287.4</b>	<b>9063</b>

Rolling Twelve Month Average CAIDI Index

**90.73**

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

## Outages from January-December 2006

Outage Cause	# Customers Affected	# of Outages	Customer Minutes	Percentage of Outages
Animals	1227	87	65228.6	25.3%
Vehicles	505	8	72820.8	2.3%
Decay	4	4	187.2	1.2%
Electrical Overload	200	4	3213.6	1.2%
Equipment Failure	1550	72	114467.4	20.9%
Ice,Sleet,Frost	0	0	0	0.0%
Lightning	649	27	106961.4	7.9%
Rain	13	1	883.8	0.3%
Trees	4151	69	303462	20.1%
Unknown Cause	720	53	43531.8	15.5%
Wind	405	17	34719.6	5.0%
Customer Caused	94	1	3102	0.3%
	9518	343	748578.2	100.0%



# Wellsboro Electric Company

P. O. Box 138 • 33 Austin Street • Wellsboro, PA 16901 • (570) 724-3516 • FAX (570) 724-1798

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January 29, 2007

Attached is the Fourth Quarter 2006 Reliability Report for Wellsboro Electric, the rolling twelve month indexes for the fourth quarter in up from the third month report, this is mainly due to outages that occurred during the month of October, 2006. While our indexes are below the established rolling standards as established by the Commission.

None of the outages that occurred in October meet the qualifications for a major events and were all reportable outages, of the outages in October 2006 Tree Contact affected the most customers with 626 customers affected in 15 outages for 89485.2 customer minutes, with these tree related outages the majority of these were from off right of way tree's, equipment failure accounted for 428 customer outages in 13 events for 22537.8 customer minutes, this was again failures on A.B. Chance porcelain cutouts failing. Lightning caused 292 customer outages in 2 events for 35332.2 customer minutes.

The tree related outages were related to weather events, such as thunderstorms, wind events, etc. Weather events for Wellsboro Electric being a small utility can cause a significant increase in reliability indexes in just one month.

Wellsboro continues to monitor and remove off right of way tree as they are identified, but the majority of these off right of way trees were good healthy tree that would not of been identified as a problem, but we continue to monitor the system in an attempt to identify off right of way trees that may pose a problem, also in our right of way lump sum bid projects, the contractor is responsible to identify and attempt to obtain permission from property owners to remove hazard trees during the bid project.

As for A.B. Chance porcelain cutouts, our crews have been advised and it is company procedure to remove all Porcelain cutouts on any pole that work is being done on, during our planning process lines that are earmarked for upgrade work, such as pole or cross arm replacements is also expanded to identify porcelain cutouts and make arrangements to replace as part of the upgrade.

Robert S. McCarthy  
Vice-President, Operations & Engineering  
Wellsboro Electric Company

Paul E. Russell  
Associate General Counsel

**PPL**  
Two North Ninth Street  
Allentown, PA 18101-1179  
Tel. 610.774.4254 Fax 610.774.6726  
perussell@pplweb.com



**FEDERAL EXPRESS**

January 31, 2007

James J. McNulty, Esquire  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, Pennsylvania 17120

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JAN 31 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**Re: PPL Electric Utilities Corporation  
Quarterly Reliability Report for the  
Period Ended December 31, 2006  
Docket No. L-00030161**

**DOCUMENT  
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Dear Mr. McNulty:

Enclosed for filing on behalf of PPL Electric Utilities Corporation ("PPL Electric") are an original and five (5) copies of PPL Electric's Quarterly Reliability Report for the Period Ended December 31, 2006. Also enclosed, in a sealed envelope, is a copy of the report containing competitively sensitive and proprietary information. The Company hereby requests that the Commission treat that information and the report containing the information as privileged and confidential. The report is being filed pursuant to the Commission's Final Rulemaking Order adopted May 7, 2004 in the above-captioned docket.

Pursuant to 52 Pa. Code § 1.11, the enclosed document is to be deemed filed on January 31, 2007, 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.

If you have any questions regarding this document, please call me or Joseph M. Kleha, PPL Electric's Manager-Regulatory Projects at (610) 774-4486.

Very truly yours,

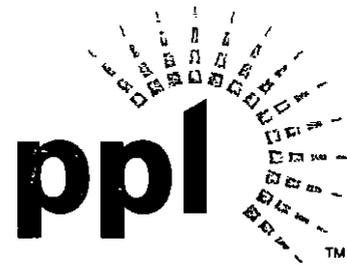
*Paul E. Russell / jrs*

Paul E. Russell

Enclosures

cc: Elizabeth H. Barnes, Esquire  
Mr. Darren Gill

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**PPL Electric Utilities**

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

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JAN 31 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

DOCUMENT  
FOLDER

*January 2007*

**DOCKETED**  
FEB 6 2007

- (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.*

There were no major events during this quarter.

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

The following table provides data for the 12 months ended December 31, 2006.

<b>SAIFI (Benchmark = 0.98; Rolling 12-month Std. = 1.18)</b>	1.267
<b>CAIDI (Benchmark = 145; Rolling 12-month Std. = 174)</b>	165
<b>SAIDI (Benchmark = 142; Rolling 12-month Std. = 205)</b>	209
<b>MAIFI<sup>1</sup></b>	6.443
<b>Average Number of Customers Served<sup>2</sup></b>	1,358,429
<b>Number of Sustained Customer Interruptions (Trouble Cases)</b>	24,746
<b>Number of Customers Affected<sup>3</sup></b>	1,721,271
<b>Customer Minutes of Interruptions</b>	283,958,768
<b>Number of Customer Momentary Interruptions</b>	8,752,009

SAIFI and SAIDI have exceeded the 12-month standard, which is a direct result of extraordinary storm experience beyond PPL Electric's control during the reporting period.

Specifically, there were nine (9) PUC-reportable storms ( $\geq 2,500$  customers interrupted for  $\geq 6$  hr.) during the reporting period, more than any other single year in the 16 years

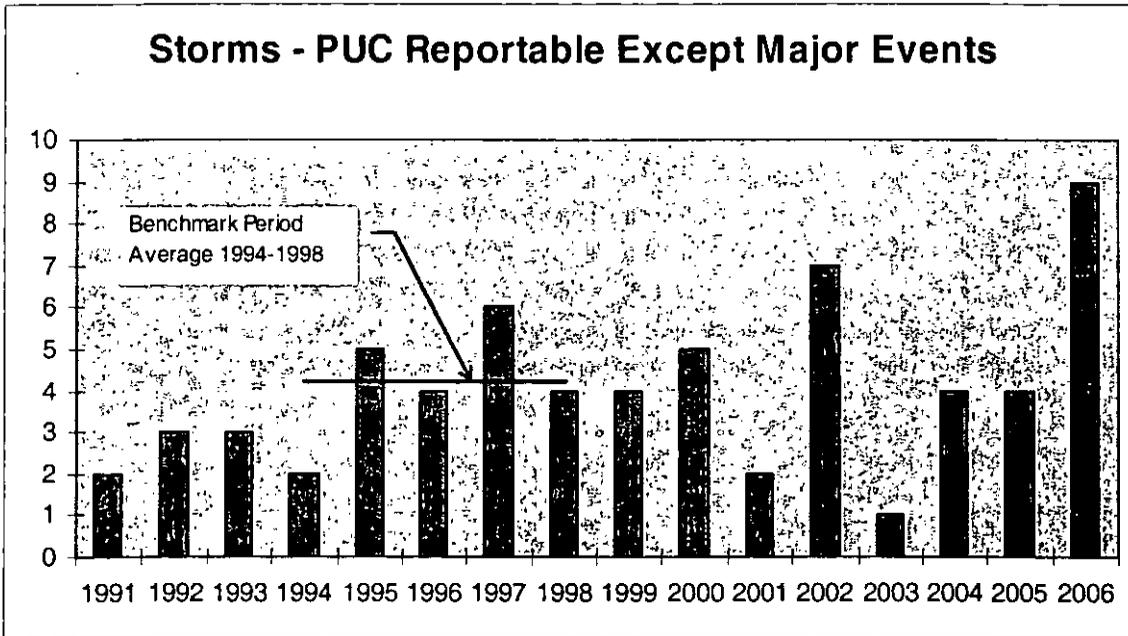
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<sup>1</sup> MAIFI data is obtained at the substation breaker and does not include momentary interruptions at lower level devices.

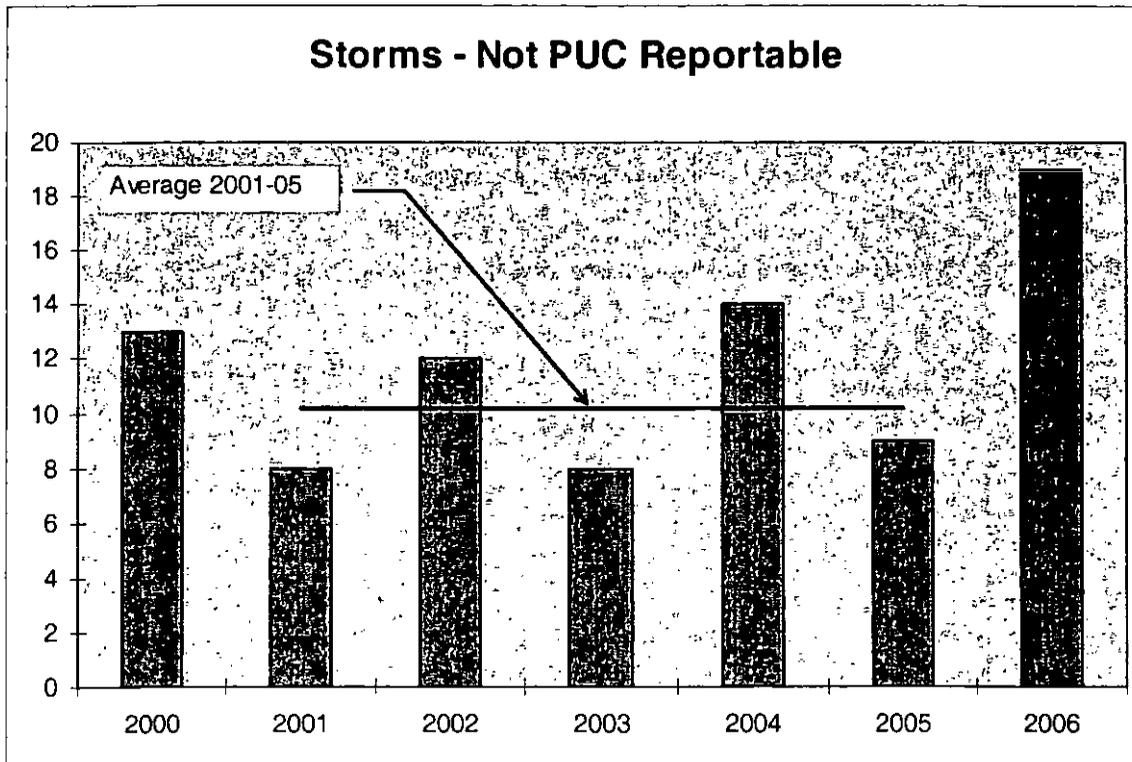
<sup>2</sup> PPL Electric calculates the indices using customers served at the end of the period. This is consistent with the method used to calculate PPL Electric's benchmarks.

<sup>3</sup> 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.

encompassing the benchmark years through the present day, and more than double the average of 4.2 storms per year during the benchmark years, 1994-1998.

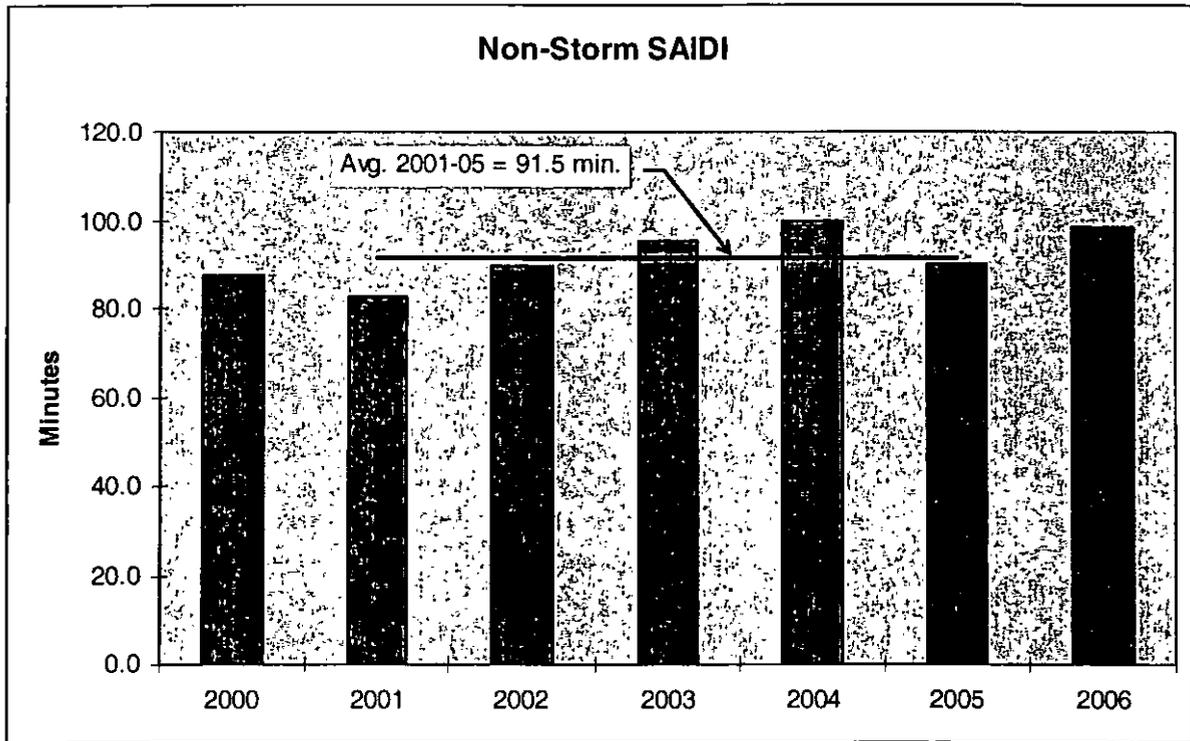


In addition, there were nineteen (19) storms that were not reportable, but which did require opening one or more area emergency centers to manage restoration efforts. This is more than any other year in the last seven (7) years when PPL Electric first began tracking the incidence of non-reportable storms, and 86% higher than the average of 10.2 storms per year for the five years from 2001 through 2005.



In a year with an average number of storms, customer service interruptions during storms contribute about one-third to the total SAIDI value. By contrast, during 2006, customer service interruptions during storms contributed more than one-half of the total SAIDI value. As a result, 110 of the 209 SAIDI minutes were due to storm-related interruptions.

SAIDI during non-storm conditions for 2006 was 98.5 minutes, comparable to that of 2003 through 2005 which were 95.4 minutes, 99.9 minutes and 90.0 minutes, respectively, and only 7 minutes higher than the 2001-2005 five-year average.



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

The following table provides reliability index values for the worst performing 5% of the circuits<sup>4</sup> in the system for the 12 months ended at the current quarter. An explanation of how PPL Electric defines its worst performing circuits is included in Appendix A.

WPC Rank	Feeder ID	SAIFI	CAIDI	SAIDI	MAIFI <sup>5</sup>	Customers	Cases of Trouble <sup>6</sup>	Customer Minutes Interrupted	CPI
1	26401	3.07	201	619	3.00	3,142	181	1,943,462	617
2	16101	3.59	243	872	4.00	2,523	159	2,199,283	588
3	28302	5.89	271	1,597	7.00	2,792	107	4,457,746	544
4	18502	2.93	760	2,230	1.00	1,774	109	3,955,663	533
5	28301	3.95	221	875	7.00	2,798	125	2,449,207	509
6	11001	7.24	169	1,224	7.00	859	78	1,051,232	500
7	11506	6.79	142	967	5.00	1,278	81	1,235,792	486
8	28102	5.26	204	1,074	1.00	1,667	98	1,790,256	485
9	26602	5.78	193	1,112	10.02	2,943	89	3,272,968	479
10	55001	3.86	89	344	8.00	2,923	124	1,006,430	478
11	45402	5.32	194	1,033	12.00	1,574	91	1,625,515	467
12	23604	1.41	1,786	2,511	3.00	2,486	28	6,241,360	462
13	17803	5.88	139	814	9.00	2,469	82	2,010,184	454
14	22704	10.90	52	566	5.00	71	7	40,200	430
15	12701	5.20	88	458	14.00	1,494	86	684,866	430
16	53602	2.32	144	334	1.00	3,313	121	1,107,455	424
17	15701	5.38	202	1,089	9.00	1,148	72	1,250,486	422
18	15601	4.72	129	609	15.00	2,356	86	1,435,039	420
19	26001	3.36	234	785	3.00	1,268	96	995,093	415
20	28801	1.28	330	421	6.06	2,613	115	1,099,879	406
21	22601	4.22	199	838	4.00	1,941	81	1,627,414	402
22	43202	3.69	193	712	7.00	2,069	87	1,473,462	397
23	44505	2.38	198	470	16.00	2,326	104	1,094,183	393
24	16402	5.75	173	996	8.00	857	56	853,728	389
25	22001	3.27	334	1,094	3.00	1,983	78	2,168,549	385

<sup>4</sup> The total number of circuits has grown so 5% is 55 circuits as of the 3<sup>rd</sup> quarter of 2006.

<sup>5</sup> MAIFI data is obtained at the substation breaker and does not include momentary interruptions at lower level devices.

<sup>6</sup> Cases of trouble are the number of sustained customer service interruptions.

WPC Rank	Feeder ID	SAIFI	CAIDI	SAIDI	MAIFI <sup>5</sup>	Customers	Cases of Trouble <sup>6</sup>	Customer Minutes Interrupted	CPI
26	24602	5.15	169	869	2.00	1,508	62	1,311,037	381
27	46302	1.45	384	556	8.00	1,750	99	973,590	381
28	28602	5.76	286	1,648	14.00	2,215	44	3,649,992	380
29	12402	5.12	203	1,040	3.00	1,348	59	1,402,258	379
30	13502	4.16	188	783	14.00	2,645	71	2,071,630	372
31	18501	0.91	1,084	992	1.00	1,674	51	1,660,357	371
32	27101	3.00	308	924	1.00	2,653	75	2,451,104	362
33	10901	3.63	121	438	20.44	1,499	79	657,306	360
34	13102	3.38	301	1,015	3.00	1,944	69	1,972,694	359
35	56802	3.86	194	750	20.00	2,204	68	1,653,033	354
36	22602	2.99	244	729	5.00	1,449	76	1,055,849	352
37	15702	5.43	88	479	7.00	1,584	52	758,612	351
38	28601	4.73	323	1,529	9.00	2,062	44	3,152,927	349
39	25801	3.93	207	811	0.00	1,833	62	1,487,229	344
40	12102	4.73	160	757	4.00	1,943	54	1,470,308	344
41	16802	2.61	236	616	27.00	1,731	78	1,066,601	342
42	26701	3.43	183	630	5.00	858	70	540,503	342
43	41002	2.55	299	762	4.00	1,254	74	955,814	341
44	26702	3.36	153	514	5.00	2,401	73	1,233,604	341
45	17001	2.97	271	804	9.00	1,470	69	1,181,393	338
46	20403	4.05	97	392	1.00	1,846	66	723,279	338
47	52401	1.62	266	432	7.00	1,717	88	740,965	337
48	16405	6.62	150	990	15.00	276	25	273,367	337
49	25501	1.11	323	360	10.00	2,881	90	1,037,115	334
50	47707	2.22	168	373	14.00	1,958	85	729,967	332
51	45702	2.54	311	791	8.00	1,622	69	1,282,500	330
52	17902	4.14	225	930	23.00	981	51	912,764	326
53	12002	6.84	65	448	13.00	1,314	24	588,112	326
54	14403	1.86	150	279	14.02	2,523	89	704,764	326
55	46802	1.93	167	323	1.00	1,928	86	623,677	324

PPL Electric's Circuit Performance Index ("CPI") is derived from the frequency and duration of service interruptions that occurred during the specified time period. Improving a circuit's CPI depends upon reducing either the service interruption frequency or the duration of interruptions, or both. When a new circuit appears among the 5% worst performing, the first step undertaken is to perform a "circuit outage data analysis." This consists of analyzing the actual service interruptions that occurred during the time span to determine if there are causal patterns, or geographic patterns, for which corrective actions are feasible which would improve the circuit's CPI.

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

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>1</b>	<b>Circuit ID: 26401 INDIAN ORCHARD 64-01</b>			<b>Location: Pocono</b>
				<b>CPI: 617</b>
	Circuit outage data analysis.	Completed	6/23/2004	Major contributors to CPI were the number of cases and SAIFI. Blooming Grove - West Damascus 69kV tripped to lockout contributing greatly to SAIFI. An OCR failed and is not likely to recur. Many tree related outages both trimming and non-trimming related and animal contacts. Line was trimmed in September 2003 so hotspotting the line will be ineffective.
	A detailed analysis of sectionalizing will be completed on this line. A review of the existing protection and potential device additions will be performed.	Completed	6/25/2004	Three single phase taps were identified as requiring further sectionalizing and possibly an additional feed from the main line.
	Improve sectionalizing capability. Areas for further sectionalizing have been identified. Field engineer will locate additional sectionalizing devices.	Completed	12/31/2005	Reduced customer count affected by each outage.
	10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2005	
	11/23/2005: Underground failures were tested and replacements will be made.	Scheduled for	1/31/2007	
	5/31/2006: Improve sectionalizing capability. Field engineer will consider additional sectionalizing in the form of sectionalizers	Scheduled for	1/31/2007	Improving sectionalizing will reduce number of customers experiencing an outage
	An intelligent switching project has been identified to reduce customer minutes lost.	Scheduled for	5/31/2007	Reduced customer count affected by each outage.
	Monitor future performance.	Ongoing		

- 9 -

**Rank Action**

**Status Due/Complete Result**

**2 Circuit ID: 16101 BINGEN 61-01**

**Location: Bethlehem**

**CPI: 588**

Tree trimming. Spot trimming.	Completed	3/31/2004	Reduced outage risk.
Circuit outage data analysis.	Completed	6/11/2004	Number of cases and SAIFI are the two biggest factors in the CPI. There is no detectable pattern of causes. Cases alone contribute 60% of this circuit's performance issues, with SAIFI contributing just under 30%.
New Sectionalizing : Replace 1 fused cutout with an OCR and install 2 fused cutouts to reduce the length of line on a sectionalizing device. Install a 3 phase loadbreak airswitch to enable customers to be restored quicker during an outage.	Completed	7/19/2004	Reduced customer count affected by each outage.
Replace cracked porcelain fused cutouts and lightning arresters.	Completed	6/30/2004	Reduced outage risk.
Install fault indicators on line to locate momentary problems.	Completed	8/16/2004	This was done to locate momentary problems that occur on the line. The installation is complete and the indicators are being used to find the fault faster
Improve sectionalizing capability. Investigating splitting the line to allow back feeding from other half.	Completed	2/28/2005	Majority of performance problems occur on fused taps. Load pick up is not the primary performance issue.
Transfer lower portion of line to the Richland 36-3 line to reduce the length of line exposure.	Canceled	7/22/2005	Project was cancelled due to capacity concerns on the Richland Substation.
Reconductoring 7 single phase taps with XLP and stronger conductor	Completed	11/30/2005	Reduced outage risk. Should see reduction in cases, and possibly lower circuit CAIDI
Nine overhead spans that were located in an inaccessible area were relocated underground.	Completed	12/31/2005	Reduced outage risk.
Twenty five fault indicators will be installed.	Completed	3/1/2006	Reduced outage duration.
Reconductoring sections of 3 phase line with XLP and stronger conductor.	Completed	11/27/2006	Reduced outage risk.
Install animal guard(s).	Completed	5/30/2006	Reduced outage risk.
Perform Thermovision on 69 kV lines into the Bingen substation.	Completed	6/21/2006	No concerns were identified.
Perform Thermovision on this circuit, analyze results, and make repairs.	Completed	9/21/2006	Reduced outage risk.
Reconductor 8 sections of single phase line with XLP and stronger conductor	Completed	10/31/2006	Reduced outage risk.
Reconductor 69 kV transmission system - 3 spans on Quarry 1 -Coopersburg tap and 2 spans on Seidersville 1 tap	Completed	11/2/2006	Reduced outage risk. Improve load carrying capability of the 69 kv system in area of Bingen distribution substation to avoid conductor failure and subsequent outage.
4/3/2006: Expanded Operational Review.	Completed	11/29/2006	Reduced outage risk.
Tree trimming.	Completed	12/31/2006	Reduced outage risk.
Rconductor single phase line with XLP and stronger conductor.	Scheduled for	3/1/2007	Reduced outage risk.

**Rank Action**

**Status Due/Complete Result**

**3 Circuit ID: 28302 NEWFOUNDLAND 83-02**

**Location: Pocono**

**CPI: 544**

Circuit outage data analysis.	Completed	6/15/2004	Major contributors to CPI were number of cases and SAIFI. There were several animal contacts and tree related outages during bad weather (not trimming related), but no discernable pattern was apparent. The major outages contributing to SAIFI are unlikely to recur (line de-energized to replace tap fuse, pole top fire, loop burned open). This line had an equipment inspection in January 2004.
Improve sectionalizing capability. Field engineer to review a single phase tap downstream of OCR 66629N42489 to improve sectionalizing on that tap.	Completed	11/12/2004	Field review of the poor performing section of line indicated that additional sectionalizing will not greatly improve reliability on that part of the circuit. Tap fusing in the area already adheres to PPL's policy of fusing all single phase taps.
Tree trimming.	Completed	8/30/2005	
Line inspection-equipment. Field engineer will identify targeted areas for line inspection.	Completed	12/31/2005	Field engineer determined there were no areas requiring line inspections because entire line was inspected in 2004.
3/31/2006: Line inspection-equipment.	Completed	3/30/2006	Customer minutes will be saved by identifying equipment that is in danger of falling.
1/1/2007: Expanded Operational Review. Line will be modeled and studied for reliability	Scheduled for	3/31/2007	
11/2/2006: Thermographic inspection-OH line.	Scheduled for	5/30/2007	Thermovisioning will help identify potential hot spots and failure points. This will help prevent customer outages.
Reconductor line. Over 4 miles of line will be rebuilt and reconducted along the road	Scheduled for	11/30/2008	Rebuilding and relocating the line will reduce probability of outages as well as duration of outages seen by customers
Continue to monitor future performance.	Ongoing		

**4 Circuit ID: 18502 CANADENSIS 85-02**

**Location: Pocono**

**CPI: 533**

Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/11/2004	There were mostly tree related outages on this circuit.
Improve sectionalizing capability.	Completed	11/16/2004	Additional fusing was added to a poor performing section of the line.
Tree trimming. Hotspot trimming completed	Completed	12/1/2004	Reduced outage risk.
1/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	2/28/2006	The majority of problems on this line were due to non-trimming related vegetation issues. In addition, an abnormal sectionalizing event caused power quality and line issues. This event is not expected to recur.
2/16/2006: Tree trimming. Tree Trimming is 10% complete. The remainder of the trimming will be completed in the last quarter of 2006.	Completed	12/1/2006	Reduced outage risk. completed
2/16/2006: Install LBAS(s). Installed LBAS at 68724N38376 and 69390N35855 as part of the Expanded Operational Review.	Completed	6/15/2006	Increasing sectionalizing on the line will reduce the number of customer experiencing an outage.
Expanded Operational Review. Perform Voltage Profile. Review circuit for possible LBAS installations. Summer Thermography to be completed 7/27/2006.	Completed	8/31/2006	Reduced outage duration. Two LBAS's were been installed 7/2006. Voltage profile completed 8/2006. Summer thermography completed 7/2006.
Monitor future performance.	Ongoing		

**Rank Action**

**Status Due/Complete Result**

**5 Circuit ID: 28301 NEWFOUNDLAND 83-01**

**Location: Pocono**

**CPI: 509**

Expanded Operational Review.	Completed		
Circuit outage data analysis.	Completed	6/25/2004	Major contributor to CPI was the number of cases (30%). The contributing outages (mostly trees) did not fall into a discernable pattern. No outages were trimming related.
Circuit outage data analysis.	Completed	8/23/2004	Review of circuit outages indicated there were two poor performing single phase taps.
Circuit outage data analysis.	Completed	10/20/2004	Trees and animals accounted for over 70% of the outages seen in the past year. This is a heavily forested area where trees outside of the right of way contribute to 50% of the total CPI. Even if all other outages were removed this circuit would still be among the worst performers due to trees outside of the R/W.
Improve sectionalizing capability. Increase sectionalizing on two poor performing single phase taps beyond OCR 66696N44669.	Completed	12/31/2004	Field review of the poor performing section of line indicated that additional sectionalizing will not greatly improve reliability on that part of the circuit. Tap fusing in the area already adheres to PPL's policy of fusing all single phase taps.
Tree trimming. Hot spot trimming on two poor performing single phase taps.	Completed	3/30/2005	Reduced outage risk.
Line inspection-equipment.	Canceled	11/30/2005	Field Engineer determined that line inspection was unnecessary because line was inspected in 2004.
Tree trimming. Trimming and hot spotting will be done in 2006.	Completed	11/30/2006	Reduced outage risk.
11/23/2005: Betterment project to split one phase tap by sectionalizing. Additional OCR's will be installed.	Scheduled for	1/30/2007	Reduced customer count affected by each outage.
2/21/2006: Line inspection-equipment.	Completed	4/7/2006	Inspection will help identify problem areas of line that need to be repaired. These repairs will prevent possible outages and customer minutes lost, directly impacting SAIDI.
5/31/2006: Install animal guard(s). Animal guards were added in quarter 1 of 2006 and will be added as needed.	Ongoing		Animal guards were added to reduce animal contact related outages.
Expanded Operational Review.	Completed	11/30/2006	Increase size of cap and change to switched along SR 507 at 67963N44495. Cap is currently a 600 fixed. Should become a 900kVAR switched bank metered on A phase. New voltage rise 2.8 volts.
Load balancing.	In progress	5/31/2007	At 67127N43019 change tap going South along Hemlock Grove Road from C to A phase (this will transfer two downstream fuses at 67150N42991 from C to A phase) and install fuse at pole 67038N44402 and transfer downstream single phase line from B to A phase
Install fuse(s).	In progress	5/31/2007	Reduced customer count affected by each outage. Intall 4 fuses off three phase line
Install 1 phase OCR(s).	In progress	5/31/2007	Reduced outage duration. Install new single phase OCR to replace fuse at 68107N44428
Install 3 phase OCR(s).	Completed		Reduced customer count affected by each outage. 66832N42766 new 3 phase OCR installed 12/11/2006

**Rank Action**

**Status Due/Complete Result**

**6 Circuit ID: 11001 EAST GREENVILLE 10-01**

**Location: Bethlehem**

**CPI: 500**

Circuit outage data analysis. Attempting to locate trouble spots.	Completed	6/11/2004	Cases are 55% of the circuit's performance problems. After detailed review, there are still no specific known problems.
Line inspection-vegetation. Trouble feeders inspected for trees	Completed	10/14/2004	Reduced outage risk. No significant performance issues.
Protection Scheme re-evaluated	Completed	10/18/2004	Reduced customer count affected by each outage. This should reduce customer outage exposure.
Tree trimming.	Completed	9/30/2005	Reduced outage risk.
Improve sectionalizing capability.	Completed	1/31/2006	Install two sets of disconnect switches and fault indicators in the northern portion of the circuit to provide for sectionalizing, possible transfer of load to the Macungie 27-1 line, and to help reduce restoration time.
Perform Thermovision on this circuit, analyze results, and make repairs.	Completed	9/30/2006	Reduced outage risk.
Install telemetrics on electronic OCR	Completed	10/30/2006	Reduced outage duration. This equipment will allow the System Operator to open and close the OCR remotely.
Tree trimming-selected line segments only (hot spots).	Completed	11/28/2006	Reduced outage risk.
Reconductor line.	In progress	6/30/2007	Reduced outage risk.
Tree trimming.	Scheduled for	6/30/2007	Reduced outage risk.
Improve sectionalizing capability. Additional fuses will be added as well.	Scheduled for	8/31/2007	Project being developed to resectionalize trouble spots, and add better fusing scheme to limit customer exposure. Inaccessible portion of the line will be re-fed from a new single phase section. Currently being developed to be placed in service as soon as possible.
1/1/2007: Expanded Operational Review.	EOR planned	6/30/2007	

**Rank Action**

**Status Due/Complete Result**

**7 Circuit ID: 11506 FREEMANSBURG 15-06**

**Location: Bethlehem**

**CPI: 486**

Circuit outage data analysis.	Completed	6/11/2004	Circuit is a rural feeder, many single phase taps have a weak textile strength and are more susceptible to falling branches. Other equipment related issues are suspected.
Line inspection-equipment.	Completed	6/30/2004	Reduced outage risk. Several problems were found such as: conductor off insulator, deteriorated crossarms, split pole tops, trees growing into lines, etc. A work request was written to correct these problems.
Repairs to the line based on the line inspection.	Completed	8/11/2004	Reduced outage risk.
Tree trimming. A section of line was located that required trimming.	Completed	10/1/2004	Reduced outage risk.
Tree trimming. Spot trimming completed 12/17/04 on trouble areas.	Completed	12/23/2004	Reduced outage risk.
Replaced Tap fuse that was found to be cracked and damaged.	Completed	12/23/2004	Reduced outage risk. This work is completed and should result in lower momentary count, as well as lessen number of customers taken out at a time.
Tree trimming.	Completed	1/31/2005	Reduced outage risk. Hot spotting was completed in January of 2005
One of the single phase taps where the fuse has blown several times was inspected and all maintenance items identified.	Completed	3/30/2006	Reduced outage risk. Maintenance issues on this single phase tap have been addressed.
2/13/2006: Line inspection-vegetation. Several locations were found in need of some tree trimming.	Completed	5/1/2006	Reduced outage risk. Hot Spot tree trimming completed.
Tree trimming-selected line segments only (hot spots).	Completed	6/30/2006	Reduced outage risk. Trimming to start in early May.
10/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/27/2006	Circuit breaker tripped when tree limb fell on line during Tropical Storm Ernesto resulting in a 2-1/2 hour outage for all customers on this circuit.
4/3/2006: Expanded Operational Review.	Completed	12/4/2006	Reduced outage risk.
Monitor future performance. Performance appears to have improved and monitoring will continue.	Ongoing		Trimming and other minor work appears to have improved performance. Monitoring will continue.
Tree trimming.	Scheduled for	6/30/2007	Reduced outage risk.

**Rank Action**

**Status Due/Complete Result**

**8 Circuit ID: 28102 TWIN LAKES 81-02**

**Location: Pocono**

**CPI: 485**

10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2005	An inspection was completed in 2004 and problems were addressed. Vegetation was a major issue that caused customer minutes lost. Vegetation related outages were due to weather primarily.
11/23/2005: Tree trimming.	Completed	2/28/2004	Reduced outage risk.
Line inspection-equipment. Two sections of line will be inspected	Completed	3/30/2006	The inspection targets equipment that may fail. By making repairs or replacements, customer outages will be prevented. Nothing significant was found.
5/25/2006: Expanded Operational Review.	Completed	9/30/2006	
5/31/2006: Install animal guard(s). Install as outages are seen on the line	Ongoing		Installing animal guards will prevent future outages on the line due to animal contact
11/23/2005: Monitor future performance.	Ongoing		

**Rank Action**

**Status Due/Complete Result**

**9 Circuit ID: 26602 BROOKSIDE 66-02**

**Location: Scranton**

**CPI: 479**

Line inspection-equipment. Due to the high number of animal contacts (35% of the total CPI) and equipment failures (22% of total CPI) an equipment line inspection will be performed.	Completed	1/30/2004	Several maintenance items were identified. A WR was initiated to address these problems.
Circuit outage data analysis.	Completed	6/15/2004	Major contributor to CPI was the number of cases. Animal contacts made up about 35% of the total CPI.
PPL Electric will review the process for animal guard installations to ensure that animal guards are installed for animal related OH transformer outages and new OH transformer installations.	Completed	8/25/2004	Animal guard practices have been reviewed and troublemen in this area have been instructed to ensure animal guards are installed when and where appropriate.
Line inspection-equipment. A helicopter patrol was performed on an inaccessible part of the line.	Completed	6/10/2005	Several broken crossarms and a downed static wire were discovered.
Fault recorders will be installed on an inaccessible part of the line.	Completed	6/30/2005	Reduced outage duration.
Perform line maintenance identified by line inspection. Helicopter patrol was completed	Completed	12/30/2005	Broken and failing crossarms were found and repaired to reduce risk of customer outage.
Tree trimming. Hot Spotting being done as needed	Completed	9/30/2005	Reduced outage risk.
Expanded Operational Review. Voltage Profile Completed 7/24/2006.	Completed	7/31/2006	Voltage Profile Completed 7/24/2006. Reliability profile Completed 09/29/2006.
Line being reconductored for 0.3 miles (WR# 233124)	Scheduled for	1/30/2007	
11/4/2005: Sectionalizer being replaced (WR#269977). Additional sectionalizing opportunities being considered by field engineer.	Scheduled for	1/30/2007	Replacement of the sectionalizer will improve reliability and decrease the number of customers experiencing an outage.
4/17/2006: Relocate inaccessible line. An inaccessible portion of the Brookside 66-02 and 66-04 line is scheduled to be rebuilt along the roadway. The line is planned to be rebuilt and sectionalized under B21118 (with an RIS of 11/2007) and B21119 (with an RIS of 11/2009).	Scheduled for	11/30/2007	Rebuilding and sectionalizing the 66-02 line will increase reliability on the circuit by making the route more accessible. In addition, there will be less vegetation exposure following the rebuild of the line. This work will improve CAIDI and SAIDI.
5/3/2006: Install fault indicators	Scheduled for	5/1/2007	Additional fault indicators will decrease length of customer outages by allowing troublemen to determine where fault occurred more quickly
Monitor future performance.	Ongoing		

**Rank Action**

**Status Due/Complete Result**

**10 Circuit ID: 55001 NEWPORT 50-01**

**Location: West Shore**

**CPI: 478**

Rank	Action	Status	Due/Complete	Result
	Improve sectionalizing capability. Three tap fuses were installed.	Completed	12/31/2003	Reduced customer count affected by each outage.
	Circuit outage data analysis.	Completed	6/25/2004	Vehicles and an ice storm in January 2004 contributed to the CPI.
	Two OCRs relocated. Low set setting on breaker changed.	Completed	8/18/2004	Reduced customer count affected by each outage. Reduce number of trips.
	Tree trimming.	Completed	8/27/2004	Reduced outage risk.
	Circuit outage data analysis.	Completed	12/22/2004	Area hard hit by Hurricane Ivan in the 3rd quarter.
	Circuit outage data analysis.	Completed	3/18/2005	The quarterly CPI has decreased 79% from the 3rd to the 4th quarter.
	Circuit outage data analysis.	Completed	5/27/2005	CPI continues to improve.
	Line inspection-equipment.	Completed	6/30/2005	Only a few items were found.
	Circuit outage data analysis.	Completed	8/31/2005	On 5/7/05 the CB was interrupted when load was transferred and a line loop burned open and then on 5/27/05 an OCR bypass loop burned open. This is not expected to reoccur.
	Circuit outage data analysis.	Completed	10/31/2005	Outage on 8/23/05 due to customer cutting a tree which fell into line.
	12/7/2005: Install LBAS(s). Instal LBAS @ 17530S42150	Completed	1/23/2006	Reduced outage duration.
	1/1/2006: Expanded Operational Review. Reliability Review Complete 6/9/2006. Field Review Complete 6/19/2006. Voltage Profile completed 11/3/2006	Completed	11/3/2006	WR 306662 Initiated to install 3 tap fuses. (completed)
	2/14/2006: Tree trimming. The main portion of the circuit (first 12 mi of 3 phase) from sub to New Bloomfield.	Completed	6/24/2006	Reduced outage risk. Only 31% of the customer minutes in 2005 were tree-related, and of these, a single tree outage from off the right of way was responsible for 20% alone. However, keeping the line on its trimming schedule will demonstrate continued efforts to keep trees from increasing the number of outages.
	2/14/2006: Tree trimming. Remainder of circuit. Work on this 150 mile portion of circuit has started, completion in third quarter.	Scheduled for	9/28/2007	Reduced outage risk.
	3/31/2006: Improve sectionalizing capability.	Completed	3/31/2006	Inconclusive. Monitor future performance. Line reviewed for additional sectionalizing. Circuit has adequate sectionilizing points, and no new sectionalizing points were feasible.
	5/17/2006: Circuit outage data analysis.	Completed	5/17/2006	2/3 of customer minutes during the 1st qtr 2006 were due to the Feb 17 windstorm. Trees from off the right of way heavily damaged a portion of the main line on this ckt, and an OCR locked out approx 3/4 of the customers on the line. Trees were all from outside the right of way on this heavily wooded circuit. The line was cleared and OCR restored after 140 minutes.
	6/19/2006: Install fuse(s). WR 306662 Install 3 tap fuses	Completed	8/9/2006	Reduced customer count affected by each outage.
	Thermographic inspection-OH line. Completed - no repair items identified	Completed	9/1/2006	Reduced outage risk.

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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2/14/2006: Monitor future performance. Ongoing

**11 Circuit ID: 45402 WEST BLOOMSBURG 54-02**

**Location: Sunbury**

**CPI: 467**

Line inspection-equipment.	Completed	7/31/2005	The line was inspected in the winter of 2004. Some items were identified by inspection including broken tie wires, cracked insulators, bad TFC's, blown LA's. Some of the work requests were done in the first quarter of 2005, and the rest were completed in June/ July 2005. All single phase and three phase fuses were installed on this circuit.
Circuit outage data analysis.	Completed	8/22/2005	CPI was driven by SAIFI (3.338; 39% of the CPI) and number of cases (54; 44% of CPI). The major outages in the third quarter of 2004 were because of Hurricane IVAN on 9/18/04. 108 customers were interrupted for approximately 33 hours because of IVAN. While no major outages in Q4, 2004, a snow storm in the first quarter of 2005 caused long outages because of flood and closed bridges. Nothing major was found in the Q2, 2005 except few outages due to trees outside the right of way on 4/28/2005. The WPC team found that animals caused some outages in the second quarter of 2005. The Field will install animal guards where needed to avoid future animal outages.
Tree trimming.	Completed	12/20/2006	The line is 100 miles long. 4 urban miles were trimmed in 2003, and the 95 rural miles were trimmed in the fourth quarter of 2006.
11/2/2005: Circuit outage data analysis.	Completed	11/2/2005	Major contribution to the CPI was due to SAIFI (46% of total CPI) and the number of cases ( 46% of total CPI). A vehicle hit on 8/8/2005, and the storm in July caused major long outages in the third quarter of 2005.
Line inspection-equipment.	Completed	9/30/2005	A line inspection was performed in September 2005. Different items were identified by the inspection including broken tie wires, cracked insulators, bad transformer fuse cutouts, blown lightning arresters. 6 work requests were written as a result of the inspection. WR's 208868, 208701, 208487, 208428, 208357, and 208306 were done by September 2005. The field completed thermo vision on the line in the fourth quarter of 2006.
11/2/2005: Improve sectionalizing capability.	Completed	11/2/2005	The circuit was reviewed for additional sectionalizing in 2005 to improve load transfer capabilities. No additional locations were identified for sectionalizing.
11/2/2005: Monitor future performance.	Ongoing		Tree hot spotting in 2005, and the completion of all work requests identified by inspection are expected to improve the circuit's performance. Major outages occurred on the circuit in the third quarter 2005 were due to events that are not expected to occur again such as the vehicle hit in August. PPL will continue to monitor the circuit's performance.

**12 Circuit ID: 23604 WRIGHT 36-04**

**Location: Wilkes-Barre**

**CPI: 462**

Install fuse(s).	Completed	11/24/2003	Reduced customer count affected by each outage.
4/8/2005: Perform line maintenance identified by line inspection.	Completed	5/31/2005	Reduced outage risk.
1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	

**Rank Action**

**Status Due/Complete Result**

**13 Circuit ID: 17803 GILBERT 78-03**

**Location: Pocono**

**CPI: 454**

1/1/2007: Expanded Operational Review.	EOR planned	6/30/2007	
10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2005	One vehicle hit caused a 500 minute outage. One dig-in also significantly contributed to customer minutes lost. Neither of these events is expected to recur.
11/22/2005: A section of underground was checked for failure on this circuit	Completed	11/30/2005	Results and recommendation were sent to field engineer.
4/10/2006: Circuit outage data analysis - WPC not on preceding qtr. list. Field engineer is analyzing the circuit. Improve sectionalizing capability.	Completed	12/31/2006	Reduced outage duration. Installed OCR at 62931N28780.
	Completed	12/31/2006	Reduced outage duration. Circuit review and analysis by field engineer completed 9/30/06. Identified one location to install OCR/sectionalizer.
9/15/2006: Expanded Operational Review. Reviewed possibilities for installing sectionalizing devices.	Completed	12/30/2006	Inconclusive. Monitor future performance. Identified one location to install an OCR/Sectionalizer. Installed OCR at grid 62931N28780.

**14 Circuit ID: 22704 MINOOKA 27-04**

**Location: Scranton**

**CPI: 430**

10/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	10/11/2006	In Sept. 2006, a line segment with 390 customers and 2 MVA of load was permanently transferred from 22704 to 22701 to accommodate anticipated new load, leaving only 69 customers remaining on 22704. Of the seven interruptions attributed to 22704 in the database, five are associated with the transferred line segment and occurred before the transfer. Manually adding the five outages to the reconfigured 22701 do not place it among the worst performing. No further remedial action is necessary.
Monitor future performance.	Ongoing		

**15 Circuit ID: 12701 MACUNGIE 27-01**

**Location: Lehigh**

**CPI: 430**

Install Fault Indicators.	Completed	8/31/2006	Reduced outage duration.
7/11/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2006	Three incidents including a customer who cut down a tree on his property which fell on the line and 2 pole hits were the major contributors to outages on this circuit.
Tree trimming.	Scheduled for	6/30/2007	Reduced outage risk.

**Rank Action**

**Status Due/Complete Result**

**16 Circuit ID: 53602 DALMATIA 36-02**

**Location: Harrisburg**

**CPI: 424**

Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	12/22/2004	Area hit by Hurricane Ivan in the 3rd quarter.
Install an electronic OCR on the east side of the river crossing.	Completed	12/22/2004	Reduced customer count affected by each outage.
Circuit outage data analysis.	Completed	3/18/2005	The quarterly CPI has decreased 50% from the 3rd to the 4th quarter. A motor vehicle accident contributed 13% of the customer minutes interrupted in the 4th quarter. Tree trimming planned for 2006.
Circuit outage data analysis.	Completed	5/27/2005	CPI continues to improve.
Line inspection-equipment.	Completed	8/31/2005	Found a pole on an island in the river crossing requiring replacement due to bank erosion.
Circuit outage data analysis.	Completed	10/31/2005	Inconclusive. Monitor future performance. Outage on 8/11/05 due to trees - not trimming related. Trees trimmed.
Tree trimming. Main portion of the 3 phase line, to the OCRs.	Completed	12/30/2005	Reduced outage risk.
2/17/2006: Tree trimming-selected line segments only (hot spots).	Completed	2/17/2006	Reduced outage risk. During the Feb 17 windstorm, PPL asked for and received permission to tree trim / cut the worst section of line where trees up a steep bank but off our right of way regularly take the line out. Crews cut down 16' additional right of way for 1/3 of a mile, reducing exposure on the worst tree-endangered portion of this circuit. This section was previously served by the Halifax 39-1 circuit.
3/1/2006: Install 3 phase OCR(s). A 3-phase OCR will be relocated to just prior to the worst tree-exposed portion of the line along the Susquehanna.	Completed	3/14/2006	Reduced customer count affected by each outage.
Tree trimming-selected line segments only (hot spots). Extensive trimming outside of ROW.	Completed	3/31/2006	Reduced outage risk.
5/17/2006: Circuit outage data analysis.	Completed	5/17/2006	Inconclusive. Monitor future performance. 87% of the customer minutes during the 1st qtr 2006 was due to a car pole and a wind storm Jan 15-18. The vehicle accident was an hour from the service center. The OCR was restored in 134 minutes. All the trees were off corridor.
1/1/2006: Expanded Operational Review. Operational Review will be completed in 2006 - Voltage profile and outage history analysis. Reliability Review Complete 7/11/2006.	Completed	7/1/2006	Voltage profile showed no problems. 5 unfused taps to be field-checked by tech. Bad tree spots will not be given to foresters b/c entire circuit to be trimmed in 2006
Thermographic inspection-OH line.	Completed	9/20/2006	Reduced outage risk.
Replace pole on island in the river crossing weakened due to bank erosion.	Scheduled for	7/30/2007	Reduced outage risk. Island is uninhabited, and has no road or bridge access. Pa DER will not allow PPL to float a pole across the river due to leaching of preservative into the river. Securing permits to cross the river with men, vehicles, and equipment is proving extremely difficult and time-consuming. Target date to reinforce bank and poles is 7/30/07.
Install fuse(s). Additional fusing- West Shore portion of ckt	Completed	11/30/2006	Reduced customer count affected by each outage. Install 5 tap fuses WR#326196
2/14/2006: Tree trimming. Remainder of line.	Completed	10/30/2006	Reduced outage risk.

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**17 Circuit ID: 15701 TANNERSVILLE 57-01**

**Location: Pocono**

**CPI: 422**

Circuit outage data analysis.	Completed	6/15/2004	Major contributor to CPI was the number of cases (approximately 52% of CPI), CAIDI and SAIFI are low. Most contacts were tree related.
Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/11/2004	Many tree related outages, some were trimming related.
Field engineer will review the circuit for additional tap fuses.	Completed	7/31/2005	The main three phase line was analyzed, and no additional locations for fuses were determined.
Tree trimming. This circuit was scheduled to be trimmed in support of reconductor work.	Completed	3/30/2006	Approximately 1.5 miles of the main three phase line was trimmed in support of the upcoming USF work.
Reconductor 1.5 miles of the main line under SP 51216.	Completed	3/30/2006	The line was reconducted to increase reliability, allow capacity for load growth, and improve SAIDI.
Circuit performance review.	Completed	6/30/2006	Inconclusive. Monitor future performance. Faulty sectionalizer identified and repairs are in progress. One LBAS is scheduled to be installed as part of the Reliability Preservation program.
6/30/2006: Repair faulty sectionalizer.	Completed	12/31/2006	Reduced outage risk.
6/30/2006: Install one LBAS	Completed	9/30/2006	
7/1/2006: Monitor future performance.	Ongoing		

**18 Circuit ID: 15601 NO STROUDSBURG 56-01**

**Location: Pocono**

**CPI: 420**

Circuit outage data analysis.	Completed	6/23/2004	Major contributor to CPI was the number of cases. There were several burned loops on the line and quite a few animal contacts.
Line inspection-equipment.	Completed	3/31/2005	
Perform line maintenance identified by line inspection.	Completed	5/30/2005	Reduced outage risk.
Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	6/6/2005	
Line inspection-vegetation. Forester will perform a vegetation line inspection and perform hot spot trimming as required.	Completed	7/28/2005	Results sent to field for review. Hot spotting will be scheduled as needed.
Install fuse(s). WR# 218967, WR# 224357, WR# 224423: OCR and fuse installation;	Completed	12/30/2005	Fuses and OCRs were installed to reduce the number of customers experiencing an outage
Thermographic inspection-OH line. This circuit will be thermovisioned to help identify failed equipment.	Completed	9/30/2006	Reduced outage risk. Nothing found.
11/22/2005: Tree trimming.	Completed	12/31/2006	Reduced outage risk. completed
1/13/2006: Install fuse(s). WR 224008	Completed	5/3/2006	Reduced customer count affected by each outage.
1/1/2007: Expanded Operational Review.	EOR planned	6/30/2007	
6/15/2006: Evaluate potential ties.	Completed	9/30/2006	Reduced outage duration.

**Rank Action**

**Status Due/Complete Result**

**19 Circuit ID: 26001 WEST DAMASCUS 60-01**

**Location: Pocono**

**CPI: 415**

10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2005	Many of the outages were due to vegetation issues during storms. Majority of the outages were weather related.
2/21/2006: Install animal guard(s). Animal guards will be installed as customers are restored following an animal-related outage	Ongoing		Animal guards will prevent animal contact and reduce customer interruptions.
5/31/2006: Tree trimming. Hot spotting will be done as necessary	Scheduled for	6/30/2007	Hot spotting will be completed to reduce outages due to trees seen on the line
1/1/2007: Expanded Operational Review.	EOR initiated	3/31/2007	
11/22/2005: Monitor future performance.	Ongoing		

**20 Circuit ID: 28801 LAKEVILLE 88-01**

**Location: Pocono**

**CPI: 406**

7/13/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2005	Vegetation issues caused nearly half of all the outages on this line. Weather was a significant factor for these outages. Trimming was completed on this line in 2005.
WR# 237040: OH repairs made as a result of line inspection	Completed	9/15/2005	Work completed to reduce customer minutes lost
Tree trimming.	Completed	10/31/2005	Reduced outage risk.
Install fuse(s). WR# 242026; WR#241998; WR#241849	Completed	12/31/2005	Reduced customer count affected by each outage. New fuses being installed to improve SAIDI
Install LBAS(s).	Scheduled for	1/31/2007	Sectionalizing the line will reduce the number of customers experiencing an outage
Install 1 phase OCR(s).	Scheduled for	1/31/2007	
5/31/2005: Install animal guard(s). Animal guards are added as needed to the line	Ongoing		Animal guards are placed after outages are experienced to prevent future outages.
Monitor future performance.	Ongoing		
1/1/2007: Expanded Operational Review.	EOR planned	6/30/2007	

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**21 Circuit ID: 22601 KIMBLES 26-01**

**Location: Pocono**

**CPI: 402**

7/11/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2006	During an abnormally sectionalized condition when the Kimbles 26-1 line was tied to a Tafton line, a fault occurred on the Tafton line. This outage contributed nearly one fifth of the total customer minutes lost for the past year. In addition to this event, a transmission line fault left the entire Kimbles substation out of service for nearly two hours. These two events, combined with number cases of trouble on customer transformers and single phase line resulted in a high SAIFI and CAIDI for this line.
8/17/2006: Tree trimming.	Completed	7/8/2006	Reduced outage risk. Improved reliability by reducing the line's tree exposure thereby limits potential tree contact related outages
11/2/2006: Improve sectionalizing capability. A telemetrics OCR was installed on this line	Completed	12/1/2006	
10/16/2006: Monitor future performance.	Ongoing		

**Rank Action**

**Status Due/Complete Result**

**22 Circuit ID: 43202 MILLVILLE 32-02**

**Location: Sunbury**

**CPI: 397**

Circuit outage data analysis.	Completed	12/30/2004	The Millville 32-2 line was reported as having a high CPI during the 1st and 2nd quarter of 2004. During the Q1 of 2004, on 2/6/2004, approximately 254 customers experienced a 1 hr. outage, nothing found was reported. During the Q2 of 2004, 82 customers experienced approximately 4 hr. outage due to a vehicle accident and on 5/10/2004, 11 customers experienced a 8 hr. outage due to equipment failure. Major outages occurred in the Q3 of 2004 because of hurricane IVAN on 9/18/05 where 22 customers experienced long duration outage because of flood and closed roads. The snow storm in the Q1 of 2005 also caused long duration outages on 3/23/2005. The hurricane IVAN and the snow storm were the major cause for long outages on this circuit.
Improve sectionalizing capability. Review line to determine if additional sectionalizing can be added to minimize the number of customers affected by emergency outages.	Completed	12/30/2004	Reduced customer count affected by each outage. The 32-2 line was reviewed for locations to add/install additional sectionalizing devices. No locations were found. A partial inspection on 3 phase line was done in the winter of 2003, and nothing major found on this circuit. Installing additional OCRs was looked at as a part of SAIFI initiative study.
Tree trimming.	Completed	12/1/2006	The line is approximately 162 miles long. The 9.2 urban miles were trimmed in 2004. The 153 rural miles were trimmed in 2006. The majority of this line is in inaccessible area. The line was reviewed by the region forestry staff. Some hot spot trimmings were partially done at certain areas in Apr/May, 2005, and were completed on the whole circuit by 12/30/2005.
10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/2/2005	The storm on 7/13 and 7/14 caused 8 cases of trouble in the third quarter of 2005. Trees-not trimming related were the cause of major outages on this circuit. No major outages were in the Q4 of 2005.
Improve sectionalizing capability.	Completed	3/31/2005	Reduced outage risk. The crew reviewed the line for additional sectionalizing in the first quarter of 2005. A solid blade and additional single phase fuses were installed by the end of Q1, 2005. No additional work is required.
Line inspection-equipment.	Completed	11/17/2006	Reduced outage risk. A line maintenance inspection patrol was completed in August 2005. Nine work requests were initiated as a result of the inspection. Seven of those work requests were completed in 2005. The work involved replacing transformer fuse cutout, cross arms, broken spool, and sagging neutral. Two work requests remain were completed in the first quarter 2006. One of the work requests requires facility/customer interruption coordination, and the second location requires a special 75 foot bucket.
8/22/2005: Install fuse(s).	Completed	12/31/2005	Reduced customer count affected by each outage. The field engineer reviewed the line for additional fuses. All single phase and three phase tap fuses were installed by the end of 2005.
3/20/2006: Monitor future performance.	Ongoing		

**Rank Action**

**Status Due/Complete Result**

**23 Circuit ID: 44505 HAMILTON 45-05**

**Location: Sunbury**

**CPI: 393**

Circuit outage data analysis.	Completed	12/30/2004	The Hamilton 45-5 line was reported as having a high CPI in the second and third quarters of 2004. 100% of the high CPI during the second quarter 2004 is due to a vehicle accident which occurred on 5-15-04, 185 customers experienced a 7 hr. outage. 100% of the high CPI during the third quarter of 2004 is due to hurricane IVAN, approximately 25 customers experienced outages ranging from 4 hrs to 32 hrs. (outages reported as non-tree trimming related). Also approximately 150 miles of rural 45-5 line were trimmed in 2003.
1/1/2007: Expanded Operational Review.	EOR planned	12/31/2007	
11/2/2005: Circuit outage data analysis.	Completed	11/2/2005	The major contribution to the CPI was mainly due to the number of cases ( 70 % of the total CPI). Trees outside the right of way and equipment failure were major causes of many outages in the third quarter of 2005.
11/2/2005: Tree trimming.	Completed	12/31/2005	The line is approximately 164 miles long. The whole circuit was last trimmed in 2003. The next trimming is scheduled to be done in 2007 for the urban section. The rural section is scheduled to be trimmed in 2009. Hot spot trimming will be evaluated and performed on this circuit as needed.
5/25/2006: Line inspection-equipment.	Completed	3/31/2006	The line inspection was completed by 6/30/2006. Two immediate problems were identified and fixed ( bad transformer fuse cutout and bad tap switch). Two work requests were initiated totaling \$5,000 to replace bad transformer fuse cutout and tap switches. An electronic OCR was replaced on this circuit on 2/9/2006.
2/9/2006: Relocate inaccessible line.	Completed	12/1/2006	The relocation of the inaccessible section to the road is expected to improve the reliability of the line.
11/2/2005: Monitor future performance.	Ongoing		

**Rank Action**

**Status Due/Complete Result**

**24 Circuit ID: 16402 MOUNT POCONO 64-02**

**Location: Pocono**

**CPI: 389**

Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/11/2004	Most of the problems were trees outside of the right of way, but there were some trimming related problems. This circuit did have some hotspot trimming completed earlier in 2004.
1/1/2007: Expanded Operational Review.	EOR planned	6/30/2007	
Tree trimming. Hot spotted in April and May	Completed	5/31/2005	Reduced outage risk.
Tree trimming. Overgrown areas will be identified by field engineer for hot spot trimming.	Completed	8/31/2005	Reduced outage risk.
7/13/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2005	
11/22/2005: Tree trimming. As of 7/8/06, 75% completed. The remainder of the trimming will be completed by 8/31/06.	Completed	8/31/2006	Reduced outage risk.
2/16/2006: Line inspection-equipment.	Completed	3/30/2006	Customer minutes will be saved by identifying equipment that is prone to failure.
6/15/2006: An intelligent switching project has been identified to reduce customer minutes lost.	Scheduled for	5/31/2007	Reduced customer count affected by each outage.
6/15/2006: Evaluate potential ties.	Completed	8/31/2006	Reduced outage duration. Field review completed 6/2006. Proposed location of new substation located and ties identified. Details forwarded to appropriate personnel.
Monitor future performance	Ongoing		

**25 Circuit ID: 22001 BOHEMIA 20-01**

**Location: Pocono**

**CPI: 385**

Circuit outage data analysis.	Completed	6/15/2004	Major contributor to CPI was the number of cases. BLGR-WDAM 69kV Tripped to Lockout due to a crossarm failure which is unlikely to recur. Other outage causes were mostly tree (non-trimming) related but with no discernable pattern Appaerent.
4/10/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	5/31/2006	An underground failure on this circuit resulted in an extended outage. It also caused an outage on the 69 kV line. Over 579,000 customer minutes were lost on the line as a result of this.
Expanded Operational Review.	Completed	9/30/2006	
11/2/2006: Improve sectionalizing capability. A telemetric OCR was installed on this line	Completed	12/1/2006	This will potentially allow faster restoration following an outage or prevent permanent outages.

**Rank Action**

**Status Due/Complete Result**

**26 Circuit ID: 24602 VARDEN 46-02**

**Location: Pocono**

**CPI: 381**

Circuit outage data analysis.	Completed	8/23/2004	Trees outside of the RAW was the largest contributor to CPI. Circuit outage analysis indicated a pattern of tree related outages on two single phase taps.
Tree trimming. Hot spot trimming is planned for two poor performing single phase taps.	Completed	12/31/2004	Reduced outage risk.
Improve sectionalizing capability. Field engineer will review the line and install additional sectionalizing on the identified poor performing single phase taps.	Completed	12/31/2004	This portion of the circuit is already sectionalized in excess of PPL requirements. Further addition of fusing or other protective devices may risk increasing customers outages through nuisance blowing/tripping.
10/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2006	The greatest contributor to the CPI was vegetation related outages. Approximately 72% of the total outages on the line were due to vegetation related outages; however, 70% of the total CPI was due to non-trimming related vegetation issues. The majority of three-phase outage was under storm or bad weather conditions.
11/2/2006: Tree trimming. The line will be trimmed and danger trees will be identified and removed	Scheduled for	6/30/2007	
Monitor future performance.	Ongoing		

**Rank Action**

**Status Due/Complete Result**

**27 Circuit ID: 46302 ROHRSBURG 63-02**

**Location: Sunbury**

**CPI: 381**

Circuit outage data analysis.	Completed	8/22/2005	The Rohrsburg 63-2 line was reported as having a high CPI during the first and second quarter of 2004. However, a large number of customers experienced outages, short or long in duration has not been reported for the 1st and 2nd quarters in 2004. It was reported on 2/21/2004, 19 customers experienced a 5 hr. outage due to equipment failure. In the Q2, 2004, 24 customers experienced outages ranging from 7 hrs to 12 hrs due to equipment failure on 6/17/2004. No major outages in the Q4, 2004. A snow storm caused long duration outages in Q1, 2005 where 11 customers experienced an outage for approximately 23 hours because of the flood in the area on 3/23/05. It was reported that there were some non-controllable causes for long outages on this circuit because of lightning. No major outages in the Q2, 2005 beside the outage on 6/6/2005, which was caused by trees-non trimming related in a very windy day.
Improve sectionalizing capability.	Completed	6/1/2005	The line was reviewed for more sectionalizing devices. No new locations were found.
Perform line maintenance identified by line inspection.	Completed	9/30/2005	Line maintenance was started by the region in the first week of August, 2005. Nothing major was found. Only lower priority things were found. Pole by pole inspection and the review of fuses on 3 phase and single phase have been completed on the circuit by the end of Q3, 2005.
Tree trimming.	Completed	12/31/2006	The 153 miles long line was originally scheduled to be trimmed in 2007. The work has been advanced into 2006. Hot spot trimmings were completed by the end of 2005.
11/2/2005: Circuit outage data analysis.	Completed	11/2/2005	Major contribution to the CPI on this circuit was due to SAIFI and the number of trouble cases. A storm on 7/14/2005 caused a few long outages on this line. Most of outages occurred on this line in the third quarter of 2005 were due to trees not-trimming related and equipment failure.
11/2/2005: Line inspection-equipment.	Completed	8/31/2005	A line inspection was performed in August 2005 on the entire feeder. 11 WR's were initiated as a result of this patrol. All work requests were completed in 2005. The work included de-energized unused tap, replace blown arrestors and bad transformer fuse cutouts.
Install fuse(s).	Completed	10/31/2006	The circuit was inspected and reviewed by the Engineer for additional fusing. No locations were identified by the review.
11/2/2005: Monitor future performance.	Ongoing		In progress work is expected to improve the circuit's performance. PPL will continue to monitor the circuit's performance in the future.

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**28 Circuit ID: 28602 BLYTHEBURN 86-02**

**Location: Wilkes-Barre**

**CPI: 380**

3/15/2006: Load balancing.	Completed	4/11/2006	Inconclusive. Monitor future performance.
3/20/2006: Line inspection-equipment. Vendor to perform thermography on 3 phase main line sections.	Completed	3/31/2006	Reduced outage risk.
4/12/2006: Install fault indicators on long single phase tap.	Completed	4/28/2006	Reduced outage duration.
5/1/2006: Perform line maintenance identified by line inspection.	Completed	5/8/2006	Reduced outage risk.
Expanded Operational Review. Reliability review complete 8/11/2006. Voltage profile complete 8/30/2006.	Completed	8/31/2006	Review of long single phase taps along Slocum Road and Lily Lake Road has been completed. Identified 15 new tap fuse locations. WR's 311432 and 312622 written to install new fuses. WR's to be scheduled - expected completion by end of September 2006. Additionally, hot spot tree trimming locations identified. Trimming underway 7/25/2006. Completed 8/25/2006.
7/27/2006: Tree trimming-selected line segments only (hot spots).	Completed	8/4/2006	Reduced outage risk.
7/27/2006: Install fuse(s). 7 tap fuses along Slocum Road.	Completed	9/22/2006	Reduced customer count affected by each outage.
7/27/2006: Install fuse(s). 8 tap fuses along Lily Lake Road.	Completed	9/22/2006	Reduced customer count affected by each outage.
1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	

**29 Circuit ID: 12402 MILFORD 24-02**

**Location: Bethlehem**

**CPI: 379**

Tree trimming.	Completed	11/1/2006	Reduced outage risk.
10/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/27/2006	This circuit experienced 3 major outages over the past year due to a pole hit, and trees falling on the line during a thunder and lightning storm and during tropical storm Ernesto.
1/1/2007: Expanded Operational Review.	EOR planned	3/31/2007	

**30 Circuit ID: 13502 MCMICHAELS 35-02**

**Location: Pocono**

**CPI: 372**

7/11/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2006	
Expanded Operational Review. Perform voltage profile.	Completed	12/31/2006	Reduced outage risk.

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**31 Circuit ID: 18501 CANADENSIS 85-01**

**Location: Pocono**

**CPI: 371**

Line inspection-vegetation. Forester will schedule a vegetation line inspection on the main three phase circuit and perform hotspot trimming as required.	Completed	6/30/2005	
4/10/2006: Circuit outage data analysis - WPC not on preceding qtr. list. Analysis is underway.	Completed	9/30/2006	
Expanded Operational Review. Perform Voltage Profile. Review circuit for possible LBAS installation. Voltage Profile to be completed by 8/15/2006.	Completed	12/31/2006	Switches to be installed near 68215N37434 and 67316N35931.
Installed LBAS at 68260N38085 and 68339N38829.	Completed	6/30/2006	Reduced outage duration.
Evaluate potential ties. Expected decision on plan of action by the 1st quarter of 2007.	In progress	3/1/2007	Reduced customer count affected by each outage. Two possible location have been identified to transfer approximately 3 MVA between the Mount Pocono 64-02 and Canadensis 85-01 lines. Further evaluation is underway.

**32 Circuit ID: 27101 GREENFIELD 71-01**

**Location: Scranton**

**CPI: 362**

Circuit outage data analysis.	Completed	6/15/2004	Major contributor to CPI was the number of cases (73%). The contributing outages (mostly trees outside of the right-of-way and animal contacts, 53%) did not fall into a discernable pattern.
Tree trimming. Tree trimming for this line began 6/21/04.	Completed	11/12/2004	Reduced outage risk.
Line inspection-equipment. Due to the high number of animal contacts (30% of the total CPI) and equipment failures (18% of total CPI) an equipment line inspection will be performed.	Completed	11/30/2004	Several problems were found. Repairs to be made under WR 186259.
Perform line maintenance identified by line inspection. Maintenance under WR 186259	Completed	5/13/2005	
Coordination study to look at an overtripping OCR outside the sub	Completed	9/15/2005	Results sent to field and setting kept in favor of fewer fuse operations.
11/22/2005: Circuit Breaker being studied by Field Engineer to see if it is functioning properly	Completed	6/30/2006	
12/15/2006: Install LBAS(s). Installed new normally closed LABS with fault indicators to assist with restoration efforts at pole 58659N54918 on Rt 106.	Completed	12/1/2006	Reduced outage duration. Installed new normally closed LABS with fault indicators to assist with restoration efforts at pole 58659N54918 on Rt 106.
1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	
Expanded Operational Review.	Scheduled for	6/30/2007	
Monitor future performance.	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**33 Circuit ID: 10901 COOPERSBURG 09-01**

**Location: Bethlehem**

**CPI: 360**

Replace Quarry 1 Air Break switch on the 69 kV transmission system at the Coopersburg substation	Completed	4/28/2006	Reduced outage risk. The old switch failed to open when load transfers on the 69 kV system were attempted. The new switch will be more reliable thus maintaining the ability to transfer loads to avoid or reduce outage time.
4/10/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	5/31/2006	This circuit experienced 3 major outages as a result of disturbances on the 69 kV system caused by a pole top fire, a pole hit, and loops burning open.
Perform Thermovision on 69 kV lines into the Coopersburg substation.	Completed	6/21/2006	No concerns were identified.
Monitor future performance.	Ongoing		

**34 Circuit ID: 13102 NORTHAMPTON 31-02**

**Location: Bethlehem**

**CPI: 359**

Load balancing.	Completed	10/31/2003	Reduced outage risk.
Circuit outage data analysis.	Completed	6/15/2004	Number of cases is 55% of the CPI with SAIFI a close second. Two OCR failures in 2003 were a major factor in the SAIFI.
An overloaded single phase OCR is being replaced with a larger OCR.	Completed	12/19/2004	
Install Electronic OCR.	Completed	4/30/2006	
4/10/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	5/31/2006	Trees and animals are the primary causes of outages on this circuit.
Thermographic inspection-OH line.	Completed	8/17/2006	Reduced outage risk.
Perform Thermovision on this circuit, analyze results, and make repairs.	Completed	9/30/2006	Reduced outage risk. No concerns were identified.
4/3/2006: Expanded Operational Review.	Completed	12/1/2006	
Improve sectionalizing capability. Install 2 new LBASs to improve performance of line with cold load pickup. Install fault indicators next to both LBASs.	Scheduled for	2/28/2007	Reduced outage duration.
Monitor future performance of line.	Ongoing		
Expanded Operational Review.	EOR planned	3/31/2007	

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**35 Circuit ID: 56802 BENVENUE 68-02**

**Location: West Shore**

**CPI: 354**

	Circuit outage data analysis.	Completed	6/25/2004	A March 2003 ice storm contributed to CPI.
	Circuit outage data analysis.	Completed	12/22/2004	Area hard hit by Hurricane Ivan in the 3rd quarter.
	12/22/2004: Transfer inaccessible portion of line to another source.	Completed	3/31/2005	
	12/22/2004: Line inspection-equipment.	Completed	5/27/2005	Inspection identified insulators, dead ends and pole-to-pole guy needing replacement.
	Circuit outage data analysis.	Completed	3/18/2005	The quarterly CPI has decreased 41% from the 3rd to the 4th quarter.
	5/27/2005: Perform line maintenance identified by line inspection. Replace identified insulators, dead ends and pole-to-pole guy. Nothing found.	Completed	9/30/2005	Reduced outage risk.
	Circuit outage data analysis.	Completed	5/27/2005	CPI continues to improve.
	Circuit outage data analysis.	Completed	8/31/2005	On 6/6 and 6/7/05 during high winds outages due to trees-not trimming related.
	Monitor future performance.	Completed	12/31/2005	No longer among 5% worst performing circuits.
	1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	
	1/1/2007: Expanded Operational Review.	EOR planned	6/30/2007	

**Rank Action**

**Status Due/Complete Result**

**36 Circuit ID: 22602 KIMBLES 26-02**

**Location: Pocono**

**CPI: 352**

Circuit outage data analysis.	Completed	6/23/2004	Major contributors to CPI were the number of cases and SAIFI. BLGR-WDAM 69kV tripped to lockout which significantly contributed to SAIFI, this event is not likely to recur.
Circuit outage data analysis.	Completed	8/25/2004	Identified a poor performing single phase tap.
Improve sectionalizing capability. Field engineer will review sectionalizing on poor performing single phase tap.	Completed	12/31/2004	Two additional OCR's added to improve SAIDI.
Fault indicators will be installed on an inaccessible part of the line to facilitate outage restoration.	Canceled	6/30/2005	Field engineer determined that fault recorders were unnecessary.
4/10/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	5/31/2006	Approximately 44% of the CPI contribution was due to trees outside the right of way. In addition, an underground failure at Bohemia substation on february 11, 2006 caused a 69 kV outage due to a stuck breaker. This resulted in a loss of the 69 kV source to the Kimbles Substation, resulting in over 154,000 customer minutes lost. Other outages in January and February were due to wind and other weather conditions.
8/17/2006: Tree trimming.	Completed	7/30/2006	
12/1/2006: Install fuse(s). Install 4 - 100k fuses one single and multi span taps off the main three phase line protected by the circuit breaker	In progress	3/31/2007	
5/31/2006: Install animal guard(s).	Ongoing		These animal guards are installed as needed, following an outage. This will prevent future animal contact related outages.
12/1/2006: Expanded Operational Review.	Completed		One phase swap to balance load on three phase. Two single phase capacitor installations required.
Monitor future performance.	Ongoing		

**37 Circuit ID: 15702 TANNERSVILLE 57-02**

**Location: Pocono**

**CPI: 351**

4/10/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	4/27/2006	Inconclusive. Monitor future performance. Scheduled to finalize action items third quarter 2006.
5/15/2006: Reconductor line. A section of #2 Cu conductor was identified to increase sectionalizing capability.	In progress	2/28/2007	Reduced outage duration. Scheduled to be completed 2/07
Monitor future performance.	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**38 Circuit ID: 28601 BLYTHEBURN 86-01**

**Location: Wilkes-Barre**

**CPI: 349**

10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/21/2005	March Snowstorm is the main contributor this circuit performance. Only one significant outage since.
12/8/2005: Line inspection-equipment.	Completed	1/31/2006	Reduced outage risk. Line Maintenance Inspection should proactively prevent equipment failures.
Line inspection-equipment.	Completed	5/16/2006	Reduced outage duration.
Line inspection-equipment.	Completed	5/17/2006	Perform line inspection of Wilkes-Barre section of line.
Expanded Operational Review. Voltage profile complete 6/13/2006. Reliability review complete 5/16/2006.	Completed	6/13/2006	Work requests generated to replace Bridges disconnects at sub getawat (WR 302158) and minor maintenance items (WR 303027). (Wilkes-Barre section of line.)
Install sectionalizers. Replace bridges disconnects at substation getaway with air load break disconnects.	Completed	10/13/2006	Reduced outage duration.
12/8/2005: Install sectionalizers. Hazelton office investigating fusing of long single phase taps.	Completed	6/15/2006	Should reduce customer count affected by each outage.
Perform line maintenance identified by line inspection.	Completed	10/27/2006	Reduced outage risk.
Thermographic inspection-OH line.	Completed	3/23/2006	Reduced outage risk. Thermovision inspection performed on 3/23/06.
1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**39 Circuit ID: 25801 SULLIVAN TRAIL 58-01**

**Location: Wilkes-Barre**

**CPI: 344**

Install fuse(s).	Completed	7/14/2003	Reduced customer count affected by each outage.
Installed 10 tap fuses under SAIFI initiative.	Completed	11/30/2003	Reduced customer count affected by each outage.
Reconductored and relocated inaccessible section of line.	Completed	12/31/2003	Reduced outage risk.
Circuit outage data analysis.	Completed	6/30/2004	Main contributor to CPI was cases of trouble, primarily due to trees and animals.
Review the process for animal guard installations to ensure that animal guards are installed for animal related OH transformer outages and new OH transformers.	Completed	6/30/2004	Field personnel verified that animal guards are installed on new transformers, as well as after animal-related transformer outages
7/13/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2005	
9/15/2005: Relocate inaccessible line.	Completed	12/31/2005	Reduced outage duration. Should lower outage risk from flooding and improve restoration ability and time.
12/8/2005: OCR being moved to a safer location.	Completed	12/31/2005	Should make it easier for crews to operate the OCR and find it during storm restoration.
3/20/2006: Line inspection-equipment. Vendor to perform thermography of 3 phase main line sections.	Completed	3/31/2006	Reduced outage risk.
Install 3 phase OCR(s).	Completed	6/14/2006	Reduced customer count affected by each outage.
5/1/2006: Perform line maintenance identified by line inspection.	Completed	7/7/2006	Reduced outage risk.
Expanded Operational Review. Voltage profile complete 9/5/2006. Reliability review complete 9/7/2006.	Completed	9/6/2006	All other work - relocation of inaccessible portion of line, installation of new OCR and repair of hot spots identified by thermography have been complete. No additional work at this time.
1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	

**40 Circuit ID: 12102 SO ALLENTOWN 21-02**

**Location: Lehigh**

**CPI: 344**

Relocate inaccessible line.	Scheduled for	9/28/2007	Reduced outage risk.
Install Fault Indicators.	Completed	3/30/2006	Reduced outage duration.
Thermographic inspection-OH line.	Completed	8/17/2006	Reduced outage risk.
10/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/27/2006	This circuit experienced storms in June and July 2006 where tree limbs fell on the line resulting in long outages.
Expanded Operational Review. Reliability Review completed 9/6/06. Operational Review completed 12/6/06.	Completed	12/6/2006	
Install 3 phase OCR(s).	In progress	1/31/2007	Reduced customer count affected by each outage.
Improve sectionalizing capability.	In progress	2/28/2007	Reduced outage duration.

**Rank Action**

**Status Due/Complete Result**

**41 Circuit ID: 16802 WAGNERS 68-02**

**Location: Pocono**

**CPI: 342**

Expanded Operational Review. Install and move 2 ocr's at Blakeslee Corners.	Completed	12/31/2006	Reduced customer count affected by each outage. Sent WR to tech.
Circuit outage data analysis.	Completed	6/23/2004	Major contributor to CPI was the number of cases. There was no conclusive pattern to the outages.
Tree trimming. Spot trimming.	Completed	12/31/2004	Reduced outage risk. Will continue to monitor this circuit to determine if trimming was successful.
1/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	2/28/2006	The majority of the outages were due to non-trimming related vegetation issues. There were also some outages due to vehicle contact and equipment failure. Increasing sectionalizing on the line should mitigate the effect of potential outages
2/16/2006: Install LBAS(s).	Completed	12/1/2006	Install new LBAS will increase sectionalizing resulting in fewer customer minutes lost in the event of an outage. Two LBAS will be installed as part of the sectionalizing improvement study.
Expanded Operational Review. Perform Voltage Profile. Review circuit for possible LBAS installations.	Completed	6/29/2006	Line profile showed a need to balance phases and a possible low voltage. May need to install some capacitance. Transferred 3 single phase taps to balance load. Installed LBASs at 60344N35216 and 59801N34713.
Transferred 3 single phase taps to balance load.	Completed	6/29/2006	Reduced outage risk.
Installed LBASs at 60344N35216 and 59801N34713.	Completed	6/29/2006	Reduced outage duration.
Tree trimming-selected line segments only (hot spots).	Completed	12/31/2006	Reduced outage risk. Hot spotting completed. Tree trimming completed
Improve sectionalizing capability. Two switches will be installed by the third quarter of 2006.	Completed	6/29/2006	Reduced outage duration.
Evaluate potential ties.	Completed	12/31/2006	Reduced customer count affected by each outage. Potential ties identified. Reviewing least cost alternatives for solution.
Expanded Operational Review. Summer Thermography	Completed	7/26/2006	Reduced outage risk.
Expanded Operational Review. 400 kVAR identified for four locations	EOR planned	6/30/2007	

**42 Circuit ID: 26701 HEMLOCK FARMS 67-01**

**Location: Pocono**

**CPI: 342**

1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	
1/1/2007: Expanded Operational Review.	Scheduled for	6/30/2007	

**Rank Action**

**Status Due/Complete Result**

**43 Circuit ID: 41002 LAURELTON 10-02**

**Location: Sunbury**

**CPI: 341**

8/7/2006: Circuit outage data analysis.	Completed	11/17/2006	The team reviewed all outages on the circuit. Many cases of troubles were due to animals on the secondary side. Also, trees-not trimming related caused few long duration outages on this circuit.
8/7/2006: Tree trimming.	Completed	12/31/2003	The Laurelton 10-02 is 73 miles long, and it is all rural. It was last trimmed in 2003. The line is scheduled to be trimmed again in 2009. The Forester crew has been doing hot spotting on this line where needed. The crew will continue to check the circuit for more hot spot trimmings.
8/7/2006: Line inspection-equipment.	Completed	9/30/2006	A line inspection was performed in the second quarter of 2006. Different items were identified by the inspection including replacing TFC's, insulators, crossarms, and guys. 12 work requests were initiated and completed by the end of the third quarter of 2006. The work totals \$55,000.
9/26/2006: Install fuse(s).	Completed	11/1/2006	Reduced customer count affected by each outage. During the passing of tropical storm Ernesto, the breaker tripped due to a transformer blown on a two phase tap. The line was reviewed for proper fusing. 2 fuses were desinged and installed on the line by the end of October 2006.
9/26/2006: Install animal guard(s).	Completed	11/15/2006	Reduced outage risk. Based on the multi-outage report of repeated outages on a specific transformer, the report is being evaluated. With the help of the foreman, all outages prone device on this list will be double checked for animal guards.
Thermographic inspection-OH line.	Completed	10/6/2006	Reduced outage risk. Thermography was done on all 3 and 2 phase sections of this line on October 5th and 6th. No hotspots were found by the line thermovision.
Expanded Operational Review.	Completed	12/13/2006	Reduced outage risk.
8/1/2006: Monitor future performance.	Ongoing		

**44 Circuit ID: 26702 HEMLOCK FARMS 67-02**

**Location: Pocono**

**CPI: 341**

10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2005	A vehicle contact contributed significantly to customer minutes lost. This is not expected to occur again.
2/21/2006: Install new line and terminal. A new line and terminal will be installed and a portion of the line will be rebuilt	Completed	11/30/2006	The new line and terminal will sectionalize the line and increase transfer capability, resulting in a reduction of CAIDI.
11/22/2005: Monitor future performance.	Ongoing		
1/1/2007: Expanded Operational Review.	Scheduled for	6/30/2007	

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**45 Circuit ID: 17001 RIDGE ROAD 70-01**

**Location: Bethlehem**

**CPI: 338**

Expanded Operational Review.	Completed	9/21/2006	Voltage profile for light and peak load conditions completed 5-25-2006. Settings on one capacitor need to be changed. New single phase capacitor was installed. Voltage regulator will be installed. Tree trimming was identified along Rt 563.
10/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/27/2006	A wind storm in mid-January 2006 resulted in outages due to tree limbs on the line and a broken pole.
Tree trimming-selected line segments only (hot spots).	Scheduled for	1/31/2007	Reduced outage risk.
Inspect and replace off-set brackets.	Scheduled for	12/31/2007	Reduced outage risk.

**46 Circuit ID: 20403 ASHFIELD 04-03**

**Location: Central**

**CPI: 338**

Section of line being transferred to adjacent line.	Completed	1/31/2006	Reduced customer count affected by each outage.
Load balancing. Transferred 1,241 customers from Ashfield 04-3 line to 04-2 line in order to more equitably balance load between feeders.	Completed	2/9/2006	Reduced outage risk. WR 244373 (Bowmanstown Tap Transfer) and WR 260692 (C-Tag Pole Replacement).
1/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	2/28/2006	Single phase loop burned open, and line had to be dropped to repair.
Improve voltage level.	Completed	6/22/2006	Reduced outage risk. WR 294596 Install 3 Single Phase Voltage Regulators.
Install 1 phase OCR(s).	Completed	7/7/2006	Reduced customer count affected by each outage. Kepner Road single phase OCR installed on WR 229908.
7/5/2006: Reconductor line.	Completed	7/7/2006	Reduced outage risk. WR 229908 Reconductor 1.4 miles of line - convert Kepner Tap from single phase to three phase.
7/5/2006: Expanded Operational Review. Voltage profile completed 8/18/06. Reliability review completed 8/31/06. Field WR review completed 6/14/06.	Completed	8/31/2006	Installed 3 single phase voltage regulators, reconducted 1.4 miles of line, installed 1 new single phase OCR and upgraded 4 existing OCRs to accommodate load growth. Also submitted budget item request to reconductor approximately 3 miles of three phase line -- budget item was subsequently denied in deference to installing the 3 single phase voltage regulators.
Tree trimming.	Completed	3/31/2006	Reduced outage risk.
Upgrade OCRs	Completed	6/14/2006	Reduced outage risk. WR 270419 upgraded 2 single phase OCRs and changed the settings on 2 three phase OCRs in order to accommodate load growth downstream of the Dorset Tap.
Monitor future performance.	Ongoing		
Reconductor line. Reconductor approximately 3 miles of three phase line.	Completed	5/4/2006	Installed 3 single phase voltage regulators instead.

**Rank Action**

**Status Due/Complete Result**

**47 Circuit ID: 52401 GREEN PARK 24-01**

**Location: West Shore**

**CPI: 337**

1/1/2006: Expanded Operational Review. Reliability Review Completed 6/9/2006. Field Review complete 7/12/2006. Voltage profile completed 11/1/2006	Completed	11/1/2006	WR 315213 INITIATED TO INSTALL ONE TAP FUSE. (completed)
Circuit outage data analysis.	Completed	8/18/2004	A conductor loop burned opened during switching.
Circuit outage data analysis.	Completed	12/22/2004	Area hit by Hurricane Ivan in the 3rd quarter. Circuit is expected to drop off the list of 5% WPCs. Circuit trimmed in 2003.
Circuit outage data analysis.	Completed	3/18/2005	The quarterly CPI has decreased 80% from the 3rd to the 4th quarter.
7/13/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2005	On two occasions the CB operated during load transfer to Newport and loops burned open at different locations. This is not expected to reoccur. On 6/15/05 a vehicle broke a pole and an OCR near the substation operated.
Circuit outage data analysis.	Completed	10/31/2005	Outage on 7/7/05 due to tree - not trim related interrupted 1435 customers.
2/14/2006: Circuit outage data analysis.	Completed	2/14/2006	Inconclusive. Monitor future performance. ckt performance was excellent for 4th qtr 2005 (CPI= 27). CPI = 68 for 4th qtr 2005, continuing good performance.
2/14/2006: Monitor future performance.	Ongoing		
5/17/2006: Circuit outage data analysis.	Completed	5/17/2006	Circuit performance for 1st qtr 2006 was good, CPI=68. CPI primarily due to two isolated wind storms, Feb 17 and Jan 14. This circuit expected to drop off the 5%WPC list due to continuing good performance and recovery from poor 2nd qtr 2005
8/7/2006: Install fuse(s). INSTALL TAP FUSE. WR 315213	Completed	12/31/2006	Reduced customer count affected by each outage. INSTALL TAP FUSE AS IDENTIFIED IN OPERATIONAL REVIEW.
1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	

**48 Circuit ID: 16405 MOUNT POCONO 64-05**

**Location: Pocono**

**CPI: 337**

Circuit outage data analysis.	Completed	6/23/2004	Major contributor to CPI was SAIFI. A failure of the line CB was a major factor for SAIFI and the CB problems have been repaired. The line was hotspotted in early 2004. No further action required.
10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/22/2005	A vehicle hit was the cause of three different device operations. It also caused significant customer outages. This is not expected to occur again.
4/10/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	12/31/2006	Inconclusive. Monitor future performance.
1/1/2007: Expanded Operational Review.	EOR planned	6/30/2007	
Line inspection-equipment.	Completed	9/30/2006	Inconclusive. Monitor future performance. Inspection Completed - No specific reliability issues discovered
11/22/2005: Monitor future performance.	Ongoing		
1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	

**Rank Action**

**Status Due/Complete Result**

**49 Circuit ID: 25501 MADISONVILLE 55-01**

**Location: Pocono**

**CPI: 334**

5/31/2005: Install animal guard(s). Animal guards were installed on a single phase tap. Additional animal guards are installed as necessary.	Ongoing		Installation of animal guards will prevent repeated outages on sections of line
Circuit outage data analysis.	Completed	6/23/2004	Major contributor to CPI was the number of cases and SAIFI. Many tree related outages both non-trimming and trimming related, equipment failures, and animal contacts.
Tree trimming.	Completed	12/30/2004	Reduced outage risk.
4/10/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	5/31/2006	Approximately 29% percent of the CPI was due to equipment failure. Equipment failure related outages affected larger numbers of customers were due to bad weather conditions. Approximately 23% of outages were due to animal contact. Animal guards were installed on a single phase tap and additional animal guards are installed as necessary on the line.
10/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2006	There have been 2 3-phase outages in the past 12 months, one due to a vehicle contact issue and one due to a non-trimming related vegetation issue. Barring these, the problem on this circuit have been single phase incidents. The majority of outages have been due to trees outside the right of way. In addition, equipment failure, animal contact and vehicle contact all contributed to the CPI. The circuit was trimmed in 2004. This circuit will be monitored continuously for any changes in performance.
Monitor future performance	Ongoing		

**50 Circuit ID: 47707 BLOOMSBURG 77-07**

**Location: Sunbury**

**CPI: 332**

4/10/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	5/25/2006	Major contribution to the CPI was mainly due to the storm on 1/14/2006 and 7/13/2005. Trees non trimming related caused the majority of outages on this circuit.
Tree trimming.	Completed	12/31/2005	The circuit is approximately 100 miles long. The 10 miles urban were trimmed in 2003, and the 90 miles rural were trimmed in 2005.
Line inspection-equipment.	Completed	3/31/2006	Line inspection was completed in March 2006. 16 work requests were initiated for maintenance totaling \$33,100. 10 work requests were already completed, and the rest are scheduled to be completed by the end of third quarter 2006. Items found include blown LA's, bad arms, broken tie wires, melted dead-ends, broken guy wires, and cement switches.
Improve sectionalizing capability.	Completed	4/30/2006	The circuit was reviewed for additional sectionalizing devices. No locations were identified by the review.
Monitor future performance.	Ongoing		PPL will continue to monitor the circuit performance.
1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>51</b>	<b>Circuit ID: 45702 LINDEN 57-02</b>			<b>Location: Susquehanna</b>
				<b>CPI: 330</b>
	10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/2/2005	The Linden 57-02 line was reported as having a high CPI during the third quarter of 2005, which was mainly contributed by too many cases of troubles. SAIFI contributed 41% to the total CPI. Most outages on this circuit occurred on the secondary side. There are no major tree outages on this circuit.
	11/2/2005: Tree trimming.	Completed	12/31/2006	No major tree outages were found on this circuit. The circuit is approximately 91 miles long. The urban section (3 miles) was trimmed in 2002, and the rural section (88 miles) was last trimmed in 2000. The rural section was entirely trimmed in 2006, and the urban section is scheduled to be trimmed next in 2007.
	11/2/2005: Line inspection-equipment.	Completed	3/31/2006	Line inspection of 25-30 miles south of Susquehanna River is planned to be completed by the end of Q1, 2006. A set of disconnects are planned to be installed on a 3ph line section to speed restoration times. This job is scheduled to be completed by the end of Q2, 2006.
	11/2/2005: Improve sectionalizing capability.	Completed	11/2/2005	The Susquehanna region have reviewed the line to determine if additional sectionalizing can be added. No locations were identified for new sectionalizing.
	12/13/2005: Monitor future performance.	Ongoing		The WPC team will continue to monitor the circuit's performance for improvement.
	Circuit outage data analysis.	Completed	11/17/2006	The WPC team reviewed all outages on this circuit. No major outages occurred in the fourth quarter of 2006. The majority of outages on this circuit were mainly due to storms.
	Relocate inaccessible line. Relocate inaccessible section of line near Wurster Rd.	Scheduled for	3/31/2007	Reduced outage risk. A reliability preservation project has been identified on this circuit. The scope of the project is to remove inaccessible section and transfer customers to Larry's Creek 66-02 12.47 kV circuit.
	12/12/2006: Install fuse(s). Install 22 fuses	Scheduled for	3/30/2007	Reduced outage risk. All new identified fuses will be installed by the end of Q1, 2007.
	Line inspection-equipment. Line to be patrolled to find equipment problems.	Scheduled for	3/31/2007	Reduced outage risk. The line maintenance inspection is scheduled on this line to be completed by 3/31/2007.
	Relocate inaccessible line. Relocate section of line along Mahaffey Hollow Rd	Scheduled for	3/31/2007	Reduced outage risk. A reliability preservation project is planned on this circuit to be completed by 3/31/2007. The scope of work is to relocate inaccessible section of the line. The work is expected to reduce the restoration time and improve the reliability.
	Monitor future performance.	Ongoing		
	1/1/2007: Expanded Operational Review.	EOR planned	3/31/2007	

**Rank Action**

**Status Due/Complete Result**

**52 Circuit ID: 17902 BARTONSVILLE 79-02**

**Location: Pocono**

**CPI: 326**

Expanded Operational Review. Voltage profile.	Completed	3/17/2006	Voltage Profile completed 3/17/2006: There is a need to move amps from the C phase to the A and B phase. However, there are no C phase taps small enough to be rephrased to solve the problem. When new taps are made, they should be put on the C phase to help balance the amps per phase.
Expanded Operational Review. Perform Voltage Profile. Review circuit for possible LBAS installation.	Completed	7/26/2006	No additional LBAS's are needed.
Thermographic inspection-OH line.	Completed	7/26/2006	Inconclusive. Monitor future performance.

**53 Circuit ID: 12002 HATFIELD 20-02**

**Location: Bethlehem**

**CPI: 326**

7/11/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2006	This circuit experienced several lightning storms in June that caused 3 circuit breaker trips and subsequent large customer outages.
Tree trimming.	Completed	12/9/2006	Reduced outage risk.
1/1/2007: Expanded Operational Review.	EOR planned	3/31/2007	
Monitor future performance.	Ongoing		

**54 Circuit ID: 14403 SO SLATINGTON 44-03**

**Location: Lehigh**

**CPI: 326**

Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2004	
OCR Review	Completed	12/23/2004	An undersized OCR has been replaced with one more capable of handling load issues. This should drive down outage duration for the effected customers.
Load balancing.	Completed	6/15/2005	Reduced outage risk.
Several OCRs on circuit are being upgraded due to load and additional sectionalizing also in progress.	Completed	6/28/2005	Reduced customer count affected by each outage.
7/11/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2006	A wind storm in mid-January and a pole top fire in late June are the most significant contributors to outage minutes for this circuit.
Tree trimming.	Completed	11/30/2006	Reduced outage risk. Trimming of the entire circuit began on 5/30/06.
Install Fault Indicators.	Scheduled for	3/31/2007	Reduced outage duration.
Expanded Operational Review.	Scheduled for	3/31/2007	

**Rank Action**

**Status Due/Complete Result**

**55 Circuit ID: 46802 HEPBURN 68-02**

**Location: Susquehanna**

**CPI: 324**

Relocate inaccessible line.	Scheduled for	3/31/2007	Reduced outage risk. Remove inaccessible section that can be bypassed using open points. (Sunny Meadows Tap).
Expanded Operational Review.	Completed	6/9/2006	Install new 1ph OCR and remove one sections of inaccessible line
Install 1 phase OCR(s). Install sectionalizing OCR on Hep-Salladasburg Tap.	Completed	7/20/2006	Reduced customer count affected by each outage.
Thermographic inspection-OH line. IR scan on 2 and 3ph sections	Completed	10/13/2006	Reduced outage risk. One hot spot found - will be remedied in Q4 '06.
1/9/2007: Circuit outage data analysis - WPC not on preceding qtr. list.	Scheduled for	2/28/2007	
Install fuse(s). Install 3 fuses on Bobst Mtn Tap	Scheduled for	2/9/2007	Reduced outage risk.
Relocate inaccessible line. Relocate inaccessible portion of line along Rt 973.			

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

The following table shows a breakdown of service interruption causes for the 12 months ended at the current quarter. The top three causes (Animals, Equipment Failure and Trees – Not Trimming Related), based on the percent of cases, are highlighted in the table. Service interruption definitions are provided in Appendix B. PPL Electric’s maintenance programs focus on corrective actions to address controllable interruptions (e.g., trees and equipment failure).

Cause Description	Trouble Cases <sup>7</sup>	Percent of Trouble Cases	Customer Interruptions <sup>8</sup>	Percent of Customer Interruptions	Customer Minutes	Percent of Customer Minutes
Improper Design	4	0.02%	5	0.00%	550	0.0%
Improper Installation	1	0.00%	3	0.00%	210	0.0%
Improper Operation	2	0.01%	1,941	0.11%	31,956	0.0%
Trees - Inadequate Trimming	1,695	6.85%	129,410	7.52%	26,806,960	9.4%
Trees - Not Trimming Related	4,995	20.19%	507,601	29.49%	132,299,599	46.6%
Animals	6,427	25.97%	95,479	5.55%	8,615,716	3.0%
Vehicles	800	3.23%	158,368	9.20%	17,487,055	6.2%
Contact/Dig-in	201	0.81%	32,941	1.91%	2,529,871	0.9%
Equipment Failure	5,809	23.47%	474,976	27.59%	60,124,112	21.2%
Forced Prearranged	683	2.76%	45,395	2.64%	4,358,962	1.5%
Other - Controllable	289	1.17%	17,567	1.02%	1,930,681	0.7%
Nothing Found	2,413	9.75%	136,161	7.91%	14,404,051	5.1%
Other - Public	89	0.36%	27,581	1.60%	3,260,509	1.1%
Other - Non-Controllable	1,338	5.41%	93,843	5.45%	12,108,536	4.3%
<b>Total</b>	<b>24,746</b>	<b>100.00%</b>	<b>1,721,271</b>	<b>100.00%</b>	<b>283,958,768</b>	<b>100.0%</b>

<sup>7</sup> Trouble cases are the number of sustained customer service interruptions (i.e., service outages).

<sup>8</sup> 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 peak in both reportable and non-reportable storms during this reporting period.

**Trees – Inadequate Trimming:** In 2004, PPL Electric adopted an improved tree-trimming specification and shortened maintenance trimming cycles to reverse a gradual increase in service interruptions attributed to inadequate trimming. The shortened cycle times took effect on January 1, 2005. PPL Electric implemented the revised specification in the first quarter of 2005. PPL Electric is monitoring the effectiveness of these changes.

**Trees – Not Trimming Related:** Although their effect on reliability is significant, tree outages not related to trimming are caused by trees falling from outside of PPL Electric's rights-of-way, and generally are not controllable.

**Animals:** Animals account for about 26% 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 92% of the number of cases of trouble is associated with individual distribution transformers. However, when animal contacts affect substation equipment, the effect is widespread and potentially can interrupt thousands of customers on multiple circuits. PPL Electric installs squirrel guards on new installations and in any existing location that has been affected by multiple animal-related interruptions.

**Vehicles:** Although vehicles cause a small percentage of the number of cases of trouble, they account 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 39% of the cases of trouble, 42% of the customer interruptions and 51% of the customer minutes attributed to equipment failure are weather-related and, as such, are not considered to be indicators of equipment condition or performance.

**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.

- (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.)*

This information will be provided in the Annual Report.

- (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.)*

This information will be provided in the Annual Report.

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

This information will be provided in the Annual Report.

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

The following table shows the dedicated staffing levels as of the end of the quarter. Job descriptions<sup>9</sup> are provided in Appendix C.

<b>Transmission and Distribution (T&amp;D)</b>	
Lineman Leader	82
Journeyman Lineman	178
Journeyman Lineman-Trainee	60
Helper	82
Groundhand	3
Troubleman	57
<b>T&amp;D Total</b>	<b>462</b>
<b>Electrical</b>	
Elect Leaders-UG	9
Elect Leaders-Net	7
Elect Leaders-Sub	27
Journeyman Elect-UG	26
Journeyman Elect-Net	11
Journeyman Elect-Sub	66
Journeyman Elect Trainee-UG	23
Journeyman Elect Trainee-Net	12
Journeyman Elect Trainee	14
Helper	42
<b>Electrical Total</b>	<b>237</b>
<b>Overall Total</b>	<b>699</b>

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<sup>9</sup> Some job titles and position descriptions were changed as a result of the new labor agreement ratified in 2006.

***PPL Electric Utilities Corporation  
Worst Performing Circuit Definition***

PPL Electric uses a Circuit Performance Index (CPI) to define the worst performing circuits on its system. The CPI covers about 1,100 feeders across the PPL Electric service area.

The CPI is derived using the following statistics and weighting factors:

- Cases of Trouble<sup>10</sup> - 33%
- CAIDI - 30%
- SAIFI - 37%

Major Events, momentary interruptions, and planned prearranged jobs are excluded.

The CPI values are obtained by multiplying the individual feeder statistics by coefficients based on the 5-year period, 1996-2000. Average values over this period were:

- Cases of Trouble - 16.6 per feeder per year
- CAIDI - 140 minutes
- SAIFI - 0.834 per customer per year

A hypothetical feeder with Cases of Trouble, CAIDI, and SAIFI values equal to the 5-year averages would have a CPI value of 100. Any variations in the values of Cases of Trouble, CAIDI, or SAIFI would affect the CPI values in accordance with the weighting factors.

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<sup>10</sup> Cases of trouble are the number of sustained customer service interruptions.

## Appendix B

### *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 three general classifications: Controllable, Non-Controllable and Public. The definitions of the cause codes are:

10 – Improper Design	Controllable	<ul style="list-style-type: none"><li>• 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)</li></ul>
11 – Improper Installation	Controllable	<ul style="list-style-type: none"><li>• 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)</li></ul>
12 – Improper Operation	Controllable	<ul style="list-style-type: none"><li>• 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)</li></ul>
30 – Trees – Inadequate Trimming	Controllable	<ul style="list-style-type: none"><li>• Outages resulting from the lack of adequate tree trimming (within the Right of Way).</li></ul>
35 – Trees – Not Trim Related	Non-Controllable	<ul style="list-style-type: none"><li>• Outages due to trees, but not related to lack of or proper maintenance tree trimming. This includes trees falling into PPL Electric facilities from outside the right-of-way, danger timber blown into facilities, and trees or limbs cut or felled into facilities by a non-employee.</li></ul>
40 – Animals	Controllable	<ul style="list-style-type: none"><li>• Any outage caused by an animal directly or indirectly coming in contact with PPL Electric facilities. This includes birds, squirrels, raccoons, snakes, cows, etc.</li></ul>
41 – Vehicles	Public	<ul style="list-style-type: none"><li>• When cars, trucks or other types of vehicles or their cargoes strike facilities causing an interruption.</li></ul>
51 – Contact/Dig-in	Public	<ul style="list-style-type: none"><li>• 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.).</li><li>• When contact is made by a non-employee with an underground facility causing interruption.</li></ul>

## Appendix B

60 – Equipment Failure	Controllable	<ul style="list-style-type: none"> <li>• Outages resulting from equipment failures caused by corrosion or contamination from build-up of materials, such as cement dust or other pollutants.</li> <li>• Outages resulting from a component wearing out due to age or exposure, including fuse tearing or breaking.</li> <li>• Outages resulting from a component or substance comprising a piece of equipment failing to perform its intended function.</li> <li>• Outages resulting from a failure that appears to be the result of a manufacturer's defect or cannot be described by any other code indicating the specific type of failure.</li> </ul>
80 – Scheduled Prearranged <sup>11</sup>	Controllable	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Includes requests from customers for interruption of PPL Electric facilities.</li> </ul>
85 – Forced Prearranged	Non-Controllable	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>

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<sup>11</sup> 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 immediately, but are reported as scheduled prearranged when the interruption is postponed.

## Appendix B

90 – Other – Controllable (Lineman provides explanation)	Controllable	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Interruptions resulting from excessive load that cause that facility to fail.</li> <li>• 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.</li> </ul>
96 – Nothing Found	Non-Controllable	<ul style="list-style-type: none"> <li>• When no cause for the interruption can be found.</li> <li>• 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 T&amp;L when a line fuse blows or a single phase OCR locks open.</li> <li>• When closed for test, the fuse holds or the OCR remains closed. A patrol of the tap reveals nothing.</li> </ul>
98 – Other Public (Lineman provides explanation)	Public	<ul style="list-style-type: none"> <li>• All outages resulting from gunfire, civil disorder, objects thrown, or any other act intentionally committed for the purpose of disrupting service or damaging company facilities.</li> </ul>
99 – Other – Non-Controllable (Lineman provides explanation)	Non-Controllable	<ul style="list-style-type: none"> <li>• 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.</li> <li>• When an interruption is caused by objects other than trees, such as kites, balls, model airplanes, roofing material, and fences, being accidentally blown or thrown into overhead facilities.</li> <li>• All interruptions caused by contact of energized equipment with facilities of other attached companies or by trouble on customer owned equipment.</li> </ul>

Appendix C

***PPL Electric Utilities Corporation  
Job Descriptions***

***Transmission and Distribution***

Groundhand	<ul style="list-style-type: none"><li>• Performs manual labor and assists employees in higher job classifications.</li></ul>
Helper	<ul style="list-style-type: none"><li>• Performs semi-skilled labor at any work location on de-energized overhead and underground transmission, and distribution facilities to prepare the employee for entrance into the Journeyman Lineman Apprenticeship Program.</li></ul>
Journeyman Lineman	<ul style="list-style-type: none"><li>• Works by himself or as part of a crew on the maintenance, operation, and construction activities of the transmission and distribution systems associated with, but not limited to, PPL Electric facilities.</li></ul>
Journeyman Lineman-Trainee	<ul style="list-style-type: none"><li>• Works by himself or as part of a crew on the maintenance, operation, and construction activities of the transmission and distribution systems associated with, but not limited to, PPL Electric facilities.</li></ul>
Lineman Leader	<ul style="list-style-type: none"><li>• Responsible for completing assigned work by directing one or multiple groups of employees involved in the maintenance, operation, and construction activities of the transmission and distribution systems associated with, but not limited to, PPL Electric facilities.</li><li>• Engage in and perform work along with providing the necessary leadership, all-around knowledge, initiative, judgment, and experience to produce a quality job.</li><li>• Performs all the direct duties of the Journeyman Lineman when not acting as a Lineman Leader.</li></ul>
Troubleman	<ul style="list-style-type: none"><li>• Investigates and resolves trouble calls, voltage abnormalities on transmission and distribution systems associated with, but not limited to, PPL Electric facilities.</li></ul>

## Appendix C

### *Electrical*

Electrician Leader - Substation - Network - Underground	<ul style="list-style-type: none"><li>• Responsible for completing assigned work by directing one or multiple groups of employees involved in the construction and maintenance activities of the transmission and distribution systems associated with, but not limited to, PPL Electric facilities.</li><li>• Engage in and perform work along with providing the necessary leadership, all-around knowledge, initiative, judgment, and experience to produce a quality job.</li><li>• Performs all direct duties of the Journeyman Electrician when not acting as a leader.</li></ul>
Helper - Substation - Network - Underground	<ul style="list-style-type: none"><li>• Performs manual labor at any work location including those areas containing non-exposed energized electrical equipment, and to prepare the employee for entrance into the Apprenticeship Program.</li></ul>
Laborer - Substation - Network - Underground	<ul style="list-style-type: none"><li>• Performs manual labor and assists employees in higher job classifications.</li></ul>
Journeyman Electrician - Substation - Network - Underground	<ul style="list-style-type: none"><li>• Normally under limited supervision performs and is responsible for work associated with, but not limited to, PPL Electric facilities involving the highest degree of skill in construction and maintenance work associated with substations, LTN or underground distribution and transmission.</li><li>• Uses microprocessor based equipment for troubleshooting and revising relay logic and its control systems related to the Field Services electrical discipline.</li></ul>
Journeyman Electrician - Trainee - Substation - Network - Underground	<ul style="list-style-type: none"><li>• Normally under limited supervision performs and is responsible for work associated with, but not limited to, PPL Electric facilities involving the highest degree of skill in construction and maintenance work associated with substations, LTN or underground distribution and transmission.</li><li>• Uses microprocessor based equipment for troubleshooting and revising relay logic and its control systems related to the Field Services electrical discipline.</li></ul>



Robert R. Stoyko  
Vice President - Electric Distribution

UGI Utilities, Inc.  
Hanover Industrial Estates  
400 Stewart Road  
Wilkes Barre, PA 18706-1495  
  
(570) 830-1222 Telephone  
(570) 830-1190 Fax  
rstoyko@ugi.com

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

February 1, 2007

Mr. James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

SENT VIA FEDERAL EXPRESS

RE: **Quarterly Electric System Reliability Report  
12 Months Ending December 31, 2006**

L-00030161

Dear Secretary McNulty:

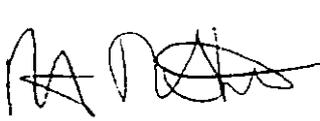
Pursuant to the Commission's Final Rulemaking Order addressing Electric Service Reliability Regulations (52 Pa. Code §§57.191 - 57.197) at Docket Nos. L-00030161 and M-00991220, UGI Utilities, Inc. - Electric Division ("UGI") hereby files an original and six copies of its Quarterly System Reliability Report. This report contains SAIDI, SAIFI, and CAIDI results on a 12-month rolling basis for the period ending December 31, 2006 along with the raw data from the same period. Also included is a breakdown of outages by cause for the 12 months ending December 31, 2006. The actual statistics continue to be favorable to both the benchmark and standard adopted for UGI.

The Office of Consumer Advocate, the Office of Small Business Advocate, the Bureau of Audits, and the Bureau of Conservation, Economics and Energy Planning have each been served with copies of this filing.

Questions related to the attached report should be directed to Ms. Abigail J. Hemmerich at (610) 796-3431 or email [ahemmerich@ugi.com](mailto:ahemmerich@ugi.com).

Kindly acknowledge receipt of this filing by date stamping the enclosed copy of this letter and returning it in the enclosed stamped, self-addressed envelope.

Sincerely,

  
DOCUMENT  
FOLDER

ORIGINAL

Robert R. Stoyko  
Vice President - Electric Distribution  
Attachment

cc: **FEDERAL EXPRESS**

Irwin A. Popowsky  
Office of Consumer Advocate  
555 Walnut St.  
5<sup>th</sup> Floor, Forum Place  
Harrisburg, PA 17101-1921

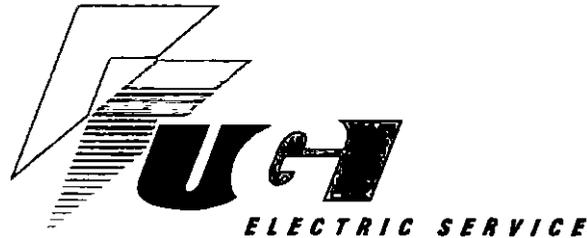
William R. Lloyd  
Office of Small Business Advocate  
Suite 1102, Commerce Bldg.  
300 North Second St.  
Harrisburg, PA 17101

Thomas E. Sheets  
Bureau of Audits  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Bldg.  
3<sup>rd</sup> Floor, F East  
Harrisburg, PA 17101

Darren Gill  
Supervisor of Electric Reliability  
Bureau of Conservation, Economics and Energy Planning  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

**ELECTRONIC MAIL**

Darren Gill  
Supervisor of Electric Reliability  
Bureau of Conservation, Economics and Energy Planning  
dgill@state.pa.us



UGI Utilities, Inc. – Electric Division  
System Reliability Report:  
Quarterly Update

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

February 1, 2007

**UGI Utilities, Inc. – Electric Division  
System Reliability Report**

**§ 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 preceding quarter.

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

The 12 month rolling reliability results for UGI’s service area are as follows:

	<b>SAIFI</b>	<b>SAIDI</b>	<b>CAIDI</b>
<b>12-Month Standard</b>	<b>1.12</b>	<b>256</b>	<b>228</b>
<b>12-Month Benchmark</b>	<b>0.83</b>	<b>140</b>	<b>169</b>
12 months Ended December, 2006	0.79	88	112

Note:

SAIFI – System Average Interruption Frequency Index  
SAIDI – System Average Interruption Duration Index  
CAIDI – Customer Average Interruption Duration Index

**Raw Data: January 2006 - December 2006**

<b>Month</b>	<b>SI</b>	<b>TCI</b>	<b>TCB</b>	<b>TMCI</b>
Jan-2006	55	4,232	61,946	664,701
Feb-2006	44	8,426	61,990	775,329
Mar-2006	19	589	61,952	31,327
Apr-2006	52	3,580	61,881	395,664
May-2006	61	1,797	61,834	340,322
Jun-2006	83	6,969	61,842	746,175
Jul-2006	61	755	61,780	144,081
Aug-2006	61	5,937	61,829	475,143
Sep-2006	52	3,273	61,869	281,956
Oct-2006	46	4,878	61,798	318,041
Nov-2006	40	2,310	61,999	349,741
Dec-2006	<u>65</u>	<u>6,077</u>	<u>62,029</u>	<u>952,837</u>
<b>TOTAL</b>	<b>639</b>	<b>48,823</b>	<b>61,896 *</b>	<b>5,475,317</b>

**UGI Utilities, Inc. – Electric Division  
System Reliability Report**

SI: Sustained Interruptions  
TCI: Total Customers Interrupted  
TCB: Total Customer Base (\*12-month arithmetic average)  
TMCI: Total Minutes Customer Interruption

**Note: There were no major events excluded from the numbers used in calculating the indices.**

**SAIFI**

The 12-month rolling SAIFI index increased 1% from 0.78 in our last quarterly report to 0.79 for the period ending December 2006.

Severe storms during May and June 2006 resulted in downed power lines and a number of distribution line pole washouts. On December 1 & 2, 2006, a wind and lightning storm entered UGI territory causing 13 large outages interrupting power to 4,132 customers as well as several minor incidents for a grand total of 71 repair incidents. The restoration and clean-up event lasted for twenty-six hours. All three of UGI's 12-month rolling indices continue to reflect the impact of these service interruptions. Additionally, UGI continues to experience a significant number of failures of the A. B. Chance fuse cutout. (See discussion of this issue in §57.195(e)(5).)

**SAIDI**

The SAIDI value for the 12 months ending December 2006 is 88. This result is 4.8% higher than results reported through September 2006 but still tracking well below UGI's benchmark level of 140.

**CAIDI**

The CAIDI result of 112 for the 12-month reporting period ending December, 2006 is 3.7% higher than last reported.

**UGI Utilities, Inc. – Electric Division  
System Reliability Report**

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

**Outage by Cause: January 2006 - December 2006**

<b>Cause</b>	<b>% of Total Incidents</b>	<b>Number of Interruptions</b>	<b>Customers Interrupted</b>	<b>Minutes Interrupted</b>
Animal	12.05%	77	3,619	203,924
Company Agent	0.31%	2	60	1,144
Construction Error	0.63%	4	22	3,625
Customer Problem	0.94%	6	21	4,790
Equipment Failure	38.65%	247	13,667	1,058,509
Lightning	9.08%	58	3,468	567,399
Motor Vehicle	4.54%	29	7,465	723,090
Other	0.63%	4	18	1,996
Public	3.13%	20	4,433	241,827
Structure Fire	0.16%	1	10	1,342
Trees	20.19%	129	9,389	1,493,253
Unknown	3.76%	24	1,749	216,151
Weather/Ice	0.00%	0	0	0
Weather/Wind	<u>5.95%</u>	<u>38</u>	<u>4,902</u>	<u>958,267</u>
<b>TOTAL</b>	100.00%	639	48,823	5,475,317

**Proposed Solutions to Identified Problems:**

Thirty-nine percent of the outages reported above resulted from equipment failure. A significant portion of these equipment failures are attributed to a problem with the A. B. Chance fuse cutouts utilized on the UGI system. As discussed in previous reports, UGI has implemented a replacement program to actively identify and replace these defective parts. The replacement work effort is ongoing.



An Exelon Company

**Brian D. Crowe**  
Director  
Rates & Regulatory Affairs

Telephone 215.841.5316  
Fax 215.841.6333  
www.exeloncorp.com  
brian.crowe@peco-energy.com

PECO Energy Company  
2301 Market Street  
Philadelphia, PA 19103

Mail To: P.O. Box 8699  
Philadelphia, PA 19101-8699

**ORIGINAL**

February 1, 2007

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**FedEx**

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
400 North Street  
2<sup>nd</sup> Floor North  
Commonwealth Keystone Building  
Harrisburg, PA 17120

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

Dear Secretary McNulty:

In accordance with Electric Service Reliability Regulations at 52 Pa. Code Chapter 57, enclosed are an original and six copies of PECO's 2006 Quarterly Reliability Report for the period ending December 31, 2006.

Because portions of the report contain sensitive and proprietary information, PECO is filing two versions of the report, one public and one proprietary. PECO requests the proprietary report, which has been separated and clearly marked with a "Confidential and Proprietary" header on each page, be kept confidential, pursuant to Commission order dated March 20, 2006.

Please acknowledge receipt of the foregoing on the enclosed copy of this letter. Thank you and if you have questions regarding this filing, please call me on my direct-dial number listed above.

Sincerely,

*Brian D. Crowe* / *SAED*

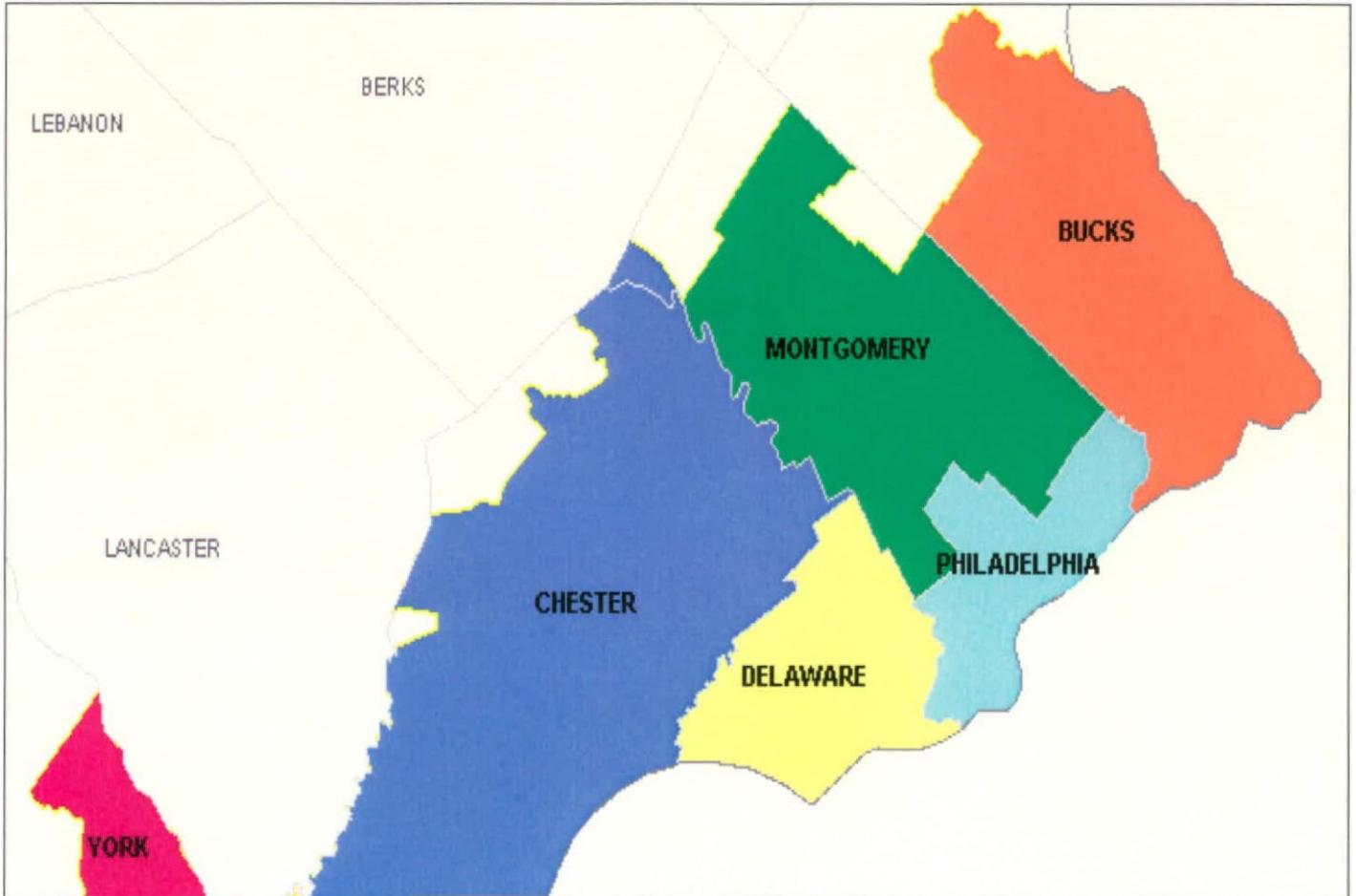
Enclosure(s)

SAN/mtg

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**PECO Energy Company  
Quarterly Reliability Report  
For Period Ending December 31, 2006**



DOCUMENT  
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**February 1, 2007**

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**PECO Energy ("PECO")**

**Quarterly Reliability Report for the Period Ending December 31, 2006 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."

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

PECO Customers	Sustained Customer Interruptions	Sustained Customer Hours	Momentary Customer Interruptions	Sustained Customer Minutes	SAIFI	CAIDI	SAIDI	MAIFI
1,634,701	2,206,270	4,882,766	1,156,615	292,965,946	1.35	133	179	0.71

Data reflects 12 months ending 12/31/2006

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 above their respective benchmarks, but below the standards established on May 7, 2004. No benchmark or standard was established for MAIFI. PECO reported 12 storms in 2006 that were not major events by PUC criteria, compared to a more typical 6 storms in 2005. The high storm activity in 2006 increased SAIFI by over 0.35, and also increased CAIDI and SAIDI.

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

PECO's worst performing 5% circuits for 2006 are selected based on rolled up customer interruptions – a count of all customer interruptions on a given circuit and on other circuits for which it is a source, due to outages on the given circuit in a 12 month period. This measure is oriented toward its contribution to system SAIFI. In addition, circuits with a history of repeat appearance on worst performing lists, or with high circuit SAIFI, 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 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 included.”

12 Months Ending December 31, 2006					
Cause	Cases of Trouble	% Cases of Trouble	Customer* Interruptions	% Customer Interruptions	Customer Minutes
Animal Contact	1,314	8.9%	56,165	2.5%	4,162,787
Contact / Dig In	278	1.9%	49,348	2.2%	3,375,857
Equipment Failure	4,770	32.3%	668,099	30.3%	71,871,434
Lightning	1,142	7.7%	202,370	9.2%	30,982,721
Transmission / Substation	9	0.1%	33,083	1.5%	4,213,046
Vegetation - Broken / Uprooted	2,544	17.2%	585,590	26.5%	102,127,133
Vegetation - In-growth	2,236	15.2%	182,200	8.3%	33,229,148
Vehicles	388	2.6%	117,076	5.3%	8,891,454
Unknown	567	3.8%	109,394	5.0%	9,703,608
Other	1,511	10.2%	202,945	9.2%	24,408,757

\*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. (76% of vegetation outages), as opposed to ingrowth (24% of vegetation outages)

**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).”

Data not required for the fourth quarter report

**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.)

Data not required for the fourth quarter report  
See Appendix C for category definitions.

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

Data not required for the fourth quarter report  
See Appendix C for category definitions.

**Section 57.195(e)(9).** “Detailed 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 December 31<sup>st</sup> 2006 was as follows:

Aerial Lineman	374
Underground Lineman	60
Transmission / Substation Mechanics, Operators	89
Energy Technicians	93
Aerial Foreman	52
Underground Foreman	18
Transmission / Substation Foreman	30
Total	716

**Contact Persons:**

Richard M. Cornforth  
Manager, T&D Reliability  
(215) 841-5843  
[richard.cornforth@peco-energy.com](mailto:richard.cornforth@peco-energy.com)

Brian D. Crowe  
Director, Rates & Regulatory Affairs  
(215) 841-5316  
[brian.crowe@peco-energy.com](mailto:brian.crowe@peco-energy.com)

**Appendix A**  
**Rolling 12- month reliability index values for 5% 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
ANGORA 011	1,104	3.10	57	176	0.00	3,418	3,234	0
ARDMORE 017	411	0.00	0	0	0.00	0	0	0
BALA 136	1,585	0.02	64	1	0.00	27	29	0
BERWYN 002	550	4.73	358	1694	1.99	2,603	15,531	1,094
BLUE GRASS 137	1,436	1.01	43	43	0.00	1,455	1,035	1
BLUE GRASS 144	1,460	1.94	87	169	0.83	2,837	4,110	1,214
BRADFORD 341	1,596	3.31	151	502	2.81	5,289	13,354	4,490
BRADFORD 342	2,220	2.89	168	485	2.13	6,418	17,945	4,729
BRADFORD 344	2,467	4.49	163	734	2.26	11,086	30,186	5,583
BRADFORD 346	1,131	1.46	169	246	0.02	1,647	4,639	21
BROOMALL 136	1,391	2.56	94	241	0.00	3,558	5,597	0
BRYN MAWR 131	1,357	1.38	253	350	0.01	1,876	7,923	18
BRYN MAWR 143	663	5.40	100	542	0.00	3,578	5,985	0
BRYN MAWR 144	1,242	2.29	126	288	1.93	2,838	5,968	2,394
BUCKINGHAM 344	1,477	1.13	71	80	2.30	1,671	1,968	3,396
BUCKINGHAM 351	1,300	2.31	127	293	0.18	3,003	6,348	239
BUCKINGHAM 354	1,404	0.76	73	55	0.00	1,064	1,296	0
BYBERRY 143	1,976	0.55	93	52	0.00	1,092	1,699	0
CALLOWHILL 138	1,273	0.06	1406	85	0.00	77	1,804	0
CALLOWHILL 142	434	1.00	42	42	0.00	435	305	0
CEDARBROOK 132	678	1.43	117	167	0.00	971	1,890	0
CEDARBROOK 138	3,617	1.09	268	293	0.00	3,954	17,635	0
CHICHESTER 139	1,617	1.17	42	49	0.00	1,899	1,317	0
CORNOG 001	533	2.57	295	759	5.98	1,372	6,741	3,185
CRESCENTVILLE 134	1,822	0.20	238	47	0.05	357	1,416	84
CRUM LYNNE 138	1,744	1.63	96	157	1.96	2,845	4,561	3,424
DAVISVILLE 003	947	3.63	127	459	3.97	3,436	7,246	3,763
EDDYSTONE 132	2,204	0.20	79	16	0.50	441	579	1,101
EDGEMONT 133	2,261	3.20	141	450	0.61	7,241	16,973	1,390
FLINT 132	1,198	2.98	133	396	1.67	3,572	7,908	2,004
FLINT 141	846	1.67	1089	1813	0.00	1,409	25,569	0
FLINT 144	866	4.68	198	924	0.46	4,049	13,338	395
FLINT 146	1,148	3.68	203	748	0.40	4,223	14,316	459
FOULK 131	1,684	3.42	90	307	1.71	5,755	8,609	2,876
FOULK 142	345	1.98	54	107	0.00	684	615	0
FURNACE 000	547	3.77	159	601	1.00	2,063	5,478	545
HAGYS 004	307	3.44	289	992	1.00	1,056	5,078	307
HARMONY 007	1,270	1.24	94	116	1.00	1,577	2,462	1,271
HEATON 131	939	3.59	136	488	0.99	3,369	7,640	933
HEATON 133	1,766	0.39	166	65	0.00	691	1,912	0
HOPEWELL 000	285	1.02	114	117	0.00	292	557	0
HOWELL 002	383	8.68	156	1358	2.02	3,325	8,670	774
HUNTING PARK 032	1,314	0.66	66	43	0.06	863	952	83
ISLAND ROAD 136	1,596	1.39	160	223	0.00	2,222	5,922	0
ISLAND ROAD 138	2,556	0.83	56	46	0.01	2,116	1,966	32
JENKINTOWN 138	1,876	0.17	127	22	0.02	327	693	31
JENKINTOWN 141	680	2.47	135	335	0.00	1,681	3,796	0
JENKINTOWN 143	1,576	3.99	87	346	0.52	6,293	9,082	824
LANE 001	831	1.76	180	316	1.98	1,461	4,381	1,646
LENAPE 341	1,002	3.43	115	393	4.40	3,439	6,564	4,412

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
LINE 109 00	421	3.62	139	505	1.00	1,526	3,546	420
LINE 131 00WO	338	2.02	56	113	1.96	683	637	664
LINE 145 00UP	171	4.01	238	951	2.00	685	2,711	342
LINE 147 00PB	908	2.15	97	209	0.04	1,952	3,168	36
LINE 2241	1,406	1.71	57	97	0.00	2,409	2,284	1
LINE 2394	1,802	2.22	72	160	0.00	3,998	4,816	0
LINE 2445	468	0.97	50	48	0.00	452	377	0
LINE 2471	1,091	1.04	82	85	0.00	1,140	1,552	0
LINE 2682	1,690	0.13	178	24	0.00	224	665	0
LINE 300CR	2,179	8.01	105	837	0.99	17,443	30,389	2,160
LINE 3336	1	0.00	0	0	2.00	0	0	2
LINE 3340	934	3.44	164	564	0.97	3,213	8,777	902
LINE 3600CR	864	2.82	200	565	0.11	2,439	8,135	97
LINE 7900	1	0.00	41	0	0.00	1	1	0
LINTON 343	4,141	0.11	266	30	0.00	471	2,085	0
LINTON 352	3,359	1.38	165	228	0.68	4,642	12,771	2,274
LLANERCH 141	1,650	1.36	70	95	2.14	2,237	2,610	3,538
LLANERCH 147	2,332	1.42	298	425	0.05	3,323	16,513	127
LOMBARD 132	3,288	0.52	85	44	1.74	1,707	2,426	5,710
LOMBARD 133	2,661	0.14	208	29	0.00	372	1,292	0
LOMBARD 138	2,526	1.02	5	5	0.00	2,583	211	0
MACDADE 132	1,634	3.26	74	240	0.00	5,322	6,545	0
MACDADE 135	2,251	0.11	210	23	0.00	245	859	0
MACDADE 148	1,582	3.54	62	219	0.00	5,597	5,781	0
MARCUS HOOK 135	5	1.80	98	176	0.00	9	15	0
MARSHALLTON 002	516	3.16	572	1804	0.00	1,628	15,514	0
MATSON 131	840	7.53	155	1166	1.63	6,325	16,319	1,365
MOSER 342	2,561	2.11	97	205	0.50	5,409	8,740	1,291
NESHAMINY 142	1,263	1.57	136	215	0.00	1,989	4,522	0
NEWLINVILLE 343	2,108	8.66	103	889	1.97	18,253	31,225	4,154
NEWLINVILLE 346	757	0.88	275	243	3.99	668	3,064	3,020
NEWLINVILLE 351	1,124	1.96	155	304	0.92	2,202	5,686	1,036
NEWLINVILLE 353	2,131	5.13	94	483	4.70	10,934	17,161	10,015
NEWLINVILLE 354	2,620	5.27	207	1094	4.26	13,819	47,773	11,155
NORTH PHILADE 133	3,038	1.27	58	74	0.00	3,872	3,725	0
NORTH PHILADE 135	2,024	0.24	134	33	1.00	493	1,099	2,023
NORTH WALES 362	1,855	1.75	154	269	3.42	3,237	8,311	6,347
OVERBROOK 131	3,638	0.05	107	5	0.00	183	328	0
PENCOYD 014	1,359	3.03	89	269	1.04	4,123	6,097	1,410
PLYMOUTH 139	1,338	4.10	72	297	0.49	5,491	6,615	660
PULASKI 131	4,611	0.06	215	12	0.94	261	935	4,336
PULASKI 132	2,196	0.87	40	35	0.48	1,920	1,295	1,053
RICHMOND 138	1,322	2.15	53	113	0.00	2,843	2,492	0
RICHMOND 145	901	3.01	67	201	0.00	2,714	3,021	0
ROXBOROUGH 136	972	3.30	57	188	1.00	3,207	3,040	973
SAVILLE 132	2,482	0.17	175	30	0.00	426	1,240	0
SHEEDER 000	439	6.59	98	644	1.00	2,895	4,714	438
SOLEBURY 001	496	5.45	139	757	0.00	2,703	6,255	2
TABOR 136	2,718	1.57	38	59	0.48	4,266	2,671	1,305
UPPER DARBY 008	797	2.20	207	454	0.00	1,750	6,026	0
UPPER DARBY 134	2,061	2.07	55	113	0.54	4,275	3,895	1,113
UPPER DARBY 140	1,900	2.24	75	169	0.00	4,256	5,350	0

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
UPPER MERION 132	1,266	1.38	306	422	0.01	1,747	8,906	7
UPPER MERION 351	2,689	1.92	330	633	1.16	5,154	28,347	3,122
WANEETA 139	1,554	0.21	55	12	0.00	333	305	0
WARMINSTER 141	1,716	2.81	59	167	0.01	4,826	4,782	16
WARRINGTON 342	887	0.39	131	51	1.73	344	749	1,533
WARRINGTON 343	2,109	0.95	141	133	0.26	1,997	4,684	538
WAYNE 134	718	6.85	147	1005	2.91	4,915	12,028	2,087
WAYNE 146	1,051	7.92	208	1646	0.98	8,322	28,836	1,032
WEST GROVE 001	829	5.11	73	373	0.99	4,236	5,152	818
WHITEMARSH 142	919	0.40	351	141	1.01	370	2,163	931

\*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 12/31/06

<b>ANGORA 011</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Installed wildlife protection	
	Performed regularly scheduled tree clearance	
	Installed additional fuses	
<b>ARDMORE 017</b>	<b>Completed</b>	<b>Planned</b>
	Installed faulted circuit indicators	
<b>BALA 136</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Installed 3-phase recloser	
	Performed regularly scheduled tree clearance	
<b>BERWYN 002</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Upgraded fusing	
	Performed regularly scheduled tree clearance	
	Remediated supply circuit	
<b>BLUE GRASS 137</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Replaced cable	
<b>BLUE GRASS 144</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Replaced underground cable	
	Installed additional fuses	
<b>BRADFORD 341</b>	<b>Completed</b>	<b>Planned</b>
	Inspected/maintained reclosers	
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Equipped breakers for automatic switching	
<b>BRADFORD 342</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Repaired recloser	
	Upgraded lightning protection	
	Replaced transformers	
<b>BRADFORD 344</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Replaced cable	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	

<b>BRADFORD 346</b>	<b>Completed</b>	<b>Planned</b>
	Installed 3 phase recloser	
	Installed additional fuses	
	Repaired switches	
	Completed reliability corrective workorders	
<b>BROOMALL 136</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Installed 3-phase reclosers	
	Installed single phase reclosers	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>BRYN MAWR 131</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Completed reliability corrective workorders	
	Installed wildlife protection	
	Installed single phase reclosers	
<b>BRYN MAWR 143</b>	<b>Completed</b>	<b>Planned</b>
	Replaced recloser	
	Inspected circuit visually and with thermographic camera	
	Installed additional phases	
	Completed reliability corrective workorders	
	Replaced cable	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>BRYN MAWR 144</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected/repared recloser operation	
	Inspected motor operated switch	
	Installed faulted circuit indicators	
<b>BUCKINGHAM 344</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Inspected/repared recloser operation	
	Completed reliability corrective workorders	
<b>BUCKINGHAM 351</b>	<b>Completed</b>	<b>Planned</b>
	Inspected/repared recloser operation	
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected circuit visually and with thermographic camera	
	Replaced recloser	

<b>BUCKINGHAM 354</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Performed scheduled recloser maintenance	
	Installed single phase recloser	
<b>BYBERRY 143</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
<b>CALLOWHILL 138</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Performed regularly scheduled tree clearance	
	Inspected circuit visually and with thermographic camera	
<b>CALLOWHILL 142</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Completed reliability corrective workorders	
	Performed regularly scheduled tree clearance	
	Upgraded switches	
<b>CEDARBROOK 132</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed regularly scheduled tree clearance	
	Replaced underground cable	
	Completed reliability corrective workorders	
<b>CEDARBROOK 138</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Replaced transformer	
	Inspected circuit visually and with thermographic camera	
	Inspected/maintained reclosers	
	Completed regularly scheduled tree clearance	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>CHICHESTER 139</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Upgraded switches	
<b>CORNOG 001</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	

<b>CRESCENTVILLE 134</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Completed regularly scheduled tree trimming	
	Installed additional fuses	
	Installed 3-phase recloser	
	Installed single phase reclosers	
<b>CRUM LYNNE 138</b>	<b>Completed</b>	<b>Planned</b>
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected/maintained reclosers	
	Completed reliability corrective workorders	
	Installed single phase reclosers	
<b>DAVISVILLE 003</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Performed regularly scheduled tree clearance	
<b>EDDYSTONE 132</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
<b>EDGMONT 133</b>	<b>Completed</b>	<b>Planned</b>
	Installed wildlife protection	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Completed reliability corrective workorders	
	Upgraded fuses	
<b>FLINT 132</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Completed reliability corrective workorders	
	Performed regularly scheduled tree clearance	
	Installed 3 phase reclosers	
<b>FLINT 141</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Completed regularly scheduled tree clearance	
	Inspected circuit visually and with thermographic camera	
	Installed 3 phase reclosers	
	Installed single-phase reclosers	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	

<b>FLINT 144</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected circuit visually and with thermographic camera	
	Installed wildlife protection	
	Performed regularly scheduled tree clearance	
	Installed three phase recloser	
	Installed single phase reclosers	
<b>FLINT 146</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected circuit visually and with thermographic camera	
	Installed wildlife protection	
	Performed regularly scheduled tree clearance	
	Inspected/maintained reclosers	
	Upgraded lightning protection	
<b>FOULK 131</b>	<b>Completed</b>	<b>Planned</b>
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Installed 3-phase reclosers	
	Installed switch	
	Completed reliability corrective workorders	
<b>FOULK 142</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
<b>FURNACE 000</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Performed regularly scheduled tree clearance	
	Installed new supply circuit	
	Installed single-phase reclosers	
	Completed reliability corrective workorders	
<b>HAGYS 004</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Upgraded fusing	
	Performed regularly scheduled tree clearance	
<b>HARMONY 007</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Remediated supply circuit	

<b>HEATON 131</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Upgraded switches	
	Completed reliability corrective workorders	
	Installed additional fuses	
	Performed regularly scheduled tree clearance**	
<b>HEATON 133</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Installed single phase reclosers	
	Inspected/maintained reclosers	
	Performed regularly scheduled tree clearance	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Completed reliability corrective workorders	
<b>HOPEWELL 000</b>	<b>Completed</b>	<b>Planned</b>
	Remediated supply circuit	
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
<b>HOWELL 002</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Performed regularly scheduled tree clearance	
	Remediated supply circuit	
	Inspected circuit visually and with thermographic camera	
<b>HUNTING PARK 032</b>	<b>Completed</b>	<b>Planned</b>
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
<b>ISLAND ROAD 136</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Installed underground cable	
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Installed additional fuses	
<b>ISLAND ROAD 138</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected circuit visually and with thermographic camera	
	Installed additional fusing	
	Installed wildlife protection	

<b>JENKINTOWN 138</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Installed single phase recloser	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Completed regularly scheduled tree clearance	
<b>JENKINTOWN 141</b>	<b>Completed</b>	<b>Planned</b>
	Replaced cable	
	Installed additional fuses	
	Inspected circuit visually and with thermographic camera	
	Completed regularly scheduled tree clearance	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>JENKINTOWN 143</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Installed single phase recloser	
	Completed regularly scheduled tree clearance	
<b>LANE 001</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Remediated supply circuit	
<b>LENAPE 341</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Inspected/repared reclosers	
	Completed regularly scheduled tree clearance	
	Upgraded wildlife protection	
<b>LINE 109 00</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Installed wildlife protection	
	Completed reliability corrective workorders	
<b>LINE 131 00WO</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
	Completed recloser inspections	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>LINE 145 00UP</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Performed regularly scheduled tree clearance	
	Upgraded fusing	
	Repaired switch	
	Completed reliability corrective workorders	

<b>LINE 147 00PB</b>	<b>Completed</b>	<b>Planned</b>
	Inspected/repaired reclosers	
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Improved recloser grounding	
	Repaired switches	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>LINE 2241</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Installed wildlife protection	
	Performed regularly scheduled tree clearance	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Installed faulted circuit indicators	
	Upgraded lightning protection	
<b>LINE 2394</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Upgraded fusing	
	Installed additional fuses	
	Installed wildlife protection	
<b>LINE 2445</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	Install automatic transfer switches*
<b>LINE 2471</b>	<b>Completed</b>	<b>Planned</b>
	Repaired underground cable	
	Upgraded transformer	
<b>LINE 2682</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
	Performed regularly scheduled tree clearance	
	Upgraded fuses	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>LINE 300CR</b>	<b>Completed</b>	<b>Planned</b>
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Installed 3-phase recloser	
	Performed regularly scheduled tree clearance	
<b>LINE 3336</b>	<b>Completed</b>	<b>Planned</b>
	Replaced switch	
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
	Installed 3-phase reclosers	

<b>LINE 3340</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected /repaired switch	
	Inspected recloser	
<b>LINE 3600CR</b>	<b>Completed</b>	<b>Planned</b>
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Installed additional fuses	
	Performed regularly scheduled tree clearance	
	Completed reliability corrective workorders	
	Installed single phase recloser	
<b>LINE 7900</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
<b>LINTON 343</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected/ repaired recloser operation	
	Replaced cable	
	Replaced recloser	
<b>LINTON 352</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Replaced recloser	
	Repaired cable	
	Replaced transformer	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>LLANERCH 141</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Installed single phase recloser	
	Upgraded wildlife protection	
	Installed additional fuses	
	Inspected circuit visually and with thermographic camera	
<b>LLANERCH 147</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
<b>LOMBARD 132</b>	<b>Completed</b>	<b>Planned</b>
	Upgraded switch	
	Installed additional fuses	
	Performed regularly scheduled tree clearance	
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	

<b>LOMBARD 133</b>	<b>Completed</b>	<b>Planned</b>
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Upgraded transformer	
	Replaced cable	
	Inspected circuit visually and with thermographic camera	
	Installed additional fuses	
	Performed regularly scheduled tree clearance	
	Completed reliability corrective workorders	
	Inspected reclosers	
<b>LOMBARD 138</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Upgraded switches	
	Performed regularly scheduled tree clearance	
	Completed reliability corrective workorders	
	Replaced underground cable	
<b>MACDADE 132</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Performed regularly scheduled tree clearance	
<b>MACDADE 135</b>	<b>Completed</b>	<b>Planned</b>
	Upgraded wildlife protection	
	Inspected circuit visually and with thermographic camera	
	Replaced transformer	
	Completed regularly scheduled tree clearance	
<b>MACDADE 148</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Performed regularly scheduled tree clearance	
	Upgraded wildlife protection	
	Installed single phase reclosers	
	Completed reliability corrective workorders	
<b>MARCUS HOOK 135</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
	Tested customer relays	
<b>MARSHALLTON 002</b>	<b>Completed</b>	<b>Planned</b>
	Remediated supply circuit	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected circuit visually and with thermographic camera	
	Inspected/repared breaker control	
	Completed reliability corrective workorders	

<b>MATSON 131</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Replaced primary wires	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Upgraded wildlife protection	
	Installed 3-phase reclosers	
<b>MOSER 342</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected/tested reclosers	
	Inspected/repared switches	
	Repaired reclosers	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Installed 3 phase recloser	
<b>NESHAMINY 142</b>	<b>Completed</b>	<b>Planned</b>
	Installed switches	
<b>NEWLINVILLE 343</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Installed 3-phase recloser	
	Inspected circuit visually and with thermographic camera	
<b>NEWLINVILLE 346</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
	Installed 3-phase recloser	
<b>NEWLINVILLE 351</b>	<b>Completed</b>	<b>Planned</b>
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Completed reliability corrective workorders	
<b>NEWLINVILLE 353</b>	<b>Completed</b>	<b>Planned</b>
	Replaced three-phase recloser	
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>NEWLINVILLE 354</b>	<b>Completed</b>	<b>Planned</b>
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected circuit visually and with thermographic camera	
	Upgraded transformers	

<b>NORTH PHILADELPHIA 133</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Inspected/tested reclosers	
	Inspected/repaired switch	
<b>NORTH PHILADELPHIA 135</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Inspected/repaired reclosers	
	Installed switch	
<b>NORTH WALES 362</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Repaired switch	
	Upgraded lightning protection	
	Completed reliability corrective workorders	
	Replaced reclosers	
<b>OVERBROOK 131</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Automated switching of recloser	
<b>PENCOYD 014</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Upgraded fusing	
	Completed reliability corrective workorders	
	Installed faulted circuit indicators	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Performed regularly scheduled tree clearance	
	Replaced underground cable	
<b>PLYMOUTH 139</b>	<b>Completed</b>	<b>Planned</b>
	Inspected/tested reclosers	
	Completed reliability corrective workorders	
	Upgraded wildlife protection	
	Upgraded lightning protection	
	Performed regularly scheduled tree clearance	
<b>PULASKI 131</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Performed regularly scheduled tree clearance	
	Inspected circuit visually and with thermographic camera	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected/tested reclosers	

<b>PULASKI 132</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Upgraded fusing	
	Performed regularly scheduled tree clearance	
<b>RICHMOND 138</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Upgraded fusing	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Completed reliability corrective workorders	
<b>RICHMOND 145</b>	<b>Completed</b>	<b>Planned</b>
	Upgraded switches	
	Completed reliability corrective workorders	
	Completed regularly scheduled tree trimming	
	Inspected circuit visually and with thermographic camera	
	Installed additional fuses	
<b>ROXBOROUGH 136</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Upgraded switches	
	Performed regularly scheduled tree clearance	
<b>SAVILLE 132</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Installed three-phase reclosers	
	Completed reliability corrective workorders	
<b>SHEEDER 000</b>	<b>Completed</b>	<b>Planned</b>
	Remediated supply circuit	
	Inspected circuit visually and with thermographic camera	
	Performed regularly scheduled tree clearance	
	Installed additional fuses	
	Completed reliability corrective workorders	
<b>SOLEBURY 001</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
	Installed switch	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	

<b>TABOR 136</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected/tested recloser	
	Installed wildlife protection	
	Upgraded switches	
<b>UPPER DARBY 008</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Installed additional fuses	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>UPPER DARBY 134</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Installed single phase recloser	
	Upgraded fuses	
	Inspected/tested recloser	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>UPPER DARBY 140</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Installed three-phase reclosers	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Completed reliability corrective workorders	
<b>UPPER MERION 132</b>	<b>Completed</b>	<b>Planned</b>
	Inspected/maintained reclosers	
	Installed single phase recloser	
	Installed additional fuses	
	Installed wildlife protection	
	Installed 3-phase recloser	
	Completed reliability corrective workorders	
	Performed regularly scheduled tree clearance	
<b>UPPER MERION 351</b>	<b>Completed</b>	<b>Planned</b>
	Replaced load center	
	Inspected circuit visually and with thermographic camera	
	Replaced switching module	
	Completed reliability corrective workorders	
	Performed regularly scheduled tree clearance	
<b>WANEETA 139</b>	<b>Completed</b>	<b>Planned</b>
	Inspected circuit visually and with thermographic camera	
	Completed reliability corrective workorders	
	Installed additional fuses	

<b>WARMINSTER 141</b>	<b>Completed</b>	<b>Planned</b>
	Inspected/repaired recloser operation	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Upgraded lightning protection	
	Completed reliability corrective workorders	
<b>WARRINGTON 342</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Inspected/maintained reclosers	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Upgraded lightning protection	
<b>WARRINGTON 343</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Inspected circuit visually and with thermographic camera	
	Inspected/tested reclosers	
	Upgraded lightning protection	
<b>WAYNE 134</b>	<b>Completed</b>	<b>Planned</b>
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
	Installed 3-phase reclosers	
	Installed single phase reclosers	
	Completed reliability corrective workorders	
	Upgraded fusing	
	Installed aerial faulted circuit indicators	
	Completed regularly scheduled tree clearance	
<b>WAYNE 146</b>	<b>Completed</b>	<b>Planned</b>
	Completed regularly scheduled tree clearance	
	Completed reliability corrective workorders	
	Installed single phase recloser	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>WEST GROVE 001</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected selected areas of circuit for vegetation issues and corrected as needed	
<b>WHITEMARSH 142</b>	<b>Completed</b>	<b>Planned</b>
	Completed reliability corrective workorders	
	Inspected circuit visually and with thermographic camera	
	Performed regularly scheduled tree clearance**	
	Upgraded switches	

\* New underground distribution automation technology is being introduced on Line 2445. The new automatic switches are currently being manufactured. This job is scheduled to be complete in the 1st. quarter of 2007.

\*\* Trimming on small portions of this circuit are on hold due to legal issues with the township.

## 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**

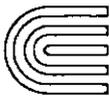
This work category includes all requests for relocation of PECO facilities including municipal as well as customer related relocation requests.

### **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).



Orange & Rockland  
a conEdison, inc. company

(845) 577-3341

Orange & Rockland Utilities, Inc.  
390 West Route 59  
Spring Valley NY 10977-5300  
www.oru.com

April 9, 2007

Pennsylvania Public Utility Commission  
P.O. Box 3265  
Harrisburg, PA 17105-3265

**ORIGINAL**

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Attention: Secretary James J. McNulty

Re: First Quarter 2007 Quarterly Report for Pike County Light and Power  
PUC Docket No. L-00030161; Rulemaking Re Amending Electric  
Service Reliability Regulations At 52 Pa. Code Chapter 57

Dear Secretary McNulty:

Pike County Light & Power Company ("Pike") hereby submits six copies of its First Quarter 2007 quarterly report as set forth in the Pennsylvania Public Utility Commission's ("Commission, PUC") Docket No. L-00030161 adopted Rulemaking Re Amending Electric Service Reliability Regulations At 52 Pa. Code Chapter 57 ("Order"). As such, Pike's quarterly reporting requirements, as set forth in Section 57.195(e) (1) (2) and (5) of the Order, are enclosed.

Please contact me if you have any questions regarding this report or require any additional information.

Very truly yours,

Timothy T. Garvin  
Manager - Performance & Operational Engineering  
Pike County Light and Power  
(Orange and Rockland Utilities, Inc.)

**DOCUMENT  
FOLDER**

cc: Office of Consumer Advocate  
Office of Small Business Advocate

Enclosures

DOCUMENT  
FOLDER

Pike County Light and Power Company  
(Orange and Rockland Utilities, Inc.)

Quarterly Reliability Report

First Quarter  
2007

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§ 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.

**1st Quarter 2007  
Major Events**

Date	Time	Circuit	Cause	Duration	Customers Affected	Cust Min of Interruption
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**1st Quarter 2007  
Pre-Arranged Outages**

Date	Time	Circuit	Cause	Duration	Customers Affected	Cust Min of Interruption
2007/02/21	09:37:00	104-03-13	Pre-Arranged	83 minutes	14	1,162

§ 57.195. (e)(2)

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

**Interruption Data  
Rolling 12-Month Data**

Year	Quarter	Customers Served Rolling 12 Mth	Number of Interruptions Rolling 12 Mth	Customers Affected Rolling 12 Mth	Customer Min of Interruptions Rolling 12 Mth
2006	2nd Qtr	4,424	74	6,173	801,156
2006	3rd Qtr	4,444	67	5,565	551,810
2006	4th Qtr	4,461	65	5,144	622,245
2007	1st Qtr	4,470	59	4,780	560,419

**Performance Ratios  
Rolling 12-Month Data**

	Frequency SAIFI	Restoration CAIDI (Min)	Duration SAIDI (Min)
Benchmark	.97	159	154
Rolling 12 Mth Standard	1.31	215	282

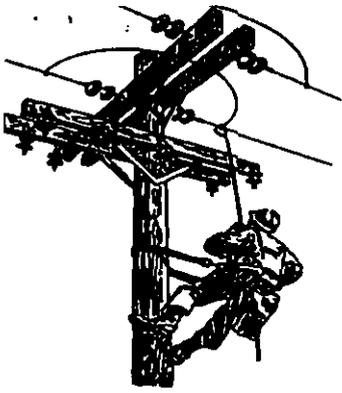
Year	Qtr	Frequency SAIFI Rolling 12 Mth	Restoration CAIDI Rolling 12 Mth	Duration SAIDI Rolling 12 Mth
2006	2nd Qtr	1.40	130	181
2006	3rd Qtr	1.25	99	124
2006	4th Qtr	1.15	121	139
2007	1st Qtr	1.07	117	125

§ 57.195. (e)(5)

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

First Quarter 2007  
Cause Analysis  
Rolling 12 Months Data  
\*Excludes Storms, Major Events, Pre-Arranged

Cause	Number of Interr. Rolling 12 Mth.	Number of Interr. Rolling 12 Mth. (%)	Customers Affected Rolling 12 Mth.	Customers Affected Rolling 12 Mth. (%)	Customer Min. Interr. Rolling 12 Mth.	Customer Min. Interr. Rolling 12 Mth. (%)
Animal Contact	3	5.1%	487	10.2%	56,724	10.1%
Tree Contact	31	52.5%	1,271	26.6%	350,483	62.5%
Overload	0	.0%	0	.0%	0	.0%
Work Error	1	1.7%	1,766	36.9%	10,596	1.9%
Equip. Failure	8	13.6%	296	6.2%	38,779	6.9%
Non-Comp Acc.	7	11.9%	482	10.1%	43,519	7.8%
Custmr Problem	0	.0%	0	.0%	0	.0%
Lightning	4	6.8%	218	4.6%	25,564	4.6%
Unknown-Other	5	8.5%	260	5.4%	34,754	6.2%
All Causes	59	100.0%	4,780	100.0%	560,419	100.0%



## CITIZENS' ELECTRIC COMPANY

1775 INDUSTRIAL BLVD • P.O. BOX 551 • LEWISBURG, PA 17837-0551 • (570) 524-2231 • FAX: (570) 524-5887

April 24, 2007

ORIGINAL

L-00030161

Mr. James J. McNulty  
Pennsylvania Public Utility Commission  
PO Box 3265  
Harrisburg, PA 17105-3265

Dear Mr. McNulty,

Enclosed please find an original and six copies of the 2006 Annual Reliability Report for Citizens' Electric Company.

Please contact me at 570-522-6143 or [kelchnerj@citizenselectric.com](mailto:kelchnerj@citizenselectric.com) if I can answer any questions.

Sincerely,

John A. Kelchner, PE  
Vice President of Engineering & Operations

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APR 27 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

cc: Pennsylvania Office of Consumer Advocate  
Pennsylvania Office of Small Business Advocate  
Darren Gill (via email)

145

Citizens' Electric Company  
Annual Electric Service Reliability Report  
2006

Prepared by John A. Kelchner, PE  
Vice President of Engineering & Operations  
570-522-6143

[kelchnerj@citizenselectric.com](mailto:kelchnerj@citizenselectric.com)

04/24/2007

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

Moderate weather conditions during 2006, along with our continuing maintenance and inspection programs, combined to produce another successful year. Our SAIDI, CAIDI, and SAIFI indices were all below our benchmarks for the second consecutive year.

In February, we completed the deployment of an Automatic Meter Reading system. In addition to the various meter readings it provides, we have begun utilizing the system's abilities to monitor voltage, confirm service outages, and detect possible tampering. We believe these functionalities will help us respond to outages more quickly and help us prioritize restoration efforts during large events.

Work on implementing an Automated Mapping/Facilities Management system continued during 2006. All distribution lines, poles and equipment have now been electronically mapped. During 2006, we began entering the associated data such as size, date installed, and status for each piece of equipment on the map. This work will continue during 2007. Among other benefits, this system will give us the ability to automate and consolidate our maintenance scheduling and tracking to allow us to better manage these processes. When fully implemented, this system will also help us more accurately model our distribution system to ensure the best possible overcurrent protection design, minimizing the number of customers affected by an outage. We also plan to use the mapping system to drive an automated outage management system. By analyzing circuit configuration, sectionalizing points, and customer outage calls, this system will help us quickly identify probable trouble spots and efficiently dispatch crews to the correct location. This system will help us maintain our outstanding restoration times when outages do occur.

Citizens' Electric was proud to again be recognized in 2006 as a "Tree Line USA" utility. This award from the National Arbor Day Foundation recognizes Citizens' for using nationally approved trimming techniques and procedures in its vegetation management program.

Citizens' Electric does not own or maintain any transmission facilities.

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SECRETARY'S BUREAU

**Current Maintenance Programs**

<b>Program</b>	<b>Description</b>	<b>Cycle</b>
Infrared Inspection	All substation equipment biennially, and 1/3 of all overhead lines each year.	3 years
Vegetation Management	Each year, all primary lines are visually inspected. This comprehensive field inspection allows us to identify areas that require trimming. We maintain a 4-year trimming cycle, but all areas are inspected annually to help identify unexpected "hot spots." All areas needing attention are trimmed by the end of the 3 <sup>rd</sup> quarter.	Annual
Visual Line Inspection	All distribution lines and pole hardware are visually inspected during preparation of tree trimming contract. Line sections receiving infrared inspection are also inspected visually during that process.	Annual
Padmount Equipment Inspection	Padmounted equipment is visually inspected to identify and correct any developing problems or safety concerns.	4 Years
3Ø Padmount Transformer Oil Test	Insulating oil is tested from every 3Ø padmounted transformer on our system, and all substation power transformers.	Annual
Line Equipment Inspection	All airswitches, circuit tie switches, capacitors, regulators, and reclosers are visually inspected. Where applicable, proper operation of control equipment is verified and counter readings are recorded.	Annual
Pole Inspection and Treatment	Poles are inspected and treated at the ground line. External and/or internal decay inhibitors are applied where appropriate.	10 Years
Danger & Reject Pole Replacements	Replace condemned poles identified during pole inspection.	As needed, annually
Substation Equipment Inspection	Entire station is visually inspected. Equipment batteries are tested, communications equipment operation is verified, fans are tested, various gauge and counter readings are recorded. An infrared inspection is performed on all equipment twice a year.	Monthly
Recloser Maintenance	Change oil, check and adjust mechanism, check contacts, test operation.	Manufacturer's Recommendations

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

Date	Time	Duration (Minutes)	Customers Affected	Cause
1/26/2006	9:04 AM	31	1,252	A customer cutting a large pine tree on his property lost control of the tree, allowing it to fall onto our 3 phase overhead primary line. This caused the circuit to lock out at the substation, interrupting 1,252 customers.
2/17/2006	8:37 AM	155	988	Strong winds associated with an arctic cold front moving through the region brought several off r/w trees down onto our lines.

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

Year	SAIFI	SAIDI	CAIDI	Avg # of Customers Served	# of Interruptions	# of Customers Interrupted	Customer Interruption Minutes
2006	0.14	10	68	6,693	58	964	65,449
2005	0.10	12	116	6,657	33	667	77,100
2004	0.39	25	64	6,533	43	2,528	160,675
Standard	0.27	33	44				

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

Outage Cause	Number of Interruptions	% of Interruptions	Number of Customers Affected	Customer Interruption Minutes
On R/W Trees	0	0	0	0
Animals	29	50.0	379	19,984
Equipment	11	18.9	213	24,692
Off R/W Trees	1	1.7	26	962
Weather	11	18.9	263	14,513
Vehicle	1	1.7	5	230
Other	5	8.6	78	5,068
Total	58		964	65,449

Animal contact was the most common cause of outages. We are continuing our efforts to reduce animal outages through the aggressive installation of wildlife protectors and insulated leads on transformer bushings and the use of insulated equipment mounting brackets on poles. Outages during the year generally affected small numbers of customers and were of short duration.

**§ 57.195(b)(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.**

Program	Goal	Completed	Comment
Infrared Inspection	Substation and 1/3 of all overhead lines	100%	
Vegetation Management	Entire System (9 circuits), as needed	100%	
Visual Line Inspection	Entire System (9 circuits)	100%	
Padmount Equipment Inspection	154 Locations	100%	
3Ø Padmount Transformer Oil Test	32 Transformers	100%	
Line Equipment Inspection	173 locations	100%	
Pole Inspection and Treatment	570 Poles	86%	489 poles inspected. 81 poles were delayed to 2007 to facilitate future cycle efficiency.
Danger and Reject Pole Replacement	21 Poles	90%	19 poles replaced in 2006. The remaining 2 poles were replaced in early 2007.
Substation Equipment Inspection	12 Monthly Inspections	100%	
Recloser Maintenance	10 Reclosers	100%	

**§ 57.195(b)(7) A comparison of budgeted versus actual transmission and distribution operation and maintenance expenses for the year being reported on in total and detailed by the EDC's own functional account code or FERC account code as available. Explanations of any variances 10% or greater shall be included.**

<b>Program</b>	<b>Budget \$</b>	<b>Actual \$</b>	<b>Comment</b>
Infrared Inspection	N/A	\$9,912	Not budgeted individually. 100% completed.
Vegetation Management	\$62,500	\$62,810	100% of system completed, as needed.
Visual Line Inspection	N/A	\$1,558	Not budgeted individually. 100% completed.
Padmount Equipment Inspection	N/A	\$3,674	Not budgeted individually. 100% completed.
3Ø Padmount Transformer Oil Test	\$1,800 (estimate)	\$1,845	Not budgeted individually. 100% Completed.
Line Equipment Inspection	N/A	\$5,859	Not budgeted individually. 100% completed.
Pole Inspection and Treatment	\$18,800	\$13,512	81 poles were delayed to 2007 to facilitate future cycle efficiency.
Danger and Reject Pole Replacement	N/A	\$38,074	Not budgeted individually. (Projects 06-C-17-06, 08-C-03-06)
Substation Equipment Inspection	N/A	\$6,986	Not budgeted individually. 100% completed.
Other Unplanned Maintenance	N/A	\$44,886	Not budgeted individually. Primarily includes employee-reported problems (Projects 03-C-17-06, 03-C-18-06, 03-C-19-06, 04-C-02-06, 04-C-03-06, -04-C-04-06, 04-C-08-06, 05-C-05-06, 06-C-13-06, 08-C-02-06, 10-C-07-06)
Recloser Maintenance	N/A	\$7,138	Not budgeted individually.
<b>Total</b>	<b>\$83,100</b>	<b>\$196,254</b>	

**§ 57.195(b)(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.**

<b>Project</b>	<b>Budget Amount</b>	<b>Actual Expenditures</b>	<b>Variance</b>	<b>Comment</b>
Bull Run Crossing – Relocate 3-phase line (Budget Project #4)	\$83,600	\$42,612	-49%	\$12,500 carried over into 2007 and is not included in actual expenditures shown for 2006. This project is complete. We realized significant savings in traffic control costs by working with the township to secure road closures on several occasions.
Century Village – Underground Cable Replacement (Budget Project # 5)	\$25,200	\$19,113	-24%	Excavation costs were less than expected (no rock or difficult digging encountered). This project is complete.
<b>Total</b>	<b>\$108,800</b>	<b>\$61,725</b>	<b>-43%</b>	

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

<b>Program</b>	<b>Goal</b>
Infrared Inspection	Substation and 3 circuits
Vegetation Management	Entire System (9 circuits), as needed
Visual Line Inspection	Entire System (9 circuits)
Padmount Equipment Inspection	154 Locations
3Ø Padmount Transformer Oil Test	33 Transformers
Line Equipment Inspection	173 Locations
Pole Inspection and Treatment	500 Poles
Danger and Reject Poles	To be determined from pole inspections
Substation Equipment Inspection	12 Monthly Inspections
Recloser Maintenance	To be determined from counter readings.

**§ 57.195(b)(10) Budgeted transmission and distribution operation and maintenance expenses for the current year in total and detailed by the EDC's own functional account code or FERC account code as available.**  
(These items are not budgeted by FERC account.)

<b>Program</b>	<b>Budget \$</b>	<b>Comment</b>
Infrared Inspection	N/A	Not budgeted individually
Vegetation Management	\$69,500	
Visual Line Inspection	N/A	Not budgeted individually
Padmount Transformer Inspection	N/A	Not budgeted individually
3Ø Padmount Transformer Oil Test	\$2,000 (estimated)	Not budgeted individually
Line Equipment Inspection	N/A	Not budgeted individually
Pole Inspection and Treatment	\$19,000	
Danger and Reject Poles	N/A	Not budgeted individually
Substation Equipment Inspection	N/A	Not budgeted individually
Recloser Maintenance	N/A	Not budgeted individually
<b>Total</b>	<b>\$90,500</b>	

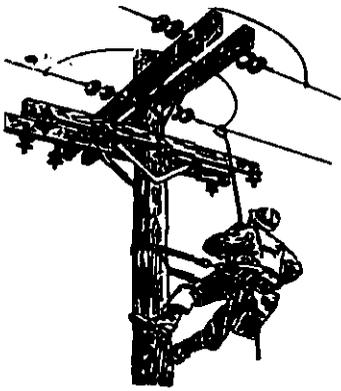
**§ 57.195(b)(11) Budgeted transmission and distribution capital expenditures for the current year in total and detailed by the EDC's own functional account code or FERC account code as available.**

(These items are not budgeted by FERC account.)

Project	Budget Amount
Rt. 45 Feeder Reinforcement	\$136,100

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

No significant changes.



# CITIZENS' ELECTRIC COMPANY

1775 INDUSTRIAL BLVD • P.O. BOX 551 • LEWISBURG, PA 17837-0551 • (570) 524-2231 • FAX: (570) 524-5887

April 24, 2007

# ORIGINAL

Mr. James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
PO Box 3265  
Harrisburg, PA 17105-3265

L-00030161

Dear Mr. McNulty,

Enclosed please find an original and six copies of the First Quarter, 2007 Reliability Report for Citizens' Electric Company.

Please contact me at 570-522-6143 or [kelchnerj@citizenselectric.com](mailto:kelchnerj@citizenselectric.com) if I can answer any questions.

Sincerely,

John A. Kelchner, PE  
Vice President, Engineering & Operations

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

cc: Pennsylvania Office of Consumer Advocate  
Pennsylvania Office of Small Business Advocate  
Darren Gill (via email)

1416

Citizens' Electric Company  
Quarterly Service Reliability Report

First Quarter, 2007

Prepared by John A. Kelchner, PE  
Vice President of Engineering & Operations

570-522-6143

[kelchnerj@citizenselectric.com](mailto:kelchnerj@citizenselectric.com)

April 24, 2007

ORIGINAL

**§ 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.**

On March 19<sup>th</sup>, during a period of light freezing rain, an off R/W tree fell onto a 3 phase line interrupting all customers on that circuit. This outage occurred a few days after a period of heavy rain and snow saturated the ground. A light coating of ice had accumulated on the tree that fell. A request to exclude this outage was submitted on March 21<sup>st</sup>. While we have not received an approval to date, the calculations for this quarter were done with the outage excluded. In the event the exclusion is denied, all data will be recalculated accordingly.

Date	Time First Call Received	Duration of Event (Minutes)	# of Customers Affected	Cause
3/19/2007	9:43 PM	104	947	Off R/W Tree

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

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

Index	Rolling 12-Month Value for Quarter	Benchmark	Standard
SAIFI	0.14	0.21	0.27
SAIDI	10	21	38
CAIDI	68	105	141

Total # of Customers Served	# of Interruptions	# of Customers Affected	Customer Minutes
6,711	62	951	64,578

The following outages were submitted for exclusion as Major Events during the preceding 12-month period and are not included in the above calculations:

Date	# of Customers Affected	Customer Minutes
3/19/2007	947	98,488

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

Outage Cause	Number of Interruptions	% of Interruptions	Number of Customers Affected	Customer Interruption Minutes
On R/W Trees	0	0	0	0
Animals	29	46.8	373	19,938
Equipment	14	22.6	204	23,858
Off R/W Trees	2	3.2	27	1,035
Weather	10	16.1	261	14,403
Vehicle	1	1.6	5	230
Other	6	9.7	81	5,114
Total	62		951	64,578

**Discussion**

During the first quarter, animal contact was again the most common cause of outages. We are continuing the aggressive installation of wildlife protectors and insulated leads on transformer bushings, and the use of insulated equipment mounting brackets on poles.



**Duquesne Light**  
A DQE Company

Rates & Regulatory Affairs Unit  
411 Seventh Avenue 8-6  
Pittsburgh, Pennsylvania 15219

**ORIGINAL**

April 25, 2007

**VIA OVERNIGHT MAIL DELIVERY:**

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
P. O. Box 3265  
Harrisburg, Pennsylvania 17105-3265

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APR 25 2007

Dear Mr. McNulty:

L-00030161

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Enclosed for filing please find an original and six (6) copies of Duquesne Light Company's annual reliability report for the calendar year 2006, as required by 52 Pa. Code §57.195.

Please return a date-stamped copy of this letter in the enclosed, self-addressed stamped envelope.

If you have any questions regarding the information provided, please contact me at (412) 393-6334 or nkrajovic@duqlight.com.

Sincerely,

DOCUMENT  
FOLDER

Nancy J. D. Krajovic  
Manager, Regulatory Affairs

Enclosures

- c: Mr. W. Williams – Bureau of CEEP
- Mr. I. A. Popowsky – Office of Consumer Advocate
- Mr. W. R. Lloyd – Office of Small Business Advocate
- Mr. D. Gill – Bureau of CEEP
- Mr. B. J. Loper – Bureau of CEEP

- w/enclosure
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63

DUQUESNE LIGHT COMPANY  
ANNUAL RELIABILITY REPORT 2006  
APRIL 30, 2007

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APR 25 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**57.195 REPORTING REQUIREMENTS**

- (a)(2) **The name, title, telephone number, and e-mail address of the persons who have knowledge of the matters, and can respond to inquiries.**

Wayne H. Honath - Manager, Reliability and Standards  
(412) 393-8332, whonath@duqlight.com

Nancy J. Krajovic - Manager, Regulatory Affairs  
(412) 393-6334, nkrajovic@duqlight.com

DOCUMENT  
FOLDER

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

Duquesne Light Company's service territory covers approximately 800 square miles, with a well-developed distribution system throughout. Electric service reliability is fairly consistent across the service territory. The combination of an effective outage restoration process and significant distribution automation allows the Company to quickly restore power to large numbers of customers in outage situations.

There were fourteen storms in the service territory throughout 2006, none of which was PUC reportable. These storms all caused damage to overhead equipment, but none affected enough customers to qualify for Major Event exclusion. An ice storm in early December affected approximately 6% of Duquesne's customers, but because of extensive damage and weather conditions, many outages were very lengthy. This storm alone accounted for 8% of the 2006 SAIDI total, and caused an increase in CAIDI (long outages affecting small numbers of customers result in a larger CAIDI value).

Achieving outstanding performance in system reliability continues to be one of Duquesne's long-term objectives. The commitment to accomplishing that goal is evidenced by the Company's organization, planning and analysis, and budget priorities, in addition to the programs and processes that have been implemented.

Within the Operations and Customer Service organization is the Asset Management and Engineering Group, whose Planning and Analysis personnel are responsible for managing processes, programs and procedures to maintain and improve reliability.

Ongoing analysis of reliability indices, root cause analysis of outages, and tracking and monitoring of other performance measures is done to optimize the reliability process and to identify process improvements in order to enhance Duquesne's performance.

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APR 27 2007

**(b)(1) (continued)**

The Reliability & Standards Group analyzes circuit performance on an ongoing basis and has successfully used the results to identify areas that could benefit from investment in reliability improvement. For the past nine years, SGS Statistical Consultants, an independent consultant, has conducted statistical analyses of interruption data to provide additional intelligence about the performance of distribution circuits. This collective information is used to plan and prioritize reliability improvement investments in the distribution system.

Component failure analysis continues to be utilized to identify equipment types to target for preventive maintenance and/or capital replacement. Analysis at the component level is used to identify small areas where customers may experience multiple outages during the year. System level, and even circuit level indices mask such isolated problem areas, but it has been determined that those areas can be identified by tracking component lockouts. A circuit analysis methodology based on component lockouts has been developed, and will be utilized to identify worst performing circuits beginning in 2007.

Scheduled preventative and predictive maintenance activities continue to reduce the potential for future service interruptions. Corrective maintenance is prioritized with the objective to reduce and eliminate any backlog in the most cost-efficient manner.

Several capital budget projects target distribution reliability improvements, including pole replacement, substation rehabilitation, circuit load relief and voltage improvement, circuit rearrangement and installation of additional automated remotely controlled pole top devices.

Specific programs, procedures and ongoing maintenance activities that support Duquesne's commitment to excellent service reliability include:

An Infrared and Ultrasound Inspection Program that systematically identifies circuit and substation problems for remedial action in advance of failure.

A comprehensive Vegetation Management Program, which is designed to provide long-term line clearance, deter future growth and achieve optimum cycle for trimming. All of the Company's circuits are included in a multi-year Vegetation Management maintenance program. The impact on SAIDI and SAIFI due to tree-related outages continues to trend positively.

An ongoing long-term Sectionalizer Maintenance and Replacement Program serves to refurbish and maintain reliable operation of all automatic and remote controllable switches on Duquesne's automated distribution system, and to replace those that are no longer operating efficiently.

A comprehensive Substation Rehabilitation Program targets improvements in delivery system substation facilities including replacement of deteriorated and obsolete transformers, breakers, switches, relays, regulators and other equipment.

**(b)(1) (continued)**

New distribution substations are being installed between existing major substations to take advantage of transmission reliability, decrease distribution circuit exposure and improve reliability to end users.

Line maintenance work of various types is regularly performed in order to maintain distribution plant. This work includes replacement of cross arms, arresters, insulators, and other equipment on the overhead system as well as inspections and remedial work on the underground system.

A Storm Preparedness Drill is conducted each year prior to the beginning of the expected storm season. The drill is a real-time simulation of a significant major event, and includes all participants representing all functional areas associated with actual storm response.

Storm Review Meetings are held following major events. These meetings focus on the successes and failures of the most recent emergency service restoration effort. Service restoration process improvements are made as needed to improve response time and effectiveness during the next restoration effort.

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

No Major Events occurred during 2007.

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

**RELIABILITY BENCHMARKS AND STANDARDS**

**Duquesne Light Company**

**System Performance Measures with Major events Excluded\*\***

Year	SAIDI	SAIFI	CAIDI	MAIFI
2004	95	1.03	92	*
2005	97	0.98	98	*
2006	81	0.79	102	*
<b>3 Year Average</b>	<b>91</b>	<b>0.93</b>	<b>97</b>	<b>*</b>
Benchmark	126	1.17	108	NA
<b>Standard for 3 Year Avg.</b>	<b>153</b>	<b>1.29</b>	<b>119</b>	<b>NA</b>

\* Sufficient information to calculate MAIFI is unavailable.

**(b)(3) (continued)**

**Formulas used in calculating the indices**

$$\text{SAIFI} = \frac{(\text{Total KVA interrupted}) - (\text{KVA impact of major events})}{\text{System Connected KVA}}$$

$$\text{SAIDI} = \frac{(\text{Total KVA-minutes interrupted}) - (\text{KVA-minute impact of major events})}{\text{System Connected KVA}}$$

$$\text{CAIDI} = \text{SAIDI/SAIFI}$$

**Data used in calculating the indices**

**2006**

Total KVA interrupted for the period:	5,526,259	KVA
Total KVA-minutes interrupted:	564,511,212	KVA-Minutes
System connected load as of 12/31/06:	6,983,893	KVA

**2005**

Total KVA interrupted for the period:	6,760,225	KVA
Total KVA-minutes interrupted:	664,258,773	KVA-Minutes
System connected load as of 12/31/05:	6,863,693	KVA

**2004**

Total KVA interrupted for the period:	8,929,966	KVA
Total KVA-minutes interrupted:	1,196,244,898	KVA-Minutes
System connected load as of 12/31/04:	6,386,215	KVA

May 21, 2004 major event: 814,316 KVA (13% of system load)  
137,141,850 KVA-minutes

June 14, 2004 major event: 620,309 KVA (10% of system load)  
112,078,821 KVA-minutes

September 17, 2004 major event: 906,344 KVA (14.2% of system load)  
338,257,694 KVA-Minutes

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

**January 1, 2006 through December 31, 2006**

<b>Cause</b>	<b>No of Outages</b>	<b>Outage Percentage</b>	<b>KVA Total</b>	<b>KVA Percentage</b>	<b>KVA-Minute Total</b>	<b>KVA-Minute Percentage</b>
Storms	483	17.3%	1,060,583	19.2%	137,072,878	24.3%
Tree Growth and Contact	120	4.3%	128,615	2.3%	20,737,229	3.7%
Tree (Falling Limb or Tree)	349	12.5%	710,753	12.9%	120,069,293	21.3%
Equipment Failures	846	30.2%	2,044,191	37.0%	187,741,994	33.3%
Overload	445	15.9%	93,540	1.7%	13,198,800	2.3%
Vehicles	137	4.9%	375,321	6.8%	38,478,015	6.8%
All Other	417	14.9%	1,113,256	20.1%	47,213,003	8.4%
<b>Total</b>	<b>2,797</b>	<b>100%</b>	<b>5,526,259</b>	<b>100%</b>	<b>564,511,212</b>	<b>100%</b>

**(b)(5) A list of 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.**

Rank	Circuit	Remedial Actions Planned or Taken
1	22869 Midland-Cooks Ferry	VM completed Q4 2002; VM work started Q1, 2007. IR survey 7/28/04; hot spots repaired 8/23/04. Lateral fuses installed 5/3/04. Installed new sectionalizers 5/4/05 and 10/24/05; installed new recloser 8/20/05. Pilot to improve communications to hard to reach devices was successful. The improved communications method will be extended to other parts of the system. Additional remediation is planned for 2007, including targeted circuit IR survey and installation of three line reclosers and 12 to 14 sets of fault locators.
2	23620 Raccoon	VM completed 10/15/04; VM scheduled for 2009. IR survey 11/23/05; hot spots repaired 1/3/06. Targeted circuit IR survey scheduled for 2007. Lateral fusing completed 9/05. A new circuit, Crescent 23662, will reduce exposure and connected load on this circuit, scheduled for design in 2007 and construction in 2008. Overload relief for 2 step-down transformer areas completed 10/06. Additional remediation is planned for 2007, including targeted circuit IR survey. Performance in 2006 shows significant improvement over 2005 with reductions in total interruptions (38 vs. 51), kVA interrupted (24,102 vs. 108,425) and kVA minutes (3,402,144 vs. 8,778,060).
3	23622 Raccoon	VM completed 10/4/2005. IR survey 6/29/04; hot spots repaired 8/23/04. Lateral fuses installed 6/04 and 5/05. Repaired failed lightning arresters. Replaced faulty insulators. Overload relief for 2 step-down transformer areas completed 10/06. Installed 3 additional switches in Q4 2005. Beaver Valley Mall rehab scope issued 1/30/06; to be designed & constructed in 2006 & 2007 (Work delayed by customer). Additional remediation is planned for 2007, including targeted circuit IR survey, up to 7 new or replaced reclosers and sectionalizers and multiple fault locators. Performance in 2006 shows improvement over 2005, with reductions in total interruptions (21 vs. 43), kVA interrupted (31,531 vs. 92,208) and kVA minutes 5,460,403 vs. 7,273,834).
4	23716 Pine Creek	New circuit on this list. VM completed 4Q 2004. Next VM proposed for 2008. IR survey 7/1/2004. All defects were repaired. New circuit at Wildwood substation (scheduled for first quarter 2008) includes installation of additional sectionalizers to improve restoration on 23716. Performance in 2006 compared to 2005 shows a reduction in outages (17 vs. 31), KVA interrupted (56,103 vs. 143,742) and KVA-minutes (7,028,566 vs. 8,560,891). Additional remediation for 2007 includes installation of fault locators in right-of-way area, field review of Underground Residential Developments, and accelerated installation of two remote control automated switches.
5	23670 Montour	VM completed Q4 2001; VM scheduled for Q2 2007. IR survey 11/11/05; hot spots repaired 1/31/06. Lateral fuses installed 6/05. Partial transfer to new circuit, Findlay 23613, was completed 1/9/07, and will reduce exposure and load on this circuit.
6	23783 Valley	VM completed Q3 2002; VM scheduled for 2007/2008. IR survey 9/7/04; hot spots repaired 9/13/04. Additional IR survey 6/7/06. Lateral fuses installed 2/19/04. Defective sectionalizer control replaced 10/11/05. Replaced sectionalizer damaged by lightning. Converted 2 sectionalizers to wireless control. Final wireless conversion scheduled for 2007. Additional sectionalizing to be designed and installed in 2007.
7	23920 Logans Ferry	VM completed Q1 2006. IR survey 6/17/04; hot spots repaired 9/1/04. Lateral fuses installed 2/23/04. New circuit, Logans Ferry 23923, cut in 1/4/06; load transfer in 4/06 reduced exposure and connected KVA. New California circuit 23839, cut in 12/06, reduced exposure and connected kVA (approx. 7100 kVA). With the conversion of Oakmont Circuit 4281, four additional automated devices will be installed on D-23920: two line sectionalizers and two emergency ties. This work is scheduled for completion in 2007. Performance in 2006 shows improvement over 2005, with a slight reduction in total interruptions (21 vs. 24), and significant reductions in kVA interrupted (52,259 vs. 70,263) and kVA minutes (2,528,699 vs. 3,622,377).
8	23683 Woodville	IR survey 9/7/04; hot spots repaired 9/13/04. Lateral fuses installed 3/30/04. VM started 5/06; completed 9/06. Performance in 2006 shows improvement over 2005, with a reduction in total interruptions (18 vs. 27), and significant reductions in kVA interrupted (8,300 vs. 24,822) and kVA minutes (1,524,832 vs. 5,766,876).
9	23715 Pine Creek	VM completed 2/4/05. Lateral fusing completed on 2/16/05. IR was completed on 2/16/05. One hot spot repaired and four lightning arresters replaced. New circuit at Wildwood substation (scheduled for first quarter 2008) includes installation of additional sectionalizers to improve restoration on 23715. Performance in 2006 compared to 2005 shows a reduction in outages (24 vs. 28), KVA interrupted (30,314 vs. 52,318) and KVA-minutes (3,098,227 vs. 4,771,707). Additional remediation for 2007 includes installation of fault locators on three cable segments, field review of Underground Residential Developments, and accelerated installation of three remote control automated switches.

Notes: VM = Vegetation Management Line Clearance  
IR = Infrared Inspection of Overhead Equipment

**(b)(5) (continued)**

10	22860 Valley-Morado No. 2	VM completed Q1 2006. Switches installed Q4 2005 to improve sectionalizing. Overloaded step-down transformers and non-standard aerial cable will be eliminated through conversion to 23 kV distribution and rearrangement of the area by 12/07. Performance in 2006 compared to 2005 shows a reduction in total interruptions (6 vs. 9), KVA interrupted (3,830 vs. 23,996) and KVA-Minutes (123,935 vs. 11,474,525).
11	22563 Pine Creek-Blaw Knox	VM completed 4Q 2002. IR survey of RIDC Park area1/13/2006. All defects were repaired. The distribution load on this circuit was transferred to the new California circuit 23838 in January 2007. Although there were 5 outages in 2006, compared to 3 in 2005, the 2006 results show significant reductions in KVA interrupted (14,537 vs. 36,807) and KVA-minutes (2,516,567 vs. 14,355,444). Performance will be monitored throughout 2007. Next VM scheduled for 2008.
12	23630 Sewickley	VM completed Q3 2003; VM in progress Q1 2007. IR survey 8/10/04; hot spots repaired 9/30/04. Lateral fuses installed. A bulk power substation will be installed at Sewickley, subject to availability of 138 kV rights of way. Related work will include installation of a second Sewickley 23 kV circuit.
13	23635 Ambridge	VM completed Q3 2003. IR survey 1998. Lateral fusing completed January 2006. Remedial VM work completed 10/06 to address tree fall-ins.
14	23870 Mt. Nebo	Repaired sectionalizer that misoperated. Remedial VM completed August/September, 2006. Next VM scheduled for 2008;. Lateral fuses installed 2/5/04. IR survey 7/15/04; hot spots repaired 8/23/04. IR surveyed again on 8/17/05. New circuit Mount Nebo 23871 reduced exposure and load on this circuit; energized 1/10/06. Although the total number of interruptions was similar in 2005 and 2006 (50 in 2005 and 51 in 2006) the 2006 results show a significant reduction in KVA interrupted (89,616 vs. 167,924) and KVA-minutes (7,920,276 vs. 19,740,031). Mount Nebo was also affected by multiple momentary interruptions due to loss of supply from the Crescent-North 138KV supply lines. A major improvement project to replace the wood crossarms on these two supply circuits is underway in 2007.
15	23711 Pine Creek	New circuit on this list. IR Survey 2/17/2006. All repairs completed in third quarter. VM completed third quarter 2006. . Performance in 2006 compared to 2005 shows a reduction in outages (23 vs. 31), KVA interrupted (24,888 vs. 78,981) and KVA-minutes (5,783,589 vs. 9,478,593). Performance will be monitored throughout 2007.
16	22862 Ambridge-Sewickley #3	IR survey 1999. VM completed Q3 2003; VM scheduled for 2007. Circuit experienced only 1 outage in 2006, caused by a vehicle.
17	23750 Dravosburg	New circuit on this list. VM completed 2003; VM scheduled for 2007. Circuit shows improvement in 2006. Performance in 2006 compared to 2005 shows a reduction in outages (11 vs. 26), KVA interrupted (52,758 vs. 70,585) and KVA-Minutes (8,901,757 vs. 4,873,500). Performance will be monitored throughout 2007.
18	22854 Phillips-Aliquippa	VM completed 8/22/2005; VM scheduled for 2010. A new circuit, Crescent 23662, will be extended to this area in 2008. Remote controlled devices will be installed for service restoration. No forced outages since 7/29/2005.
19	23704 North	VM completed in 2003. Next VM scheduled for 2007. Lateral fusing completed 3/3/05. IR completed 3/02/05. One hot spot found and repaired. Two blown arrestors and bracing repaired. New Wildwood substation will allow reduced exposure and load on this circuit. The expected cut-in date for Wildwood SS is 03/08. Performance in 2006 compared to 2005 shows a reduction in outages (21 vs. 37), KVA interrupted (27,315 vs. 33,645) but an increase in KVA-minutes (6,114,478 vs. 4,656,101). Performance will be monitored throughout 2007. This completion of the Wildwood Project in 2008 should result in continued improvement.
20	23782 Valley	New circuit on this list. VM completed 7/06. Performance was monitored throughout 2006. Although the total number of interruptions was similar in 2005 and 2006 (23 in 2005 and 25 in 2006) the 2006 results show significant reductions in KVA interrupted (7,493 vs. 34,383) and KVA-minutes (2,002,708 vs. 2,561,010).

**Notes: VM = Vegetation Management Line Clearance  
IR = Infrared Inspection of Overhead Equipment**

**(b)(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.**

<b>2006 Transmission and Distribution Goals and Objectives</b>				
<b>Program Project</b>	<b>Unit of Measurement</b>	<b>Target for 2006</b>	<b>Actual for 2006</b>	<b>Percent Complete</b>
<b>Communications Goals</b>				
Telecom Battery Maintenance	Batteries	120	132	110%
Microwave Radio Maintenance	Radio Units	18	51	283%
<b>Overhead Distribution Goals</b>				
Sectionalizer/Recloser Control	Control Units	210	245	117%
Sectionalizer Upper Switch	Switches	220	252	115%
<b>Overhead Transmission Goals</b>				
Tower Helicopter Inspections	Number of Towers	500	489	98%
Tower Ground Detail Inspections	Number of Towers*	300	305	102%
<b>Substations Goals</b>				
Breaker Maintenance	Breakers	740	775	105%
Transformer Maintenance	Transformers	75	78	104%
Station Battery Maintenance	Batteries	1,120	1,131	101%
Station Relay Maintenance	Relays	3,410	3,574	105%
<b>Underground Distribution Goals</b>				
Manhole Inspections	Manholes	750	727	97%
Network Vault Inspections	Network Units	579	581	100%
Network Protector Inspections	Protectors	300	414	138%
<b>Underground Transmission Goals</b>				
Pressurization and Cathodic Protection Plant Inspection	Work Packages	52	52	100%
<b>Vegetation Management Goals</b>				
Overhead Line Clearance	Circuit Overhead Miles	1,410	1,567	111%

(b)(7) A comparison of budgeted versus actual transmission and distribution operation and maintenance expenses for the year being reported on. Explanations of any variances shall be included.

Program	2006 Budget	2006 Actual
Restoration of Service	4,000,000	2,596,949
Customer Commitment	2,000,000	1,041,341
System Maintenance	21,300,000	24,146,081
System Improvement	-	-
Infrastructure Support	-	-
Net Clearing	10,600,000	10,582,347
<b>Total Work Plan</b>	<b>37,900,000</b>	<b>38,366,718</b>
Total Non-Work Plan	56,664,000	53,117,424
<b>Total Operations &amp; Customer Services</b>	<b>94,564,000</b>	<b>91,484,142</b>

(b)(8) A comparison of budgeted versus actual transmission and distribution capital expenditures for the year being reported on. Explanations of any variances shall be included.

Program	2006 Budget	2006 Actual
Restoration of Service	18,000,000	19,097,000
Customer Commitment	19,000,000	19,808,000
System Maintenance	-	-
System Improvement	161,500,000	169,121,000
Infrastructure Support	21,500,000	28,773,000
Net Clearing	-	(8,462,000)
<b>Total Work Plan</b>	<b>220,000,000</b>	<b>228,337,000</b>
Total Non-Work Plan	-	-
<b>Total Operations &amp; Customer Services</b>	<b>220,000,000</b>	<b>228,337,000</b>

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

**2007 Transmission and Distribution Goals and Objectives**

<b>Program Project</b>	<b>Unit of Measurement</b>	<b>Target for Year 2007</b>
<b>Communications Goals</b>		
Telecom Battery Maintenance	Batteries	124
Microwave Radio Maintenance	Radio Units	20
<b>Overhead Distribution Goals</b>		
Sectionalizer/Recloser Control	Control Units	148
Sectionalizer Upper Switch	Switches	210
<b>Overhead Transmission Goals</b>		
Tower Helicopter Inspections	Number of Towers	500
Tower Ground Detail Inspections	Number of Towers	300
<b>Substations Goals</b>		
Breaker Maintenance	Breakers	752
Transformer Maintenance	Transformers	81
Station Battery Maintenance	Batteries	1,120
Station Relay Maintenance	Relays	784
<b>Underground Distribution Goals</b>		
Manhole Inspections	Manholes	750
Network Vault Inspections	Network Units	550
Network Protector Inspections	Protectors	300
<b>Underground Transmission Goals</b>		
Pressurization and Cathodic Protection Plant Inspection	Work Packages	52
<b>Vegetation Management Goals</b>		
Overhead Line Clearance	Circuit Overhead Miles	1,675

**(b)(10) Budgeted transmission and distribution operation and maintenance expenses for the current year in total and detailed by FERC account.**

<b>Program</b>	<b>2007 Budget</b>
Restoration of Service	4,028,000
Customer Commitment	2,882,000
System Maintenance	20,550,000
System Improvement	-
Infrastructure Support	-
Net Clearing	10,675,000
<b>Total Work Plan</b>	<b>38,135,000</b>
Non-Work Plan	58,949,000
<b>Total Operations &amp; Customer Services</b>	<b>97,084,000</b>

**(b)(11) Budgeted transmission and distribution capital expenditures for the current year in total and detailed by FERC account.**

<b>Program</b>	<b>2007 Budget</b>
Restoration of Service	17,000,000
Customer Commitment	20,000,000
System Maintenance	-
System Improvement	109,400,000
Infrastructure Support	13,600,000
Net Clearing	-
<b>Total Work Plan</b>	<b>160,000,000</b>
Non-Work Plan	-
<b>Total Operations &amp; Customer Services</b>	<b>160,000,000</b>

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

There are no significant changes to the inspection and maintenance programs previously submitted.



**Duquesne Light**  
A DQE Company

Rates & Regulatory Affairs Unit  
411 Seventh Avenue 8-6  
Pittsburgh, Pennsylvania 15219

**ORIGINAL**

April 25, 2007

**VIA OVERNIGHT MAIL DELIVERY:**

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
P. O. Box 3265  
Harrisburg, Pennsylvania 17105-3265

**RECEIVED**

APR 25 2007

**PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU**

Dear Mr. McNulty:

In accordance with the Commission's Order at L-00030161 entered March 20, 2006, on Duquesne's Petition for Protective Order Pertaining to Information contained in its Quarterly and Annual Reliability Reports, Duquesne is submitting an original and six (6) copies of its report for the quarter ended December 31, 2006, in two versions, both included under this transmittal letter. The first version contains only that information for which the Commission did not grant protective treatment. The second version includes all of the information required by 52 Pa. Code §57.195, is marked "confidential and proprietary" and is enclosed in a sealed envelope.

Duquesne respectfully requests that version marked "confidential and proprietary" not be made available to the public.

Please return a date-stamped copy of this letter in the enclosed, self-addressed stamped envelope.

If you have any questions regarding the information provided, please contact me at (412) 393-6334 or nkrajovic@duqlight.com.

Sincerely,

Nancy J. D. Krajovic  
Manager, Regulatory Affairs

**DOCUMENT  
FOLDER**

Enclosures

- |  |              |
|--|--------------|
| c: Mr. W. Williams – Bureau of CEEP                      | w/ enclosure |
| Mr. I. A. Popowsky – Office of Consumer Advocate         | "            |
| Mr. W. R. Lloyd, Jr. – Office of Small Business Advocate | "            |
| Mr. D. Gill – Bureau of CEEP                             | "            |
| Mr. B. J. Loper – Bureau of CEEP                         | "            |

15

**DUQUESNE LIGHT COMPANY  
QUARTERLY RELIABILITY REPORT  
May 1, 2007**

**57.195 Reporting Requirements**

**(d)(2) The name, title, telephone number and e-mail address of the persons who have knowledge of the matters, and can respond to inquiries.**

Wayne H. Honath - Manager, Reliability & Standards  
(412) 393-8332, whonath@duqlight.com

Nancy J. Krajovic - Manager, Regulatory Affairs  
(412) 393-6334, nkrajovic@duqlight.com

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

(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 first quarter of 2007.

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

### RELIABILITY BENCHMARKS AND STANDARDS

#### Duquesne Light Company

#### System Performance Measures with Major Events Excluded

Entire System				
	SAIDI	SAIFI	CAIDI	MAIFI
Benchmark	126	1.17	108	*
12 Month Standard	182	1.40	130	*
2007 1Q (Rolling 12 mo)	85	0.81	104	*

\* Sufficient information to calculate MAIFI is unavailable.

#### Data used in calculating the indices

Total KVA interrupted for the period:	5,718,191	KVA
Total KVA-minutes interrupted:	597,522,503	KVA-Minutes
System connected load as of 3/31/07:	7,018,727	KVA

#### Formulas used in calculating the indices

SAIFI =  $\frac{\text{(Total KVA interrupted)} - \text{(KVA impact of major events)}}{\text{System Connected KVA}}$

SAIDI =  $\frac{\text{(Total KVA-minutes interrupted)} - \text{(KVA-minute impact of major events)}}{\text{System Connected KVA}}$

CAIDI = SAIDI/SAIFI

**(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 electric distribution company defines its worst performing circuits shall be included. (See Attachment A for table of circuit reliability values.)**

Circuits are evaluated using a newly-refined process, based on a rolling twelve-month count of lockouts of protective devices (circuit breakers, sectionalizers and line reclosers). Circuits that experience four or more lockouts for a device in each quarterly rolling twelve-month period are identified and reported. Customer surveys show a significant drop in satisfaction when customers experience four or more interruptions in a year, and that threshold was therefore used as a basis for this new evaluation method.

The list is ranked first by the date of the most recent outage, with a secondary sort based on number of lockouts. This places a higher priority on circuits experiencing problems in the most recent quarter. Circuits that have not seen recent outages fall to a lower priority, but remain on the list for monitoring.

Circuits that appear on the list for more than a year will be targeted for remediation based on a review of outage records for root cause identification, field evaluations, and engineering analysis. Project scopes developed as a result of this analysis will be incorporated into the company's Work Plan for engineering, design and construction.

This lockout-based performance criterion represents a change from the method used in recent years. This circuit analysis is more timely than that used in the past, as it can be reviewed in-house on a quarterly or even a monthly basis. It provides a truer representation of the dynamic nature of Duquesne's distribution system and will identify poor performing areas more quickly. The threshold of four lockouts may produce a result greater or less than 5% of the total circuits in the system. Reports will be issued on all circuits that violate the four-lockout threshold, even if the total is greater than 5% of the number of circuits on the system.

The chart in this report also shows circuits with devices having three lockouts in the latest 12-month period, sorted by circuit number. These circuits and devices will be monitored for additional lockouts.

These changes are being implemented based on the aforementioned customer satisfaction data, daily operating experience, and recommendations and action items resulting from the Commission's 2004 Focused Management and Operations Audit of the Company's processes.

For purposes of comparison, the current list of worst performing circuits which utilizes the lockout-based selection criteria, is followed by the 2006 year-end list as defined by the previous statistical methodology. Beginning with the 2007 second quarter the lockout-based analysis will be used for reporting, for a rolling twelve-month period, and will update remedial efforts for each circuit.

In addition, as the Commission requested during a recent conference call with the Energy Association of Pennsylvania, Attachment A also includes the Company Service Center associated with each circuit.

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

Rank	Circuit	Name	Remedial Actions Planned or Taken
1	23806	Elwyn	IR Inspection scheduled for 2007. VM scheduled for 2007.
2	23862	Wilson	IR Inspection scheduled for 2007.
3	23682	Woodville	IR Inspection scheduled for 2007. VM scheduled for 2007.
4	23801	Elwyn	The control unit for sectionalizer EA310 was replaced with a wireless unit on 9/30/06 (after an operation for unknown cause on 9/19/06). IR Inspection scheduled for 2007. Lateral fusing and VM scheduled for 2008.
5	23764	Wilmerding	Most recent lockout was caused by a vehicle striking a pole. This device will be monitored for further lockouts.
6	23680	Woodville	Lateral fusing completed in 2006. VM scheduled for 2007.
7	23695	Brunot Island	Lateral fusing completed in 2006.
8	23716	Pine Creek	Last VM completed 4Q 2004. Next VM proposed for 2008. IR survey 7/1/2004. All defects were repaired. New circuit at Wildwood substation (scheduled for fourth quarter 2008) includes installation of additional sectionalizers to improve restoration on 23716.
9	23698	Brunot Island	Lateral fusing and VM scheduled for 2008.
10	23881	Rankin	Circuit, including first section beyond the breaker was inspected by infrared crews in late 2006 and all hot spots were repaired by the Penn Hills Service Center. There have been no lockouts since October 17, 2006.
11	4568	Dormont	Outages were related to cable failures, and damage to the 4KV bus within the substation. Circuits were temporarily connected to a mobile substation until October, when cooler weather permitted a scheduled outage to clean and repair the bus. Cables have been repaired and Dormont substation is running in its normal configuration. No lockouts since September 2006. This breaker will be subject to ongoing monitoring.
12	4824	Valley	Lockouts during the summer were caused by circuit overloads. A load relief project was completed in July 2006, and there have been no lockouts since then. VM scheduled for 2007.
	4567	Dormont	Continue to monitor performance - Three lockouts of Substation Breaker
	23611	Findlay	Continue to monitor performance - Three lockouts of Substation Breaker
	23612	Findlay	Continue to monitor performance - Three lockouts of sectionalizer EA898
	23682	Woodville	Continue to monitor performance - Three lockouts of sectionalizer EA271
	23690	Brunot Is.	Continue to monitor performance - Three lockouts of sectionalizer WA394
	23694	Brunot Is.	Continue to monitor performance - Three lockouts of sectionalizer WA408
	23694	Brunot Is.	Continue to monitor performance - Three lockouts of sectionalizer WA578
	23714	Pine Creek	Continue to monitor performance - Three lockouts of Substation Breaker
	23717	Pine Creek	Continue to monitor performance - Three lockouts of Substation Breaker
	23731	Universal	Continue to monitor performance - Three lockouts of sectionalizer EA8
	23743	Oakland	Continue to monitor performance - Three lockouts of sectionalizer EA754
	23783	Valley	Continue to monitor performance - Three lockouts of sectionalizer WA560
	23802	Elywn	Continue to monitor performance - Three lockouts of sectionalizer EA850
	23870	Mt. Nebo	Continue to monitor performance - Three lockouts of sectionalizer WA557
	23890	Carrick	Continue to monitor performance - Three lockouts of Substation Breaker
	23922	Logans Ferry	Continue to monitor performance - Three lockouts of Substation Breaker
	23954	Evergreen	Continue to monitor performance - Three lockouts of Substation Breaker

**(e)(4) (continued)**

For reference, the following chart shows the year-end ranking of the worst 20 circuits using the statistical methodology that was in effect through the end of 2006.

Rank	Circuit	Remedial Actions Planned or Taken
1	22869 Midland-Cooks Ferry	VM completed Q4 2002; VM work started Q1, 2007. IR survey 7/28/04; hot spots repaired 8/23/04. Lateral fuses installed 5/3/04. Installed new sectionalizers 5/4/05 and 10/24/05; installed new recloser 8/20/05. Pilot to improve communications to hard to reach devices was successful. The improved communications method will be extended to other parts of the system. Additional remediation is planned for 2007, including targeted circuit IR survey and installation of three line reclosers and 12 to 14 sets of fault locators.
2	23783 Valley	VM completed Q3 2002; VM scheduled for 2007/2008. IR survey 9/7/04; hot spots repaired 9/13/04. Additional IR survey 6/7/06. Lateral fuses installed 2/19/04. Defective sectionalizer control replaced 10/11/05. Replaced sectionalizer damaged by lightning. Converted 2 sectionalizers to wireless control. Final wireless conversion scheduled for 2007. Additional sectionalizing to be designed and installed in 2007.
3	23620 Raccoon	VM completed 10/15/04; VM scheduled for 2009. IR survey 11/23/05; hot spots repaired 1/3/06. Targeted circuit IR survey scheduled for 2007. Lateral fusing completed 9/05. A new circuit, Crescent 23662, will reduce exposure and connected load on this circuit, scheduled for design in 2007 and construction in 2008. Overload relief for 2 step-down transformer areas completed 10/06. Additional remediation is planned for 2007, including targeted circuit IR survey. Performance in 2006 shows significant improvement over 2005 with reductions in total interruptions (38 vs. 51), kVA interrupted (24,102 vs. 108,425) and kVA minutes (3,402,144 vs. 8,778,060).
4	23630 Sewickley	VM completed Q3 2003; VM in progress Q1 2007. IR survey 8/10/04; hot spots repaired 9/30/04. Lateral fuses installed. A bulk power substation will be installed at Sewickley, subject to availability of 138 kV rights of way. Related work will include installation of a second Sewickley 23 kV circuit.
5	23622 Raccoon	VM completed 10/4/2005. IR survey 6/29/04; hot spots repaired 8/23/04. Lateral fuses installed 6/04 and 5/05. Repaired failed lightning arresters. Replaced faulty insulators. Overload relief for 2 step-down transformer areas completed 10/06. Installed 3 additional switches in Q4 2005. Beaver Valley Mall rehab scope issued 1/30/06; to be designed & constructed in 2006 & 2007 (Work delayed by customer). Additional remediation is planned for 2007, including targeted circuit IR survey, up to 7 new or replaced reclosers and sectionalizers and multiple fault locators. Performance in 2006 shows improvement over 2005, with reductions in total interruptions (21 vs. 43), kVA interrupted (31,531 vs. 92,208) and kVA minutes 5,460,403 vs. 7,273,834).
6	23683 Woodville	IR survey 9/7/04; hot spots repaired 9/13/04. Lateral fuses installed 3/30/04. VM started 5/06; completed 9/06. Performance in 2006 shows improvement over 2005, with a reduction in total interruptions (18 vs. 27), and significant reductions in kVA interrupted (8,300 vs. 24,822) and kVA minutes (1,524,832 vs. 5,766,876).
7	23635 Ambridge	VM completed Q3 2003. IR survey 1998. Lateral fusing completed January 2006. Remedial VM work completed 10/06 to address tree fall-ins.
8	22860 Valley-Morado No. 2	VM completed Q1 2006. Switches installed Q4 2005 to improve sectionalizing. Overloaded step-down transformers and non-standard aerial cable will be eliminated through conversion to 23 kV distribution and rearrangement of the area by 12/07. Performance in 2006 compared to 2005 shows a reduction in total interruptions (6 vs. 9), KVA interrupted (3,830 vs. 23,996) and KVA-Minutes (123,935 vs. 11,474,525).
9	23715 Pine Creek	VM completed 2/4/05. Lateral fusing completed on 2/16/05. IR was completed on 2/16/05. One hot spot repaired and four lightning arresters replaced. New circuit at Wildwood substation (scheduled for first quarter 2008) includes installation of additional sectionalizers to improve restoration on 23715. Performance in 2006 compared to 2005 shows a reduction in outages (24 vs. 28), KVA interrupted (30,314 vs. 52,318) and KVA-minutes (3,098,227 vs. 4,771,707). Additional remediation for 2007 includes installation of fault locators on three cable segments, field review of Underground Residential Developments, and accelerated installation of three remote control automated switches.
10	23704 North	VM completed in 2003. Next VM scheduled for 2007. Lateral fusing completed 3/3/05. IR completed 3/02/05. One hot spot found and repaired. Two blown arrestors and bracing repaired. New Wildwood substation will allow reduced exposure and load on this circuit. The expected cut-in date for Wildwood SS is 03/08. Performance in 2006 compared to 2005 shows a reduction in outages (21 vs. 37), KVA interrupted (27,315 vs. 33,645) but an increase in KVA-minutes (6,114,478 vs. 4,656,101). Performance will be monitored throughout 2007. This completion of the Wildwood Project in 2008 should result in continued improvement.
11	23710 Pine Creek	New to list at year-end 2006.
12	22567 Pine Creek-Parkview	New to list at year-end 2006.

**Notes:** VM = Vegetation Management Line Clearance  
IR = Infrared Inspection of Overhead Equipment

**(e)(4) (continued)**

13	23716 Pine Creek	New circuit on this list. VM completed 4Q 2004. Next VM proposed for 2008. IR survey 7/1/2004. All defects were repaired. New circuit at Wildwood substation (scheduled for first quarter 2008) includes installation of additional sectionalizers to improve restoration on 23716. Performance in 2006 compared to 2005 shows a reduction in outages (17 vs. 31), KVA interrupted (56,103 vs. 143,742) and KVA-minutes (7,028,566 vs. 8,560,891). Additional remediation for 2007 includes installation of fault locators in right-of-way area, field review of Underground Residential Developments, and accelerated installation of two remote control automated switches.
14	23670 Montour	VM completed Q4 2001; VM scheduled for Q2 2007. IR survey 11/11/05; hot spots repaired 1/31/06. Lateral fuses installed 6/05. Partial transfer to new circuit, Findlay 23613, was completed 1/9/07, and will reduce exposure and load on this circuit.
15	23660 Phillips	New to list at year-end 2006
16	23714 Pine Creek	New to list at year-end 2006
17	23750 Dravosburg	New circuit on this list. VM completed 2003; VM scheduled for 2007. Circuit shows improvement in 2006. Performance in 2006 compared to 2005 shows a reduction in outages (11 vs. 26), KVA interrupted (52,758 vs. 70,585) and KVA-Minutes (8,901,757 vs. 4,873,500). Performance will be monitored throughout 2007.
18	23681 Woodville	New to list at year-end 2006
19	22022 B.I. - McKees Rocks	New to list at year-end 2006
20	22862 Ambridge-Sewickley #3	IR survey 1999. VM completed Q3 2003; VM scheduled for 2007. This circuit experienced only 1 outage in 2006, caused by a vehicle, and no outages in 2007.

**Notes:** VM = Vegetation Management Line Clearance  
IR = Infrared Inspection of Overhead Equipment

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

April 1, 2006 through March 30, 2007

Cause	No of Outages	Outage Percentage	KVA Total	KVA Percentage	KVA-Minute Total	KVA-Minute Percentage
Storms:	457	16%	1,078,153	19%	143,925,921	24%
Trees (Contact):	111	4%	157,219	3%	24990317	4%
Trees (Falling):	354	12%	717,322	13%	128,379,881	21%
Equipment Failures:	898	32%	2,226,708	39%	200,388,079	34%
Overloads:	462	16%	99,080	2%	13,932,366	2%
Vehicles:	144	5%	360,623	6%	43,771,904	7%
Other:	416	15%	1,079,086	19%	42,134,035	7%
Totals:	2,842	100%	5,718,191	100%	597,522,503	100%

**(e)(6) Quarterly and year-to-date information on progress toward meeting transmission and distribution inspection and maintenance goals/ objectives.**

**First Quarter 2007**

2007 Transmission and Distribution Goals and Objectives Program Project	Unit of Measurement	Target for 2007 1Q	Actual for 2007 1Q	Percent Complete	Targets for Year 2007
<b>Communications Goals</b>					
Telecom Battery Maintenance	Batteries	31	36	116%	124
Microwave Radio Maintenance	Radio Units	0	0	N/A	20
<b>Overhead Distribution Goals</b>					
Sectionalizer/Recloser Control	Control Units	50	106	212%	148
Sectionalizer Upper Switch	Switches	80	84	105%	210
<b>Overhead Transmission Goals</b>					
Tower Helicopter Inspections	Number of Towers	0	0	N/A	500
Tower Ground Detail Inspections	Number of Towers	0	0	N/A	300
<b>Substations Goals</b>					
Breaker Maintenance	Breakers	188	175	93%	752
Transformer Maintenance	Transformers	8	14	175%	81
Station Battery Maintenance	Batteries	280	285	102%	1,120
Station Relay Maintenance	Relays	196	460	235%	784
<b>Underground Distribution Goals</b>					
Manhole Inspections	Manholes	300	266	89%	750
Network Vault Inspections	Network Units	220	146	66%	550
Network Protector Inspections	Protectors	120	33	28%	300
<b>Underground Transmission Goals</b>					
Pressurization and Cathodic Protection Plant Inspection	Work Packages	13	13	100%	52
<b>Vegetation Management Goals</b>					
Overhead Line Clearance	Circuit Overhead Miles	349	271	78%	1,675
<b>Total Units</b>		<b>1,835</b>	<b>1,889</b>	<b>103%</b>	

**(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.**

<b>Program</b>	<b>2007 Budget</b>	<b>1st Qtr Actual</b>	<b>1st Qtr Budget</b>
Restoration of Service	4,028,000	496,574	797,000
Customer Commitment	2,882,000	467,669	670,000
System Maintenance	20,550,000	5,104,921	4,840,000
System Capacity & Reliability	-	-	-
Infrastructure Support	-	-	-
Net Clearing	10,675,000	2,447,397	2,668,000
<b>Total Work Plan</b>	<b>38,135,000</b>	<b>8,516,561</b>	<b>8,975,000</b>
Total Non-Work Plan	58,949,000	13,151,349	13,877,000
<b>Total Operations &amp; Customer Services</b>	<b>97,084,000</b>	<b>21,667,910</b>	<b>22,852,000</b>

**(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.**

<b>Program</b>	<b>2007 Budget</b>	<b>1st Qtr Actual</b>	<b>1st Qtr Budget</b>
Restoration of Service	17,000,000	4,074,275	3,660,000
Customer Commitment	20,000,000	6,147,646	4,470,000
System Maintenance	-	44,986	-
System Capacity & Reliability	109,400,000	25,172,733	38,580,000
Infrastructure Support	13,600,000	(634,992)	3,750,000
Net Clearing	-	3,521,335	-
<b>Total Work Plan</b>	<b>160,000,000</b>	<b>38,325,983</b>	<b>50,460,000</b>
Total Non-Work Plan	-	-	-
<b>Total Operations &amp; Customer Services</b>	<b>160,000,000</b>	<b>38,325,983</b>	<b>50,460,000</b>

**(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. linemen, technician, and electrician).**

<b>Telecom</b>	Electronic Technician	7	
	Sr. Electronic Tech	12	
	Telecom Splicer/Trouble	8	
	Test Table Tech	1	
	<b>Total</b>	<b>28</b>	<b>28</b>
<b>Substation</b>	Electrical Equipment Tech	32	
	Protection & Control Tech	31	
	Sr. Elec. Equipment Tech	7	
	<b>Total</b>	<b>70</b>	<b>70</b>
<b>Underground</b>	Apprentice T&D	6	
	Driver Helper	10	
	Journey UG Inspector	4	
	Journey UG Splicer	18	
	Sr. UG Splicer	4	
	UG Cable Tester/Installer	6	
	UG Mechanic	5	
	Network Operator	7	
	<b>Total</b>	<b>60</b>	<b>60</b>
<b>Overhead</b>	Apprentice T&D	41	
	Rigger Specialist	4	
	Equipment Attendant	1	
	Equipment Material Handler	5	
	Equipment Operator	1	
	Field Inspector	4	
	Journey Lineworker	93	
	Lineworker 2/c	3	
	Lineworker Helper	1	
	Rigger Crew Leader	2	
	Service Crew Leader	5	
	Shop Mechanic 2 Rigger	2	
	Yard Group Leader	2	
	Sr. Lineworker	63	
	<b>Total</b>	<b>227</b>	<b>227</b>
<b>Street Light Changers</b>	<b>Total</b>	<b>10</b>	<b>10</b>
<b>Mobile Worker</b>	<b>Total</b>	<b>6</b>	<b>6</b>

(e)(9) (Continued)

<b>Engineering</b>	Drafter	4	
	General Clerk - Grad	13	
	General Technician	3	
	GIS Technician B	2	
	Head File Record Cle	1	
	Survey Instrument	3	
	Joint Use Technician	1	
	Right of Way Agent A	4	
	Sr. Technician	4	
	T&D Mobile Worker	2	
	Technician A	1	
	Technician B	14	
	Technician C	1	
	Test Technician, Mob	4	
<b>Total</b>	<b>57</b>	<b>57</b>	
<b>Service Center Technician</b>	General Technician	1	
	Sr. Technician	12	
	Technician	3	
	<b>Total</b>	<b>16</b>	<b>16</b>
<b>Traveling Operator/Troubleshooter</b>	Senior Operator	29	
	Traveling Operator	2	
	Traveling Operator 1	9	
	Distribution Regulation Technician2		
	Troubleshooter	8	
	Troubleshooter 1/c	5	
<b>Total</b>	<b>55</b>	<b>55</b>	
<b>Load Dispatcher</b>	<b>Total</b>	<b>12</b>	<b>12</b>
<b>Meter Technician</b>	Meter Technician	18	
	Sr. Meter Technician	21	
	<b>Total</b>	<b>39</b>	<b>39</b>
<b>Meter Reader</b>	<b>Total</b>	<b>16</b>	<b>16</b>
<b>Customer Service Representatives</b>	Autodialing Operator	12	
	Control Teller	1	
	Customer Service Rep	89	
	Intermediate Clerk	0	
	Sr. Customer Service	4	
	Telephone Switchboard	1	
	Teller	2	
	<b>Total</b>	<b>109</b>	<b>109</b>
<b>Admin/Supervisory/Mgmt</b>	<b>Total</b>	<b>424</b>	<b>424</b>
		<b>Total</b>	<b>1123</b>

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

**Call-out acceptance rate**

	<b>Accepts</b>	<b>Refusals</b>	<b>Total</b>	<b>Percentage</b>
<b>January</b>	89	81	170	52%
<b>February</b>	85	106	191	45%
<b>March</b>	98	142	240	41%

**Amount of time it takes to obtain the necessary personnel**

	<b>Total Calls</b>	<b>Workers Accepting</b>	<b>Average Response Time / Crew Call-out</b>	<b>Average Response Time / Worker</b>
<b>January</b>	37	89	8.1 298/37	3.3 298/89
<b>February</b>	29	85	68 1,973/29	23.2 1,973/85
<b>March</b>	33	98	14.5 478/33	4.9 478/98
<b>1st Quarter</b>	99	272	27.8 2,749/99	10.1 2,749/272

**ATTACHMENT A**

**(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.**

<b>Circuit</b>	<b>Name</b>	<b>Service Center</b>	<b>Device</b>	<b>Lockouts</b>	<b>Connected KVA</b>	<b>Last Lockout</b>	<b>Total KVA-Minutes</b>	<b>Total KVA Interrupted</b>	<b>SAIDI</b>	<b>SAIFI</b>	<b>CAIDI</b>
23806	Elwyn	South Hills	EA323	4	25,897	03/27/07	4,794,271	39,323	185	1.52	122
23862	Wilson	Mckeesport	EA163	5	33,843	02/24/07	1,858,431	75,289	55	2.22	25
23682	Woodville	Findlay	EA274	4	29,007	02/13/07	17,548,431	108,799	605	3.75	161
23801	Elwyn	South Hills	EA310	5	18,113	12/13/06	2,987,992	47,470	165	2.62	63
23764	Wilmerding	Penn Hills	EA206	4	31,209	12/13/06	7,579,806	56,710	243	1.82	134
23680	Woodville	Findlay	Breaker	4	23,865	12/13/06	3,246,997	54,322	136	2.28	60
23695	Brunot Is.	Preble	EA770	4	23,890	12/02/06	10,055,201	37,052	421	1.55	271
23716	Pine Creek	Edison	Breaker	4	39,257	12/01/06	6,656,858	58,360	170	1.49	114
23698	Brunot Is.	Preble	Breaker	4	27,870	12/01/06	3,198,830	35,494	115	1.27	90
23881	Rankin	Penn Hills	Breaker	5	22,205	10/17/06	14,245,963	134,216	642	6.04	106
4568	Dormont	Preble	Breaker	5	2,590	09/24/06	560,591	7,769	216	3.00	72
4824	Valley	Legionville	Breaker	4	3,499	07/30/06	788,260	16,925	225	4.84	47



# Wellsboro Electric Company

P. O. Box 138 • 33 Austin Street • Wellsboro, PA 16901 • (570) 724-3516 • FAX (570) 724-1798

**ORIGINAL**  
**RECEIVED**

April 25, 2007

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
P.O. Box 3265  
Harrisburg, PA 17105-3265

APR 25 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Dear James J. McNulty, Secretary,

2006 Annual Reliability Report

L-00030161

Enclosed is an original and six (6) copies of the 2006 Annual Reliability Report for Wellsboro Electric Company.

Sincerely,

Robert S. McCarthy  
Vice-President, Operations & Engineering  
Wellsboro Electric Company

DOCUMENT  
FOLDER

81

**WELLSBORO ELECTRIC COMPANY**  
**2006 ANNUAL RELIABILITY REPORT**

RECEIVED

APR 25 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

DOCUMENT  
FOLDER

DOCKETED  
MAY 1 - 2007

**57.195 Section (a) Item 2**

**Wellsboro Electric Company**

The Name, title, telephone number and e-mail address of the person who has knowledge of the matters, and can respond to inquires.

Robert S. McCarthy

Vice-President, Engineering and Operations

Phone: 570-724-3516

E-Mail: [bobbym@ctenterprises.org](mailto:bobbym@ctenterprises.org)

Address: 33 Austin St. Wellsboro, Pa 16901

**57.195 Section (b) Item 1**

**Wellsborough Electric Company**

**An overall current assesment 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.**

Substations- Substations are inspected monthly, one-half off all substation transformers have an oil sample taken to check for abnormal conditions that may be occurring with the units.

Currently Wellsboro Electric has twenty voltage regulators in use in our substations, at least Six units will be taken out of service and rebuild or maintenance performed in 2007

Thirty percent of all hydraulic oil circuit reclosers in use in our substations are removed from service and rebuilt or testing each year

Infrared imaging is conducted annually on all substation equipment, three phase power lines and select single phase lines each year, usually two days are earmarked for infared imaging.

Wellsboro Electric will visual inspect 5000 Poles in 2007, the visual inspection will include an inpection of each pole looking for obvious defects in the pole, crossarms and related equipment, Other utilities that may be attached to each pole will be documented and more importantly the inspection will be looking for National Electrical Safety Code issues for height and clearances.

One Thousand poles will be tested by an outside contractor for determine the internal condition of the pole

Wellsboro Electric uses a self -protected transformer for all residential and small commercial single phase customers on our 12 kV system, this eliminates the open fuse link or fused cutout These transformers have an animal bushing guard installed on the high voltage bushing and the high voltage lead from the power line to the transformer is done in coated wire to prevent an animal or tree contract on the unit.

For poly-phase customers and customers on our 4 kV system a conventional transformer is used. On these setups a fused coutout is used to protect the transformer, on these installations a animal guard is installed on the high voltage bushing and coated stinger wire is installed, the fused cutout is also covered with a guard along with the lightning arrestor to prevent animal or tree contact on this equipment.

Wellsboro Electric tracks causes of outages with our Outage Management System (OMS), this data is used to determine circuits or individual customers that are experiencing multiple outages due to animals, trees, etc. With this data we can take preventive action in an attempt to prevent future outages from occurring. One example of this is a street or circuit that has multiple outages from animals is looked and the entire street or circuit is covered up with animal guards on transformer bushing, covers on fused cutouts and lightning arrestors and coated stinger wire is installed. The same goes for individual transformers that have multiple outages. The data from the OMS is also used indentify circuits that tree clearing may be needed on, thus allowing us to preplan future trimming needs.

Wellsboro Electric has contracted with Asplundh Tree Experts of Willow Gorge, Pa. to perform Right of Way Maintenance Work on select circuits on the Wellsboro Electric System, For 2007 this is a lump sum contact for 35 miles of rural circuit on our Stony Fork Substation, Tree notes and Hazard tree removal will be performed under a time and material contract with Asplundh tree or will be completed by Wellsboro Electric line crews

Wellsboro Electric began a chemical application program in 2004 to treat selected circuits in order to further decrease vegetation related outages and extend the manual tree trimming cycle, manual tree trimming is not only labor extensive but extremely expensive, with the chemical application program in place we should be able to lower the overall costs related to tree trimming. With this program being so new to us, it will take time to gather data to determine the final benefit of this program.

We also have an educational program in place in conjunction with the Wellsboro Shade Tree Commission in an attempt to educate customers in planting the proper species of tree in the proper location near power lines, information is listed on our web site, thru bill inserts and pamphlets in our office, We hold this program will help to prevent future problems with improperly planted vegetation.

Wellsboro Electric is currently reviewing a grant program, thru The Center of Rural Pennsylvania in conjunction with the Borough of Wellsboro and Wellsboro Shade Tree Commission, the purpose of the program is to demonstrate that smaller tree can replace larger, deteriorating tree and solve tree/wire conflicts, it also provides research-based advice on selecting the most appropriate tree varieties to plant along streets and near power lines

Three of our Eight circuits will have sectionilizing work on them to include the addition of reclosers, fused cutouts and sectionilizers.

Permanent Fault indicators will be installed on three different circuits that feed critical account Fault indicator installation will continue for the next few years as part of our maintenance plan and will include all eight circuits on the Wellsboro System and select single phase line that serve rural areas.

With the small geographic area that our system covers, we have a good chance that employees are across a good portion of our system monthly. Employees such as our meter reader are trained to look for problems on our system and report them. Problems found are either repaired or a maintenance order is issues to our Operations Department for repair later, depending on the situation found.

**57.195 Section (b) Item 2**

Wellsborough Electric Company

A description of each major event that occurred during the year being reported on, including the time and duration of the event, the number of customers affected, the cause of the event and any modified procedures adopted to avoid or minimize the impact of similar events in the future.

**Major Events**

<b>Date</b>	<b>Time of Event</b>	<b>Duration of Event</b>	<b># Customers Affected</b>	<b>Cause</b>
5/28/06	3:15 PM	3 hr 45 min	5848	Loss Power Supply
6/27/2006	3:32 PM	4 hr 11 min	1346	Weather Event, Off R.O.W. Tree
8/4/2006	3:00 PM	26 hr 35 min	1473	Severe Thunderstorm

**57.195 Section(2) Item 3**

**A table showing the actual values of each of the reliability indices(SAIFI,CAIDI,SAIDI) for the EDC'S service territory for each of the preceding 3 calendar years. The report shall include the data used in calculating the indices, namely the average number of customers served, the number of sustained customer minutes interruptions, the number of customers affected and the minutes of interruption.**

	<u>SAIFI</u>	<u>SAIDI</u>	<u>CAIDI</u>
<b>Benchmark for WECO</b>	<b>1.23</b>	<b>153</b>	<b>124</b>
<b>Rolling 12-Month Standard</b>	<b>1.66</b>	<b>278</b>	<b>167</b>

**Reliability Index Table for SAIFI, SAIDI and CAIDI for a Three year period.**

	<u>SAIFI</u>	<u>SAIDI</u>	<u>CAIDI</u>
<b>2004</b>	<b>3.13</b>	<b>262.6</b>	<b>83.7</b>
<b>2005</b>	<b>1.37</b>	<b>144</b>	<b>105</b>
<b>2006</b>	<b>1.5</b>	<b>138.9</b>	<b>90.7</b>

**2004 Outage Data**

**Average number of customers served**

**5847**

	<u>Number of Interruptions</u>	<u># Customers Interrupted</u>	<u># Customer Minutes</u>
Maintenance	4	283	134965
Scheduled	11	2906	220817
Equipment	27	1997	185870
Other Faulty Equip	10	626	26380
Corrosion	1	1	34.8
Electrical Overload	3	544	31711
Deterioration	1	193	18721
Lightning	17	170	7684.2
Wind	5	560	21131
Trees	40	1323	258490
Animals	42	331	11554.8
Vehicles	12	566	101001.4
Public Activities	3	54	6498



**57.195 (b) Item 4**

A Breakdown and analysis of outage causes during the year being reported on, including the number and percentage of outages, the number of customers interrupted, and customer interruption minutes categorized by outage cause Proposed solutions to indentified service problems shall be reported.

2006 CAUSE	Average number of customers served		5919	Customers Affected
	# Of Interruptions	Percentage of Interruptions	Cust Mins	
Animals	87	25.36%	65228.6	1227
Decay	4	1.17%	187.2	4
Equipment	72	20.99%	114467.4	1550
Lightning	27	7.87%	106961.4	649
Trees	69	20.12%	303462	4151
Wind	17	4.96%	34719.6	405
Unknown	53	15.45%	43531.8	720
Vehicles	8	2.33%	72820.8	505
Rain	1	0.29%	883.8	13
Elec Overload	4	1.17%	3213.6	200
Customer Caused	1	0.29%	3102	94
Ice	0	0.00%	0	0
	<b>343</b>	<b>100.00%</b>	<b>748578.2</b>	<b>9518</b>

**57.195 (b) Item 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.

**Substations and Distribution System**

<b>Code</b>	<b>Description</b>	<b>Goal/Objective</b>	<b>Actual Results</b>
582	Substation Oil Testing	Test 50% of all Substation Transformers	100% Complete
593.8	Sectionlizing/Fuse Coordination	One Circuit Charleston Circuit	Completed
593.8	Substation Chemical Spraying	Spray 100% of Substations	100% Completed
593.8	Pole Testing	Test 1000 Poles	100% Completed
593.8	Visual Line Inspection	Visual inspection of 2500 Poles	5000 Inspected
593.8	Infrared Imaging ALL SUBSTATION WERE COMPLETED AND THREE PHASE LINES	Perform two days of infared inspection	Two Days Completed
593.1	Tree Trimming	Reclear/Trim 40 Miles of ROW	45.5 Miles Completed
593.1	Right-of -way clearing (Chemical)	Spray 25 Acres	15 Acres Completed
593.9	Voltage Regulator rebuilds	Repair/rebuilt three units	Two Completed * See Notes
593.9	Oil circuit breakers(Substations)	Calibrate and test three substation units	100% Complete
593.9	OCR Repair/rebuild	Test and rebuilt six single phase units	Completed

593.8	Phase Marking	One Circuit	Middlebury Circuit	Completed
593.9	Regulator Testing/Repair	Test Three Distribution Regulators		Six Tested
595.8	Transformer Repair	As Needed		None needed in 2006

**Explanation of any variances are described below**

593.8	Visual Line Inspection	Visual inspection of 2500 pole - 5000 pole were completed, additional pole above the planned 2500 were in areas affected by thunderstorms in 2006
593.1	Right of Way (Tree Trimming)	Goal was 40 miles, Wellsboro completed 45.5 miles this was accomplished by the ROW bids coming in cheaper than planned.
593.1	Right of Way Clearing (Chemical Application)	Goal was 25 acres, 15 acres was completed in stump and brush treatment, mainly stump and brush treatment, money was reallocated from this account to manual tree removal to remove off ROW hazard trees, identified in line inspections.
593.9	Voltage Regulator Rebuild	- Two units was not rebuilt but were replaced due to size needed and age of equipment A third unit was sent into rebuild shop in 2006 but was not received back from repair by the end of this reporting period The third unit has since been received back from rebuilt in April -07, so in reality voltage regulator rebuilds were completed.
593.9	OCR Repair/Rebuild	- goal was to rebuild or test six single phase units, instead of six single phase units, One three phase vacuum OCR was rebuilt and tested, due to damage to unit from animal contact.
593.8	Regulator testing	- Goal was to test three units, Six units were tested while in service.

**Engineering and Operations Department Budget  
Maintenance Expenses**

		<u>2006</u> Budget	<u>2006</u> Actual	<u>2007</u> Budget
<b>Vehicles</b>				
184.1	Vehicles Expenses- Repairs, Insurance, Gas, Oil, Etc.	\$50,000	\$67,903.49	\$50,000
184.1	Vehicle Expenses, Spot Lights/Traffic Lights	\$1,500		\$1,500
184.1	Vehicle Expenses- Repairs, Insurance, Gas, Oil, Etc-METER DEPT.	\$5,500	\$4,398.64	\$5,000
184.1	Vehicles Expenses- Repairs, Insurance, Gas, Oil, Etc. Car # 2	\$4,000	\$6,217.67	\$4,000
184.1	Car # 1, Vehicle Expenses, Repair, Insurance, Gas, Oil Car # 2	\$4,000		\$2,000
184.1	Vehicles Expenses- Repairs, Insurance, Gas, Oil, Etc. Truck 7	\$1,500	\$986.25	\$1,500
		<b>\$66,500</b>	<b>\$79,506.05</b>	<b>\$64,000</b>
<b>Vehicle - Lease</b>				
184.1	Truck 5 - 2000 Ford Service Truck	769.54/Month	\$9,240	\$9,250
184.1	Truck 6 - 2004 Freightliner 55' Bucket Truck	2944.68/Month	\$35,400	\$35,350
184.1	Truck 8- 1995 Ford Digger, Lease Payment W/Pole Trailer # 18	2044.90/Month	\$24,600	\$24,550
184.1	Truck 10 - 2005 Service Bucket	1215.00/Month	\$14,600	\$14,600
184.1	Unit 20- 1997 CarMart Trailer, Lease Payment	50.00/Month	\$600	\$600
184.1	Truck 11- Meter Tester, Truck Lease Payment	398.94/Month	\$4,800	\$4,800
184.1	Truck 12 - Ford Ranger Lease Payment	398.94/Month	\$4,800	\$4,800
184.1	Truck 14 - Dodge Dakota Lease Payment	469.79/Month	\$5,640	\$5,650
184.1	Car # 2, Vehicle Lease Payment	599.50/Month	\$7,200	\$7,200
184.1	Car # 1, Vehicle Lease Payment	545.00/Month	\$6,600	\$3,275
		<b>\$113,480</b>	<b>\$107,843.26</b>	<b>\$110,075</b>
<b>Total Vehicle Expenses</b>		<b>\$179,980</b>	<b>\$187,349.31</b>	<b>\$174,075</b>

**Engineering and Operations Department Budget  
Maintenance Expenses**

**Training & Safety**

				<u>2006</u>	<u>2006</u>	<u>2007</u>
				<b>Budget</b>	<b>Actual</b>	<b>Budget</b>
588.2	Basic Climbing School	L. White	Instructor	\$0		\$0
588.2	Intermediate Gloving			\$0		\$0
588.2	Advanced Gloving	Tyler Mead		\$1,500		\$0
588.2	Intermediate Sticking			\$0		\$0
588.2	Advanced Sticking			\$0		\$0
588.2	Substation School	One Man		\$1,000		\$700
588.2	Underground School	Two Men		\$0		\$0
588.4	Audiometric Testing			\$300		\$300
926.9	Safety Glasses/Eye Exams			\$1,000		\$600
588.4	PREA Bi-Monthly Safety Meeting			\$2,400	\$2,489.00	\$2,500
588.2	Keyman Conferences (Crew Chief & Linemen)	One Man		\$1,000		\$1,000
588.2	Keyman Conference ( Supervisors)	One Man		\$1,000	\$225.00	\$1,000
588.4	Drug/Alcohol Testing Random			\$1,000	\$334.00	\$1,100
588.2	Staking School	One Man		\$0		\$0
588.2	Chainsaw School	Two Men		\$1,000	\$406.00	\$600
588.2	Stringing & Sagging School			\$4,000	\$3,750.00	\$4,000
588.4	PREA Supt & Engineering Meetings	Four Meetings		\$1,500	\$322.00	\$1,500
588.4	PEA Committee Meetings	Two Meetings		\$1,000	\$299.00	\$1,000
588.2	Stray Voltage Training	One Man		\$0		\$0
588.2	Regulator/ OCR Training	Two Men		\$700		\$800
588.2	Labor and Transportation Charges				\$4,343.00	
				<b>\$17,400</b>	<b>\$12,168.00</b>	<b>\$15,100</b>

**Engineering and Operations Department Budget  
Maintenance Expenses**

	<u>2006</u> Budget	<u>2006</u> Actual	<u>2007</u> Budget
<b>Dispatching/Rentals/Leasing</b>			
589 Pager Rental	\$800		\$1,300
589 Radio Tower Rental	\$3,600	\$3,600.00	\$3,600
589 Radio Line Lease	\$1,200	\$1,129.00	\$1,200
921.7 After-Hours Emergency Dispatching	\$51,500	\$51,029.00	\$48,850
921.8 Computer Line Lease	\$0		\$0
593.2 Cell-Phone Outside Crews	\$1,200	\$409.00	\$600
921.6 Cell-Phone (R. McCarthy)	\$2,000	\$2,506.00	\$700
589 Pole Leasing WECO or Commonwealth	<del>\$20,000</del>	<del>\$20,070.00</del>	<del>\$20,000</del>
589 Right of Way Leasing Grow Rail Crossings	\$1,400	\$1,400.00	\$1,400
	<b>\$84,700</b>	<b>\$80,649.00</b>	<b>\$80,650</b>
<b>Maintenance/Operations Expenses</b>			
582 Transformer Oil Testing (Substations)	\$2,100	\$39.00	\$2,100
163.3 Crew Chief Tool Budget (593)	\$5,000		\$5,000
593 Fire Resistant Clothing	\$5,300		\$8,000
588.9 Engineering Dept Tool Budget	\$1,500	\$2,053.00	\$1,200
586.3 Meter Dept Budget Tool Budget	\$800		\$800
586 Meter Dept, Tri-County Labor	\$3,000	\$2,434.00	\$4,000
586.4 Meter Dept Training	\$1,100	\$571.00	\$1,000
597 Meter Dept, Turtle Maintenance Agreement	\$1,500	\$1,838.00	\$1,500
597 Meter Test Set Annual PUC Calibration	\$1,200	\$1,250.00	\$1,200
588 Eng/Oper Dept. Misc. Printing Expenses	\$500	\$346.00	\$500
588 Right of Way Filing Fee's	\$1,000		\$1,000
593.8 Rubber Goods/Hotline Equipment Testing	\$2,500	\$1,075.00	\$2,500
593.8 Rubber Goods/ Hotline Equipment Replacement	\$2,000		\$2,000
593.8 Pole Numbers/ Phase Markers	\$1,200	\$188.00	\$1,000
593.8 Sectionalizing/ Fuse Coordination Study Two Circuits	\$3,000	\$2,407.00	\$2,000
593.8 Substation Spraying	\$600	\$417.00	\$600
923.2 Misc Engineering Services	\$5,000	\$505.00	\$5,000
593.8 Pole Testing 500 Poles	\$5,000	\$2,449.00	\$2,500
593.8 Line Inspection 2500 Poles	\$5,000		\$0

**Engineering and Operations Department Budget  
Maintenance Expenses**

		<u>2006</u> Budget	<u>2006</u> Actual	<u>2007</u> Budget
<b>Maintenance/Operations Expenses</b>	<b>(Con't)</b>			
	Overhead Line Inspections			THESE WILL HAVE WEC <sub>o</sub> LABOR
	Underground Line Inspections	"	"	"
	OCR/Regulator Inspections	"	"	"
	Substation Inspections	"	"	"
	Special Equipment Inspections			We can talk about these
593.8	Infrared Imaging	\$2,000	\$1,800.00	\$2,000
593.1	Right of Way Clearing	\$120,000	\$126,402.00	\$90,000
593.1	Right of Way Clearing Urban Trimming	\$5,000	\$16,081.00	\$5,000
593.1	Right of Way Chemical Spraying	\$15,000	\$105.00	\$10,000
	Right of Way Clearing WEC <sub>o</sub> Crew			WEC <sub>o</sub> Labor
588	Tree Replacement Program	\$1,000		\$1,000
588	Arbor Day Planting/Tree Line USA	\$600		\$600
593.4	Crew Expenses, Food/Misc Outage Related	\$500	\$448.00	\$500
593.9	Regulator/OCR Repair	\$5,000	\$1,896.00	\$5,000
593.9	OCR/Relay Calibration/Testing	\$2,000		\$3,000
594.9	Pennsylvania One Call Expenses	\$2,100	\$1,905.00	\$2,500
595.8	Transformer Disposal	\$8,000	\$4,462.00	\$10,000
595.8	Transformer Repair	\$2,000		\$2,000
920.6	VP, Engineering & Operations	\$9,000	\$4,194.00	\$8,000
909.6	Customer Meeting/ Key Accounts	\$3,000	\$1,713.00	\$3,000
930.2	Mapping	\$5,000	\$3,521.00	\$10,000
	Mapping WEC <sub>o</sub> Labor			WEC <sub>o</sub> Labor
930.3	VOAM Dues	\$300	\$211.00	\$300
930.3	VOAM Expenses	\$600		\$600
923.2	Quest Tech Line	\$1,200	\$1,125.00	\$1,200
		<b>\$231,606</b>	<b>\$181,441.00</b>	<b>\$198,607</b>

**Engineering and Operations Department Budget  
Maintenance Expenses**

	<u>2006</u> Budget	<u>2006</u> Actual	<u>2007</u> Budget
<b>Building and Grounds</b>			
932 Dumpster - Pole Yard	\$2,000	\$3,196.00	\$2,000
932.2 Maintenance - Communications Equipment (SCADA/AMR/ETC)	\$8,000	\$260.00	\$2,000
932.3 Maintenance Dept Tool Budget	\$500	\$918.00	\$500
932 Maintenance, Yards, Subs, Etc.	\$6,000	\$2,212.00	\$6,000
932.1 Maintenance Office Building	\$3,000	\$5,598.00	\$3,000
932.3 Maintenance Operations Building	\$4,000	\$7,923.00	\$5,000
932.3 Maintenance Storage Garage	\$500		\$100
418 Maintenance Apartment House	\$2,000		\$2,000
418 Maintenance Rental House	\$2,000	\$2,376.00	\$2,500
932 Emergency Generator Maintenance Contract	\$2,000	\$3,753.00	\$2,200
588 Repair Customer Property	\$2,000	\$452.00	\$2,000
	<b>\$32,000</b>	<b>\$26,688.00</b>	<b>\$27,300</b>
<b>Total Estimated Budget</b>	<b>\$545,686</b>	<b>\$488,295</b>	<b>\$495,732</b>

**Engineering and Operations Department Budget  
Maintenance Expenses**

Explanation of Variances of 10%

- 184.1 Vehicle Expenses - Unanticipated repairs on a digger truck, increase costs for diesel fuel, higher repair costs than anticipated.
- 184.1 Vehicle Expenses - Spotlights/Traffic Lights, costs are included in the general vehicle category
- 184.1 Vehicle Expenses - Repairs Meter Department - Repairs cheaper than anticipated
- 184.1 Vehicle Expenses - Car # 2 - Higher than anticipated repair costs and increase in gasoline prices
- 184.1 Vehicle Expenses - Truck #7 - Lower costs overall, truck not used as much as planned
- 184.1 Truck 10- lease payment, higher than budgeted due to a new vehicle that was purchased to replace older unit and lease payments were higher for last couple of months in 2006
- 588.2 Advanced Gloving - no cost, due to a lineman that was injured on the job, Company was unable to sent a lineman due to shortage of manpower due to injury
- 588.2 Substation School - Same as above
- 588.4 Audiometric Testing - No costs for this testing in 2006
- 926.9 Safety Glasses - No testing or replacements glasses were needed in 2006
- 588.2 Keyman - (Crew Chief /Lineman) Same answer was other 588.2
- 588.4 Drug & Alcohol Testing - Lower costs to perform testing than planned
- 588.2 Chainsaw School - lower costs for training and lodging and expenses
- 588.4 EAPA Meeting and PREA Meeting - Lower costs than anticipated
- 588.2 Regulator/OCR Training - No employees attended due to manpower issues
- 593.2 Cell Phone - Lower costs to operate phones than planned
- 921.6 Cell Phone - R. McCarthy - More usage of phone than anticipated
  - 589 Pole Leasing - WECOn Commonwealth - Removed additional attachments from Commonwealth Poles
  - 582 Transformer Oil Testing - Testing was not completed until late 2006, full costs will show in 2007
- 163.3 Crew Chief Tool Budget - Unable to show actual costs for this items, the was we book these expenses is they are spread across multiple accounts.
  - 593 Fire Resistant Clothing - Program was delayed, will go in affect in 2007
- 588.9 Engineering tool budget - Costs for items were higher than planned
- 586.3 Meter Department Tool Budget - Costs for items higher than planned
  - 586 Meter Department Labor -(Tri County) Did not require as much services from Tri-County than planned
- 586.4 Meter Department Training - Expenses lower than planned
  - 597 Meter Department, Turtle Maintenance Agreement - More units in service than anticipated cost of agreement is based on number of units in service, custom report was made for the AMR system, this includes that cost also.
  - 588 Eng/Oper Dept Misc Printing Expenses - Had planned to print additional Right of Way tree trimming notices but they were not needed.

**Engineering and Operations Department Budget  
Maintenance Expenses**

- 588 Right of Way Filing Fees - None were recorded in 2006
- 593.8 Rubber Goods/ Hotline Equipment Testing - Was able to find a lower priced vendor and also we conducted in-house testing of all hotsticks in 2006, that was planned on being conducted by an outside firm, we shared the use of a test unit from Tri-County Rural Electric Cooperative.
- 593.8 Rubber Goods/ Hotline Equipment Replacement - No rubber goods required replacement in 2006
- 593.8 Pole Numbers/ Phase Markers - Did not require the purchase as planned.
- 593.8 Sectionilizing/Fuse Coordination - Was conducted by an outside firm, costs were lower than anticipated.
- 593.8 Substation Spraying - Conducted by an outside contractor, cost lower than anticipated
- 932.2 Misc Engineering Services- Did not require the services, We budget this for unforeseen Engineering items that may require the expertise of an outside firm.
- 593.8 Pole Testing and Line Inspection - Line inspection was conducted by in-house personnel and the cost is included in other GL codes, Plus we were able to secure a lower priced vendor for pole testing by going together with Two Rural Electric Cooperatives. Tri-County REC and Claverack REC
- 593.1 Right of Way Clearing Urban Trimming - Costs were higher due to unanticipated work that we had not planned on mainly due to removal of hazard trees.
- 593.1 Right of way Chemical Spraying - reallocated fund from this to the urban trimming budget, chemical application was limited to stump treatment of removed trees
  - 588 Tree Replacement and Arbor Day Planting - was not needed in 2006
- 593.9 Regulator/OCR Repair - Cost was lower than anticipated to repair units.
- 593.9 OCR/Regulator Calibration and Testing - was unable to schedule in 2006, it was late in the season and everytime we attempted to schedule it would either rain or snow, decision was made to hold off until 2007.
- 595.8 Transformer Disposal - Not has many distribution transformers were retired
- 595.8 Transformer Repair - None was required in 2006
- 920.6 VP, Engineering and Operation Expenses - Due to work load, some seminars and training was postponed.
- 909.6 Customer Meeting/ Key Accounts - Is an as needed account, would be for informational meeting with Comm/Indust customers, a bi-annual power breakfast meeting with our large industrial customers, etc. costs were lower than anticipated
- 930.2 Mapping - Is conducted by an outside firm, costs were lower than anticipated, in progress project
- 930.3 VOAM Expenses - these expenses were included in 920.6 Account
- 932 Dumpspter - Had a price increse mid 2006 to cover vendors fuel expenses.
- 932.2 Maintenance- Communications Equipment (SCADA/AMR) Cost was lower in 2006, due to a maintenance contract for a SCADA system that was dropped, over the last few years for the amount of work that was needed on the system, we figured it woulf be cheaper in the long run to contact maintenance on a T&M Contract, which worked out well in 2006

**Engineering and Operations Department Budget  
Maintenance Expenses**

932.3 Maintenance Dept - Tool Budget - Replacement of tools was higher than anticipated

932 Maintenance - Yards and Substations - Less maintenance was needed in 2006

932.1 Maintenance - Office Building - Costs were higher than anticipated- mainly due to a heating system that was giving us problems

932.3 Maintenance of Operations Building - Main cost was to repair blacktop in parking lot that was higher than planned

932.3 Maintenance of Storage Garage - No maintenance was needed

418 Maintenance of Rental Houses - Maintenance as needed

932 Emergency Generator Maintenance Contract - Maintenance costs were higher than planned, mainly due to a defective block heater that was not anticipated.

588 Repair Customer Property - As needed account.

**57.195 (b) Item 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.

	Budget	Actual
New Services	\$ 81,000.00	\$ 138,509.53
Pole Replacements	\$ 150,000.00	\$ 93,429.28
Misc System Improvements	\$ 25,000.00	\$ 118,621.66
Rt 287 South            One Mile	\$ 37,000.00	\$ 28,148.21
Lower Hills Creek    Stringing School	\$ 25,000.00	\$ 14,519.64
Fischler St. Rebuild/Relocation	\$ 10,000.00	\$ -
West Ave	\$ 7,000.00	\$ 7,382.68
Bodine St.	\$ 37,000.00	\$ -
West Branch	\$ 18,000.00	\$ -
Reliability Improvements		\$ 17,663.56
<b>Total of System Improvement And the above six specific projects</b>	<b>\$ 390,000.00</b>	<b>\$ 418,274.56</b>
AMR - Turtle Meters And Industrial/Commercial Meters	\$ 56,000.00	\$ 62,697.00
SCADA	\$ 5,000.00	
Wire Trailer	\$ 8,000.00	\$ -
Two Way Radios	\$ 1,500.00	

Power Tools - Line Trucks	\$ 4,000.00	\$ 8,134.00
Computers	\$ 1,500.00	
Sectionilizing Switches	\$ 3,000.00	\$ 39,207.97
Voltage Capacitors	\$ 1,000.00	
Oil Circuit Reclosers	\$ 5,500.00	
	\$ 85,500.00	\$ 110,038.97
2006 Budget	\$ 475,500.00	\$ 528,313.53

**Explanation of variances of 10% or greater**

**New Services - Budget \$81,000 Actual \$138,509.53**

More services installed underground than budgeted, underground is more expensive than overhead which raised budgeted cost, also more services were installed than budgeted.

**Pole Replacements - Budget \$150,000 Actual 93,429.28**

Less poles were replaced than budgeted, results of 2006 pole testing was very good and required less replacements than planned.

**Misc System Improvements - Budget 25,000 Actual \$118,621.66**

Items in this line item, is repairs made to the system due to unforeseen situations, it may be items found during line patrols, pole testing, minor storm damage, upgrades found to be needed while installing new services, repairs or changes needed due to other utilities making upgrades that were not planned Under this item it also included the installation of three pole mounted voltage regulators installed on a distribution circuit for voltage support due to addition of load applied by an industrial customer that was not planned for, the cost of this was \$ 17,210.13. \$3218.35 for repair of street lights and \$ 14,643.52 for repair of replacement of residential yard lights.

**Rt. 287 South - Budget \$37,000 Actual \$ 28,148.21**

Work was not finished in 2006, will be completed in 2007

Lower Hills Creek Lake (Stringing School) Budget \$25,000 Actual \$ 14,519.64  
Costs for material was lower than anticipated and less labor hours to complete.

Fischler St. Budget \$ 10,000 Actual \$ 0  
Unable to secure Right of way for line relocation, still in progress

Bodine St. Budget \$ 37,000 Actual \$0  
Project was not completed due to other work needed

West Branch - \$ Budget 18,000 Actual 0  
This project was started, costs are under Pole Replacement, will be completed in 2007

Reliability Improvements - Budget \$0 Actual \$ 17,663.56  
No Budget item in 2006, we established this account to track costs associated in system improvements solely to improve reliability to an area or customer that experienced an outage.

AMR Turle Meters and Meters Upgrades - Budget \$56,000 Actual \$62,697.00  
Cost of a couple of three phase meters were higher than budgeted.

Power Tools - Budget \$4000.00 Actual \$8234.00  
Replacement or purchase of additional power tools as needed

Sectionilizing Switches - Budget \$3000 Actual \$ 39,207.97  
This budget items has had cutouts added, so we can better track the cost of cutout replacements, our current company policy is any time crews are working on a pole that has A.B. Chance Porcelian cutouts they are to be changed, which is hard to budget for not knowing how many we may have to change. All porcelian cutouts are replaced with polymer when we work any pole due to the high failure rate we have been having with porcelin.

**57.195 (b) Item 9**

Quantified transmission and distribution operation and maintenance goals/objectives for the current calendar year detailed by system area (that is transmission, Substation, distribution)

**Year 2006**

**Substations**

G.L. Code	Description	Goal
582	Substation Oil Testing	Test eight
593.8	Substation Weed Control	Spray all stations
593.8	Infrared Imaging	Two Days of Infrared
593.9	OCR/Relay Calibration/Testing	Calibrate/Test Three 4 kV Units
593.9	Voltage Regulator Rebuilds	Rebuild three substation units

**Distribution System**

593.8	Fuse Coordination/Sectionalizing Study	Complete One Circuit
593.8	Pole Testing	Test 1200 Poles
593.8	Visual Line Inspection	Visual Inspection of 5000 Poles
593.1	Right-of-Way Clearing (Manual)	Clear/Trim 35 Miles
593.1	Right-of-Way Chemical Application	Spray 10 Acres
593.9	Regulator testing/repair	Test three distribution regulators
593.9	OCR testing/repair	Test/ repair six units
595.8	Transformer repair	as needed
593.8	Phase Marking	One Circuit
	Permanent Fault Indicators	Install 24 Units

57.195 (b) (10)

**2007 Engineering and Operations Department Budget**

**2007  
Budget**

**Vehicles**

184.1	Vehicles Expenses- Repairs, Insurance, Gas, Oil, Etc.		\$50,000
184.1	Vehicle Expenses, Spot Lights/Traffic Lights		\$1,500
184.1	Vehicle Expenses- Repairs, Insurance, Gas, Oil, Etc-METER DEPT.		\$5,000
184.1	Vehicles Expenses- Repairs, Insurance, Gas, Oil, Etc.	Car # 2	\$4,000
184.1	Car # 1, Vehicle Expenses, Repair, Insurance, Gas, Oil	Car # 2	\$2,000
184.1	Vehicles Expenses- Repairs, Insurance, Gas, Oil, Etc.	Truck 7	\$1,500

**\$64,000**

**Vehicle - Lease**

184.1	Truck 5 - 2000 Ford Service Truck	769.54/Month	\$9,250
184.1	Truck 6 - 2004 Freightliner 55' Bucket Truck	2944.68/Month	\$35,350
184.1	Truck 8- 1995 Ford Digger, Lease Payment W/Pole Trailer # 18	2044.90/Month	\$24,550
184.1	Truck 10 - 2005 Service Bucket	1215.00/Month	\$14,600
184.1	Unit 20- 1997 CarMart Trailer, Lease Payment	50.00/Month	\$600
184.1	Truck 11- Meter Tester, Truck Lease Payment	398.94/Month	\$4,800
184.1	Truck 12 - Ford Ranger Lease Payment	398.94/Month	\$4,800
184.1	Truck 14 - Dodge Dakota Lease Payment	469.79/Month	\$5,650
184.1	Car # 2, Vehicle Lease Payment	599.50/Month	\$7,200
184.1	Car # 1, Vehicle Lease Payment	545.00/Month	\$3,275

**\$110,075**

**Total Vehicle Expenses**

**\$174,075**

**2007 Engineering and Operations Department Budget**

**2007  
Budget**

**Training & Safety**

588.2	Basic Climbing School	L. White	Instructor	\$0
588.2	Intermediate Gloving			\$0
588.2	Advanced Gloving	Tyler Mead		\$0
588.2	Intermediate Sticking			\$0
588.2	Advanced Sticking			\$0
588.2	Substation School	One Man		\$700
588.2	Underground School	Two Men		\$0
588.4	Audiometric Testing			\$300
926.0	Safety Glasses/Eye Exams			\$600
588.4	PREA Bi-Monthly Safety Meeting			\$2,500
588.2	Keyman Conferences (Crew Chief & Linemen)	One Man		\$1,000
588.2	Keyman Conference ( Supervisors)	One Man		\$1,000
588.4	Drug/Alcohol Testing Random			\$1,100
588.2	Staking School	One Man		\$0
588.2	Chainsaw School	Two Men		\$600
588.2	Stringing & Sagging School			\$4,000
588.4	PREA Supt & Engineering Meetings	Four Meetings		\$1,500
588.4	PEA Committee Meetings	Two Meetings		\$1,000
588.2	Stray Voltage Training	One Man		\$0
588.2	Regulator/ OCR Training	Two Men		\$800
				<b>\$15,100</b>

**2007 Engineering and Operations Department Budget**

**2007  
Budget**

**Dispatching/Rentals/Leasing**

589	Pager Rental	\$1,300
589	Radio Tower Rental	\$3,600
589	Radio Line Lease	\$1,200
921.7	After-Hours Emergency Dispatching	\$48,850
921.8	Computer Line Lease	\$0
593.2	Cell-Phone Outside Crews	\$600
921.6	Cell-Phone (R. McCarthy)	\$700
589	Pole Leasing WECO on Commonwealth	\$23,000
589	Right of Way Leasing Grow Rail Crossings	\$1,400
		<b>\$80,650</b>

**Maintenance/Operations Expenses**

582	Transformer Oil Testing (Substations)	\$2,100
163.3	Crew Chief Tool Budget (593)	\$5,000
593	Fire Resistant Clothing	\$8,000
588.9	Engineering Dept Tool Budget	\$1,200
586.3	Meter Dept Budget Tool Budget	\$800
586	Meter Dept, Tri-County Labor	\$4,000
586.4	Meter Dept Training	\$1,000
597	Meter Dept, Turtle Maintenance Agreement	\$1,500
597	Meter Test Set Annual PUC Calibration	\$1,200
588	Eng/Oper Dept. Misc. Printing Expenses	\$500
588	Right of Way Filing Fee's	\$1,000
593.8	Rubber Goods/Hotline Equipment Testing	\$2,500
593.8	Rubber Goods/ Hotline Equipment Replacement	\$2,000
593.8	Pole Numbers/ Phase Markers	\$1,000
593.8	Sectionalizing/ Fuse Coordination Study Two Circuits	\$2,000
593.8	Substation Spraying	\$600
923.2	Misc Engineering Services	\$5,000

**2007 Engineering and Operations Department Budget**

			<b>2007</b>
			<b><u>Budget</u></b>
593.8	Pole Testing	500 Poles	\$2,500
593.8	Line Inspection	2500 Poles	\$0
<b>Maintenance/Operations Expenses (Con't)</b>			
	Overhead Line Inspections	THESE WILL HAVE WECO LABOR	
	Underground Line Inspections	" " "	
	OCR/Regulator Inspections	" " "	
	Substation Inspections	" " "	
	Special Equipment Inspections	We can talk about these	
593.8	Infrared Imaging		\$2,000
593.1	Right of Way Clearing		\$90,000
593.1	Right of Way Clearing Urban Trimming		\$5,000
593.1	Right of Way Chemical Spraying		\$10,000
	Right of Way Clearing WECO Crew	WECO Labor	
588	Tree Replacement Program		\$1,000
588	Arbor Day Planting/Tree Line USA		\$600
593.4	Crew Expenses, Food/Misc Outage Related		\$500
593.9	Regulator/OCR Repair		\$5,000
593.9	OCR/Relay Calibration/Testing		\$3,000
594.9	Pennsylvania One Call Expenses		\$2,500
595.8	Transformer Disposal		\$10,000
595.8	Transformer Repair		\$2,000
920.6	VP, Engineering & Operations	Seminars/Meetings	\$8,000
909.6	Customer Meeting/ Key Accounts	Power Lunch/Misc	\$3,000
930.2	Mapping		\$10,000
	Mapping WECO Labor	WECO Labor	
930.3	VOAM Dues		\$300
930.3	VOAM Expenses	Meetings	\$600
923.2	Quest Tech Line		\$1,200
			<b>\$196,600</b>



# Wellsboro Electric Company

P. O. Box 138 • 33 Austin Street • Wellsboro, PA 16901 • (570) 724-3516 • FAX (570) 724-1798

# ORIGINAL

April 25, 2007

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
P.O. Box 3265  
Harrisburg, PA 17105-3265

# RECEIVED

APR 25 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Dear James J. McNulty, Secretary,

Subject: First Quarter Reliability Report

L-00030161

Enclosed is the reliability filing submitted to the PUC for the First Quarter of 2007 for Wellsboro Electric Company.

If we can be of further assistance, or if you have any questions, feel free to contact me at 570-724-516

Sincerely,

Robert S. McCarthy  
Vice-President Engineering & Operations  
Wellsboro Electric Company

# DOCUMENT FOLDER

84

# WELLSBORO ELECTRIC COMPANY

## QUARTERLY RELIABILITY REPORT 57.195 REPORTING REQUIREMENTS

1st Quarter 2007

January - March 2007

RECEIVED

APR 25 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

SUBMITTED BY

ROBERT S. McCARTHY  
VICE-PRESIDENT, ENGINEERING AND OPERATIONS  
570-724-3516

[bobbym@ctenterprises.org](mailto:bobbym@ctenterprises.org)

DOCUMENT  
FOLDER

DOCKETED  
MAY 1 - 2007

Rolling 12-Month reliability index values (SAIFI,CAIDI,SAIDI) for the EDC'S service territory for the receding quarter. The report shall include the data used in calculating the indices, namely the average number of customers served, the number of sustained customers interruptions, the number of customers affected, and the customer minutes of interruption.

**WELLSBORO ELECTRIC COMPANY**

**ROLLING TWELVE MONTH INTERRUPTION INDEXS**

**1st Quarter of 2007**

SAIDI 145
--------------

SAIFI 1.74
---------------

CAIDI 83.6
---------------

**ROLLING TWELVE MONTH STANDARD AS ESTABLISHED BY THE PUC**

SAIDI 278
--------------

SAIFI 1.66
---------------

CAIDI 167
--------------

57.195 Reporting Requirements

Section (e) Item (2)

Wellsboro Electric Company

Reliability Index

SAIDI

Month	Total Customer Minutes	# Customers Served
April-06	50821.8	5912
May-06	154202.4	5911
June-06	37702.8	5915
July-06	68925	5921
Aug-06	52734.6	5930
Sept-06	51735.6	5924
Oct-06	154756.8	5931
Nov-06	36594	5939
Dec-06	118957.8	5938
Jan-07	69565.8	5937
Feb-07	62940	5936
Mar-07	1477.2	5940
	860413.8	71134

Average # Customers Served

5928

**ROLLING TWELVE MONTH AVERAGE SAIDI INDEX**

**145.15**

## 57.195 Reporting Requirements

## Section (e) Item (2)

Wellsboro Electric Company

Reliability Index

SAIFI

Month	# Customers Interrupted	# Customers Served
April-06	2108	5912
May-06	886	5911
June-06	787	5915
July-06	753	5921
Aug-06	1022	5930
Sept-06	406	5924
Oct-06	1444	5931
Nov-06	337	5939
Dec-06	35	5938
Jan-07	718	5937
Feb-07	1778	5936
Mar-07	18	5940
	10292	71134

Average Customers Served

5928

**Rolling Twelve Month Average SAIFI Index****1.74**

## 57.195 Reporting Requirements

## Section(e) Item (2)

Wellsboro Electric Company

Reliability Index

CAIDI

Month	Total Customer Minutes	# Customers Interrupted
Apr-06	50821.8	2108
May-06	154202.4	886
June-06	37702.8	787
July-06	68925	753
Aug-06	52734.6	1022
Sept-06	51735.6	406
Oct-06	154756.8	1444
Nov-06	36594	337
Dec-06	118957.8	35
Jan-07	69565.8	718
Feb-07	62940	1778
Mar-07	1477.2	18
	<b>860413.8</b>	<b>10292</b>

Rolling Twelve Month Average CAIDI Index

**83.60**

57.195

Reporting Requirements

Section (e) Item (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.

<b>Date</b>	<b>Time of Event</b>	<b>Duration of event</b>	<b># Cust Affected</b>	<b># Cust Hours</b>	<b>Cause</b>
2/11/2007	1:19 PM	103.8 Mins	5780	6229.83	Loss of Power Supply (Penelec)

## 57.195 Reporting Requirements

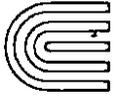
## Section (e) Item (5)

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

Outages from April 2006 through March 2007

Outage Cause	# Customers Affected	# of Outages	Customer Minutes	Percentage of Outages
Animals	891	67	30855	26.0%
Vehicles	331	6	50244	2.3%
Decay	4	4	187.2	1.6%
Dig-in	0	0	0	0.0%
Electrical Overload	199	7	3124.8	2.7%
Equipment Failure	516	58	42252	22.5%
Fire				0.0%
Ice,Sleet,Frost	0	0	0	0.0%
Lightning	356	26	71406	10.1%
Rain	0	0	0	0.0%
Trees	2756	53	135781.2	20.5%
Unknown Cause	503	37	30536.4	14.3%
Vandalism				
Wind		0		0.0%
	5556	258	364386.6	100.0%

The following programs and procedures are in place at Wellsboro Electric in an attempt to control outages. Animal related outages accounted for 26% of our outages for this rolling twelve month period, Wellsboro has had a animal cover-out program in place for the last few years, our policy is to install an insulated animal guard on each pole mount distribution transformer that is installed, we review outage data in an attempt to find customers or a particular area that is experiencing multiple outages from animal contacts and placing animal guards at these location, also at the time we install animal guards, we also install an insulated lead wire from the transformer to the cutout and or line. All new transformers on our 12 kV system is an internally fused transformer thus preventing the need to install a fused cutout and one less piece of equipment to cover up and maintain. Equipment failure accounted for 22.5% of our total outages this is due mostly to the failure of A.B. Chance porcelain cutouts, Wellsboro no longer uses this type of cutout, all new cutouts installed are a polymer cutout, It is also our policy to chance any porcelain cutout that is on any pole that a Wellsboro Electric line crew in working on, but we still have thousands of these on the system and they continue to cause problems. Tree contact accounted for 20.5% of all outages, Wellsboro currently has 35 miles of distribution circuit under a lump sum contract with Asplundh Tree Expert Company to clearing or reclearing, the majority of tree outages are caused by off right of way tree's that fall into our facility's. Wellsboro Electric attempts to identify hazard tree's during normal day to day operations, during line inspections, etc. Wellsboro Electric right of way contractor's are required by our contract to attempt to identify hazard tree's, obtain permission from the property owner and remove the tree. Wellsboro Electric in its last newsletter to its customer's put in an article on trees and asked its customers to contact Wellsboro Electric if they have a tree that is near a power line and thinks it could cause a problem and Wellsboro Electric would sent a representative out to make a decision if the tree could pose a problem to the electric system. Unknown cause accounted for 14.3% of the outages these are outages that we were unable to find a reason for the outage, Wellsboro Electric reviews all outages with an unknown cause after the fact by Engineering and Operations Department employees in an attempt to identify the cause after the fact, this may require a pole by pole inspection and still they were cases where a case was not found.



Orange & Rockland  
a conEdison, Inc. company

(845) 577-3341

Orange and Rockland Utilities, Inc.  
390 West Route 59  
Spring Valley NY 10977-5300  
www.oru.com

ORIGINAL

April 27, 2007

Honorable James J. McNulty  
Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

RECEIVED

APR 27 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Re: Electric Service Reliability Regulations  
Docket No. L-00030161

Dear Secretary McNulty:

In accordance with the Electric Reliability Regulations adopted by the Pennsylvania Public Utility Commission in its order dated May 20, 2004 in Docket No. L-00030161 and a March 17, 2004, letter from James J. McNulty extending the filing date, Pike County Light & Power Company hereby files an original and six copies of its Service Reliability Report for 2006 System Performance.

Any questions regarding this report should be addressed to me at the address listed above or I can be reached at (845) 577-3341.

Very truly yours,

Timothy T. Garvin  
Manager  
Performance & Operational Engineering

DOCUMENT  
FOLDER

TTG/dlp

Enclosures

cc: Office of Consumer Advocate  
Office of Small Business Advocate  
Pennsylvania AFL-CIO

163

**ORIGINAL**

**RECEIVED**

APR 27 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**Pike County Light and Power Company  
(Orange and Rockland Utilities, Inc.)**

**Annual Electric Reliability Report**

**2006**

**DOCUMENT  
FOLDER**

**April 2007**

**DOCKETED**  
MAY 2 - 2007

**§ 57.195. (b)(1)** An overall 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.

### **Overall Current Assessment**

Orange & Rockland Utilities' "Northern Division" serves Pike County Light and Power (Pike or the Company), as well as portions of Orange County and Sullivan County in New York State, and portions of Sussex County in New Jersey. Pike County is the westernmost portion of Orange & Rockland Utilities' "Northern Division". Pike's service territory in Pennsylvania ("PA.") is primarily fed from two 34.5 kV feeders that emanate from New York Substations; Line 5-10 from the Cuddebackville Substation, and Line 7 from the Port Jervis Substation. The eastern portion of the Company's service territory is fed by two 13.2kV feeders from the Matamoras Substation that back each other up, and have ties to Port Jervis 13.2kV distribution circuitry as well. The Matamoras Substation is fed from both Line 5-10 and Line 7, which back each other up through an automatic transfer scheme at the substation. The western portion of the service territory is fed radially from Line 7.

On August 17, 2006 The Pennsylvania Public Utilities Commission (PAPUC) adjusted the service reliability standards for Pike as follows:

- 12-Month Frequency (SAIFI) 1.31 interruptions per customer served
- 12-month Restoration (CAIDI) 215 minutes of interruption per customer interrupted
- 12-month Duration (SAIDI) 282 minutes per customer served

In 2006, the Pike County service territory experienced a frequency (SAIFI) of 1.15 interruptions per customer served, a restoration time (CAIDI) of 121 minutes, and duration (SAIDI) of 140 customer minutes of interruption. These results are detailed in Table 2, along with the most recent three-year history for these indices. SAIFI was 12% below the standard for frequency, while CAIDI was 44% below the 215-minute average reliability standard for restoration. The resultant SAIDI was 50% below the 282 minute reliability standard for duration.

There were two major events affecting Pike County during 2006 that were accepted by the Commission to be excluded from the statistics. These major events affected 2,600 customers for a total of 979,888 customer-minutes of interruption, and are detailed in Table 1.

Table 3 shows a summary by cause, for the Pike County interruptions experienced in 2006, with pre-arranged outages and major events removed. The major cause is tree contact with 38 interruptions affecting 1,514 customers for a total of 401,395 customer-minutes. This represents 58% of the number of interruptions, 29% of the customers affected, and 65% of the customer minutes of interruption. The program targeted to improve this area is the three-year, cycle-based tree clearance program. In addition, a Circuit Ownership Program has been initiated, whereby circuits are patrolled by 'circuit owners', who report items that are in need of remediation. This effort, along with other of the Company's Service Reliability programs, discussed later in this report, are designed to target equipment and circuits that require performance upgrades.

The distribution inspection and maintenance goals/objectives and capital expenses, are listed starting on page 6. Presently, Pike County has no transmission lines.

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

### Major Events

Date	Cause	Time	Duration (minutes)	Customers Affected	Cust Min of Interruption
2006/01/15	Storm (1 Interruption )	4:57	2,388	48	114.624
2006/02/19	Tree Contact	12:34	341	2,552	865.264
<b>TOTAL</b>				<b>2,600</b>	<b>979.888</b>

Table 1

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

**Reliability Indices  
2004 - 2006**

Year	Frequency SAIFI (Cust Aff/ Cust Srvd)	Restoration CAIDI (Cust Min/ Cust Aff)	Duration SAIDI (Cust Min/ Cust Srvd)	Avg Cust Served	Interruptions	Customers Affected	Cust Min of Interruption
2004	.52	172	90	4,349	43	2,267	390,469
2005	1.85	109	202	4,386	90	8,123	885,329
2006	1.15	121	140	4,460	65	5,144	622,245

Table 2

**§ 57.195. (b)(4)** A breakdown and analysis of outage causes during the year being reported on, including the number and percentage of service outages, the number of customers interrupted, and customer interruption minutes categorized by outage cause such as equipment failure, animal contact, tree related, and so forth. Proposed solutions to identify service problems shall be reported.

### Causes Of Interruptions

Cause	Interruptions	% of Interruptions	Customers Affected	Cust Min of Interruption
Animal	4	6.2%	632	80,069
Tree	38	58.5%	1,514	401,395
Overload	0	.0%	0	0
Work Error	1	1.5%	1,766	10,596
Eq Failure	6	9.2%	137	24,484
Non-Comp Acc	7	10.8%	617	45,383
Cust Problem	0	.0%	0	0
Lightning	4	6.2%	218	25,564
None Fnd/Other	5	7.7%	260	34,754
<b>TOTAL</b>	<b>65</b>		<b>5,144</b>	<b>622,245</b>

Table 3

**§ 57.195. (b)(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.

**T/D  
Inspection/Maintenance  
Goals/Objectives**

**Goals/Objectives vs. Results**

Distribution goals and objectives focused on completing all scheduled preventive maintenance. These goals were met. Pike has no transmission.

- **Distribution Tree Trimming**  
17.3 miles, in the Matamoras area, was scheduled for 2006, and was completed in the first quarter. This tree maintenance goal was met.
- **Infrared Inspection Program**  
The Company's 2006 program included inspection of all 3 phase mainline circuitry. The infrared inspection goals were met.
- **Power Quality**  
The 2006 maintenance required inspection of 12 capacitors and 5 regulators. The Power Quality goals were met.
- **Mid-point Recloser / Sectionalizing Program**  
The 2006 maintenance required inspection of 1 sectionalizer and 1 recloser. The Mid-point Recloser / Sectionalizing Program goals were met.

**§ 57.195. (b)(7)** A comparison of budgeted versus actual transmission and distribution operation and maintenance expenses for the year being reported on in total and detailed by the EDC's own functional account code or FERC account code as available. Explanations of any variances 10% or greater shall be included.

**T&D  
Operation and Maintenance  
Expenses**

<b>O&amp;M Accounts</b>	<b>2006 Budget k\$</b>	<b>2006 Actual k\$</b>
580 Operation Supervision And Engineering	\$ 59.7	\$ 53.5
581 Load Dispatching	4.4	3.5
582 Station Expenses	4.6	16.1
583 Overhead Line Expenses	71.8	(69.1)
584 Underground Line Expenses	(2.4)	17.7
586 Meter Expenses	110.1	5.8
587 Customer Installation Expenses	1.2	-
588 Miscellaneous Distribution Expenses	23.1	39.1
589 Rents	0.7	0.3
592 Maintenance Of Structures And Equipment	-	0.1
593 Maintenance of Overhead Lines	115.0	133.3
594 <i>Underground Line Expenses</i>	0.0	16.7
595 Maintenance of Line Transformers	-	-
596 Maintenance of Street Lighting and Signal Systems	4.2	3.1
597 Maintenance of Meters	9.8	13.1
598 Maintenance of Miscellaneous Distribution Plant	-	3.3
599 Joint use	100.8	110.0
<b>Total Distribution</b>	<b>\$ 503.0</b>	<b>\$ 346.5</b>

Overall 2006 O&M Expenses were lower than the Budget by more than 10%. Overhead Line Expenses were impacted by a Transformer First Install Adjustment to properly capitalize costs associated with installing transformers for the years 2002 – 2006. Meter Expenses were less than anticipated due to capital replacement of meters affected by flooding, and a lower than anticipated failure rate.

§ 57.195. (b)(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.

**T/D  
Capital Expenditures**

<b>Account Code</b>	<b>2006 Budget k\$</b>	<b>2006 Actual k\$</b>
70-9699 Distribution Automation Blkt	\$ -	\$ 32.3
70-9696 Matamoras to Rt 84 Crossing	296.5	-
90-various Electric UG Distribution Blankets - PA	51.3	144.9
70-various Electric OH Distribution Blankets - PA	297.7	160.0
90-9698/9701 Milford Highlands Phase I & II	-	144.2
90-0126/0100 Transformers - U/G PA	-	31.2
70-0777/0101 Electric Meter Purchases - PA	37.3	41.7
70-0888 Meter First Install Blanket - PA	34.8	37.1
<b>Total Distribution</b>	<b>\$ 717.6</b>	<b>\$ 591.4</b>

The 2006 overall Capital Expenditures were less than the Budget by more than 10%. Within Capital Expenditures, the majority of the cost under-run was the result of postponing the Matamoras to Route 84 Crossing. This was offset, in part, by accelerated completion of the Milford Highlands project.

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

**T/D  
Inspection and Maintenance  
Goals/Objectives  
Quantified**

Inspection and maintenance programs, designed with the intention to improve frequency of interruption and minimize the resultant increases in restoration (as frequency is improved), have been in effect in Pike's service territory for over 10 years. These programs are focused on field facilities and customer satisfaction, and are effective in minimizing the probability of an interruption while limiting the number of customers affected per interruption. The major programs are:

- Distribution Tree Trimming

None scheduled for 2007. The next cycle will be scheduled for 2008 and 2009.

- Infrared Inspection Program

Our 2007 program will include inspecting all single phase and 3-phase mainline circuitry.

- Power Quality

The 2007 maintenance program will require inspection of 11 capacitors and 5 regulators.

- Mid-point Recloser / Sectionalizing Program

The 2007 maintenance program will require inspection of 1 sectionalizer and 1 recloser.

- Substation Maintenance and Inspection Program

Complete all inspection and maintenance requirements as listed in Appendix I for the Matamoras Substation.

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

**T/D Operation and Maintenance  
Expenses By FERC Account**

	<b>2007 Budget k\$</b>
580 Operation Supervision And Engineering	\$ 101.8
581 Load Dispatching	3.2
582 Station Expenses	9.4
583 Overhead Line Expenses	76.10
584 Underground Line Expenses	2.8
586 Meter Expenses	110.4
587 Customer Installation Expenses	1.2
588 Miscellaneous Distribution Expenses	17.4
589 Rents	0.7
593 Maintenance of Overhead Lines	204.4
596 Maintenance of Street Lighting and Signal Systems	2.4
597 Maintenance of Meters	10.0
599 Joint use	111.60
<b>Total Distribution</b>	<b>\$ 651.4</b>

§ 57.195. (b)(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.

**T/D Capital Expenditures  
By FERC Account**

<b>Account Code</b>	<b>Capital</b>	<b>2007 Budget k\$</b>
70/90 -Various	Electric Distribution Blankets - New Business OH	\$ 299.0
70/90 -Various	Electric Distribution Blankets - System Integrity OH	212.6
70-0777, 70-0888	Electric Meter Purchases / Installs	138.9
<b>Pike Total 2007 Capital Budget</b>		<b>\$ 650.5</b>

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

**T/D  
Inspection and Maintenance  
Programs  
Significant Changes**

**Inspection & Maintenance Changes**

The Substation Maintenance and Inspection Program will be followed for the Matamoras Substation. This plan is included as Appendix I.

A Circuit Ownership Program has been implemented. Overhead line management will patrol the circuit in an effort to identify, for correction, any issues that may threaten the reliability of the circuit. Tree and vine conditions, animal protection, lightning protection, leaking transformers, broken primary taps, broken insulators, defective poles, wire in need of upgrade, and adequate switching devices are just some of the issues that are targeted for review during the circuit patrol. Once identified, the highest priority repairs and improvements will be targeted for completion. Line 7 and circuits 104-3-13, 104-1-13 and 5-10-34 are included in this program.

The four-year tree trimming cycle and Cycle Buster programs have been replaced with a three-year cycle.

## Appendix I Substation Maintenance and Inspection Program

### Item Description:

The following details the different class inspections and maintenance programs performed by the Substation Operations Department, and their associated time cycles.

#### **CLASS #1 INSPECTION - Monthly**

- Visual inspection of transformers & oil breakers for oil leaks, oil levels, nitrogen pressure, connections, condition of bushings & OCB operating mechanism.
- Visual inspection of battery banks, chargers, control board indicating lights, control house lights, and yard lights.
- Visual inspection of minor equipment including PT's, CT's, CCPD's, disconnect switches and bus connections.
- Visual inspection of all structures, fences and yard surfaces.
- Counter readings taken of OCB's, GCB's, reclosers and tap changers.

#### **STATION BATTERY TESTS - Annually**

Measure specific gravity and cell voltage. Test with Battery Impedance Testing Equipment. Clean batteries.

#### **FANS, PUMPS, HEATERS & COMPRESSORS - Annually**

Check for proper operation prior to winter for heaters & compressors and prior to summer for fans & pumps.

#### **TRANSFORMER GAS-IN-OIL ANALYSIS - Annually**

Take oil sample from each power transformer compartment and analyze for combustible gas content.

#### **DOBLE POWER FACTOR TEST - Every 2-4 Years**

Use Doble instrument to measure the integrity of the insulating medium of certain device.

#### **OCB TIMING - Every 4 - 8 Years**

Check the time it takes for each operation of certain breakers.

#### **RELAY MAINTENANCE - Every 2 -5 Years**

Clean, test and calibrate as required all relays involved in protective relay schemes. After testing and calibrating perform a trip test to assure proper operation.

#### **CLASS #3 INSPECTION - Every 2-4 Years**

The Class #3 inspection is a visual inspection and testing which includes the #1 inspections. In other words, the Class #1 for that month should be made at the same time as the Class #3. The Class #3 inspection on transformers is to include, but is not limited to the following items:

1. Test oil - filter if needed
2. TTR - Test, meggar test
3. Inspect all connectors, bushings
4. Inspect for leaks (oil - nitrogen)
5. Check CT connections, alarm systems on BK's
6. Doble Power Factor Test

Transformers With Load Tap Changers

7. Test Oil in LTC cabinet
8. Test LTC control for proper operation

The Class #3 inspection on OCB's is to include, but is not limited to the following items:

1. DLRO (Ductor Test) before and after
2. Test oil (filter if needed)
3. Inspect and clean control cabinet
4. Inspect and clean Pneumatic-Hydraulic or spring charged operating system
5. Operational Test

The Class #3 inspection on reclosers is to include, but is not limited to the following items:

1. Oil test (filter or replace)
2. DLRO (Ductor Test) before and after
3. Control cabinet clean, checkout and operational test

Reclosers With Vacuum Bottles

4. Hi-Pot test

The Class #3 inspection on ACB's is to include, but is not limited to the following items:

1. DLRO (Ductor Test) before and after
2. Inspect all contacts (action to be taken, if needed)
3. Inspect and test all Micro and Aux. contacts (close and trip circuit)
4. Trip Test

**CLASS #4 INSPECTION - Various intervals (4-12 years) dependant on equipment type, style and maintenance history.**

The Class #4 inspection consists of a thorough inspection and testing of the apparatus listed below.

The Class #4 also includes all inspections included in Class #1 and #3.

The Class #4 inspection on transformers is to include, but is not limited to the following items:

1. Test oil - filter if needed
2. TTR - Test, Meggar Test
3. Inspect all connectors, bushings
4. Inspect for leaks (oil - nitrogen)
5. Check CT connections, alarm systems on BK's

Transformers With Load Tap Changer

6. Drain oil from LTC cabinet, inspect all contacts
7. Inspect and tighten all connections
8. Clean complete LTC cabinet
9. Filter or replace oil
10. Test LTC control for proper operation

The Class #4 inspection on OCB's is to include, but is not limited to the following items:

1. DLRO (Ductor test) before and after
2. Drop tanks - inspect and tighten all connections. Clean all parts and tanks
3. Test and filter or replace oil
4. Inspect and clean control cabinet
5. Inspect and clean Pneumatic-Hydraulic or spring charged operating systems
6. Operational Test

The Class #4 inspection on reclosers is to include, but is not limited to the following items:

1. Drop tank (filter or replace oil)
2. Inspect all contacts - repair or replace (depending on the condition)
3. Check and tighten all connections
4. Control cabinet, clean and checkout
5. DLRO (Ductor Test) before and after
6. Trip Test

#### Recloser With Vacuum Bottles

7. Hi-Pot test

The Class #4 inspection on ACB's is to include, but is not limited to the following items:

1. DLRO (Ductor Test) before and after
2. Inspect all contacts - clean and put protective grease coating on
3. Inspect and clean all ARC chutes
4. Inspect and test all Micro and Aux. contacts (close and trip circuit)
5. Check and tighten all connections
6. Operational Test

#### **References:**

All inspection and maintenance records are retained as a hard copy for one year at Orange and Rockland's main Operating Division headquarters. These records are also retained electronically on a work management system. Repeated callouts and equipment failures that show an abnormal trend are flagged by the work management system.

The Doble power factor testing, transformer gas in oil analysis, and infrared inspection records are stored electronically on the SIS (Substation Information System). OCB timing maintenance records are presently kept on a separate electronic storage system that is provided with the test equipment.



**Robert R. Stoyko**  
Vice President - Electric Distribution

UGI Utilities, Inc.  
Hanover Industrial Estates  
400 Stewart Road  
Wilkes Barre, PA 18706-1495

(570) 830-1222 Telephone  
(570) 830-1190 Fax  
rstoyko@ugi.com

April 30, 2007

**ORIGINAL**

Mr. James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

**SENT VIA FEDERAL EXPRESS**

**RE: Quarterly Electric System Reliability Report  
12 Months Ending March 31, 2007**

Dear Secretary McNulty:

Pursuant to the Commission's May 7, 2004 Final Rulemaking Order amending Electric Service Reliability Regulations (52 Pa. Code §§57.191 - 57.197) at Docket Nos. L-00030161 and M-00991220, UGI Utilities, Inc. - Electric Division ("UGI") hereby files an original and six copies of its Quarterly System Reliability Report. This report contains SAIDI, SAIFI, and CAIDI results on a 12-month rolling basis for the period ending March 31, 2007 along with the raw data from the same period. The actual statistics continue to be favorable to both the benchmark and standard adopted for UGI. An extended period of relatively storm-free weather has been a contributing factor in the results noted. Also included is a breakdown of outages by cause for the 12 months ending March 31, 2007.

The Office of Consumer Advocate, the Office of Small Business Advocate, the Bureau of Audits, and the Bureau of Conservation, Economics and Energy Planning have each been served with copies of this filing.

Questions related to the attached report should be directed to Ms. Abigail J. Hemmerich at (610) 796-3431 or email [ahemmerich@ugi.com](mailto:ahemmerich@ugi.com)

Kindly acknowledge receipt of this filing by date stamping the enclosed copy of this letter and returning it in the enclosed stamped, self-addressed envelope.

Sincerely,

**DOCUMENT  
FOLDER**

Robert R. Stoyko  
Vice President - Electric Division  
Attachment

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GENERAL  
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31

cc: **FEDERAL EXPRESS**

Irwin A. Popowsky  
Office of Consumer Advocate  
555 Walnut St.  
5<sup>th</sup> Floor, Forum Place  
Harrisburg, PA 17101-1921

William R. Lloyd  
Office of Small Business Advocate  
Suite 1102, Commerce Bldg.  
300 North Second St.  
Harrisburg, PA 17101

Thomas E. Sheets  
Bureau of Audits  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Bldg.  
3<sup>rd</sup> Floor, F East  
Harrisburg, PA 17101

Darren Gill  
Supervisor of Electric Reliability  
Bureau of Conservation, Economics and Energy Planning  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

**ELECTRONIC MAIL**

Darren Gill  
Supervisor of Electric Reliability  
Bureau of Conservation, Economics and Energy Planning  
dgill@state.pa.us

SECRETARY'S BUREAU

2007 MAY -1 AM 11:37



UGI Utilities, Inc. – Electric Division  
System Reliability Report:  
Quarterly Update

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MAY 10 2007

May 1, 2007

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**UGI Utilities, Inc. – Electric Division  
System Reliability Report**

**§ 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 preceding quarter.

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

The 12 month rolling reliability results for UGI’s service area are as follows:

	<b>SAIFI</b>	<b>SAIDI</b>	<b>CAIDI</b>
<b>12-Month Standard</b>	<b>1.12</b>	<b>256</b>	<b>228</b>
<b>12-Month Benchmark</b>	<b>0.83</b>	<b>140</b>	<b>169</b>
12 months Ended March, 2007	.60	67	112

Note:

SAIFI – System Average Interruption Frequency Index  
SAIDI – System Average Interruption Duration Index  
CAIDI – Customer Average Interruption Duration Index

**Raw Data: April 2006 - March 2007**

<b>Month</b>	<b>SI</b>	<b>TCI</b>	<b>TCB</b>	<b>TMCI</b>
Apr-2006	52	3,580	61,881	395,664
May-2006	61	1,797	61,834	340,322
Jun-2006	83	6,969	61,842	746,175
Jul-2006	61	755	61,780	144,081
Aug-2006	61	5,937	61,829	475,143
Sep-2006	52	3,273	61,869	281,956
Oct-2006	46	4,878	61,798	318,041
Nov-2006	40	2,310	61,999	349,741
Dec-2006	65	6,077	62,029	952,837
Jan-2007	12	242	62,085	19,314
Feb-2007	13	91	62,134	10,983
Mar-2007	<u>28</u>	<u>1,173</u>	<u>62,163</u>	<u>132,863</u>
<b>TOTAL</b>	<b>574</b>	<b>37,082</b>	<b>61,937 *</b>	<b>4,167,120</b>

**UGI Utilities, Inc. – Electric Division  
System Reliability Report**

SI: Sustained Interruptions  
TCI: Total Customers Interrupted  
TCB: Total Customer Base (\*12-month arithmetic average)  
TMCI: Total Minutes Customer Interruption

**Note: There were no major events excluded from the numbers used in calculating the indices.**

Mild weather conditions during the early months of 2007 resulted in considerably fewer weather-related outages than experienced during the same period in 2006. UGI's improved reliability index measurements are reflective of these conditions. Severe rains during June 2006 and a wind and lightning storm in December 2006 caused outages that interrupted power to a large number of customers. UGI continues to experience a significant number of failures of the A. B. Chance fuse cutout. (See discussion of this issue in §57.195(e)(5).)

**SAIFI**

The 12-month rolling SAIFI index decreased 24% from 0.79 in our last quarterly report to 0.60 for the period ending March 2007.

**SAIDI**

The SAIDI value for the 12 months ending March 2007 is 67. This result is 23.9% lower than results reported through December 2007 and continues tracking well below UGI's benchmark level of 140.

**CAIDI**

The CAIDI result of 112 for the 12-month reporting period ending March 2007 is unchanged from our last report.

**UGI Utilities, Inc. – Electric Division  
System Reliability Report**

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

**Outage by Cause: April 2006 - March 2007**

<b>Cause</b>	<b>% of Total Incidents</b>	<b>Number of Interruptions</b>	<b>Customers Interrupted</b>	<b>Minutes Interrupted</b>
Animal	12.37%	71	3,561	197,032
Company Agent	0.35%	2	103	1,810
Construction Error	0.52%	3	21	3,047
Customer Problem	0.70%	4	19	4,640
Equipment Failure	43.38%	249	11,761	993,200
Lightning	10.10%	58	3,468	567,399
Motor Vehicle	4.88%	28	7,131	626,566
Other	0.87%	5	23	2,571
Public	2.61%	15	222	20,940
Structure Fire	0.17%	1	10	1,342
Trees	17.07%	98	5,961	926,491
Unknown	3.48%	20	622	157,051
Weather/Ice	0.17%	1	1	480
Weather/Wind	<u>3.31%</u>	<u>19</u>	<u>4,179</u>	<u>664,551</u>
<b>TOTAL</b>	<b>100.00%</b>	<b>574</b>	<b>37,082</b>	<b>4,167,120</b>

**Proposed Solutions to Identified Problems:**

Forty-three percent of the outages reported above resulted from equipment failure. A significant portion of these equipment failures are attributed to a problem with the A. B. Chance fuse cutouts utilized on the UGI system. As discussed in previous reports, UGI has implemented a replacement program to actively identify and replace these defective parts. The replacement work effort is ongoing.

**2007 Engineering and Operations Department Budget**

**2007  
Budget**

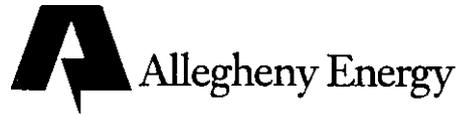
**Building and Grounds**

932	Dumpster - Pole Yard	\$2,000
932.2	Maintenance - Communications Equipment (SCADA/AMR/ETC)	\$2,000
932.3	Maintenance Dept Tool Budget	\$500
932	Maintenance, Yards, Subs, Etc.	\$6,000
932.1	Maintenance Office Building	\$3,000
932.3	Maintenance Operations Building	\$5,000
932.3	Maintenance Storage Garage	\$100
418	Maintenance Apartment House	\$2,000
418	Maintenance Rental House	\$2,500
932	Emergency Generator Maintenance Contract	\$2,200
588	Repair Customer Property	\$2,000
		<b>\$27,300</b>
	<b>Total Estimated Budget</b>	<b>\$493,725</b>

57.195 (b) (11)

**WELLSBORO ELECTRIC COMPANY  
2007 Capital Budget  
Engineering and Operations  
40 New Services**

<b>A.</b>	<b>New Services</b>		\$ 76,000.00
	<b>Misc. System Improvements</b>		\$ 30,000.00
	Sub-Total		
<b>B.</b>	Pole Replacements	100 Poles	\$ 100,000.00
	<b>WECO Projects</b>		
	Rt 287 South	One (1) Mile	\$ 20,000.00
	East Ave. Circuit	Voltage Conversion	\$ 125,000.00
<b>C.</b>	Fault Indicators		\$ 4,800.00
<b>D.</b>	Tie-Lines	1.5 Miles	\$ 27,000.00
<b>E.</b>	Sectionilizing		\$ 8,000.00
	West Branch	Conductor Only	\$ 10,000.00
	Pheasant Hill Road	Relocation	\$ 18,000.00
<b>Construction Estimate</b>			<b>\$ 418,800.00</b>
<b>F.</b>	Automated Meter Reading System	TURTLE Meters	\$ 65,000.00
<b>G.</b>	<b>Metering</b>		
	Industrial / Commercial Metering	Upgrades/AMR	\$ 5,000.00
<b>H.</b>	<b>SCADA</b>		\$ 5,000.00
<b>I.</b>	<b>Misc.</b>		
	Two-Way Radio	Portable Radio	\$ 1,500.00
	Power Tools - Line Trucks	Hot Line Tools	\$ 2,000.00
	Computers	2 Lap Tops	\$ 6,600.00
<b>L.</b>	Joint purchase of specilized equipment with C&T		\$ 10,000.00
			\$ 95,100.00
	<b>Total</b>		<b>\$ 513,900.00</b>



**ORIGINAL**

LEGAL SERVICES

800 Cabin Hill Drive  
Greensburg, PA 15601-1689  
PH: (724) 838-6210  
FAX: (724) 838-6464  
jmunsch@alleghenyenergy.com

April 30, 2007

**VIA FEDERAL EXPRESS**

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

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APR 30 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Re: Annual Reliability Report of Allegheny Power

Dear Secretary McNulty:

L-00030161

Enclosed please find an original and six copies of the Annual Reliability Report of Allegheny Power filed pursuant to 52 Pa. Code §57.195. Copies of the Report have been served on the parties to Allegheny Power's reliability standards and benchmarks proceeding at Docket No. M-00991220F0003.

This filing is made by Federal Express and the filing date is deemed to be today.

Very truly yours,

**DOCUMENT  
FOLDER**

*John L. Munsch*  
John L. Munsch  
Attorney

Enclosures

cc: Certificate of Service  
Darren G. Gill, Bureau of CEEP

176

**Allegheny Power**  
**Annual Transmission and Distribution System Reliability Report**  
**Pennsylvania PUC 52 PA CODE 57.195**  
**Annual Report for 2006**

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APR 30 2007

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

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**52 Pa. Code 57.193 (c)**  
**Annual Transmission System Reliability Report**

Allegheny Power (AP) is a member of the Reliability*First* Corporation (RFC). This Regional Reliability Council prepares a semi-annual assessment of the bulk Transmission system. The purpose of this assessment is to provide insights into the expected performance of the bulk transmission system and to identify potential transmission constraints under a wide range of system conditions for the upcoming peak load season. The 2006 summer assessment is titled "**2006 Summer Assessment of Transmission System Performance**". This report will be available upon request from RFC.

**52 Pa. Code 57.195 (b1)**  
**Introduction**

Allegheny Power reached a settlement in its reliability petition in 2006 and is reporting under its amended benchmarks. The amended benchmarks provide a more reasonable reflection of its historical reliability performance during a period of changing data recording methods. Achieving the revised benchmarks and standards provides both an opportunity to meet more a more realistic reflection of its performance and also a challenge to meet negotiated benchmarks.

**52 Pa. Code 57.195 (b1)**  
**Assessment and Programs**

**Assessment**

Allegheny Power's distribution system can be characterized as good with a trend of improving reliability. AP has pursued implementing technology to measure reliability and respond to forced outage events. Technologies such as Automated Mapping/Facilities Management, Outage Management System, Call Center Interactive Voice Response, Computerized Work Management System, and mobile technologies all support timely response to field conditions. A corporate training center, reliability programs, and processes to support reliability initiatives are in place to continually improve distribution reliability. These and other initiatives also support intense work efforts for responding to severe weather events. Well-established maintenance programs are in place to ensure the existing system will continue to operate in a safe and reliable manner. Allegheny also has maintenance programs in place to address poor performing circuits as well specific line segments where reliability issues may exist.

Weather events continue to affect circuit reliability and reliability statistics. Major events, discussed later in this report, are excluded from statistics but can affect budgets and work plans. Other, less severe, weather events are included in statistics and can contribute significantly to reliability statistics, especially on an individual circuit basis. These events are also mentioned later.

**Current Programs and Procedures**

Select subsections of Sections 04, 05, 09, and 13 of the Allegheny Power *Construction, Operation, and Maintenance (COM) Manual*, Section 20 of the Allegheny Power *Engineering Manual* and Allegheny's *Substation Notebook* detail the company's inspection & maintenance programs as summarized below.

**COM 04-01 Overhead Lines – Patrol of EHV, Transmission and Subtransmission Lines**  
**- Patrol Description and Scheduling**

- Comprehensive patrols are performed on a five-year interval for all EHV lines (345-500 kV) and on a ten-year interval for all transmission lines 115-230 kV).
- All lines (115 through 500 kV) undergo a general patrol annually between the comprehensive patrol years, and subtransmission lines (23 through 69 kV) receive a general patrol annually.
- All EHV and transmission lines are patrolled annually to assess vegetation and danger tree conditions.
- All steel poles, towers, and concrete footers are inspected during each line's scheduled comprehensive patrol.

**COM 04-02 Overhead Lines – Patrol of EHV, Transmission and Subtransmission Lines**  
**- Inspection and Report Guidelines**

- Provides guidelines for performing inspections of EHV, transmission, and subtransmission lines and preparing reports.

**COM 04-03 Overhead Lines – River Crossing Inspections**

- All river crossings covered by permits issued by the Corps of Engineers are inspected every ten years and immediately after floods or high water.

**COM 04-04 Overhead Lines – Distribution Inspection and Maintenance Program for Capacitors**

- All distribution line capacitors are visually inspected annually.

**COM 04-05 Overhead Lines – Annual Inspection & Maintenance (AIM) – Lines 46 kV and Below**

- AIM Tier 1 is a time-based inspection of every circuit by contract pole inspectors over a twelve-year, recurring cycle.
- *AIM Tier 2* projects are both time-based and reliability-based projects. The time-based portion of AIM Tier 2 will consist of Company personnel inspecting every circuit on the AIM Tier 2 schedule once every 12 years. The AIM Tier 2 schedule will lag the AIM Tier 1 schedule by approximately 6 years. The reliability-based portion of AIM Tier 2 will consist of projects identified through the Reliability Improvement Program (RIP). Any circuit or line segment flagged through RIP reviews will be addressed by the service center.

**COM 04-06 Overhead Lines – Painting of Steel Transmission, Subtransmission, and Distribution Structures**

- Service Centers submit recommendations for painting steel structures to Lines Operations based on scheduled line patrols as documented above. Lines Operations evaluates the condition of the protective coatings and is responsible for the painting required to extend the useful life of the assets.

**COM 04-07 Overhead Lines – Maintenance of Transmission, Subtransmission, and Distribution Foundations**

- Service Centers submit recommendations for repairing foundations to Lines Operations based on scheduled footer patrols as described elsewhere in this summary. Lines Operations evaluates the condition of the foundations and is responsible for the necessary upgrades or repairs.

**COM 04-08 Overhead Lines – Inspection of Standing Wood Poles**

- Inspections of distribution and subtransmission wood poles and hardware are conducted on a twelve-year cycle by contract inspectors.
- Transmission poles are inspected on a ten-year schedule in conjunction with the Comprehensive Aerial Patrol described above.

**COM 04-09 Overhead Lines – Inspection and Maintenance Program for Three Phase Group Operated Air Switches Used On Overhead Distribution and Subtransmission**

- Manual air switches are inspected prior to planned or emergency operation of the switch. Automatic air switches are visually inspected during inspection and maintenance of the motor mechanisms (annually).

**COM 04-10 Overhead Lines – Inspection and Maintenance Program for Oil Circuit Reclosers**

- Oil circuit reclosers on distribution lines are visually inspected once per year. Units are removed from service for refurbishing in the shop based on the

manufacturer's duty cycle recommendations or every 10 years, whichever comes first.

**COM 04-11 Overhead Lines – Inspection and Maintenance of Distribution Line Voltage Regulators**

- Voltage regulators on distribution lines are visually inspected once every five years. Regulators are tested to assure proper operation. Faulty regulators are replaced.

**COM 05-01 Underground Distribution/Subtransmission Lines – Underground Equipment Inspection**

- Underground equipment is inspected on a five-year cycle.

**COM 05-04 and 05-05 Underground Cable Treatment and Replacement Program**

- Underground cable treatment has been accepted in the industry as a means to extend cable life at a fraction of the replacement cost.
  - Primary cable injection is a process in which a silicon-based fluid is injected into the conductor strands of a cable. The fluid is absorbed by the surrounding cable insulation. The result is rejuvenation of cable insulation and increased life expectancy of the cable.
  - Unsuccessfully injected direct buried cable sections shall be scheduled for replacement. When replaced the cable section(s) shall be installed in conduit.

**Vegetation Control Program Overview**

- Allegheny Power has a structured vegetation control program in which rural distribution circuits are maintained on a 6 – 8 year cycle. Urban distribution circuits are maintained on a 3 - 4 year cycle. Cycle lengths may vary due to shorter or longer growing seasons, species variation, and other factors that influence growth. Transmission lines are patrolled annually and maintained on an as needed basis.

**COM 09-06 Vegetation – Initial Clearing Guidelines**

- Guidelines have been established for initial right-of-way clearing. Standard corridor widths are maintained for each voltage class and construction type.

**COM 09-07 Vegetation – Planning, Scheduling, Budgeting, Contracting, and Recording Vegetation Management Work on Distribution Voltages**

- Vegetation management activities follow a standard cycle length of 6 - 8 years for rural distribution lines and 3-4 years for urban distribution lines.

**COM 09-08 Vegetation – Planning, Scheduling, Budgeting, Contracting, and Recording Vegetation Management Work on Subtransmission Voltages**

- Vegetation management activities follow an as needed basis based on patrols.

**COM 09-09 Vegetation – Planning, Scheduling, Budgeting, Contracting, and Performing Vegetation Management Work on Transmission Voltages**

- Recommended cycles by activity have been established for vegetation management of transmission lines. Annual general aerial patrols are used to identify emergency conditions, to assess effectiveness of maintenance activities,

to determine vegetation conditions, and to assist in creating and refining management plans.

### **COM 09-13 Vegetation – Vegetation Management Inspection**

- This procedure outlines the requirements for inspecting vegetation management contractors. Audit of contractor activities ensures contract compliance and quality of work.

### **COM 13-01 Street Lighting – Maintenance and Inspection**

- For group light accounts, inspection of street lighting equipment is performed at the same time that the group lamp replacement is made. The replacement schedule for mercury vapor and high-pressure sodium lights is four years.

## **Engineering Manual**

### **20-1.0 Reliability and Improvement Program (RIP)**

- Detailed reviews are conducted on distribution circuits with reliability indices falling outside of AP's reliability targets. RIP guidelines identify a range of targeted and cyclic inspection and maintenance programs that can be applied to poor performing circuits.
- This program places greater emphasis on analyzing data available through the Outage Management System (OMS) to focus maintenance activities on poor performing circuits and line segments. These enhancements were made as the result of new reporting functionality provided via web based reporting from the outage management system. This program targets reliability improvement as follows:
  - **Poor Performing Circuits** -Targets poorest performing circuits as ranked by the DCII (DCII - Distribution Circuit Interruption Index is a composite index comprised of SAIFI SAIDI, CAIDI and ASAI utilized to rank and prioritize circuits). Detailed outage analysis is performed on these circuits and an action plan (if necessary) is developed to improve performance. A Circuit Improvement Index is being considered to replace DCII.
  - **Circuit that have two or more lockouts** - Any circuit that's has locked out multiple times in a 12 month period will require a detailed analysis and if necessary an action plan will be developed to improve performance.
  - **Open Sectionalizing Devices** - Sectionalizing devices experiencing multiple operations in a 12-month period will require detailed analysis and if necessary an action plan will be developed to improve performance.
  - **Substation Breaker/Recloser Operation** - Reclosers experiencing more than abnormal number of operations annually will be reviewed and if necessary an action plan will be developed to improve performance.
- By utilizing the above criteria (in addition to our standard maintenance activities) to target maintenance to poor performing circuits and line segments, we are able to focus our resources to those customers experiencing the poorest levels of reliability.

### **SS Notebook: Substation Maintenance Program - Objectives and Desired Outcomes**

The objective of Allegheny's substation maintenance program is to maintain safe and reliable service to our customers. The program has three components:

1. **Preventive Maintenance** is done to preserve the function of equipment or facilities and to prevent failures. These tasks are either performed periodically or are triggered by number of operations.
2. **Predictive Maintenance** is done to assess the condition of the equipment and consists of diagnostic tests and inspections. It is completed in conjunction with preventive and corrective maintenance.
3. **Corrective Maintenance** is done to repair equipment and facilities or to replace failed equipment and facilities.

## Procedures

The Substation Notebook documents substation maintenance and operating practices. The section titled "Maintenance Class Details" lists the various classes of maintenance and inspection procedures (see definitions below) performed on all substation equipment such as power & instrument transformers, circuit breakers, regulators, reclosers, capacitors, batteries & chargers.

### Maintenance Class Definitions\*

- Class A** – Complete inspection, adjustment, testing and repair of those electrical, mechanical, physical, and structural components as required by this standard for each unique piece of equipment, and the recording of appropriate data. Normally the equipment will be removed from service.
- Class B** – The inspection, adjustment, testing and repair of those electrical, mechanical, physical and structural subcomponents as required by this standard for each unique piece of equipment, and the recording of appropriate data. Items included in this category are those subcomponents of equipment requiring more frequent attention than the periodicity of Class A maintenance.
- Class C** – Visual inspection of those electrical, mechanical, physical and structural components available while the equipment is in service, and the logging of substation data. Perform such special tests as prescribed by individual equipment maintenance guide.
- Class D** – Visual inspection of those electrical, mechanical, physical and structural components available while the equipment is in service, and the daily logging of the data.
- P** – Perform a bushing PF test on all GE transformers 230 kV and below and all breakers with GE type U or McGraw Type PA bushings.
- G** – Perform gauge inspection.

\* For each maintenance class, the lower classes are also performed. For initial installation, the highest form of maintenance shall be performed.

**52 Pa. Code 57.195 (b)(2)**  
**Major Events**

The reliability data included in this document excludes the following Major Event. This event was approved by the PUC for exclusion as shown in Appendix I. Statistics for the Major Event follows:

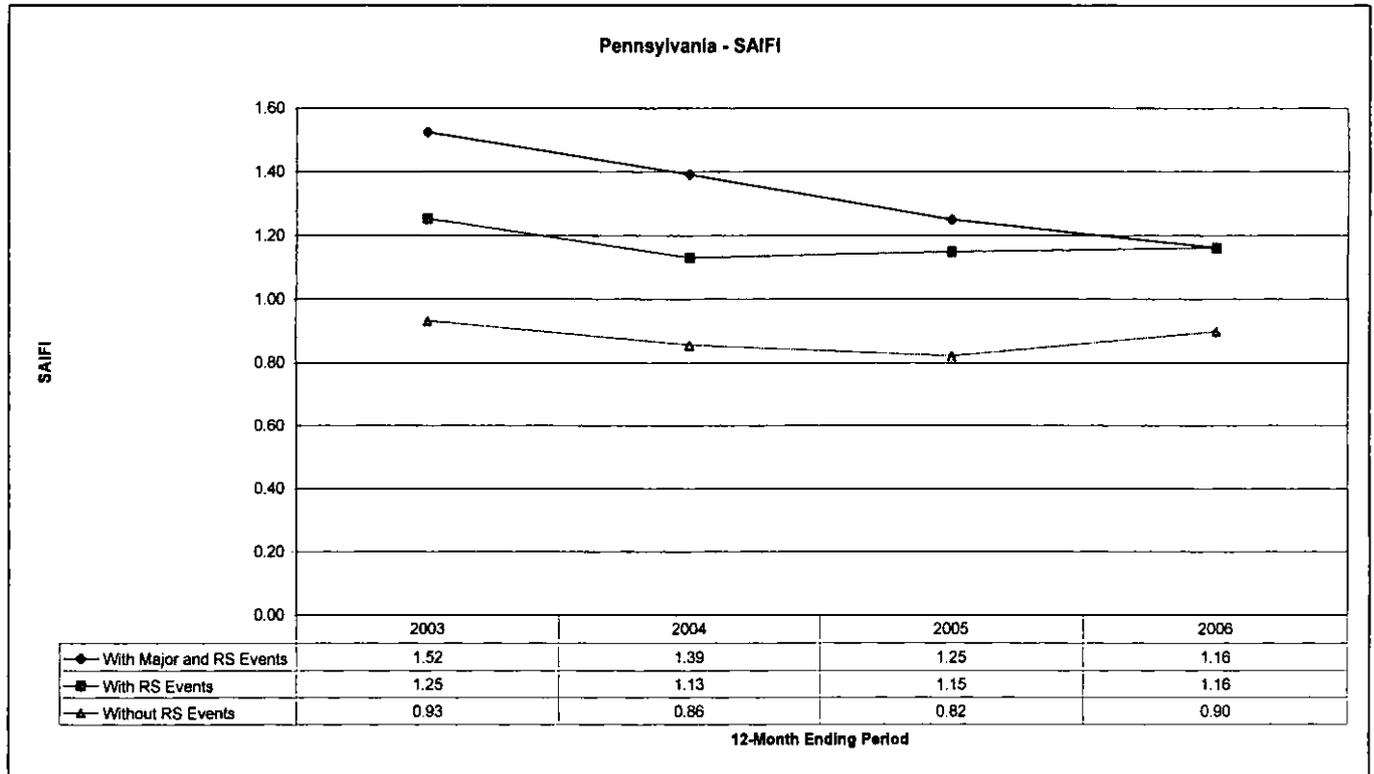
1. There were no Major Events in 2006.

Major event description:

- (i) Either of the following (A) or (B) qualifies as a major event for data exclusion, with approval of the PUC:
  - (A) An interruption of electric service resulting from conditions beyond the control of the electric distribution company which affects at least 10% of the customers in an operating area during the course of the event for a duration of 5 minutes each or greater. The event begins when notification of the first interruption is received and ends when service to all customers affected by the event is restored. When one operating area experiences a major event, the major event shall be deemed to extend to all other affected operating areas of that electric distribution company.
  - (B) An unscheduled interruption of electric service resulting from an action taken by an electric distribution company to maintain the adequacy and security of the electrical system, including emergency load control, emergency switching and energy conservation procedures, as described in § 57.52 (relating to emergency load control and energy conservation by electric utilities), which affects at least one customer.
- (ii) A major event does not include scheduled outages in the normal course of business or an electric distribution company's actions to interrupt customers served under interruptible rate tariffs.

Allegheny Power's Restore Service storm response procedures are continually being updated following major events. Process team members and others involved in the storms meet to share 'lessons learned'. Procedures are revised as necessary to improve response to the variety of storms encountered across AP's service territory.

Although not excluded from statistics, AP's Pennsylvania service territory experienced several minor events ('RS Events') characterized by having received a severe weather alert accompanied by at least 5,000 Allegheny Power customers interrupted. The following chart shows the effect on SAIFI of Major Events and RS Events for Pennsylvania customers:



**52 Pa. Code 57.195 (b)(3)**  
**Reliability Indices, Performance Measures, and Supporting Data**

The following tables provide 2006 reliability statistics (SAIFI, CAIDI, and SAIDI) and three years of supporting statistics along with AP's current Benchmarks and Performance Standards:

2004	782,493	688,671	148,781,237	216	0.999590	190	1.13
2005	797,656	694,739	155,683,034	224	0.999574	195	1.15
2006	807,863	696,197	149,692,193	215	0.999591	185	1.16

The following table provides Allegheny Power's current benchmarks and standards.

Reliability Indices	Approved Settlement Benchmarks	Rolling 12-Month Standard	Rolling 3-Yr Avg. Standard	Yearend 2006 Performance (Rolling 12-month)
SAIFI	1.05	1.26	1.16	1.16
CAIDI	170	204	187	185
SAIDI	179	257	217	215

**Supporting Discussion:**

**MAIFI Indices Reporting**

Momentary Average Interruption Frequency Index (MAIFI) statistics are not recorded or readily available at Allegheny Power. Sufficient field equipment is not available to provide meaningful data for momentary interruptions indices.

**52 Pa. Code 57.195 (b)(4)**  
**Outage Causes and Proposed Solutions**

A summary and review of service territory-wide outage causes follows:

Outage Cause	Incidents 12 Month ending Dec 06		Customers Interrupted 12 Month ending Dec 06		Customers Minutes Interrupted 12 Month ending Dec 06	
	Number	Percent	Number	Percent	Number	Percent
<b>Animals</b>	1,721	10.1%	44,749	5.7%	4,391,571	3.0%
<b>Overhead Equipment Failure</b>						
Overhead Line Equipment	1,224	7.2%	33,605	4.2%	4,436,412	3.0%
Overhead Line Material	1,467	8.6%	96,020	12.1%	11,094,646	7.5%
Overhead Wire	1,259	7.4%	61,168	7.7%	8,276,826	5.6%
<b>Underground Equipment</b>						
Underground Line Material	29	0.2%	589	0.1%	113,073	0.1%
Underground Line Equipment	93	0.5%	1,451	0.2%	448,116	0.3%
Underground Cable	414	2.4%	13,801	1.7%	4,054,249	2.7%
<b>Service Equipment</b>	50	0.3%	54	0.0%	8,361	0.0%
<b>Substation Equipment</b>	142	0.8%	30,387	3.8%	3,938,510	2.7%
<b>Other</b>	221	1.3%	20,771	2.6%	1,668,268	1.1%
<b>Public/Customer</b>	1,887	11.0%	108,999	13.8%	19,936,298	13.5%
<b>Trees</b>						
On Right of Way	106	0.6%	6,058	0.8%	1,091,237	0.7%
Off Right of Way	3,353	19.6%	154,478	19.5%	36,729,035	24.9%
Slide into Line from off ROW	7	0.0%	190	0.0%	38,814	0.0%
<b>Unknown</b>	1,898	11.1%	82,404	10.4%	8,330,051	5.6%
<b>Weather</b>	3,221	18.8%	136,936	17.3%	43,069,948	29.2%
<b>Total</b>	<b>17,092</b>	<b>100%</b>	<b>791,660</b>	<b>100%</b>	<b>147,625,415</b>	<b>100%</b>

Note: Numbers may be slightly off from aggregated totals in summary section above due to rounding. Allegheny Power's Outage Management System (OMS) tracks the number of incidents recorded for a circuit. This number does not necessarily reflect the number of outages on a circuit. One outage may be recorded as multiple incidents on different phases or grouped to different sectionalizing devices. It should be noted that the number of incidents on a circuit may be overstated due to the way similar incidents may not have grouped together in OMS.

**Analysis and Plans of Action**

Allegheny Power believes that the greatest improvement in company-controllable outages will result from several initiatives in place to improve distribution reliability in Pennsylvania.

- Through AP's Reliability Improvement Plan (see 'Current Programs and Procedures' in this report), address poor performing circuits and line segments.
- Expanded Forestry Danger Tree Program – Allegheny Power's Danger Tree Program consists of removing, or significantly reducing in height, diseased or damaged trees located outside the boundary of the right-of-way (off ROW) that lean toward the line in a manner that poses a threat to service reliability and/or the integrity of the line under any weather condition. Beginning in 2003, AP initiated this program to target live, healthy trees that are leaning and located along higher voltage lines and main lines of distribution circuits.
- Circuit Improvement Initiative - AP has initiated a circuit improvement initiative whereby AP's recent 100 worst performing circuits are identified, studied, and targeted for further possible improvements based on the review of outage causes.

- Six-Sigma teams are focusing on root cause analysis in several areas
  - Reduction of circuit lockouts caused by fallen off-ROW trees
  - Reduction of substation outages caused by subtransmission outages
  - Reduction of customer interruptions caused by cutout failures
  - Reduction of response time to after-hours outages
  - Piloting of automated overhead fault indicators to reduce scouting time
  - Analysis and improvement of restoration efforts during storms
  - Improving outage data quality

**52 Pa. Code 57.195 (b)(5)**  
**Remedial Efforts for 5% Worst Performing Circuits**

The following seven circuits were on the 5% worst performing circuit list as of 9/30/05 and 9/30/06. AP targets the DCII worst performing circuit list as of September 30<sup>th</sup> each year to allow time to develop budgets and work plans for the following year before yearend. A description of remedial efforts for each circuit is included along with description of significant outage causes.

Allegheny Power is considering migrating its circuit ranking methodology from the current Distribution Circuit Improvement Index (DCII). The new method, Circuit Improvement Index Ranking, incorporates reliability statistics at a local level to further address individual customer satisfaction. The methodology is described in Appendix III.

**Rutan substation/Bristoria circuit:**

Significant outages and actions taken or planned with respect to this circuit are as follows:

- Over sixty percent of the outages occurred as a result of off right-of-way trees. Another thirteen percent resulted from public vehicles hitting AP poles and sixteen percent from animal contacting power facilities.
- Currently in progress is the reconductoring of seven miles of three-phase line, right-of-way widening, and relocating portions of line.

**Fowler substation/Bald Eagle circuit:**

Significant outages and actions taken or planned with respect to this circuit are as follows:

- Fifty-six percent of the outage CMI resulted from someone breaking into the substation and trying to steal copper with some ground wires needing repair before equipment could be returned to service. Another eight percent resulted from as vehicle hitting a pole.

**Mt. Riansares Tower substation/ Mt. Riansares circuit:**

Significant outages and actions taken or planned with respect to this circuit are as follows:

- Thirteen customers exist on this circuit fed from PPL facilities. A total of three outages resulted from an off right-of-way tree, high wind, and unknown outage cause.

**Waterville substation/ Waterville circuit:**

Significant outages and actions taken or planned with respect to this circuit are as follows:

- Off right-of-way trees accounted for sixty-two percent of the outages and high wind another thirty-three percent.
- Tree trimming is scheduled for 2007.

**Thompson Farm substation/ Toftrees circuit:**

Significant outages and actions taken or planned with respect to this circuit are as follows:

- Eighty-four percent of the outage CMI on this circuit resulted from off right-of-way trees.
- Trees were trimmed in 2006.

**Vanceville substation/ Vanceville circuit:**

Significant outages and actions taken or planned with respect to this circuit are as follows:

- One circuit lockout caused by lightning accounted for sixty-three percent of the CMI with off right-of-way trees accounting for another twenty-five percent.
- Trees were trimmed in 2006.

**52 Pa. Code 57.195 (b)(6)****Transmission and Distribution Inspection/Maintenance Goals Results**

Attached as Appendix II is comparison of 2006 T&D goals versus actual results for Ensure Reliable Service (ERS) work. Overall, AP completed over 98% of planned work objectives with any follow-up work not completed by yearend 2006 scheduled for completion in early 2007. Note that occasionally goal targets may change somewhat during the year as certain work adjusts to meet field conditions and inspection/replacement guidelines. Some work has more inherent uncertainty associated with establishing budgets and goals more than a year ahead of time.

**52 Pa. Code 57.195 (b)(7)**  
**Transmission and Distribution Budget versus Actual O&M Expenses**

Following is comparison of budgeted versus actual 2006 transmission and distribution operations and maintenance expenses. Overall, AP actual expenses were 104% of budget. Certain organizational groups may have changed during the year, but the totals remain consistent.

T&D Area	YTD 2006 Budget (\$1000)	YTD 2006 Actual (\$1000)
Distribution DEPT	\$ (931)	\$ (409)
Distribution Support DEPT	\$ 4,035	\$ 5,948
Field Operations DEPT	\$ 20,422	\$ 22,425
Forestry DEPT	\$ 14,523	\$ 13,584
Transportation DEPT	\$ 17	\$ 47
Distribution Eng & Png_DEPT	-	\$ 774
Distribution Subtotal	\$ 38,066	\$ 42,368
System Planning DEPT	\$ 656	-
Transmission Png & Ops_DEPT	-	\$ 4,239
Substations DEPT	\$ 6,850	\$ 7,082
System Operations DEPT	\$ 5,418	-
Technical Services DEPT	\$ 3,190	\$ 3,178
Transmission Other DEPT	\$ 492	\$ 674
Transmission Engineering DEPT	\$ 3,037	\$ 2,555
Transmission Projects DEPT	\$ 701	\$ 786
Transmission Siting_DEPT	-	\$ 645
Transmission Subtotal	\$ 20,344	\$ 19,159
Total T&D O&M	\$ 58,411	\$ 61,527

**52 Pa. Code 57.195 (b)(8)**  
**Transmission and Distribution Budget versus Actual Capital Expenditures**

Following is comparison of budgeted versus actual 2006 transmission & distribution capital expenditures (\$1,000) followed by an explanation of any significant variances:

(\$ in Thousands)	YTD Budget	YTD Actual
Distribution Lines	\$ 41,976	\$ 42,661
Distribution Substations	\$ 7,599	\$ 9,524
EHV Lines	\$ (1)	\$ 222
EHV Substations	\$ (888)	\$ 454
General Plant	\$ 7,158	\$ 4,227
Sub-Transmission	\$ 30	\$ 593
Transmission Lines	\$ 1,489	\$ 1,932
Transmission Substations	\$ 4,176	\$ 747
<b>Total</b>	<b>\$ 61,539</b>	<b>\$ 60,359</b>

2006 expenditures were close to budget and 2% under budget overall. Note that a negative amount indicates that more money was budgeted or received from others for work performed than AP expended. Money may be shifted between individual categories during the course of the year to better allocate funds as needs arise.

**52 Pa. Code 57.195 (b)(9)**  
**Transmission and Distribution 2006 Inspection and Maintenance Goals**

Following is list of transmission & distribution inspection and maintenance goals for 2007:

<b>2007 Goals - Pennsylvania - Complete Planned Ensure Reliable Service Work</b>		
ERS Program/Project	Unit of Measurement	Target for 2007
Transmission Herbicide Application	# Transmission Lines	7
Transmission Lines Trimming and Clearing	# Transmission Lines	47
Subtransmission Herbicide Application	# of Subtransmission Lines	62
Subtransmission Line Trimming and Clearing	# of Subtransmission Lines	40
Distribution Line Trimming, Clearing & Herbicide Applic.	# of Distribution Line Miles	1,846
Major ERS SS Projects	# Projects	TBD
Major ERS Lines Projects	# Projects	TBD
Transmission Comprehensive Patrol	# Transmission Lines	8
Transmission General Patrol	# Transmission Lines	120
Ground & Footer Inspections	# Transmission Lines	5
Pole Inspection	# Transmission Lines	TBD
Pole Replacements	# Transmission Poles	TBD
Non-Critical Transmission Repairs	# Non-Critical Items	24
Subtransmission General Patrol	# Subtransmission Lines	481
SS Work (Includes Capital, Planned, & Preventative)	Man-Hours	3,542
SS Spraying	Budget Dollars	94,000
Controls Work (Includes Cap., Planned, & Preventative)	Man-Hours	64,075
Individual ERS Budget Projects	Man-Hours	20,564
Small Planning Projects	Man-Hours	25,442
Pole Inspection	# of Circuits	95
Pole Reinforcement	# Poles	56
Danger Poles	# Danger Poles	58
Reject Poles	# Reject Poles	TBD
AIM Work	Points Completed	4,038
RIP Program	Manhours	TBD
UG Equipment Inspections	# Locations	5,592
Recloser Inspections	# Reclosers	2,432
Regulator Inspections	# Regulators	730
Capacitors Inspections	# Capacitors	1,073
Recloser Replacements	# Reclosers	252
UGD Cable Replacement	Feet	296,571
Cable Injection	Feet	1,398,036

**52 Pa. Code 57.195 (b)(10)**

**Transmission and Distribution 2006 O&M Expense Budget by FERC Account**

AP does not budget by FERC account in its current financial reporting system. Following is the 2007 transmission & distribution operations & maintenance expense budget as available from AP's financial reporting system:

<b>T&amp;D Category</b>	<b>Budget</b>
Distribution Admin_CC	--1,762,506
Distribution Engineering & Planning_CC	797,165
Distribution Support_CC	6,495,705
Field Operations_CC	23,851,838
Distribution Forestry_CC	9,307,244
Transmission Other_CC	--81,379
Substations_CC	6,995,641
Transmission Planning & Operations	4,657,342
Technical Services - Delivery_CC	3,344,147
Transmission Engineering_CC	3,283,475
Transmission Forestry_CC	3,616,340
Transmission Projects_CC	1,033,172
Transmission Siting_CC	703,177
EHV Projects_CC	0
<b>Total</b>	<b>62,241,359</b>

**52 Pa. Code 57.195 (b)(11)****Transmission and Distribution 2006 Capital Expenditure Budget by FERC Account**

AP does not budget by FERC account in its current financial reporting system. Following is the 2007 capital expenditure budget as available from AP's capital project system for Pennsylvania.

03 EHV Substation	\$ 20,000
04 EHV Lines	\$ -
05 Transmission Substation	\$ 2,862,651
06 Elect Transmission Lines	\$ 1,968,249
07 Distribution Substation	\$ 8,697,025
08 Elect Distribution Lines	\$ 42,162,366
09 Electric General Plant	\$ 5,666,409
11 Subtransmission	\$ 344,300
Grand Total	\$ 61,721,000

**52 Pa. Code 57.195 (b)(12)**  
**Transmission and Distribution Inspection and Maintenance Program Changes**

Substation inspections have been modified per the following chart. In general, the maintenance/inspection periodicity for the three-month interval changed to four months.

**SECTION M: MAINTENANCE - Minimum Maintenance Frequency and Type**

Substation Equipment		Maintenance Periodicity												
		Upon Installation	Daily	Monthly	Every 4 Months	Semi-Annually	1 yr.	2 yrs.	3yrs.	4yrs.	5yrs.	6yrs.	8 yrs.	12 yrs.
Station Inspections.....	EHV			C										
	Transmission				C									
	Sub-transmission				C									
Arresters, Surge.....	230 kV & down	B												B
Batteries, battery chargers		A**				B				A				
Breakers (Power Circuit).....	EHV	A					B				^A			
	HV / LV Oil, SF6 and Vacuum	A					B ***							^A
	Spare	A								A				
Bushings	Spare									A				
Capacitors.....	CVT / CVT Non-EHV	A												A
	Power	A												
Compressors.....	EHV Breaker	C					B					^A		
Control Buildings		C												
Fences		C												
Fuses, Power		C												
Foundations		C												
Generators (Auxiliary Power)		C		C		B	A							
	Battery Replacement							A						
Ground grid		C												
Insulators		C												
Mobile Substations		A			C		A							
Motor Mechanisms		C					A							
Property		B							B					
Reclosers.....	Single Phase	B												*Replace
	Three Phase Oil and Vacuum	B												^A
Regulators, voltage.....	Replace at 200,000 ops	B								^B				
Resistors, neutral		A								A				
SVC.....	Thyristor and Cooling Systems	A				B								
Switches.....	Gang Operated	C								B				
	Power (Inspect with associated equip.)	C												
	Vacuum	C								A				
Switchers.....	Circuit	C												
Terminal, line.....	Arresters, 345 kV and up	B											B	
	CVT / CVT EHV or PS	A											A	
	Traps, Power Station / EHV	A											A	
Thermovision							B							
Transformers, LTC.....	Power Station / EHV	A				B				^A				
	Non-EHV	A					B				G			
Transformers, non-LTC.....	Power Station (GSU, Aux, Start-up)	A	D			B			A					
	345 kV HV and above	A				B				A				
	69-230 kV HV	A					B				G			
	25-46 kV > 10 MVA	A					B				G			
	CT and PT	A												
	25-46 kV < 10 MVA	A					B							
Transformers, Spare.....	Power Station / EHV	A				B					A			
	69-230 kV HV	A					B				A			
	25-46 kV HV	A					B				A			
Traps, Line	Non-EHV	A												A
	Unit, Substation						B							

\* Perform a Class B Inspection on associated equipment in conjunction with the Class A Inspection.

^ The inspection frequency may be modified due to the number of operations or compressor running time, which should not exceed 1500 hours.

\*\* Perform battery charger pre-equalize checks before equalizing battery. Pre-equalizing checks are the old Class B maintenance.

\*\*\* Designated oil breakers on line positions have 18 month periodicity, all others on 12 month interval.

### Maintenance Class Definitions\*

- Class A – Complete inspection, adjustment, testing and repair of those electrical, mechanical, physical, and structural components as required by this standard for each unique piece of equipment, and the recording of appropriate data. Normally the equipment will be removed from service.
- Class B – The inspection, adjustment, testing and repair of those electrical, mechanical, physical and structural subcomponents as required by this standard for each unique piece of equipment, and the recording of appropriate data. Items included in this category are those subcomponents of equipment requiring more frequent attention than the periodicity of Class A maintenance.
- Class C – Visual inspection of those electrical, mechanical, physical and structural components available while the equipment is in service, and the logging of substation data. Perform such special tests as prescribed by individual equipment maintenance guide.
- Class D – Visual inspection of those electrical, mechanical, physical and structural components available while the equipment is in service, and the daily logging of the data.
- G – Perform gauge inspection.

\* For each maintenance class, the lower classes are also performed. For initial installation, the highest form of maintenance shall be performed.

**Appendix I**  
**Major Event Exclusion Approvals**

There were no Major Events in 2006.

**Appendix II**  
**Transmission and Distribution Inspection/Maintenance Goals Results**

2006 Goals - Pennsylvania - Planned Ensure Reliable Service Work Completed					
Program or Project	Unit of Measurement	Target for 2006	Actual Completed	% Completed	Reason for < 100% Goal Attainment
Transmission Herbicide Application	# Transmission Lines	12	12	100%	N/A
Transmission Lines Trimming and Clearing	# Transmission Lines	46	46	100%	N/A
Subtransmission Herbicide Application	# of Subtransmission Lines	54	54	100%	N/A
Subtransmission Line Trimming and Clearing	# of Subtransmission Lines	30	30	100%	N/A
Distribution Line Trimming, Cleaning & Herbicide Applic.	# of Distribution Line Miles	6,438	6,423	100%	N/A
Major ERS SS Projects	# Projects	12	7	58%	AP achieved its related goal of 82 contractor weeks, but resources were shifted to other critical projects.
Major ERS Lines Projects	# Projects	3	3	100%	N/A
Transmission Comprehensive Patrol	# Transmission Lines	13	13	100%	N/A
Transmission General Patrol	# Transmission Lines	120	120	100%	N/A
Ground & Footer Inspections	# Transmission Lines	8	8	100%	N/A
Pole Inspection	# Transmission Lines	11	11	100%	N/A
Pole Replacements	# Transmission Poles	-	14	100%	N/A
Non-Critical Transmission Repairs	# Non-Critical Items	49	49	100%	N/A
Subtransmission General Patrol	# Subtransmission Lines	325	325	100%	N/A
SS Work (Includes Capital, Planned, & Preventative)	Man-Hours	71,740	76,368	106%	N/A
SS Spraying	Man-Hours	1,222	1,055	86%	All work was completed for less than budgeted manhours.
Controls Work (Includes Cap., Planned, & Preventative)	Man-Hours	3,163	3,176	100%	N/A
Individual ERS Budget Projects	Man-Hours	14,044	13,290	95%	Necessary work was completed for less than budgeted manhours.
Small Planning Projects	Man-Hours	22,768	21,604	95%	Necessary work was completed for less than budgeted manhours.
Pole Inspection	# of Circuits	112	112	100%	N/A
Pole Reinforcement	# Poles	306	307	100%	N/A
Danger Poles	# Danger Poles	272	262	96%	Poles were secured. Replacement occurred after yearend results were
Reject Poles	# Reject Poles	175	196	112%	N/A
AIM Work	Points Completed	2,101	2,012	96%	Variations in estimated quantities or removals/additions affected final numbers. Budgets are prepared a year and 1/2 ahead of final numbers. Percent completed was near 100%.
RIP Program	Manhours	15,320	14,888	97%	Necessary work was completed for less than budgeted manhours.
UG Equipment Inspections	# Locations	5,966	5,685	95%	Variations in estimated quantities or removals/additions affected final numbers. Budgets are prepared a year and 1/2 ahead of final numbers. Percent completed was near 100%.
Recloser Inspections	# Reclosers	3,146	3,046	97%	Variations in estimated quantities or removals/additions affected final numbers. Budgets are prepared a year and 1/2 ahead of final numbers. Percent completed was near 100%.
Regulator Inspections	# Regulators	220	218	99%	Variations in estimated quantities or removals/additions affected final numbers. Budgets are prepared a year and 1/2 ahead of final numbers. Percent completed was near 100%.
Capacitors Inspections	# Capacitors	1,151	1,145	99%	Variations in estimated quantities or removals/additions affected final numbers. Budgets are prepared a year and 1/2 ahead of final numbers. Percent completed was near 100%.
Recloser Replacements	# Reclosers	229	229	100%	N/A
UGD Cable Replacement	# Feet	16,000	12,640	79%	Some projects not completed by yearend and will be completed in 2007.
Cable Injection	# Feet	50,000	100,265	201%	N/A

**Appendix III**  
**Circuit Improvement Index**

**DCII**

AP calculates the DCII to provide a single index for ranking circuits. The DCII compares the SAIFI, SAIDI, CAIDI and ASAI for each circuit to the 5-year system averages of each index and combines them into a single index. An example of this calculation is shown below:

<u>Index</u>	<u>System Average</u>	<u>Sample Circuit</u> <u>Index</u>
SAIFI	0.66	2.32
SAIDI	181.95	258.8
CAIDI	275.71	176.23
ASAI	0.999654	0.999769

- 1) The SAIFI, SAIDI and CAIDI are compared to the system average indexes.

$$\begin{aligned} \text{Actual SAIFI / System Average SAIFI} &= 2.32 / 0.66 = 3.52 \\ \text{Actual SAIDI / System Average SAIDI} &= 258.8 / 181.95 = 1.42 \\ \text{Actual CAIDI / System Average CAIDI} &= 176.23 / 275.71 = 0.64 \end{aligned}$$

- 2) To permit the average to equal 70 percent this ratio is then inversely proportioned:

$$\begin{aligned} \text{SF} &= 1 - (0.3 \times (\text{Actual SAIFI} / \text{Average SAIFI})) = 1 - (0.3 * 3.52) = -0.0560 \\ \text{SD} &= 1 - (0.3 \times (\text{Actual SAIDI} / \text{Average SAIDI})) = 1 - (0.3 * 1.42) = 0.5740 \\ \text{CD} &= 1 - (0.3 \times (\text{Actual CAIDI} / \text{Average CAIDI})) = 1 - (0.3 * 0.64) = 0.8080 \end{aligned}$$

- 3) The sum of the values is then divided by 3 to assign each index an equal weight in the calculation.

$$(\text{SF} + \text{SD} + \text{CD}) / 3 = (-0.0560 + 0.5740 + 0.8080) / 3 = 0.4420$$

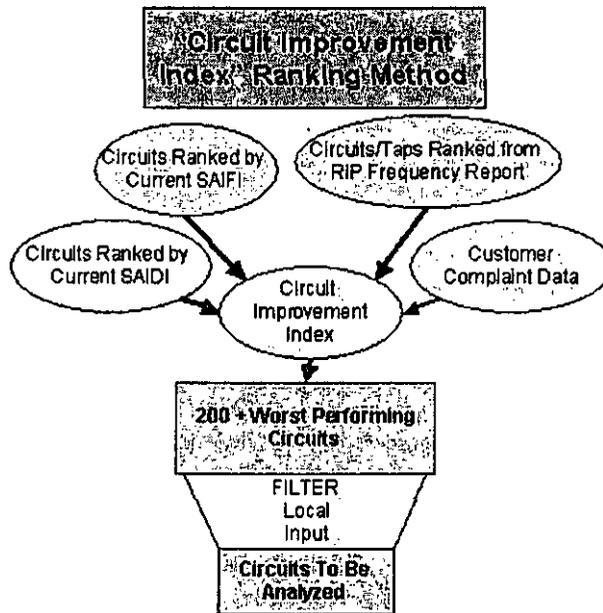
- 4) The Actual ASAI is then multiplied directly to this value to get the interruption factor which when multiplied by 100 provides the DCII.

$$((\text{SF} + \text{SD} + \text{CD}) / 3) * \text{ASAI} \times 100 = \text{DCII} = 0.4420 * 0.999769 * 100 = 44.19$$

**Circuit Improvement Index**

AP is considering a circuit improvement index which includes a number of factors such as frequency of lockouts, frequency of major tap interruptions representing individual customer outage frequency, customer complaint data (if applicable), plus traditional reliability indexes such as SAIFI and SAIDI. A 'master' circuit improvement list will be generated annually and reviewed at the local levels for field input. Field offices, being closer to the customer, have information needed to complete the selection process based on known circuit problems. The master list will then be narrowed to the 100 or so circuits to be studied for the next year. No less than the required applicable state commission requirement will be addressed. Under this circuit selection method, about the same number of circuits will be evaluated since 5% of AP's 1850 circuits equals 93 circuits. Once circuits are selected for the next year, individual analysis will take place as part of AP's ongoing structured Reliability Improvement Program (RIP). Outage causes will be evaluated, circuit outage maps will be created to assist in the evaluation if needed, and budgets and work plans will be established to improve reliability for viable projects.

A schematic diagram of the process follows:



**Re: Allegheny Power Annual  
Reliability Report**

**CERTIFICATE OF SERVICE**

I certify that this 30<sup>th</sup> day of April, 2007, I have served a true and correct copy of the Annual Reliability Report of Allegheny Power, by first-class mail, postage prepaid, upon the following:

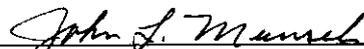
Office of the Consumer Advocate  
555 Walnut Street  
Forum Place, 5<sup>th</sup> Floor  
Harrisburg, PA 17101-1923

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

David J. Dulick  
Pennsylvania Rural Electric Assn.  
212 Locust Street, 2<sup>nd</sup> Floor  
Harrisburg, PA 17101

Scott J. Rubin, Esquire  
Utility Workers Union of America  
3 Lost Creek Drive  
Selinsgrove, PA 17870

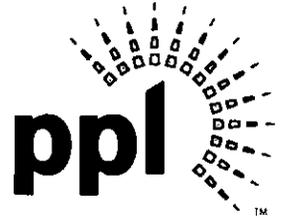
Date: April 30, 2007

  
John L. Munsch, Attorney for  
WEST PENN POWER COMPANY,  
dba ALLEGHENY POWER  
Pa. Attorney I.D. No.: 31489  
800 Cabin Hill Drive  
Greensburg, PA 15601  
(724) 838-6210

**RECEIVED**  
APR 30 2007  
PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**P. Russell**  
Associate General Counsel

**PPL**  
Two North Ninth Street  
Allentown, PA 18101-1179  
Tel. 610.774.4254 Fax 610.774.6726  
perussell@pplweb.com



**FEDERAL EXPRESS**

**ORIGINAL**

May 1, 2007

James J. McNulty, Esquire  
Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, Pennsylvania 17120

**RECEIVED**  
MAY 01 2007  
PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**Re: PPL Electric Utilities Corporation**  
**2007 Annual Reliability Report**

Dear Mr. McNulty:

L-00030161

Enclosed for filing on behalf of PPL Electric Utilities Corporation ("PPL Electric") are an original and five (5) copies of PPL Electric's 2007 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, et seq.

On April 23, 2007, PPL Electric implemented its new GE Power-On Outage Management System ("OMS"). This implementation followed several months of parallel operation with its more than 30-year old Customer Interruption Analysis ("CIA") system. It should be noted that the successful change over from CIA to OMS resulted in a less than 1% deviation from PPL Electric's previously reported benchmarks and standards.

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 May 1, 2007, which is the date it was deposited with an overnight express delivery service as shown on the delivery receipt attached to the mailing envelope.

**DOCUMENT  
FOLDER**

W4

James J. McNulty, Esquire

- 2 -

May 1, 2007

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

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

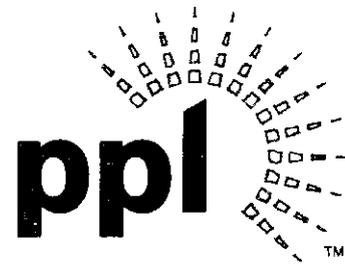
Very truly yours,

A handwritten signature in black ink, appearing to read "Paul E. Russell". The signature is written in a cursive, flowing style.

Paul E. Russell

Enclosures

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



**PPL Electric Utilities**

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

**DOCUMENT  
FOLDER**

**DOCKETED**  
MAY 03 2007

*April 2007*

**RECEIVED**

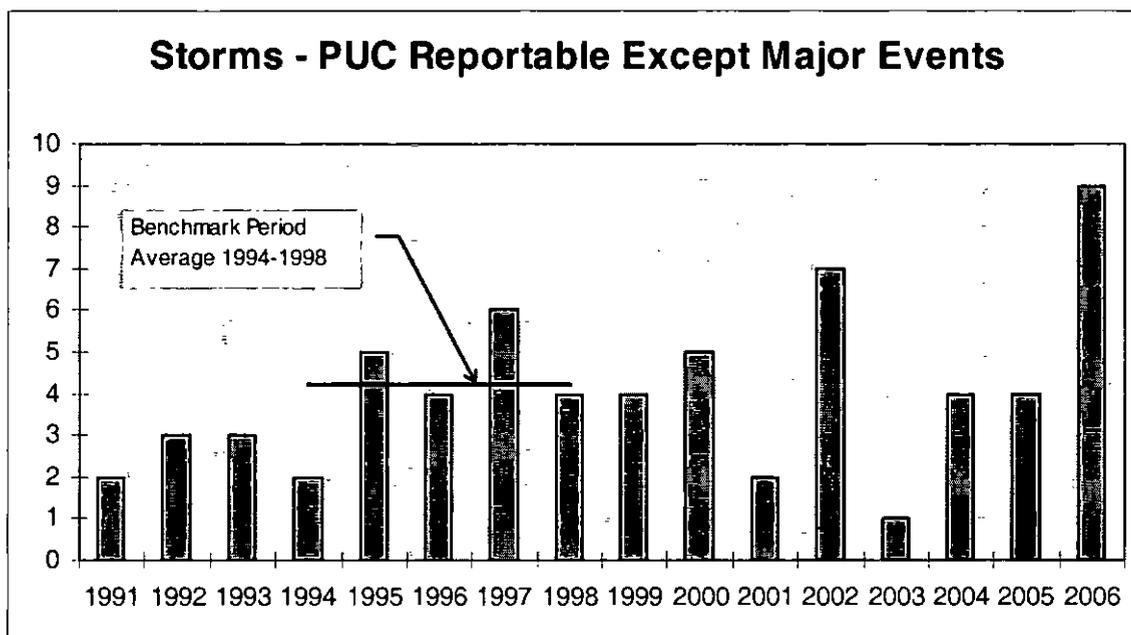
MAY 01 2007

**PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU**

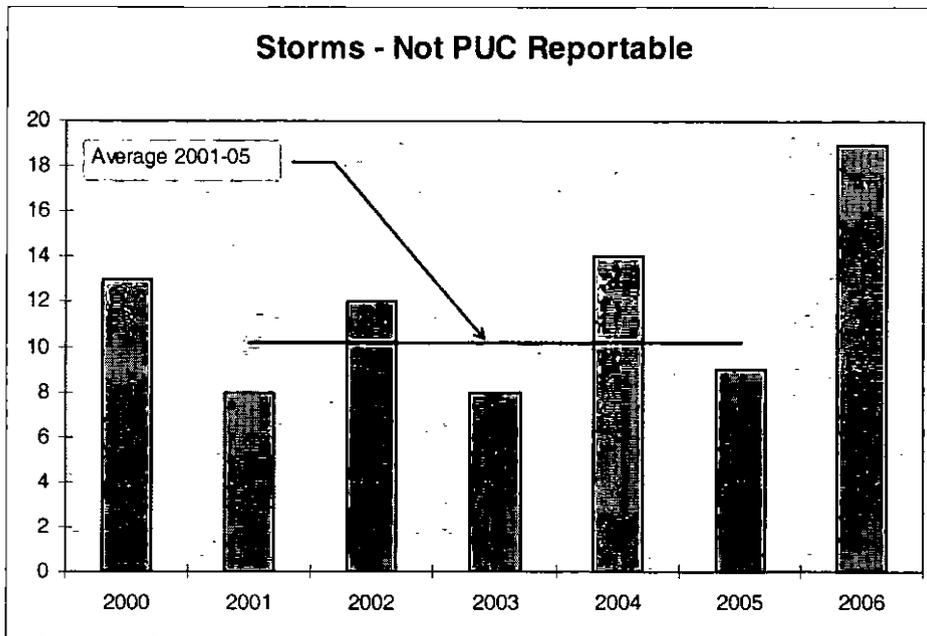
**(1) An overall current assessment of the state of the system reliability in the EDC's service territory including a discussion of the EDC's current programs and procedures for providing reliable electric service.**

In 2006, SAIFI and SAIDI have exceeded the 12-month standards for PPL Electric Utilities Corporation ("PPL Electric"). This is a direct result of extraordinary storm experience beyond PPL Electric's control during the reporting period. Both metrics are showing improvement in the twelve months ending with the first quarter of 2007.

Specifically, there were nine (9) PUC-reportable storms ( $\geq 2,500$  customers interrupted for  $\geq 6$  hr.) during the reporting period, more than any other single year in the 16 years encompassing the benchmark years through the present day, and more than double the average of 4.2 storms per year during the benchmark years, 1994-1998.

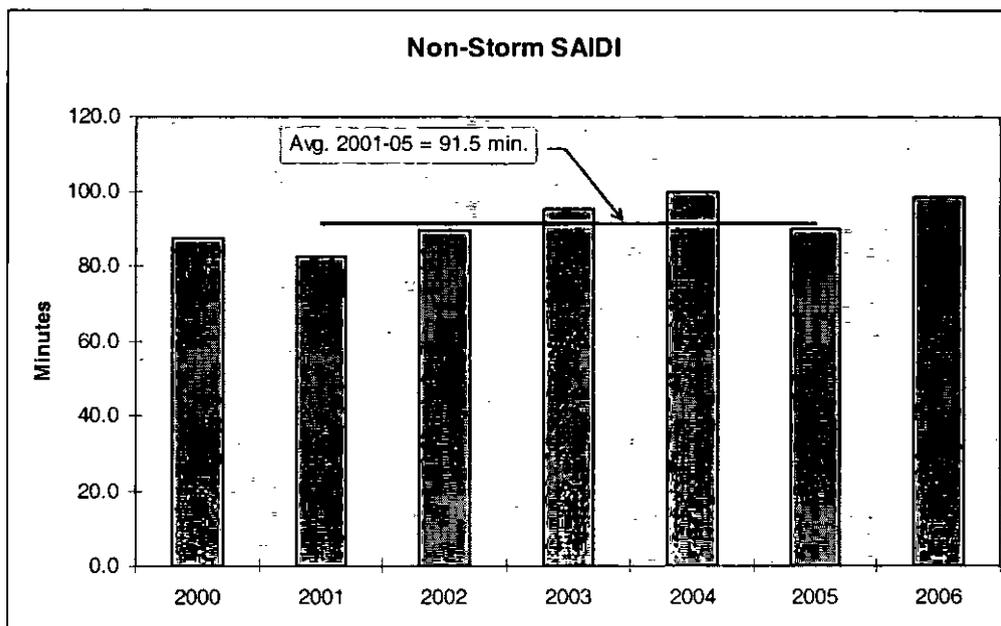


In addition, there were nineteen (19) storms that were not reportable, but which did require opening one or more area emergency centers to manage restoration efforts. This is more than any other year in the last seven (7) years when PPL Electric first began tracking the incidence of non-reportable storms, and 86% higher than the average of 10.2 storms per year for the five years from 2001 through 2005.

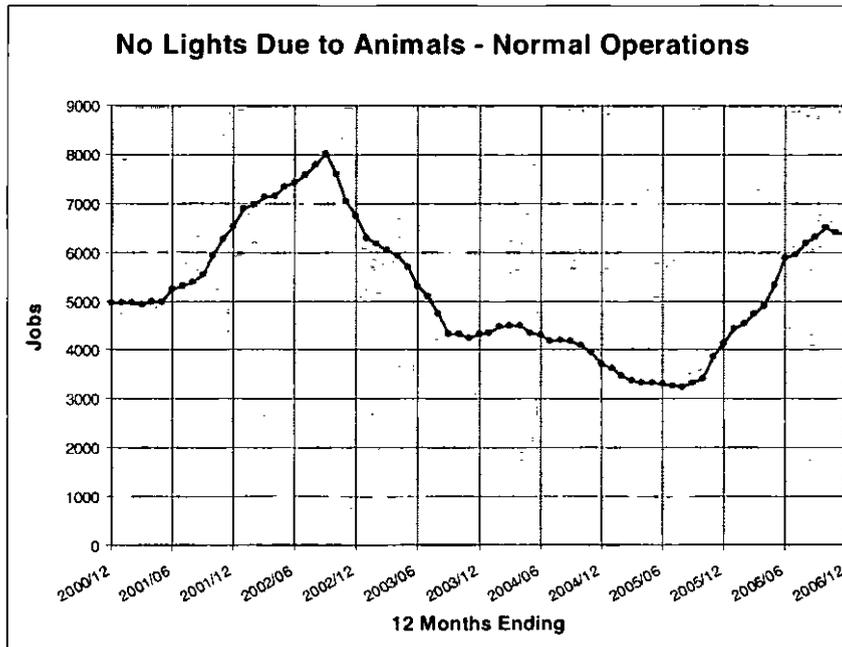


In a year with an average number of storms, customer service interruptions during storms contribute about one-third to the total SAIDI value. By contrast, during 2006, customer service interruptions during storms contributed more than one-half of the total SAIDI value. As a result, 110 of the 209 SAIDI minutes were due to storm-related interruptions.

SAIDI during non-storm conditions for 2006 was 98.5 minutes, comparable to that of 2003 through 2005 which were 95.4 minutes, 99.9 minutes and 90.0 minutes, respectively, and only 7 minutes higher than the 2001-2005 five-year average.



In addition to the unusual peak in storm activity, customer service interruptions caused by animals also reached a peak in its cycle. Animal caused outages are primarily a function of the size of the squirrel population. That population rises and falls with the rise and fall of acorn and other nut-bearing tree production, as well as periodic disease epidemics. The period and amplitude of future cycles cannot be predicted. The cyclical nature of the resulting interruption cases (jobs) is shown below:



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 and foot patrols. These patrols focus on comprehensive inspections, routine inspections and identification of emergency work. These 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 assure that maintenance work is performed in a timely manner. Besides time and condition-based maintenance, thermo-graphic inspections assure that substation

equipment does not operate at elevated temperature levels for an extended period, which could lead to catastrophic failure.

### **Distribution**

Distribution encompasses many similar maintenance aspects, but also includes load surveys that help engineers determine peak load requirements, are 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, reclearing and herbicide application. All 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 2006 that met the criteria for a major event.

(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.*

<b>Year</b>	<b>2004</b>	<b>2005</b>	<b>2006<sup>1</sup></b>	<b>3 Yr. Avg.</b>
<b>SAIFI</b> (Benchmark = 0.98; Rolling 12-month Std. = 1.18; Rolling 3-yr. Std. = 1.08)	1.089	0.963	1.268	1.107
<b>CAIDI</b> (Benchmark = 145; Rolling 12-month Std. = 174; Rolling 3-yr. Std. = 160)	159	125	164	151
<b>SAIDI</b> (Benchmark = 142; Rolling 12-month Std. = 205; Rolling 3-yr. Std. = 172)	173	121	208	167
<b>MAIFI<sup>2</sup></b>	5.204	4.872	6.443	5.510
<b>Customers Served<sup>3</sup></b>	1,330,072	1,347,786	1,358,429	1,345,429
<b>Number of Sustained Customer Interruptions (Trouble Cases)</b>	18,605	18,698	24,745	20,683
<b>Number of Customers Affected<sup>4</sup></b>	1,448,817	1,297,546	1,722,363	1,489,575
<b>Customer Minutes of Interruptions</b>	230,444,130	162,612,770	282,088,285	225,048,395
<b>Number of Customer Momentary Interruptions</b>	6,921,581	6,565,963	8,752,009	7,413,184

The three year average SAIFI exceeds the rolling 3-yr. standard due to the extraordinary 2006 storm experience described in item (1).

<sup>1</sup> The slight variations from data provided in the 2006 fourth quarter report are the result of error corrections.

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

<sup>3</sup> 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.

<sup>4</sup> 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 outage causes for 2006.<sup>5</sup> Calculations are based on 1,358,429 customers served as of December 31, 2006. The top three causes (Animals, Equipment Failure, and Trees – Not Trimming Related), based on percent of cases, are highlighted in the table. Service interruption definitions are provided in Appendix E. PPL Electric has maintenance programs to address controllable outages. Those programs are detailed in Appendices A through D.

Cause Description	Cases of Trouble <sup>6</sup>	Percent of Cases of Trouble	Customer Interruptions <sup>7</sup>	Percent of Customer Interruptions	Customer Minutes	Percent of Customer Minutes
Improper Design	4	0.02%	5	0.00%	550	0.0%
Improper Installation	1	0.00%	3	0.00%	210	0.0%
Improper Operation	2	0.01%	1,941	0.11%	31,956	0.0%
Trees - Inadequate Trimming	1,689	6.83%	129,145	7.50%	26,473,324	9.4%
Trees - Not Trimming Related	5,001	20.21%	507,868	29.49%	132,386,110	46.9%
Animals	6,427	25.97%	95,355	5.54%	8,607,160	3.1%
Vehicles	800	3.23%	158,367	9.19%	17,342,371	6.1%
Contact/Dig-in	201	0.81%	32,941	1.91%	2,529,871	0.9%
Equipment Failure	5,809	23.48%	474,976	27.58%	58,597,037	20.8%
Forced Prearranged	683	2.76%	45,395	2.64%	4,358,962	1.5%
Other - Controllable	288	1.16%	17,563	1.02%	1,930,345	0.7%
Nothing Found	2,413	9.75%	137,380	7.98%	14,461,344	5.1%
Other - Public	89	0.36%	27,581	1.60%	3,260,509	1.2%
Other - Non-Controllable	1,338	5.41%	93,843	5.45%	12,108,536	4.3%
<b>Total</b>	<b>24,745</b>	<b>100.00%</b>	<b>1,722,363</b>	<b>100.00%</b>	<b>282,088,285</b>	<b>100.0%</b>

<sup>5</sup> The slight variations from data provided in the 2006 fourth quarter report are the result of error corrections.

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

<sup>7</sup> 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 peak in both reportable and non-reportable storms during this reporting period.

**Trees – Inadequate Trimming:** In 2004, PPL Electric adopted an improved tree-trimming specification and shortened maintenance trimming cycles to reverse a gradual increase in service interruptions attributed to inadequate trimming. The shortened cycle times took effect on January 1, 2005. PPL Electric implemented the revised specification in the first quarter of 2005. PPL Electric is monitoring the effectiveness of these changes.

**Trees – Not Trimming Related:** Although their effect on reliability is significant, tree outages not related to trimming are caused by trees falling from outside of PPL Electric's rights-of-way and, generally, are not controllable.

**Animals:** Animals account for about 26% 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 92% of the number of cases of trouble is associated with individual distribution transformers. However, when animal contacts affect substation equipment, the effect is widespread and potentially can interrupt thousands of customers on multiple circuits. PPL Electric installs squirrel guards on new installations and in any existing location that has been affected by multiple animal-related interruptions.

**Vehicles:** Although vehicles cause a small percentage of the number of cases of trouble, they account 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 39% of the cases of trouble, 42% of the customer interruptions and 49% of the customer minutes attributed to equipment failure are weather-related and, as such, are not considered to be indicators of equipment condition or performance.

**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.

*(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.*

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>1</b>	<b>Circuit ID: 26401 INDIAN ORCHARD 64-01</b>			<b>Location: Pocono</b>
				<b>CPI: 617</b>
	Circuit outage data analysis.	Completed	6/23/2004	Major contributors to CPI were the number of cases and SAIFI. Blooming Grove - West Damascus 69kV tripped to lockout contributing greatly to SAIFI. An OCR failed and is not likely to recur. Many tree related outages both trimming and non-trimming related and animal contacts. Line was trimmed in September 2003 so hotspotting the line will be ineffective.
	A detailed analysis of sectionalizing will be completed on this line. A review of the existing protection and potential device additions will be performed.	Completed	6/25/2004	Three single phase taps were identified as requiring further sectionalizing and possibly an additional feed from the main line.
	Improve sectionalizing capability. Areas for further sectionalizing have been identified. Field engineer will locate additional sectionalizing devices.	Completed	12/31/2005	Reduced customer count affected by each outage.
	10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2005	
	11/23/2005: Underground failures were tested and replacements will be made.	Scheduled for	5/31/2007	
	5/31/2006: Improve sectionalizing capability. Field engineer will consider additional sectionalizing in the form of sectionalizers	Completed	1/31/2007	Improving sectionalizing will reduce number of customers experiencing an outage
	An intelligent switching project has been identified to reduce customer minutes lost.	Scheduled for	12/31/2007	Reduced customer count affected by each outage.
	Line inspection-equipment.	Scheduled for	5/30/2007	
	Thermographic inspection-OH line.	Scheduled for	12/30/2007	
	Monitor future performance.	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>2</b>	<b>Circuit ID: 16101 BINGEN 61-01</b>			<b>Location: Bethlehem</b>
				<b>CPI: 588</b>
	Tree trimming. Spot trimming.	Completed	3/31/2004	Reduced outage risk.
	Circuit outage data analysis.	Completed	6/11/2004	Number of cases and SAIFI are the two biggest factors in the CPI. There is no detectable pattern of causes. Cases alone contribute 60% of this circuit's performance issues, with SAIFI contributing just under 30%.
	New Sectionalizing : Replace 1 fused cutout with an OCR and install 2 fused cutouts to reduce the length of line on a sectionalizing device. Install a 3 phase loadbreak airswitch to enable customers to be restored quicker during an outage.	Completed	7/19/2004	Reduced customer count affected by each outage.
	Replace cracked porcelain fused cutouts and lightning arresters.	Completed	6/30/2004	Reduced outage risk.
	Install fault indicators on line to locate momentary problems.	Completed	8/16/2004	This was done to locate momentary problems that occur on the line. The installation is complete and the indicators are being used to find the fault faster
	Improve sectionalizing capability. Investigating splitting the line to allow back feeding from other half.	Completed	2/28/2005	Majority of performance problems occur on fused taps. Load pick up is not the primary performance issue.
6	Transfer lower portion of line to the Richland 36-3 line to reduce the length of line exposure.	Canceled	7/22/2005	Project was cancelled due to capacity concerns on the Richland Substation.
	Reconductoring 7 single phase taps with XLP and stronger conductor	Completed	11/30/2005	Reduced outage risk. Should see reduction in cases, and possibly lower circuit CAIDI
	Nine overhead spans that were located in an inaccessible area were relocated underground.	Completed	12/31/2005	Reduced outage risk.
	Twenty five fault indicators will be installed.	Completed	3/1/2006	Reduced outage duration.
	Reconductoring sections of 3 phase line with XLP and stronger conductor.	Completed	11/27/2006	Reduced outage risk.
	Install animal guard(s).	Completed	5/30/2006	Reduced outage risk.
	Perform Thermovision on 69 kV lines into the Bingen substation.	Completed	6/21/2006	No concerns were identified.
	Perform Thermovision on this circuit, analyze results, and make repairs.	Completed	9/21/2006	Reduced outage risk.
	Reconductor 8 sections of single phase line with XLP and stronger conductor	Completed	10/31/2006	Reduced outage risk.
	Reconductor 69 kV transmission system - 3 spans on Quarry 1 -Coopersburg tap and 2 spans on Seidersville 1 tap	Completed	11/2/2006	Reduced outage risk. Improve load carrying capability of the 69 kv system in area of Bingen distribution substation to avoid conductor failure and subsequent outage.
	4/3/2006: Expanded Operational Review.	Completed	11/29/2006	Reduced outage risk.
	Tree trimming.	Completed	12/31/2006	Reduced outage risk.
	Rconductor single phase line with XLP and stronger conductor.	Scheduled for	6/1/2007	Reduced outage risk.
	Install telemetrics on sectionalizing devices	Scheduled for	12/31/2007	Reduced outage duration.

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**3 Circuit ID: 28302 NEWFOUNDLAND 83-02**

**Location: Pocono**

**CPI: 544**

	Circuit outage data analysis.	Completed	6/15/2004	Major contributors to CPI were number of cases and SAIFI. There were several animal contacts and tree related outages during bad weather (not trimming related), but no discernable pattern was apparent. The major outages contributing to SAIFI are unlikely to recur (line de-energized to replace tap fuse, pole top fire, loop burned open). This line had an equipment inspection in January 2004.
	Improve sectionalizing capability. Field engineer to review a single phase tap downstream of OCR 66629N42489 to improve sectionalizing on that tap.	Completed	11/12/2004	Field review of the poor performing section of line indicated that additional sectionalizing will not greatly improve reliability on that part of the circuit. Tap fusing in the area already adheres to PPL's policy of fusing all single phase taps.
	Tree trimming.	Completed	8/30/2005	
	Line inspection-equipment. Field engineer will identify targeted areas for line inspection.	Completed	12/31/2005	Field engineer determined there were no areas requiring line inspections because entire line was inspected in 2004.
	3/31/2006: Line inspection-equipment.	Completed	3/30/2006	Customer minutes will be saved by identifying equipment that is in danger of failing.
	1/1/2007: Expanded Operational Review. Line will be modeled and studied for reliability	Scheduled for	5/31/2007	
	11/2/2006: Thermographic inspection-OH line.	Completed	12/30/2006	Thermovisioning will help identify potential hot spots and failure points. This will help prevent customer outages.
	Reconductor line. Over 4 miles of line will be rebuilt and reconducted along the road	Scheduled for	11/30/2008	Rebuilding and relocating the line will reduce probability of outages as well as duration of outages seen by customers
	Thermographic inspection-OH line.	Scheduled for	12/30/2007	
	Continue to monitor future performance.	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>4</b>	<b>Circuit ID: 18502 CANADENSIS 85-02</b>			<b>Location: Pocono</b>
				<b>CPI: 533</b>
	Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/11/2004	There were mostly tree related outages on this circuit.
	Improve sectionalizing capability.	Completed	11/16/2004	Additional fusing was added to a poor performing section of the line.
	Tree trimming. Hotspot trimming completed	Completed	12/1/2004	Reduced outage risk.
	1/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	2/28/2006	The majority of problems on this line were due to non-trimming related vegetation issues. In addition, an abnormal sectionalizing event caused power quality and line issues. This event is not expected to recur.
	2/16/2006: Tree trimming. Tree Trimming is 10% complete. The remainder of the trimming will be completed in the last quarter of 2006.	Completed	12/1/2006	Reduced outage risk. completed
	2/16/2006: Install LBAS(s). Installed LBAS at 68724N38376 and 69390N35855 as part of the Expanded Operational Review.	Completed	6/15/2006	Increasing sectionalizing on the line will reduce the number of customer experiencing an outage.
	Expanded Operational Review. Perform Voltage Profile. Review circuit for possible LBAS installations. Summer Thermography to be completed 7/27/2006.	Completed	8/31/2006	Reduced outage duration. Two LBAS's were been installed 7/2006. Votage profile completed 8/2006. Summer thermography completed 7/2006.
	Monitor future performance.	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**5 Circuit ID: 28301 NEWFOUNDLAND 83-01**

**Location: Pocono**

**CPI: 509**

	Circuit outage data analysis.	Completed	6/25/2004	Major contributor to CPI was the number of cases (30%). The contributing outages (mostly trees) did not fall into a discernable pattern. No outages were trimming related.
	Expanded Operational Review.	Completed		
	Circuit outage data analysis.	Completed	8/23/2004	Review of circuit outages indicated there were two poor performing single phase taps.
	Circuit outage data analysis.	Completed	10/20/2004	Trees and animals accounted for over 70% of the outages seen in the past year. This is a heavily forested area where trees outside of the right of way contribute to 50% of the total CPI. Even if all other outages were removed this circuit would still be among the worst performers due to trees outside of the R/W.
	Improve sectionalizing capability. Increase sectionalizing on two poor performing single phase taps beyond OCR 66696N44669.	Completed	12/31/2004	Field review of the poor performing section of line indicated that additional sectionalizing will not greatly improve reliability on that part of the circuit. Tap fusing in the area already adheres to PPL's policy of fusing all single phase taps.
12	Tree trimming. Hot spot trimming on two poor performing single phase taps.	Completed	3/30/2005	Reduced outage risk.
	Line inspection-equipment.	Canceled	11/30/2005	Field Engineer determined that line inspection was unnecessary because line was inspected in 2004.
	Tree trimming. Trimming and hot spotting will be done in 2006.	Completed	11/30/2006	Reduced outage risk.
	11/23/2005: Betterment project to split one phase tap by sectionalizing. Additional OCR's will be installed.	Scheduled for	5/30/2007	Reduced customer count affected by each outage.
	2/21/2006: Line inspection-equipment.	Completed	4/7/2006	Inspection will help identify problem areas of line that need to be repaired. These repairs will prevent possible outages and customer minutes lost, directly impacting SAIDI.
	5/31/2006: Install animal guard(s). Animal guards were added in quarter 1 of 2006 and will be added as needed.	Ongoing		Animal guards were added to reduce animal contact related outages.
	Expanded Operational Review.	Completed	11/30/2006	Increase size of cap and change to switched along SR 507 at 67963N44495. Cap is currently a 600 fixed. Should become a 900kVAR switched bank metered on A phase. New voltage rise 2.8 volts.
	Load balancing.	In progress	5/31/2007	At 67127N43019 change tap going South along Hemlock Grove Road from C to A phase (this will transfer two downstream fuses at 67150N42991 from C to A phase) and Install fuse at pole 67038N44402 and transfer downstream single phase line from B to A phase
	Install fuse(s).	In progress	5/31/2007	Reduced customer count affected by each outage. Intall 4 fuses off three phase line
	Install 1 phase OCR(s).	In progress	5/31/2007	Reduced outage duration. Install new single phase OCR to replace fuse at 68107N44428
	Install 3 phase OCR(s).	Completed	12/11/2006	Reduced customer count affected by each outage. 66832N42766 new 3 phase OCR installed 12/11/2006

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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	Thermographic inspection-OH line.	Scheduled for	12/30/2007	
	Monitor future performance.	Ongoing		

**6 Circuit ID: 11001 EAST GREENVILLE 10-01**

**Location: Bethlehem**

**CPI: 500**

	Circuit outage data analysis. Attempting to locate trouble spots.	Completed	6/11/2004	Cases are 55% of the circuit's performance problems. After detailed review, there are still no specific known problems.
	Line inspection-vegetation. Trouble feeders inspected for trees	Completed	10/14/2004	Reduced outage risk. No significant performance issues.
	Protection Scheme re-evaluated	Completed	10/18/2004	Reduced customer count affected by each outage. This should reduce customer outage exposure.
	Tree trimming.	Completed	9/30/2005	Reduced outage risk.
	Improve sectionalizing capability.	Completed	1/31/2006	Install two sets of disconnect switches and fault indicators in the northern portion of the circuit to provide for sectionalizing, possible transfer of load to the Macungie 27-1 line, and to help reduce restoration time.
	Perform Thermovision on this circuit, analyze results, and make repairs.	Completed	9/30/2006	Reduced outage risk.
	Install telemetrics on electronic OCR	Completed	10/30/2006	Reduced outage duration. This equipment will allow the System Operator to open and close the OCR remotely.
	Tree trimming-selected line segments only (hot spots).	Completed	11/28/2006	Reduced outage risk.
	Reconductor line.	In progress	11/30/2007	Reduced outage risk.
	Tree trimming.	Scheduled for	3/11/2007	Reduced outage risk.
	Improve sectionalizing capability. Additional fuses will be added as well.	Scheduled for	8/31/2007	Project being developed to resectionalize trouble spots, and add better fusing scheme to limit customer exposure. Inaccessible portion of the line will be refed from a new single phase section. Currently being developed to be placed in service as soon as possible.
	1/1/2007: Expanded Operational Review. Operational Review completed 2/6/07.	Completed	2/9/2007	
	Reliability Review completed 2/9/07.			
	Thermographic inspection-OH line.	Completed	2/10/2007	Reduced outage risk.

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**8 Circuit ID: 28102 TWIN LAKES 81-02**

**Location: Pocono**

**CPI: 485**

10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2005	An inspection was completed in 2004 and problems were addressed. Vegetation was a major issue that caused customer minutes lost. Vegetation related outages were due to weather primarily.
11/23/2005: Tree trimming.	Completed	2/28/2004	Reduced outage risk.
Line inspection-equipment. Two sections of line will be inspected	Completed	3/30/2006	The inspection targets equipment that may fail. By making repairs or replacements, customer outages will be prevented. Nothing significant was found.
5/25/2006: Expanded Operational Review.	Completed	9/30/2006	
5/31/2006: Install animal guard(s). Install as outages are seen on the line	Ongoing		Installing animal guards will prevent future outages on the line due to animal contact
Thermographic inspection-OH line.	Scheduled for	3/29/2007	
11/23/2005: Monitor future performance.	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>9</b>	<b>Circuit ID: 26602 BROOKSIDE 66-02</b>			<b>Location: Scranton</b>
				<b>CPI: 479</b>
	Line inspection-equipment. Due to the high number of animal contacts (35% of the total CPI) and equipment failures (22% of total CPI) an equipment line inspection will be performed.	Completed	1/30/2004	Several maintenance items were identified. A WR was initiated to address these problems.
	Circuit outage data analysis.	Completed	6/15/2004	Major contributor to CPI was the number of cases. Animal contacts made up about 35% of the total CPI.
	PPL Electric will review the process for animal guard installations to ensure that animal guards are installed for animal related OH transformer outages and new OH transformer installations.	Completed	8/25/2004	Animal guard practices have been reviewed and troublemen in this area have been instructed to ensure animal guards are installed when and where appropriate.
	Line inspection-equipment. A helicopter patrol was performed on an inaccessible part of the line.	Completed	6/10/2005	Several broken crossarms and a downed static wire were discovered.
	Fault recorders will be installed on an inaccessible part of the line.	Completed	6/30/2005	Reduced outage duration.
	Perform line maintenance identified by line inspection. Helicopter patrol was completed	Completed	12/30/2005	Broken and failing crossarms were found and repaired to reduce risk of customer outage.
	Tree trimming. Hot Spotting being done as needed	Completed	9/30/2005	Reduced outage risk.
	Expanded Operational Review. Voltage Profile Completed 7/24/2006.	Completed	7/31/2006	Voltage Profile Completed 7/24/2006. Reliability profile Completed 09/29/2006.
	Line being reconducted for 0.3 miles (WR# 233124)	Scheduled for	5/30/2007	
	11/4/2005: Sectionalizer being replaced (WR#269977). Additional sectionalizing opportunities being considered by field engineer.	Completed	1/30/2007	Replacement of the sectionalizer will improve reliability and decrease the number of customers experiencing an outage.
	4/17/2006: Relocate inaccessible line. An inaccessible portion of the Brookside 66-02 and 66-04 line is scheduled to be rebuilt along the roadway. The line is planned to be rebuilt and sectionalized under B21118 (with an RIS of 11/2007) and B21119 (with an RIS of 11/2009).	Scheduled for	11/30/2007	Rebuilding and sectionalizing the 66-02 line will increase reliability on the circuit by making the route more accessible. In addition, there will be less vegetation exposure following the rebuild of the line. This work will improve CAIDI and SAIDI.
	5/3/2006: Install fault indicators	Scheduled for	5/1/2007	Additional fault indicators will decrease length of customer outages by allowing troublemen to determine where fault occurred more quickly
	Monitor future performance.	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**10 Circuit ID: 55001 NEWPORT 50-01**

**Location: West Shore**

**CPI: 478**

Improve sectionalizing capability. Three tap fuses were installed.	Completed	12/31/2003	Reduced customer count affected by each outage.
Circuit outage data analysis.	Completed	6/25/2004	Vehicles and an ice storm in January 2004 contributed to the CPI.
Two OCRs relocated. Low set setting on breaker changed.	Completed	8/18/2004	Reduced customer count affected by each outage. Reduce number of trips.
Tree trimming.	Completed	8/27/2004	Reduced outage risk.
Circuit outage data analysis.	Completed	12/22/2004	Area hard hit by Hurricane Ivan in the 3rd quarter.
Circuit outage data analysis.	Completed	3/18/2005	The quarterly CPI has decreased 79% from the 3rd to the 4th quarter.
Circuit outage data analysis.	Completed	5/27/2005	CPI continues to improve.
Line inspection-equipment.	Completed	6/30/2005	Only a few items were found.
Circuit outage data analysis.	Completed	8/31/2005	On 5/7/05 the CB was interrupted when load was transferred and a line loop burned open and then on 5/27/05 an OCR bypass loop burned open. This is not expected to reoccur.
Circuit outage data analysis.	Completed	10/31/2005	Outage on 8/23/05 due to customer cutting a tree which fell into line.
12/7/2005: Install LBAS(s). Instal LBAS @ 17530S42150	Completed	1/23/2006	Reduced outage duration.
1/1/2006: Expanded Operational Review. Reliability Review Complete 6/9/2006. Field Review Complete 6/19/2006. Voltage Profile completed 11/3/2006	Completed	11/3/2006	WR 306662 Initiated to install 3 tap fuses. (completed)
2/14/2006: Tree trimming. The main portion of the circuit (first 12 mi of 3 phase) from sub to New Bloomfield.	Completed	6/24/2006	Reduced outage risk. Only 31% of the customer minutes in 2005 were tree-related, and of these, a single tree outage from off the right of way was responsible for 20% alone. However, keeping the line on its trimming schedule will demonstrate continued efforts to keep trees from increasing the number of outages.
2/14/2006: Tree trimming. Remainder of circuit. Work on this 150 mile portion of circuit has started, completion in third quarter.	Scheduled for	9/28/2007	Reduced outage risk.
3/31/2006: Improve sectionalizing capability.	Completed	3/31/2006	Inconclusive. Monitor future performance. Line reviewed for additional sectionalizing. Circuit has adequate sectionilizing points, and no new sectionalizing points were feasible.
5/17/2006: Circuit outage data analysis.	Completed	5/17/2006	2/3 of customer minutes during the 1st qtr 2006 were due to the Feb 17 windstorm. Trees from off the right of way heavily damaged a portion of the main line on this ckt. and an OCR locked out approx 3/4 of the customers on the line. Trees were all from outside the right of way on this heavily wooded circuit. The line was cleared and OCR restored after 140 minutes.
6/19/2006: Install fuse(s). WR 306662 Install 3 tap fuses	Completed	8/9/2006	Reduced customer count affected by each outage.
9/1/2006: Thermographic inspection-OH line. Completed - no repair items identified	Completed	9/1/2006	Reduced outage risk.

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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	2/14/2006: Monitor future performance.	Ongoing		
	3/19/2007: Install new line and terminal. Planning initiating project for new substation in the vicinity of Juniata. RIS 05/31/2010	Scheduled for	5/31/2010	Reduced outage risk.

**11 Circuit ID: 45402 WEST BLOOMSBURG 54-02**

**Location: Sunbury**

**CPI: 467**

	Line inspection-equipment.	Completed	7/31/2005	The line was inspected in the winter of 2004. Some items were identified by inspection including broken tie wires, cracked insulators, bad TFC's, blown LA's. Some of the work requests were done in the first quarter of 2005, and the rest were completed in June/ July 2005. All single phase and three phase fuses were installed on this circuit.
	Circuit outage data analysis.	Completed	8/22/2005	CPI was driven by SAIFI (3.338; 39% of the CPI) and number of cases (54; 44% of CPI). The major outages in the third quarter of 2004 were because of Hurricane IVAN on 9/18/04. 108 customers were interrupted for approximately 33 hours because of IVAN. While no major outages in Q4, 2004, a snow storm in the first quarter of 2005 caused long outages because of flood and closed bridges. Nothing major was found in the Q2, 2005 except few outages due to trees outside the right of way on 4/28/2005. The WPC team found that animals caused some outages in the second quarter of 2005. The Field will install animal guards where needed to avoid future animal outages.
	Tree trimming.	Completed	12/20/2006	The line is 100 miles long. 4 urban miles were trimmed in 2003, and the 95 rural miles were trimmed in the fourth quarter of 2006.
	11/2/2005: Circuit outage data analysis.	Completed	11/2/2005	Major contribution to the CPI was due to SAIFI (46% of total CPI) and the number of cases ( 46% of total CPI). A vehicle hit on 8/8/2005, and the storm in July caused major long outages in the third quarter of 2005.
	Line inspection-equipment.	Completed	9/30/2005	A line inspection was performed in September 2005. Different items were identified by the inspection including broken tie wires, cracked insulators, bad transformer fuse cutouts, blown lightning arresters. 6 work requests were written as a result of the inspection. WR's 208868, 208701, 208487, 208428, 208357, and 208306 were done by September 2005. The field completed thermo vision on the line in the fourth quarter of 2006.
	Thermographic inspection-OH line.	Completed	3/28/2007	
	11/2/2005: Improve sectionalizing capability.	Completed	11/2/2005	The circuit was reviewed for additional sectionalizing in 2005 to improve load transfer capabilities. No additional locations were identified for sectionalizing.
	11/2/2005: Monitor future performance.	Ongoing		Tree hot spotting in 2005, and the completion of all work requests identified by inspection are expected to improve the circuit's performance. Major outages occurred on the circuit in the third quarter 2005 were due to events that are not expected to occur again such as the vehicle hit in August. PPL will continue to monitor the circuit's performance.
	Install sectionalizers.	Scheduled for	6/30/2007	Reduced customer count affected by each outage.
	Install fuse(s).	Scheduled for	6/30/2007	Reduced outage risk.
	Perform line maintenance identified by line inspection.	Scheduled for	6/30/2007	

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>16</b>	<b>Circuit ID: 53602 DALMATIA 36-02</b>			<b>Location: Harrisburg</b>
				<b>CPI: 424</b>
	Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	12/22/2004	Area hit by Hurricane Ivan in the 3rd quarter.
	Install an electronic OCR on the east side of the river crossing.	Completed	12/22/2004	Reduced customer count affected by each outage.
	Circuit outage data analysis.	Completed	3/18/2005	The quarterly CPI has decreased 50% from the 3rd to the 4th quarter. A motor vehicle accident contributed 13% of the customer minutes interrupted in the 4th quarter. Tree trimming planned for 2006.
	Circuit outage data analysis.	Completed	5/27/2005	CPI continues to improve.
	Line inspection-equipment.	Completed	8/31/2005	Found a pole on an island in the river crossing requiring replacement due to bank erosion.
	Circuit outage data analysis.	Completed	10/31/2005	Inconclusive. Monitor future performance. Outage on 8/11/05 due to trees - not trimming related. Trees trimmed.
	Tree trimming. Main portion of the 3 phase line, to the OCRs.	Completed	12/30/2005	Reduced outage risk.
	2/17/2006: Tree trimming-selected line segments only (hot spots).	Completed	2/17/2006	Reduced outage risk. During the Feb 17 windstorm, PPL asked for and received permission to tree trim / cut the worst section of line where trees up a steep bank but off our right of way regularly take the line out. Crews cut down 16' additional right of way for 1/3 of a mile, reducing exposure on the worst tree-endangered portion of this circuit. This section was previously served by the Halifax 39-1 circuit.
	3/1/2006: Install 3 phase OCR(s). A 3-phase OCR will be relocated to just prior to the worst tree-exposed portion of the line along the Susquehanna.	Completed	3/14/2006	Reduced customer count affected by each outage.
	Tree trimming-selected line segments only (hot spots). Extensive trimming outside of ROW.	Completed	3/31/2006	Reduced outage risk.
	5/17/2006: Circuit outage data analysis.	Completed	5/17/2006	Inconclusive. Monitor future performance. 87% of the customer minutes during the 1st qtr 2006 was due to a car pole and a wind storm Jan 15-18. The vehicle accident was an hour from the service center. The OCR was restored in 134 minutes. All the trees were off corridor.
	1/1/2006: Expanded Operational Review. Operational Review will be completed in 2006 - Voltage profile and outage history analysis. Reliability Review Complete 7/11/2006.	Completed	7/1/2006	Voltage profile showed no problems. 5 unfused taps to be field-checked by tech. Bad tree spots will not be given to foresters b/c entire circuit to be trimmed in 2006
	Thermographic inspection-OH line.	Completed	9/20/2006	Reduced outage risk.
	2/14/2006: Tree trimming. Remainder of line.	Completed	10/30/2006	Reduced outage risk.
	Install fuse(s). Additional fusing- West Shore portion of ckt	Completed	11/30/2006	Reduced customer count affected by each outage. Install 5 tap fuses WR#326196
	Line inspection-equipment. Field patrol 21 rural circuit miles.	Completed	3/14/2007	Reduced outage risk.
	Replace pole on island in the river crossing weakened due to bank erosion.	Scheduled for	10/30/2007	Reduced outage risk. Island is uninhabited, and has no road or bridge access. Pa DER will not allow PPL to float a pole across the river due to leaching of preservative into the river. Securing permits to cross the river with men, vehicles, and equipment is proving extremely difficult and time-consuming. Target date to reinforce bank and poles is 10/30/07.

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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	Improve sectionalizing capability. Engineering to evaluate benefits of telemetric controlled OCR locations	Scheduled for	7/31/2007	Reduced outage duration.
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**17 Circuit ID: 15701 TANNERSVILLE 57-01**

**Location: Pocono**

**CPI: 422**

	Circuit outage data analysis.	Completed	6/15/2004	Major contributor to CPI was the number of cases (approximately 52% of CPI), CAIDI and SAIFI are low. Most contacts were tree related.
	Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/11/2004	Many tree related outages, some were trimming related.
	Field engineer will review the circuit for additional tap fuses.	Completed	7/31/2005	The main three phase line was analyzed, and no additional locations for fuses were determined.
	Relocate inaccessible line.	Scheduled for	12/31/2006	
	Tree trimming. This circuit was scheduled to be trimmed in support of reconductor work.	Completed	3/30/2006	Approximately 1.5 miles of the main three phase line was trimmed in support of the upcoming USF work.
	Reconductor 1.5 miles of the main line under SP 51216.	Completed	3/30/2006	The line was reconducted to increase reliability, allow capacity for load growth, and improve SAIDI.
	Circuit performance review.	Completed	6/30/2006	Inconclusive. Monitor future performance. Faulty sectionalizer identified and repairs are in progress. One LBAS is scheduled to be installed as part of the Reliability Preservation program.
	6/30/2006: Repair faulty sectionalizer.	Completed	12/31/2006	Reduced outage risk.
	6/30/2006: Install one LBAS	Completed	9/30/2006	
	7/1/2006: Monitor future performance.	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**18 Circuit ID: 15601 NO STROUDSBURG 56-01**

**Location: Pocono**

**CPI: 420**

Circuit outage data analysis.	Completed	6/23/2004	Major contributor to CPI was the number of cases. There were several burned loops on the line and quite a few animal contacts.
Line inspection-equipment.	Completed	3/31/2005	
Perform line maintenance identified by line inspection.	Completed	5/30/2005	Reduced outage risk.
Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	6/6/2005	
Line inspection-vegetation. Forester will perform a vegetation line inspection and perform hot spot trimming as required.	Completed	7/28/2005	Results sent to field for review. Hot spotting will be scheduled as needed.
Install fuse(s). WR# 218967, WR# 224357, WR# 224423; OCR and fuse installation;	Completed	12/30/2005	Fuses and OCRs were installed to reduce the number of customers experiencing an outage
Thermographic inspection-OH line. This circuit will be thermovisioned to help identify failed equipment.	Completed	9/30/2006	Reduced outage risk. Nothing found.
11/22/2005: Tree trimming.	Completed	12/31/2006	Reduced outage risk. completed
1/13/2006: Install fuse(s). WR 224008	Completed	5/3/2006	Reduced customer count affected by each outage.
1/1/2007: Expanded Operational Review.	Completed	2/26/2007	Reduced outage risk. Voltage profile complete. Sectionalizing study complete. New L/T 56-04 scheduled for end of this year will relieve the 56-01 of load, thus reducing outage risk and improving voltage support.
6/15/2006: Evaluate potential ties.	Completed	9/30/2006	Reduced outage duration.

**19 Circuit ID: 26001 WEST DAMASCUS 60-01**

**Location: Pocono**

**CPI: 415**

10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2005	Many of the outages were due to vegetation issues during storms. Majority of the outages were weather related.
2/21/2006: Install animal guard(s). Animal guards will be installed as customers are restored following an animal-related outage	Ongoing		Animal guards will prevent animal contact and reduce customer interruptions.
5/31/2006: Tree trimming. Hot spotting will be done as necessary	Scheduled for	6/30/2007	Hot spotting will be completed to reduce outages due to trees seen on the line
1/1/2007: Expanded Operational Review.	EOR initiated	3/31/2007	
11/22/2005: Monitor future performance.	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>20</b>	<b>Circuit ID: 28801 LAKEVILLE 88-01</b>			<b>Location: Pocono</b>
				<b>CPI: 406</b>
	7/13/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2005	Vegetation issues caused nearly half of all the outages on this line. Weather was a significant factor for these outages. Trimming was completed on this line in 2005.
	WR# 237040: OH repairs made as a result of line inspection	Completed	9/15/2005	Work completed to reduce customer minutes lost
	Tree trimming.	Completed	10/31/2005	Reduced outage risk.
	Install fuse(s). WR# 242026; WR#241998; WR#241849	Completed	12/31/2005	Reduced customer count affected by each outage. New fuses being installed to improve SAIDI
	Install LBAS(s).	Scheduled for	1/31/2007	Sectionalizing the line will reduce the number of customers experiencing an outage
	Install 1 phase OCR(s).	Scheduled for	1/31/2007	
	5/31/2005: Install animal guard(s). Animal guards are added as needed to the line	Ongoing		Animal guards are placed after outages are experienced to prevent future outages.
	1/1/2007: Expanded Operational Review.	EOR planned	6/30/2007	
	Monitor future performance.	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**22 Circuit ID: 43202 MILLVILLE 32-02**

**Location: Sunbury**

**CPI: 397**

22

	Circuit outage data analysis.	Completed	12/30/2004	The Millville 32-2 line was reported as having a high CPI during the 1st and 2nd quarter of 2004. During the Q1 of 2004, on 2/6/2004, approximately 254 customers experienced a 1 hr. outage, nothing found was reported. During the Q2 of 2004, 82 customers experienced approximately 4 hr. outage due to a vehicle accident and on 5/10/2004, 11 customers experienced a 8 hr. outage due to equipment failure. Major outages occurred in the Q3 of 2004 because of hurricane IVAN on 9/18/05 where 22 customers experienced long duration outage because of flood and closed roads. The snow storm in the Q1 of 2005 also caused long duration outages on 3/23/2005. The hurricane IVAN and the snow storm were the major cause for long outages on this circuit.
	Improve sectionalizing capability. Review line to determine if additional sectionalizing can be added to minimize the number of customers affected by emergency outages.	Completed	12/30/2004	Reduced customer count affected by each outage. The 32-2 line was reviewed for locations to add/install additional sectionalizing devices. No locations were found. A partial inspection on 3 phase line was done in the winter of 2003, and nothing major found on this circuit. Installing additional OCRs was looked at as a part of SAIFI initiative study.
	Tree trimming.	Completed	12/1/2006	The line is approximately 162 miles long. The 9.2 urban miles were trimmed in 2004. The 153 rural miles were trimmed in 2006. The majority of this line is in inaccessible area. The line was reviewed by the region forestry staff. Some hot spot trimmings were partially done at certain areas in Apr/May, 2005, and were completed on the whole circuit by 12/30/2005.
	10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/2/2005	The storm on 7/13 and 7/14 caused 8 cases of trouble in the third quarter of 2005. Trees-not trimming related were the cause of major outages on this circuit. No major outages were in the Q4 of 2005.
	Improve sectionalizing capability.	Completed	3/31/2005	Reduced outage risk. The crew reviewed the line for additional sectionalizing in the first quarter of 2005. A solid blade and additional single phase fuses were installed by the end of Q1, 2005. No additional work is required.
	Line inspection-equipment.	Completed	11/17/2006	Reduced outage risk. A line maintenance inspection patrol was completed in August 2005. Nine work requests were initiated as a result of the inspection. Seven of those work requests were completed in 2005. The work involved replacing transformer fuse cutout, cross arms, broken spool, and sagging neutral. Two work requests remain were completed in the first quarter 2006. One of the work requests requires facility/customer interruption coordination, and the second location requires a special 75 foot bucket.
	8/22/2005: Install fuse(s).	Completed	12/31/2005	Reduced customer count affected by each outage. The field engineer reviewed the line for additiona fuses. All single phase and three phase tap fuses were installed by the end of 2005.
	3/20/2006: Monitor future performance.	Ongoing		
	Thermographic inspection-OH line.	Completed	3/29/2007	
	Perform line maintenance identified by line inspection.	Scheduled for	6/30/2007	

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>23</b>	<b>Circuit ID: 44505 HAMILTON 45-05</b>			<b>Location: Sunbury</b>
				<b>CPI: 393</b>
	1/1/2007: Expanded Operational Review.	EOR initiated	12/31/2007	
	11/2/2005: Circuit outage data analysis.	Completed	11/2/2005	The major contribution to the CPI was mainly due to the number of cases ( 70 % of the total CPI). Trees outside the right of way and equipment failure were major causes of many outages in the third quarter of 2005.
	11/2/2005: Tree trimming.	Completed	12/31/2005	The line is approximately 164 miles long. The whole circuit was last trimmed in 2003. The next trimming is scheduled to be done in 2007 for the urban section. The rural section is scheduled to be trimmed in 2009. Hot spot trimming will be evaluated and performed on this circuit as needed.
	5/25/2006: Line inspection-equipment.	Completed	3/31/2006	The line inspection was completed by 6/30/2006. Two immediate problems were identified and fixed ( bad transformer fuse cutout and bad tap switch). Two work requests were initiated totaling \$5,000 to replace bad transformer fuse cutout and tap switches. An electronic OCR was replaced on this circuit on 2/9/2006.
	2/9/2006: Relocate inaccessible line.	Completed	12/1/2006	The relocation of the inaccessible section to the road is expected to improve the reliability of the line.
	11/2/2005: Monitor future performance.	Ongoing		
	3/1/2007: Thermographic inspection-OH line.	Completed	3/1/2007	Reduced outage risk. One WR generated: WR# 360931. Transformer bushings to an open delta bank were identified as hot. This find allowed for the customer to be prearrange and no time lost on the line itself. Work request was completed on 3/16/2007. With the relative close proximity to the substation an equipment failure at this location could have resulted in a complete loss of this line.
	4/3/2007: Install fuse(s).	In progress	12/31/2007	Additional single phase OCRs and additional fusing is being addressed.
	4/3/3007: Reconductor line. & Relocation.	In progress	5/1/2007	Reduced outage risk. Line relocation and wire upgrade on the West Mt. Church Tap. Work is complete. One additional conduit (spare) is needed to be install before total completion. WR# 299426.
	4/3/2007: Evaluate potential ties.	In progress	12/31/2007	Reduced customer count affected by each outage. Pursuing additional means for ties. All alternative too costly as compared to new substation. Request for new substation is submitted to planning.
	4/3/2007: Perform line maintenance identified by line inspection.	Completed		Reduced outage risk. All rated Low and Medium jobs found in the 2006 Line Patrol have been subsequently completed.
	Circuit outage data analysis.	Completed	12/30/2004	The Hamilton 45-5 line was reported as having a high CPI in the second and third quarters of 2004. 100% of the high CPI during the second quarter 2004 is due to a vehicle accident which occurred on 5-15-04, 185 customers experienced a 7 hr. outage. 100% of the high CPI during the third quarter of 2004 is due to hurricane IVAN, approximately 25 customers experienced outages ranging from 4 hrs to 32 hrs. (outages reported as non-tree trimming related). Also approximately 150 miles of rural 45-5 line were trimmed in 2003.

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
	4/3/2007: Improve sectionalizing capability.	Completed	3/13/2007	Reduced customer count affected by each outage. The control was reset for the N curve and retested at 2x fault current. Times were increased from .02 seconds to .13 seconds on the fast trip cycle. All parameters were tested and they are in specifications according to factory requirements. OCR location 27503N25109 on the Hamilton 45-5 line to fast trip on the N curve, rather than the A.
	4/3/2007: Install animal guard(s).	In progress	12/31/2007	Reduced outage risk. ON ALL JOBS NOT ANIMAL RELATED - AN ANIMAL GUARD IS TO BE INSTALLED WHERE ONE IS NOT ALREADY PRESENT ON THIS LINE

**24 Circuit ID: 16402 MOUNT POCONO 64-02**

**Location: Pocono**

**CPI: 389**

	Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/11/2004	Most of the problems were trees outside of the right of way, but there were some trimming related problems. This circuit did have some hotspot trimming completed earlier in 2004.
	Tree trimming. Hot spotted in April and May	Completed	5/31/2005	Reduced outage risk.
	Tree trimming. Overgrown areas will be identified by field engineer for hot spot trimming.	Completed	8/31/2005	Reduced outage risk.
	7/13/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	8/31/2005	
	11/22/2005: Tree trimming. As of 7/8/06, 75% completed. The remainder of the trimming will be completed by 8/31/06.	Completed	8/31/2006	Reduced outage risk.
	2/16/2006: Line inspection-equipment.	Completed	3/30/2006	Customer minutes will be saved by identifying equipment that is prone to failure.
	6/15/2006: An intelligent switching project has been identified to reduce customer minutes lost.	Scheduled for	5/31/2007	Reduced customer count affected by each outage.
	1/1/2007: Expanded Operational Review.	EOR planned	6/30/2007	
	6/15/2006: Evaluate potential ties.	Completed	8/31/2006	Reduced outage duration. Field review completed 6/2006. Proposed location of new substation located and ties identified. Details forwarded to appropriate personnel.
	Monitor future performance	Ongoing		

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
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**27 Circuit ID: 46302 ROHRSBURG 63-02**

**Location: Sunbury**

**CPI: 381**

25

Circuit outage data analysis.	Completed	8/22/2005	The Rohrsburg 63-2 line was reported as having a high CPI during the first and second quarter of 2004. However, a large number of customers experienced outages, short or long in duration has not been reported for the 1st and 2nd quarters in 2004. It was reported on 2/21/2004, 19 customers experienced a 5 hr. outage due to equipment failure. In the Q2, 2004, 24 customers experienced outages ranging from 7 hrs to 12 hrs due to equipment failure on 6/17/2004. No major outages in the Q4, 2004. A snow storm caused long duration outages in Q1, 2005 where 11 customers experienced an outage for approximately 23 hours because of the flood in the area on 3/23/05. It was reported that there were some non-controllable causes for long outages on this circuit because of lightning. No major outages in the Q2, 2005 beside the outage on 6/6/2005, which was caused by trees-non trimming related in a very windy day.
Improve sectionalizing capability.	Completed	6/1/2005	The line was reviewed for more sectionalizing devices. No new locations were found.
Perform line maintenance identified by line inspection.	Completed	9/30/2005	Line maintenance was started by the region in the first week of August, 2005. Nothing major was found. Only lower priority things were found. Pole by pole inspection and the review of fuses on 3 phase and single phase have been completed on the circuit by the end of Q3, 2005.
Tree trimming.	Completed	12/31/2006	The 153 miles long line was originally scheduled to be trimmed in 2007. The work has been advanced into 2006. Hot spot trimmings were completed by the end of 2005.
11/2/2005: Circuit outage data analysis.	Completed	11/2/2005	Major contribution to the CPI on this circuit was due to SAIFI and the number of trouble cases. A storm on 7/14/2005 caused a few long outages on this line. Most of outages occurred on this line in the third quarter of 2005 were due to trees not-trimming related and equipment failure.
11/2/2005: Line inspection-equipment.	Completed	8/31/2005	A line inspection was performed in August 2005 on the entire feeder. 11 WR's were initiated as a result of this patrol. All work requests were completed in 2005. The work included de-energized unused tap, replace blown arrestors and bad transformer fuse cutouts.
Install fuse(s).	Completed	10/31/2006	The circuit was inspected and reviewed by the Engineer for additional fusing. No locations were identified by the review.
11/2/2005: Monitor future performance.	Ongoing		In progress work is expected to improve the circuit's performance. PPL will continue to monitor the circuit's performance in the future.
Thermographic inspection-OH line.	Completed	3/29/2007	
Perform line maintenance identified by line inspection.	Scheduled for	6/30/2007	

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>41</b>	<b>Circuit ID: 16802 WAGNERS 68-02</b>			<b>Location: Pocono</b>
				<b>CPI: 342</b>
	Expanded Operational Review. Install and move 2 ocr's at Blakeslee Corners.	Completed	12/31/2006	Reduced customer count affected by each outage. Sent WR to tech.
	Circuit outage data analysis.	Completed	6/23/2004	Major contributor to CPI was the number of cases. There was no conclusive pattern to the outages.
	Tree trimming. Spot trimming.	Completed	12/31/2004	Reduced outage risk. Will continue to monitor this circuit to determine if trimming was successful.
	1/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	2/28/2006	The majority of the outages were due to non-trimming related vegetation issues. There were also some outages due to vehicle contact and equipment failure. Increasing sectionalizing on the line should mitigate the effect of potential outages
	2/16/2006: Install LBAS(s).	Completed	12/1/2006	Install new LBAS will increase sectionalizing resulting in fewer customer minutes lost in the event of an outage. Two LBAS will be installed as part of the sectionalizing improvement study.
	Expanded Operational Review. Perform Voltage Profile. Review circuit for possible LBAS installations.	Completed	6/29/2006	Line profile showed a need to balance phases and a possible low voltage. May need to install some capacitance. Transferred 3 single phase taps to balance load. Installed LBASs at 60344N35216 and 59801N34713.
	Transferred 3 single phase taps to balance load.	Completed	6/29/2006	Reduced outage risk.
	Installed LBASs at 60344N35216 and 59801N34713.	Completed	6/29/2006	Reduced outage duration.
	Tree trimming-selected line segments only (hot spots).	Completed	12/31/2006	Reduced outage risk. Hot spotting completed. Tree trimming completed
	Improve sectionalizing capability. Two switches will be installed by the third quarter of 2006.	Completed	6/29/2006	Reduced outage duration.
	Evaluate potential ties.	Completed	12/31/2006	Reduced customer count affected by each outage. Potential ties identified. Reviewing least cost alternatives for solution.
	Expanded Operational Review. Summer Thermography	Completed	7/26/2006	Reduced outage risk.
	Expanded Operational Review. 400 kVAR identified for four locations	EOR planned	6/30/2007	
<b>44</b>	<b>Circuit ID: 26702 HEMLOCK FARMS 67-02</b>			<b>Location: Pocono</b>
				<b>CPI: 341</b>
	10/10/2005: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	11/30/2005	A vehicle contact contributed significantly to customer minutes lost. This is not expected to occur again.
	2/21/2006: Install new line and terminal. A new line and terminal will be installed and a portion of the line will be rebuilt	Completed	11/30/2006	The new line and terminal will sectionalize the line and increase transfer capability, resulting in a reduction of CAIDI.
	11/22/2005: Monitor future performance.	Ongoing		
	1/1/2007: Expanded Operational Review.	Scheduled for	6/30/2007	

<i>Rank</i>	<i>Action</i>	<i>Status</i>	<i>Due/Complete</i>	<i>Result</i>
<b>46</b>	<b>Circuit ID: 20403 ASHFIELD 04-03</b>			<b>Location: Central</b>
				<b>CPI: 338</b>
	Section of line being transferred to adjacent line.	Completed	1/31/2006	Reduced customer count affected by each outage.
	Load balancing. Transferred 1,241 customers from Ashfield 04-3 line to 04-2 line in order to more equitably balance load between feeders.	Completed	2/9/2006	Reduced outage risk. WR 244373 (Bowmanstown Tap Transfer) and WR 260692 (C-Tag Pole Replacement).
	1/9/2006: Circuit outage data analysis - WPC not on preceding qtr. list.	Completed	2/28/2006	Single phase loop burned open, and line had to be dropped to repair.
	Improve voltage level.	Completed	6/22/2006	Reduced outage risk. WR 294596 Install 3 Single Phase Voltage Regulators.
	Install 1 phase OCR(s).	Completed	7/7/2006	Reduced customer count affected by each outage. Kepner Road single phase OCR installed on WR 229908.
	7/5/2006: Reconductor line.	Completed	7/7/2006	Reduced outage risk. WR 229908 Reconductor 1.4 miles of line - convert Kepner Tap from single phase to three phase.
	7/5/2006: Expanded Operational Review. Voltage profile completed 8/18/06. Reliability review completed 8/31/06. Field WR review completed 6/14/06.	Completed	8/31/2006	Installed 3 single phase voltage regulators, reconducted 1.4 miles of line, installed 1 new single phase OCR and upgraded 4 existing OCRs to accommodate load growth. Also submitted budget item request to reconductor approximately 3 miles of three phase line -- budget item was subsequently denied in deference to installing the 3 single phase voltage regulators.
	Tree trimming.	Completed	3/31/2006	Reduced outage risk.
	Upgrade OCRs	Completed	6/14/2006	Reduced outage risk. WR 270419 upgraded 2 single phase OCRs and changed the settings on 2 three phase OCRs in order to accommodate load growth downstream of the Dorset Tap.
	Monitor future performance.	Ongoing		
	Reconductor line. Reconductor approximately 3 miles of three phase line.	Completed	5/4/2006	Installed 3 single phase voltage regulators instead.

- (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.*

<b>Inspection &amp; Maintenance Goals/Objectives</b>	<b>2006 Budget</b>	<b>2006 Actual</b>	<b>Variance (%)</b>
<b>Transmission</b>			
Transmission C-tag poles (# of poles)	240	279	16.3%
Transmission arm replacements (# of sets)	1,200	1,505	25.4%
Transmission lightning arrester installations (# of sets)	24	69	187.5%
Foot patrols (# of miles)	1,350	1,614	19.6%
Transmission air break switch inspections (# of)	60	58	-3.3%
Transmission tree trimming (# of linear feet)	408,929	395,187	-3.4%
Transmission herbicide (# of acres)	5,002	5,196	3.9%
<b>Substation</b>			
Substation batteries (# of activities)	833	836	0.4%
Circuit breakers (# of activities)	3,195	3,102	-2.9%
Substation inspections (# of activities)	3,439	3,434	-0.1%
Transformer maintenance (# of activities)	2,109	2,028	-3.8%
<b>Distribution</b>			
Distribution C-tag poles replaced (# of poles)	2,232	2,595	16.3%
C-truss distribution poles (# of poles)	384	659	71.6%
Capacitor (MVAR added)	80	85	6.3%
OCR replacements (# of)	510	587	15.1%
Oil Switch replacements (# of)	60	108	80.0%
Distribution air break switch inspections (# of)	258	211	-18.2%
Distribution pole inspections (# of poles)	79,831	90,392	13.2%
Distribution line inspections (# of miles)	3,000	3,785	26.2%
Group Relamping (# of lamps)	18,500	18,763	1.4%
Test sections of underground distribution cable	800	851	6.4%
Distribution tree trimming (# of miles)	4,667	5,304	13.6%
Distribution herbicide (# of acres)	1,325	916	-30.9%
LTN manhole inspections (# of)	407	407	0.0%
LTN vault inspections (# of)	594	600	1.0%
LTN network protector overhauls (# of)	82	77	-6.1%
LTN reverse power trip testing (# of)	108	97	-10.2%

Explanation of variances of 10% or greater:

**Transmission C-Tag poles:** Advanced 30 Transmission C-tag poles from 2007 into 2006 to support the revised 5-year capital business plan.

**Transmission arm replacements:** Advanced 300 sets of Transmission Arms from 2007 into 2006 to support the revised 5-year capital business plan.

**Transmission lightning arrester installations:** Advanced 48 lightning arresters from 2007 into 2006 to support the revised 5-year capital business plan.

**Transmission foot patrols:** Completed all 2006 foot patrols that were identified. Also, about 100 of the 2006 patrols were advanced and completed in 2005. In September, began winter inspections as the 2007 patrols were initiated.

**Distribution C-tag poles replaced:** Advanced 300 of the 2007 Distribution C-tags into 2006 to support the revised 5-year capital business plan.

**Distribution C-truss poles:** Additional work identified during the year.

**Distribution OCR replacements:** Additional work identified during the year.

**Distribution oil switch replacements:** Additional work identified during the year.

**Distribution air break switch inspections:** Additional OCR and oil switch replacements given higher priority.

**Distribution pole inspections:** Additional work identified during the year.

**Distribution line inspections:** Additional work identified during the year.

**Distribution tree trimming:** Variance due to additional funding provided to complete 2005 carryover miles plus 2 worst performing circuits.

**Distribution herbicide:** Any necessary herbicide work along the same right-of-way is included by contract in scheduled tree trimming mileage. Some herbicide work actually done as part of planned mileage inadvertently was counted in both line items when the budget was prepared, but in only the trimming line item as actually performed.

**LTN reverse power trip testing:** Difficulties coordinating outages with customers.

- (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.*

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).

Activity	2006 Budget (\$1,000s)	2006 Actual (\$1,000s)	Variance (%)
Provide Electric Service	12,823	14,798	15.4%
Vegetation Management	22,505	25,836	14.8%
Customer Response	53,523	62,470	16.7%
Reliability & Maintenance	59,124	58,428	-1.2%
System Upgrade	7,698	4,872	-36.7%
Customer Services/Accounts	71,873	73,914	2.8%
Other	51,609	44,662	-13.5%
<b>Total O&amp;M Expenses</b>	<b>279,155</b>	<b>284,980</b>	<b>2.1%</b>

Explanation of variances of 10% or greater:

**Provide Electric Service:** Higher than budget due to additional design hours and material costs associated with connecting new customers.

**Vegetation Management:** Higher than budget due to increased scope completed in 2006 and increases in contractor costs.

**Customer Response:** Higher than budget due to unusually high storm activity.

**System Upgrade:** Lower than budget due to higher charges to capital work and reimbursable PJM Generation Interconnection Study work.

**Other:** This line item, which is primarily administrative, general and miscellaneous expenses, is lower than budget because some work originally budgeted for the miscellaneous expense budget actually was charged to vegetation management and customer response line items.

- (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.*

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

	<b>2006 Budget</b> (\$1,000s)	<b>2006 Actual</b> (\$1,000s)	<b>Variance</b> (%)
New Service/Revenue	87,641	83,646	4.6%
System Upgrade	60,115	55,760	7.2%
Reliability & Maintenance	48,040	54,940	14.4%
Customer Response	3,051	6,752	121.0%
Other	8,762	8,121	7.3%
<b>Total</b>	<b>207,609</b>	<b>209,219</b>	<b>0.8%</b>

Explanation of variances of 10% or greater:

**Reliability and Maintenance:** Above budget primarily due to the advancement of work into 2006, including reliability preservation work, underground cable replacements after test, SISRS initiative, oil switch replacements, transmission poles, and distribution poles.

**Customer Response:** Above budget primarily due to higher than normal storm activity. In 2006, there were 28 storms, including 9 PUC reportable storms.

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

<b>Inspection &amp; Maintenance Goals/Objectives</b>	<b>2007 Budget</b>
<b>Transmission</b>	
Transmission C-tag poles (# of poles)	248
Transmission arm replacements (# of sets)	1,200
Transmission lightning arrester installations (# of sets)	50
Foot patrols (# of miles)	1,350
Transmission air break switch inspections (# of)	60
Transmission tree trimming (# of linear feet)	395,204
Transmission herbicide (# of acres)	4,002
<b>Substation</b>	
Substation batteries (# of activities)	859
Circuit breakers (# of activities)	3,198
Substation inspections (# of activities)	1,363
Transformer maintenance (# of activities)	2,038
<b>Distribution</b>	
Distribution C-tag poles replaced (# of poles)	2,446
C-truss distribution poles (# of poles)	559
Capacitor (MVAR added)	85
OCR replacements (# of)	510
Oil Switch replacements (# of)	120
Distribution air break switch inspections (# of)	258
Distribution pole inspections (# of poles)	88,176
Distribution line inspections (# of miles)	3,000
Group relamping (# of lamps)	18,500
Test sections of underground distribution cable	850
Distribution tree trimming (# of miles)	5,500
Distribution herbicide (# of acres)	845
LTN manhole inspections (# of)	506
LTN vault inspections (# of)	594
LTN network protector overhauls (# of)	77
LTN reverse power trip testing (# of)	116

- (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.*

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).

Activity	2007 Budget (\$1,000s)
Provide Electric Service	13.1
Vegetation Management	28.7
Customer Response	51.7
Reliability & Maintenance	63.2
System Upgrade	7.7
Customer Services/Accounts	77.5
Other	46.7
<b>Total O&amp;M Expenses</b>	<b>288.6</b>

- (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:

	2007 Budget (\$1,000s)
New Service/Revenue	89,336
System Upgrade	86,805
Reliability & Maintenance	53,857
Customer Response	12,247
Other	27,263
<b>Total</b>	<b>269,508</b>

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

**Transmission**

Lightning Arrestor Installations – the budgeted number increased from 24 in 2006 to 50 in 2007. Program has been accelerated because it provides reliable protection at low cost.

Transmission Herbicide – Acres reduced from 5,002 in 2006 to 4,002 in 2007. The quantity budgeted varies yearly and is based on surveys and timing.

**Substation**

Substation Inspections -- As part of an initiative to reduce substation inspection costs, monitoring equipment is being installed to monitor the most critical aspects of the equipment in substations that do not have SCADA. The net effect was a reduction of substation site inspections to once per year.

**Distribution**

C-truss Distribution Poles – goals/objectives remain unchanged, but 2007 quantity is higher than 2006 due to inspection results.

Oil Switch Replacements – new program added to replace oil switches with air break switches to improve operational performance. Quantity increased from 60 in 2006 to 120 in 2007.

Distribution Tree Trimming – miles trimmed per year increased by 833 miles in order to reduce the urban clearing cycle to 4 years and the rural cycle to 6 years.

Distribution Herbicide – acres reduced from 1,325 in 2006 to 845 in 2007. The quantity budgeted varies yearly and is based on surveys and timing.

***PPL Electric Utilities Corporation  
Transmission Programs & Procedures***

<b>Program</b>	<b>Activity</b>
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 are usually expedited.
Field Inspections – Comprehensive	Line personnel conduct a comprehensive foot patrol inspections of transmission line facilities on a four year cycle. During the foot patrol a detailed list of maintenance items for specific structures, poles, arms, conductors and support hardware is documented. This information is combined with the comprehensive helicopter inspection reports and is used to develop action plans to correct deficiencies.
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 are generally expedited.
Wood Pole Inspection	Line personnel inspect all wood poles during the foot patrol inspection to identify deterioration. Engineers develop plans to repair or replace them as necessary.
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.

**Appendix A**

<b>Program</b>	<b>Activity</b>
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 on a minimum eight year cycle.
Line Switch Upgrades	Line personnel upgrade 138kV and 69kV air break switches to increase load-sectionalizing capability to assure system reliability and operating flexibility.
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***

<b>Program</b>	<b>Activity</b>
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 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.
Inspection & Overhaul	Electricians inspect and overhaul circuit breakers, wave traps, power fuses, 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. 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.
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 facility prior to failure.

## Appendix B

<b>Program</b>	<b>Activity</b>
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 Improvements	Engineers evaluate the reliability of a substation's DC power supply and determine the need for midpoint circuit breakers in station battery banks. They plan and schedule installation as needed.
DC 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 and vacuum switches on 69kv capacitor banks. They plan and schedule installation 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.

***PPL Electric Utilities Corporation  
Distribution Programs & Procedures***

<b>Program</b>	<b>Activity</b>
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	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.

## Appendix C

<b>Program</b>	<b>Activity</b>
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	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 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.

***PPL Electric Utilities Corporation  
Vegetation Programs & Procedures***

<b>Program</b>	<b>Activity</b>
Tree Pruning	Tree pruning is scheduled based on field conditions observed and past performance. All pruning is done in accordance with <u>American National Standard for Tree Care Operations-Tree, Shrub and Other Woody Plant Maintenance – Standard Practices (ANSI A300)</u>
Tree Removal	Trees located both within the right-of-way corridor and outside the right-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’t 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

## Appendix E

### *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 three general classifications: Controllable, Non-Controllable and Public. The definitions of the cause codes are:

10 – Improper Design	Controllable	<ul style="list-style-type: none"><li>• 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)</li></ul>
11 – Improper Installation	Controllable	<ul style="list-style-type: none"><li>• 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)</li></ul>
12 – Improper Operation	Controllable	<ul style="list-style-type: none"><li>• 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)</li></ul>
30 – Trees – Inadequate Trimming	Controllable	<ul style="list-style-type: none"><li>• Outages resulting from the lack of adequate tree trimming (within the Right of Way).</li></ul>
35 – Trees – Not Trim Related	Non-Controllable	<ul style="list-style-type: none"><li>• Outages due to trees, but not related to lack of or proper maintenance tree trimming. This includes trees falling into PPL Electric facilities from outside the right-of-way, danger timber blown into facilities, and trees or limbs cut or felled into facilities by a non-employee.</li></ul>
40 – Animals	Controllable	<ul style="list-style-type: none"><li>• Any outage caused by an animal directly or indirectly coming in contact with PPL Electric facilities. This includes birds, squirrels, raccoons, snakes, cows, etc.</li></ul>
41 – Vehicles	Public	<ul style="list-style-type: none"><li>• When cars, trucks or other types of vehicles or their cargoes strike facilities causing an interruption.</li></ul>
51 – Contact/Dig-in	Public	<ul style="list-style-type: none"><li>• 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.).</li><li>• When contact is made by a non-employee with an underground facility causing interruption.</li></ul>

## Appendix E

60 – Equipment Failure	Controllable	<ul style="list-style-type: none"> <li>• Outages resulting from equipment failures caused by corrosion or contamination from build-up of materials, such as cement dust or other pollutants.</li> <li>• Outages resulting from a component wearing out due to age or exposure, including fuse tearing or breaking.</li> <li>• Outages resulting from a component or substance comprising a piece of equipment failing to perform its intended function.</li> <li>• Outages resulting from a failure that appears to be the result of a manufacturer's defect or cannot be described by any other code indicating the specific type of failure.</li> </ul>
80 – Scheduled Prearranged <sup>8</sup>	Controllable	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Includes requests from customers for interruption of PPL Electric facilities.</li> </ul>
85 – Forced Prearranged	Non-Controllable	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>

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<sup>8</sup> 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 immediately, but are reported as scheduled prearranged when the interruption is postponed.

## Appendix E

<p>90 – Other – Controllable (Lineman provides explanation)</p>	<p>Controllable</p>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Interruptions resulting from excessive load that cause that facility to fail.</li> <li>• 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.</li> </ul>
<p>96 – Nothing Found</p>	<p>Non-Controllable</p>	<ul style="list-style-type: none"> <li>• When no cause for the interruption can be found.</li> <li>• 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 T&amp;L when a line fuse blows or a single phase OCR locks open.</li> <li>• When closed for test, the fuse holds or the OCR remains closed. A patrol of the tap reveals nothing.</li> </ul>
<p>98 – Other Public (Lineman provides explanation)</p>	<p>Public</p>	<ul style="list-style-type: none"> <li>• All outages resulting from gunfire, civil disorder, objects thrown, or any other act intentionally committed for the purpose of disrupting service or damaging company facilities.</li> </ul>
<p>99 – Other – Non-Controllable (Lineman provides explanation)</p>	<p>Non-Controllable</p>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• When an interruption is caused by objects other than trees, such as kites, balls, model airplanes, roofing material, and fences, being accidentally blown or thrown into overhead facilities.</li> <li>• All interruptions caused by contact of energized equipment with facilities of other attached companies or by trouble on customer owned equipment.</li> </ul>