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April 30, 2012

Orange and Rockland Utilities, Inc.

390 West Route 59

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

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

Dear Secretary Chiavetta:

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 2011 System Performance.

Any questions regarding this report should be addressed to me at the address listed above or I can be reached at (845) 577-3691.

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APR 3 0 2012

PA PUBLIC UTILITY COMMISSION BEGRETARY'S BUREAU Very truly yours,

Brian Nugent Section Manager

Performance & Operations Engineering

Pike County Light and Power (Orange and Rockland Utilities)

Enclosures

cc: Office of Consumer Advocate

Office of Small Business Advocate

Pennsylvania AFL-CIO

# Pike County Light & Power Company Annual Electric Reliability Report 2011 System Performance

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P.A PUBLIC UTILITY COMMISSION SECRETARY'S BUREAU

April 2012



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#### INTRODUCTION

PA PUBLIC UTILITY COMMISSION SECRETARY'S BURFALL

Pursuant to the requirements of 52 Pa. Code § 57.195, Pike County Light & Power Company ("Pike" or the "Company") submits this Annual Reliability Report ("Report") to the Pennsylvania Public Utility Commission ("PAPUC") for its 2011 system performance. Pike is an electric distribution company ("EDC") which has approximately 4,700 electric distribution customers, thereby making it a "smaller EDC" for purposes of 52 Pa. Code § 57.195 (c). The Company is a utility subsidiary of Orange and Rockland Utilities, Inc. ("Orange and Rockland"). The Company, together with Orange and Rockland and Rockland Electric Company (i.e., Orange and Rockland's New Jersey utility subsidiary), comprise the Orange and Rockland System.

§ 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 and Rockland's "Western Division" includes the Company's service territory, 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 south-westernmost portion of the Orange and Rockland System Western Division. Pike's service territory in Pennsylvania is primarily fed from two 34.5 kV feeders that originate from New York Substations, i.e., Line 5-10 from the Cuddebackville Substation, and Line 7 from the Port Jervis Substation. The eastern portion of the Pike service territory is fed by two 13.2kV feeders from the Matamoras Substation that has ties to distribution circuitry from Orange and Rockland's Port Jervis Substation, in New York, 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 Pike service territory is fed radially from Line 7.

The PAPUC's service reliability standards for Pike, last revised on August 17, 2006, are as follows:

- 12-Month System Average Interruption Frequency Index ("SAIFI", or "Frequency") of 0.82 interruptions per customer served;
- 12-month Customer Average Interruption Duration Index ("CAIDI" or "Restoration") of 235 minutes of interruption per customer interrupted;
- 12-month System Average Interruption Duration Index ("SAIDI" or "Duration") of 194 minutes per customer served.

In 2011, the Pike service territory experienced a Frequency of 0.73 interruptions per customer served, a Restoration of 297 minutes, and a Duration of 216 customer-minutes of interruption. SAIFI was 11% better than the standard, CAIDI was 62 minutes (26%) above the standard, and SAIDI was 21 minutes (11%) above the standard. These results are detailed on Page 6 of this Report, along with the most recent three-year history for these indices.

From October 29 to November 1, 2011, a major snow storm affected the Pike service territory. There were 406 customers affected for 5,534 customer hours during this period. The storm which was the worst recorded in Orange and Rockland System history (when considering the number of customers affected and customer hours of interruption), dumped 12" of heavy wet snow on the service territory. In the Pike service territory, this storm caused ten interruptions which were the result of tree contact with overhead conductors. Since these interruptions were

part of a significant weather event, Pike applied to the PAPUC for a major event exclusion. The PAPUC, however, denied this application. The outages which occurred from October 29 to November 1 increased the CAIDI index from 223 minutes, which meets the PAPUC standard, to 297 minutes. Due to the small size and configuration of the Pike system, consideration should be given to these type of events where circumstances such as extreme weather play a major role in the restoration effort. A similar situation occurred on February 25, 2010 where an exclusion request, due to a significant snow storm, was denied resulting in a 72 minute increase to the 2010 CAIDI index.

The three-year reliability standards for Pike are as follows:

Three-year annualized SAIFI of 0.67 interruptions per customer served; Three-year annualized CAIDI of 192 minutes of interruption per customer interrupted; and Three-year annualized SAIDI of 129 minutes per customer served.

For the three-year period ending December 2011, Pike experienced an annualized Frequency of 0.64 interruptions per customer served, a Restoration of 247 minutes, and Duration of 159 customer minutes of interruption. The performance measurement for Frequency was better than the three-year standard and was also lower than the respective Benchmark. If the October 29th event was excluded the three-year Frequency would be 0.61 interruptions per customer, Restoration of 214 minutes and Duration of 140 customer minutes of interruption. The denial of this event significantly increases the Restoration and Duration system performance indices for the three-year period.

There were seven major events affecting Pike's service territory during 2011 that were accepted by the PAPUC for exclusion from the statistics. These major events affected 20,107 customers for a total of 203,328 customer-hours of interruption, and are detailed on Page 4 of this Report. The major event which had the largest impact was Hurricane Irene which occurred on August 28 and affected 4,366 customers or 97% of the Pike customer base.

The table on Page 7 summarizes, by cause, Pike customer interruptions experienced in 2011, with pre-arranged outages and major events removed. The leading cause of outages is tree contact, with 43 interruptions affecting 1,676 customers for a total of 741,880 customer-minutes. The service reliability program targeted to manage these outages is the three-year, cycle-based tree clearance program. The most recent cycle was completed in 2009, and is scheduled next for completion in 2012. In addition, a Circuit Ownership Program was in effect in 2011, whereby circuits are patrolled by 'circuit owners' who identify and address circuit issues that will help to improve performance. This effort, along with the other service reliability programs that the Company implements, as are discussed later in this Report, are designed to target circuit equipment and conditions that will result in performance improvements.

The distribution inspection and maintenance goals/objectives and capital expenses, are listed starting on Page 8 of this Report. Pike 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 Eve	n	ts
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		Time	Duration	Customers	Cust Min of
Date	Cause		(minutes)	Affected	Interruption
2/11/2011	Equipment Failure	2:03	546	2,512	311,334
2/25/2011	Equipment Failure	6:41	134	2,278	305,252
6/9/2011	Storm - Wind & Rain	16:41	189	3,675	307,758
7/3/2011	Storm - Lightning	4:34	215	2,505	324,197
7/8/2011	Equipment Failure	23:41	291	2,505	697,635
8/16/2011 N	Motor Vehicle Accident	23:44	43	2,266	97,438
8/28/2011	Hurricane Irene	2:15	9,886	4,366	10,156,038
Total				20,107	12,199,652

#### February 11, 2011 Equipment Failure

This event was due to a condition where a phase of primary wire came off its insulator. As a result, a mainline section of primary failed, resulting in the loss of service to 2,512 customers. The initiating event occurred on a mainline section of L7-6-34.

#### February 25, 2011 Equipment Failure

This incident occurred during a heavy rain storm and was due to a condition where an insulator failed, resulting in the primary conductor contacting the cross arm. As a result a mainline recloser locked out on L7-6-34 causing the interruption of service to 2,278 customers.

#### June 9, 2011 Storm

This event was the result of a strong line of thunderstorms accompanied by wind, lightning and heavy rain. As these storms passed through the service territory a limb was blown from outside the vegetation clearance zone landing on a section of conductors on circuit L7-6-34. The limb caused the center phase of L7-6-34 to burn down and fall onto circuit 104-3-13 resulting in the loss of service to 3.675 customers.

#### July 3, 2011 Storm

This incident was the result of a storm accompanied by heavy rain and lightning. A lightning strike to L7-6-34 caused a primary phase to burn down and interrupt service to 2,505 customers. There were 1,141 customers interrupted due to the initial lightning strike and 1,364 customers were interrupted in order to make repairs.

#### July 8, 2011 Equipment Failure

This event was the result of a failed insulator on the mainline section of L7-6-34. The weather was calm at the time of the failure, however, heavy rain and thunderstorms passed through the area earlier in the day. There were 2,505 customers interrupted for 11,627.25 customer hours of interruption.

#### August 16, 2011 Motor Vehicle Accident

This event was the result of a motor vehicle striking a utility pole, splitting it in half. The pole was located on a mainline section of circuit L7-6-34 and required replacement. In order to transfer the conductors to the new pole a 0.72 hour interruption was required affecting 2,266 customers.

#### August 28, 2011 Hurricane Irene

On August 28, 2011 interruptions began to be reported throughout the PCL&P service territory as a result of heavy rain and windy conditions from the remnants of Hurricane Irene. A total of 4,366 customers were affected for 169,267.30 customer hours of interruption. All interruptions were the result of tree contact with the overhead electric distribution facilities.

#### October 29, 2011 Snowstorm (Denied Exclusion Request)

In addition to these seven Major Events, one other incident that occurred on October 29, 2011 was submitted for the PAPUC's review as a Major Event. This was a major snowstorm, requiring the activation of the Company's storm center from October 29 through November 6, 2011. As noted above, this was a major snowstorm which impacted the Northeast and the Company's service territory in particular. It should be noted that all interruptions in the Company's New York and New Jersey service territories were excluded for this major storm event. This storm was the worst in the Company's history.

The denial of this exclusion request for the outages on October 29 to November 1 will significantly skew Pike's proper and representative performance for its Restoration (CAIDI) and Duration (SAIDI) goals that the PAPUC measures reliability performance by, and holds the Company accountable for. In fact, the denial of the outages from October 29 to November 1 will result in Pike failing to meet the 12-month CAIDI goal for 2011 and, most likely, the three-year goals for the next three years. Through March 2012, the rolling 12-month CAIDI will increase to 297 minutes from 208 minutes, well above the Company's Standard of 235 minutes. The three-year rolling CAIDI will increase from 214 minutes to 247 minutes, 55 minutes above the Standard. The outages which occurred from October 29 to November 1 were caused by the same storm which in its entirety affected more than 57% of the entire Orange and Rockland System customer base. In light of these circumstances, this event should have been excluded.

**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, and 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 2009 - 2011

Year	SAIFI	CAIDI	SAIDI	Average Number of Customers Served	Number of Interruptions	Customers Affected	Customer Minutes of Interruption
2009	0.60	178	106	4,469	56	2,666	475,501
2010	0.60	255	153	4,477	63	2,685	685,799
2011	0.73	297	216	4,491	71	3,268	969,660

MAIFI data is not presently available.

§ 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				
	Number of	Percent of	Customers	Customer Min	
Cause	Interruptions	Interruptions	Affected	of Interruption	
<b>.</b>		7.040/	605	52.054	
Animal	5	7.04%	625	,	
Tree	43	60.56%	1,676	741,880	
Overload	0	0.00%	0	0	
Work Error	0	0.00%	0	0	
Equipment Failure	10	14.08%	427	46,313	
Non-Company Acc	2	2.82%	54	7,523	
Customer Problem	0	0.00%	0	0	
Lightning	6	8.45%	219	82,028	
None Found/Other	5	7.04%	267	37,962	
TOTAL	71		3,268	969,660	

As noted in the above table, the primary cause of interruptions in 2011 was from 'tree contacts'. In 2006, the Company moved to a more frequent three-year tree trimming cycle which represents an aggressive approach to address these types of interruptions. The trees in the Pike service territory were last trimmed in 2009; a full cycle trimming is scheduled for completion in 2012. Spot trimming also takes place as needed and where problem areas are identified. Ground to sky trimming was performed during 2010 along the Route 209 corridor in Westfall between Matamoras and Milford on circuit L7-6-34. This area has been problematic for the L7-6-34 circuit where pine trees have interfered with the circuit and have caused many outages over the years. This area was cleared of danger trees and the ROW cleared of vegetation that had the potential of affecting the circuit. Tree issues are also reported and addressed during the Circuit Ownership circuit patrols.

An implementation plan is currently underway to develop a parallel feed for L7-6-34. This plan will allow the establishment of an alternate feed into the Borough of Milford reducing the exposure on L7-6-34 and allow more timely restoration efforts.

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

Pursuant to Pike's exemption as set forth in §57.195(c), and as discussed above, Pike is not required to address this subsection.

§ 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

For distribution goals and objectives, the Company focused on completing all scheduled preventive maintenance. As set forth below, these goals were met. Pike has no transmission facilities.

#### Distribution Tree Trimming

Trimming was completed on all Pike distribution circuits in 2009, spot trimming and danger tree removal were performed during 2011 in areas identified as deficient. Cycle trimming began at the end of 2011 and will be completed in the first quarter of 2012.

#### Infrared Inspection Program

The 2011 program included inspecting all three-phase circuitry, and this was completed as planned.

#### Power Quality

The 2011 maintenance program required inspection of 11 capacitors and five regulators. These Power Quality goals were met.

#### Mid-point Recloser / Sectionalizing Program

The 2011 maintenance program required inspection of three reclosers and one Scadamate switch. These Mid-point Recloser / Sectionalizing Program goals were met.

#### Substation Maintenance and Inspection Program

The 2011 program required completion of all inspection and maintenance requirements as listed in Appendix I for the Matamoras Substation. These Substation Maintenance and Inspection 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

O&M Accounts	2011 Budget k\$	2011 Actual k\$
580 Operation Supervision And Engineering	\$109.6	\$105.0
581 Load Dispatching	2.4	5.2
582 Station Expenses	-5.0	31.7
583 Overhead Line Expenses	62.0	9.8
584 Underground Line Expenses	7.8	4.4
585 Street Lighting	1.9	0.0
586 Meter Expenses	21.9	28.3
587 Customer Installation Expenses	0.0	1.1
588 Miscellaneous Distribution Expenses	43.6	42.4
589 Rents	0.8	0.3
592 Maintenance Station Equipment	0.0	0.0
593 Maintenance of Overhead Lines	166.4	410.4
594 Underground Line Expenses	3.2	39.4
595 Maintenance Line Transf and Dev Distribution	0.0	0.0
596 Maintenance of Street Lighting and Signal Systems	6.9	8.7
597 Maintenance of Meters	2.6	2.1
598 Maintenance Miscellaneous Plant	0.0	0.4
599 Joint use	94.8	102.9
Total Distribution	\$518.9	\$792.1

The 2011 Actual Operation and Maintenance Expenses exceeded the budgeted amounts by 53%. Item 593, Maintenance of Overhead Lines, was the major contributor and over budget due to the storm costs associated with Hurricane Irene and the October 29 snow storm. Underground line expenses also exceeded budget due to damage sustained during flooding from Hurricane Irene. These over runs were due mainly to overtime expenses incurred during the storm restoration periods.

§ 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 By FERC Account

Account Code	Capital	2011 Budget k\$	2011 Actual k\$
70-various	Electric Distribution Blankets - PA	377.50	173.70
70-various	New Business - PA	20.20	15.00
	2011 Transformers - O/H PA (Incl Contributions)	36.60	58.00
70-9735	Circuit Reliability Blanket (PARC)	10.10	0.00
70-9736	Pole Inspection Blanket (PARC)	34.80	4.60
90-various	Electric Distribution Blankets - PA	87.90	46.50
90-various	New Business - PA	14.50	7.20
90-0130	2011 Transformers U/G PA	13.70	0.00
70/73-various	Storm Construction Replacement	0.00	110.20
70-Various	Electric Meter Purchases and Installs	124.00	32.10
70-9703	New Milford Substation - PROPERTY	0.00	885.90
70-9723	Delaware Drive Roadwork	0.00	19.70
70-9727	Ground to Sky Tree Trimming 8kt (PARC)	0.00	5.90
tal Capital Budge	et	719.30	1358.80

The 2011 overall Capital Expenditures were higher than the budget by 89%. This over run was primarily the result of the purchase of property for the new Milford substation. In addition storm replacement costs of \$110,200 were incurred as a result of damage sustained during Hurricane Irene and the October 29 snow storm. Some of these expenditures were offset by the continued decrease in New Business activity as well as spending decreases in the Electric Distribution Blankets

§ 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 of improving frequency of interruption and minimizing the resultant increases in restoration (as frequency is improved), have been in effect in Pike's service territory for over ten years. In addition, the "Biennial Inspection, Maintenance, Repair and Replacement Plan" became effective on January 1, 2012. This plan along with the associated 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
   Trimming was completed on all Pike distribution circuits in 2009, and will be completed again in 2012. Spot trimming and danger tree removal are performed as conditions are identified
- Infrared Inspection Program
   In 2012, the Infrared Inspection Program will include all three-phase circuitry.
- Power Quality
   The 2012 maintenance program will require inspection of 11 capacitors and five regulators.
- Mid-point Recloser / Sectionalizing Program
   The 2012 maintenance program will require inspection of three reclosers and one Scadamate Switch.
- Substation Maintenance and Inspection Program
   The 2012 maintenance program will require the completion of all monthly and annual inspection and maintenance requirements as listed in Appendix I for the Matamoras Substation.
- Distribution Overhead Line Inspections
   Overhead lines and equipment will be inspected by ground patrol and equipment will be inspected for damage including broken insulators and conductors, equipment leaks and other abnormal conditions.
- Distribution Transformer Inspections
  All overhead transformers will be inspected during the overhead line inspection program
  and pad mount transformers will be inspected at least once every five years.

§ 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

O&M Accounts	2012 Budget k\$
580 Operation Supervision And Engineering	\$93.6
581 Load Dispatching	4.8
582 Station Expenses	61.2
583 Overhead Line Expenses	10.6
584 Underground Line Expenses	11.6
585 Street Lighting	0.0
586 Meter Expenses	12.8
587 Customer Installation Expenses	0.0
588 Miscellaneous Distribution Expenses	4.6
589 Rents	0.7
592 Maintenance Station Equipment	10.3
593 Maintenance of Overhead Lines	61.3
594 Underground Line Expenses	7.6
595 Maintenance Line Transf and Dev Distribution	
596 Maintenance of Street Lighting and Signal Systems	5.4
597 Maintenance of Meters	1.2
598 Maintenance Miscellaneous Plant	
599 Joint use	120.0
Total Distribution	\$405.7

§ 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**

Account Code	Capital'	2012 Budget k\$
70-various	Electric Distribution Blankets - PA	247.80
70-various	New Business - PA	
	2011 Transformers - O/H PA (Incl Contributions)	36.80
70-9735	Circuit Reliability Blanket (PARC)	11.10
70-9736	Pole Inspection Blanket (PARC)	42.20
90-various	Electric Distribution Blankets - PA	103.10
90-various	New Business - PA	
90-0130	2011 Transformers U/G PA	13.60
70/73-various	Storm Construction Replacement	
70-various	Electric Meter Purchases and Installs	84.30
70-9703	New Milford Substation - PROPERTY	
70-9723	Delaware Drive Roadwork	
70-9727	Ground to Sky Tree Trimming Bkt (PARC)	
tal Capital Budge	et	538.90

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

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

#### **Inspection & Maintenance Changes**

There were no significant changes to Pike's Inspection and Maintenance programs in 2011. Inspection programs in 2012 will be performed in accordance with the "Biennial Inspection, Maintenance, Repair and Replacement Plan" filed with the PAPUC.

#### Appendix I Substation Maintenance and Inspection Program

#### Item Description:

Examine individual utility substation maintenance programs to validate proper maintenance procedures and verify that maintenance is being performed. Review recent operating data to verify that no adverse trends exist.

#### Company Program:

The following details the different class inspections and maintenance programs performed by the Substation Operations Department, and their associated time cycles. Intervals vary depending on equipment type, style and maintenance history.

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

- Visual inspection of transformers and oil breakers for oil leaks, oil levels, nitrogen pressure, connections, condition of bushings and Oil Circuit Breaker ("OCB") operating mechanism.
- Visual inspection of battery banks, chargers, control board indicating lights, control house lights, yard lights.
- Visual inspection of minor equipment including Potential Transformers ("PTs"), Current Transformers ("CTs"), Capacitive Coupled Potential Devices ("CCPDs"), disconnect switches and bus connections.
- Visual inspection of all structures, fences and yard surfaces.
- Counter readings taken of OCBs, Gas Circuit Breakers ("GCBs"), 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 AND COMPRESSORS - Annually

Check for proper operation prior to winter for heaters and compressors and prior to summer for fans and 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 Two - Five Years**

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

#### **OCB TIMING** - Every Three - Ten Years

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

#### RELAY MAINTENANCE - Every Four Years, Electromechanical;

Six Years Microprocessor Based, With Self-Check.

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

#### CLASS #3 INSPECTION - Every two - five Years

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

- 1. Test oil;
- 2. TTR Test, meggar test;
- 3. Inspect all connectors, bushings;
- 4. Inspect for leaks (oil nitrogen);
- 5. Check CT connections, alarm systems on banks; and
- 6. Doble Power Factor Test.

#### Transformers With Load Tap Changers

- 7. Test Oil in LTC cabinet; and
- 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. Test Oil;
- 2. DLRO (Ductor Test) before and after;
- 3. Inspect and clean control cabinet:
- 4. Inspect and clean Pneumatic-Hydraulic or spring charged operating system; and
- 5. Operational Test.

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

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

#### 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); and
- 4. Operational Testing

### CLASS #4 INSPECTION - Various intervals (four - twelve years or as necessitated by Class #3 Inspection results) dependent 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 a Class #3.

#### Transformers With Load Tap Changer

- 5. Drain oil from LTC cabinet, inspect all contacts;
- 6. Inspect and tighten all connections;
- 7. Clean complete LTC cabinet:
- 8. Filter or replace oil; and
- 9. 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; and
- 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; and
- 6. Operational 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; and

#### 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 Substation Information System ("SIS"). OCB timing maintenance records are presently kept on a separate electronic storage system that is provided with the test equipment.

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Sender's Brian Nugent Phone 845 577-3691	Next Brisiness Days	
Company DRANGE & ROCKLAND UTILITIES	FedEx Priority Overnight Next business incurring: Friday shorments will be delivered on Monday unless SATURDAY Delivery is selected.  FedEx 2Day Second business aframoon." Thursday in selected.  FedEx 2Day Second business aframoon." Thursday in selected.  FedEx 2Day Second business aframoon." Thursday in selected.	shipments URDAY
Address 390 W ROUTE 59  Dept/RoorSuce/Room	FedEx Standard Overnight Next business afternoon.* Saturday Delivery NOT evisibable.  FedEx Express Saver That Dustiness day.* Saturday Delivery NOT evisibable.	
City SPRING VALLEY State NY ZIP 10977-5320	5 Packaging *Declared value limit 5500.	fede
2 Your Internal Billing Reference 5800001013 A10	FedEx Envelope* FedEx Pek* FedEx Tube	Other Com
Recipients Hon. Resemany Chiavetta Phone	6 Special Handling and Delivery Signature Options  SATURDAY Delivery NOT evailable for Fields Standard Openment, Fedex 70 ay A.M., or Fedex Surress Sever	1.800 GoFedEx
Company PA Roblic Utility Commission HOLD Weekday	No Signature Required Package may be left worded obtaining a signature for diskvery.    Direct Signature   Indirect Signature   Indirec	ignature sateble at recipient's some at a neighboring series for every. For verses only <i>fine</i> applies.
Address ommonwalth Keystone Dic Profesionadoress We cannot deliver to 80	Does this shipment contain dangerous goods?  One box must be checked.	63.333
Address  Use this line for the HOLD location address or for continuation of your shipping address.  Dept/floor/Suna-Roof HOLD Saturday Fetch to zoon address REQUIPED. Available ONLY for Fetch to zoon address REQUIPED. Available ONLY for Fetch 20ley to select locations.	No VSS As per exacted Shoper's Declaration Shopper's Declaration not required.  Dangerous goods (rectuding dry xet) cannot be shapped in FedEr peckaging or placed in a FedEr Express Drop Box.  Cargo Aircraft	_ x kg
City Marrisburg State PA ZIP 17120	Sender Emer redex Acct rid. or crean care into sender	Obtain recip. Acct. No.
2011 SNC. Rollah.1.1 Parant 0450035894	Acct. No. a Section Recipient Third Party Credit Card	Cash/Check
	Total Packages Total Weight Crede Card Audit	<u> </u>