

# **Orange and Rockland Utilities, Inc.**

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## **STRAY VOLTAGE TESTS And FACILITY INSPECTIONS**

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**Report on the results of stray voltage tests and facility inspections  
for the annual period ending on December 31, 2011**

**February 15, 2012**

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## **I. Background**

The New York State Public Service Commission's ("PSC" or "Commission") Electric Safety Standards issued on January 5, 2005 (Case 04-M-0159), with subsequent revisions issued on July 21, 2005 and December 15, 2008 (the "Safety Standards"), require electric utilities in New York State to test annually all of their publicly accessible transmission and distribution facilities for stray voltage and to inspect their electric facilities every five years.

This report describes Orange and Rockland Utilities, Inc.'s ("O&R") stray voltage detection program and equipment inspection program conducted in 2011.

## **II. Company Overview**

O&R is an investor-owned utility that provides electric service to approximately 219,267 customers in a service area of approximately 1,000 square miles within New York State. The Company operates an electric transmission and distribution system ("T&D") that includes 189 distribution circuits with approximately 2,915 overhead circuit miles and 1,535 conductor miles of underground cable, nearly 300 miles of transmission right of way, 39 distribution substations, 2 distribution switchyards, 6 transmission substations, 4 transmission/distribution substations, 3 transition structures and 3 transmission switchyards. The Company also owns the transmission interconnections to 11 substations for single industrial customers.

## **III. Stray Voltage Testing Program**

### **➤ Testing personnel**

O&R conducted separate stray voltage test programs for the transmission and distribution systems. Non-Company labor (i.e. contractors) was used to perform the test work within each program. Non-Company labor was selected through O&R's bid selection process.

### **➤ Equipment**

To test for stray voltage, the contractor's inspectors used HD Electric Company LV-S-5 Direct Contact Low Voltage Detectors. This HD device is an independently certified low voltage AC test probe.<sup>1</sup> These probes were used to detect AC voltage on publicly accessible, conductive equipment or apparatus.

### **➤ Training**

O&R trains the contractor personnel on the contact voltage testing and program requirements. The participants include the contractor's planners, field supervisors and

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<sup>1</sup> William J. McNulty, P.E. completed the testing and certification process for the HD Electric Company. The HD device is certified to detect AC voltage within a range of 5 volts to 600 volts.

administrative staff assigned to O&R's project. Subsequently, the contractor is required to train new personnel. Prior to the start of annual testing, all contractor personnel are required to attend a one day refresher course. The initial two day training program and refresher course include a review of:

- The PSC Safety Standards;
- Company policies and procedures;
- Personal protective equipment;
- Scope of the work for stray voltage testing;
- Completing the testing form;
- Data entry process; and
- Hand-held devices and laptop requirements (increases data entry efficiency)

➤ Stray Voltage Testing

During the annual period ending December 31, 2011, O&R conducted stray voltage testing of all of its publicly accessible transmission and distribution facilities that are capable of conducting electricity and all Company and non-Company owned metallic streetlight and traffic signal poles.

In accordance with the Safety Standards, O&R:

- a. Immediately safeguarded and /or mitigated all voltage findings  $\geq 1.0$  volt. In instances where the stray voltage finding was determined to be caused by customer-owned equipment, the area was immediately made safe and the customer or responsible person associated with the premises was notified of the unsafe condition and the need for the customer to arrange for a permanent repair. In instances where voltage findings were determined to be caused by a utility-owned facility, the area was immediately safeguarded and /or the condition was mitigated. All permanent repairs were made within 45 days, and
- b. Tested all publicly accessible structures and sidewalks within a 30 foot radius of the electric facility or streetlight where there was a stray voltage finding  $\geq 1.0$  volt.

There are 172,512<sup>2</sup> structures that comprise O&R's T&D system, metallic street light and traffic signal poles. Of the 172,512 structures, 44,325 structures did not require stray voltage testing for one or more of the following reasons:

- Wood poles that have no attached appurtenances capable of conducting electricity;

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<sup>2</sup> The Company's 2010 report cited 174,051 T&D structures. The reduction in Company structures is due to revisions in mapping O&R's transmission system. Reclassification of transmission poles with distribution under build disclosed that approximately 1,500 structures were included in both transmission and distribution system testing programs. O&R contracts separate vendors to test and inspect each system, and therefore, duplicate testing of these structures occurred.

- Wood poles with electrically conductive appurtenances that are not accessible to the public (pre-wired wood);
- The facility is enclosed in fiberglass (non-conductive materials);
- The facility is de-energized and / or
- The facility is deemed inaccessible to the public.

Inaccessible facilities include:

- a. Locked Gate/Fence – Poles behind locked gates and fences that are not accessible to the public, i.e., facilities located in fenced areas owned by other utilities, such as, Water Companies.
- b. Dangerous Grades – Poles located on cliffs and other dangerous grades are generally inaccessible to Company personnel and are approached only under urgent circumstances. The performance of stray voltage testing would constitute an unacceptable risk to the employee.
- c. Company Property – Poles located on Company property, such as substations, are accessible only to Company personnel and authorized contractors.
- d. Vaults - Structures located inside buildings. These structures are accessible only to Company and building maintenance personnel.
- e. Limited Access Highway Facilities – Structures located on highways, exit and entrance highway ramps. The performance of stray voltage testing would constitute an unacceptable risk to the employee.

In accordance with the Commission's Order Adopting Changes to Electric Standards, issued December 15, 2008 in Case 04-M-0159, O&R was not required to perform mobile testing during the period January 1, 2011 – December 31, 2011 because no city with a population of at least 50,000 is located in the Company's service area and the Company does not have an underground network system where mobile testing is effective.

#### **IV. Facility Visual Inspection Program**

O&R conducted separate visual inspection programs for the transmission and distribution systems. Contractors were used to perform the majority of the inspection work within each program.

The Safety Standards require O&R to visually inspect approximately 20% of its facilities annually, resulting in 100% inspection of its electric facilities every five years.

O&R visually inspects its distribution system on a five-year cycle, as prescribed by the Safety Standards and inspects its transmission system annually.

##### **➤ Training**

O&R trains the contractor personnel on the visual inspection program requirements. The participants include the contractor's planners, field supervisors

and administrative staff assigned to O&R's project. Subsequently, the contractor is required to train new personnel. Prior to the start of annual testing, all contractor personnel are required to attend a one day refresher course. The initial two day training program and refresher course include a review of:

- The PSC Safety Standards;
- Company policies and procedures;
- Personal protective equipment;
- Scope of the work for visual inspections;
- Completing the visual inspection form;
- Data entry process; and
- Hand-held devices and laptop requirements (Increases data entry efficiency)

➤ Inspection Findings

In accordance with the Safety Standards, O&R classifies defects found on inspection by the following severity levels to establish priority for repairs and scheduling:

- Level I – Repair as soon as possible but not longer than one week. A Level I deficiency is an actual or imminent safety hazard to the public or poses a serious and immediate threat to the delivery of power. Critical safety hazards present at the time of the inspection shall be guarded until the hazard is mitigated.
- Level II – Repair within one year. A Level II deficiency is likely to fail prior to the next inspection cycle and represents a threat to safety and / or reliability should a failure occur prior to repair.
- Level III – Repair within three years. A Level III deficiency does not present immediate safety or operational concerns and would likely have minimum impact on the safe and reliable delivery of power if it does fail prior to repair.
- Level IV – Condition found but repairs not needed at this time. Level IV is used to track atypical conditions that do not require repair within a five year timeframe. This level should be used for future monitoring purposes and planning proactive maintenance activities.

Appendix 4, Summary of Deficiencies and Repair Activity Resulting from the Inspection Process, contains the following information:

- Deficiencies found,
- Permanent repair actions taken by year,
- Whether the repair was completed within the required timeframe,
- And the number of deficiencies awaiting repair.

The information is provided on a yearly basis by priority level and by equipment groupings.

**V. Stray Voltage Testing and Inspection Program Facilities**

- Structure Categories – O&R's T&D system contains 170,511<sup>3</sup> T&D structures that require inspection. The remaining 2,001 structures are non-Company owned street lights and traffic signals. These facilities are broken down into the following four main categories:
- Distribution Overhead – There are 133,769 distribution pole structures in O&R's territory. These distribution overhead facilities are included in both the stray voltage and inspection programs. The stray voltage testing criteria include all publicly accessible utility-owned or joint-use wooden poles with utility electrical facilities located on public thoroughfares or customer property, including backyards or alleys. Stray voltage tests are performed on all wooden poles with metallic attachments such as ground wires, ground rods, anchor guy wires, riser pipes, or any electrical equipment within reach of the general public.
- Underground Facilities – There are 29,522 underground facilities in O&R's system. These facilities are included in both the stray voltage (with the exception of fiberglass hand hole covers) and facility inspection programs. The stray voltage testing criteria include subsurface structures and above ground, pad-mounted structures. Included in the subsurface structures are electric utility manhole covers, submersible transformer covers and electric utility hand hole covers. Included in the above ground structures are pad mount switchgear enclosures and transformers.
- Street Lights and Traffic Signals – O&R owns 549 metallic street light poles that are included in the company's population of T&D structures. In addition, 1,493 metallic street light poles and 508 metallic traffic signal poles within O&R's service territory are owned by various municipalities. All Company-owned streetlights are included in the facility inspection program. All metallic street light and traffic signal poles are included in O&R's stray voltage testing program. Privately owned street lighting is not included in the stray voltage testing program, as per the Safety Standards. The stray voltage testing criteria include all metallic street light poles, traffic signals, and pedestrian crosswalk signals located on publicly accessible thoroughfares. The large majority of street lights in O&R's service area are mounted on wooden poles, and do not require stray voltage testing because their electrically conductive surfaces are not accessible to the public. All stray voltage testing of street lights is performed at night while the fixtures are energized.
- Substation Fences and Transmission Structures – There are 68 substation fences and 6,603 individual poles and towers that comprise O&R's overhead transmission system. Transmission structures support circuit voltages of 34.5 kilovolts and greater.

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<sup>3</sup> Of the 172,512 structures that require testing, 170,511 are Company owned. The remaining 2,001 structures are non-Company owned street lights and traffic signals and do not require inspection.

Transmission poles with distribution under build are included in this transmission category. All transmission structures are included in both the stray voltage testing and facility inspection programs. The stray voltage testing criteria includes all structures, guys, and down leads attached to the structures.

## **VI. Annual Performance Targets**

O&R performed the required stray voltage testing and facility inspections in accordance with the requirements and performance mechanism targets set forth in the Safety Standards.

In compliance with the Safety Standards, O&R has met the annual performance target for stray voltage testing of 100% of its publicly accessible electric facilities and street lights and traffic signals for the annual period ending December 31, 2011. The structures tested and testing results are stated in Appendix 1, Stray Voltage Testing Summary, of this report.

In compliance with the Safety Standards, O&R has met the performance target for inspection of 20% of its electric facilities for the annual period ending December 31, 2011. The results are summarized in the below tables.

### **Inspection Performance Summary**

#### **170,511 Total O&R Transmission and Distribution Structures**

<b>Inspection Year</b>	<b>Number of Transmission and Distribution Structures Inspected in 2011</b>	<b>% of Transmission and Distribution Structures Inspected in 2011</b>	<b>Cumulative % of Transmission and Distribution Structures Inspected During 5-Year Cycle 2010 – 2014</b>
<b>2011</b>	<b>44,977</b>	<b>26%</b>	<b>52%</b>

#### **133,769 Total Overhead Distribution Structures**

<b>Inspection Year</b>	<b>Number of Overhead Distribution Structures Inspected in 2011</b>	<b>% of Overhead Distribution Structures Inspected in 2011</b>	<b>Cumulative % of Overhead Distribution Structures Inspected During 5-Year Cycle 2010 – 2014</b>
<b>2011</b>	<b>32,196</b>	<b>24%</b>	<b>47%</b>



**6,671 Total Overhead Transmission Structures**

Inspection Year	Number of Overhead Transmission Structures Inspected in 2011	% of Overhead Transmission Structures Inspected in 2011	Cumulative % of Transmission Structures Inspected During 5-Year Cycle 2010 – 2014
2011 <sup>4</sup>	6,671 <sup>5</sup>	100%	200%

**14,601 Total Underground Structures**

Inspection Year	Number of Subsurface Structures Inspected	% of Subsurface Structures Inspected in 2011	Cumulative % of Subsurface Structures Inspected During 5-Year Cycle 2010 – 2014
2011	686 <sup>6</sup>	5%	9%

**14,921 Total Pad Mount Transformers**

Inspection Year	Number of Pad-mounted Equipment Inspected	% of Pad-mounted Equipment Inspected in 2011	Cumulative % of Pad-mounted Equipment Inspected During 5-Year Cycle 2010 - 2014
2011	5,303	36%	71%

**549 Total O&R Street Lights<sup>7</sup>**

Inspection Year	Number of Street Lights Inspected	% of Street Lights Inspected in 2011	Cumulative % of Street lights inspected during 5-Year Cycle 2010 – 2014
2011	121	22%	22%

## **VII. Certifications**

Pursuant to Section 7 of the Safety Standards, the president or officer of each utility with direct responsibility for overseeing stray voltage testing and facility inspections shall provide an annual certification to the Commission that the utility has, to the best of his or her knowledge, exercised due diligence in carrying out a plan, including quality

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<sup>4</sup> O&R visually inspects the transmission system annually.

<sup>5</sup> The total includes 68 substation fences.

<sup>6</sup> The majority of O&R subsurface facilities are hand holes. O&R visually inspected the majority of the hand holes in 2009. The hand holes are due for re-inspection in 2014.

<sup>7</sup> O&R does not own traffic signals. Of the 2,042 street lights, 1,493 are non-Company owned.

assurance, that is designed to meet the stray voltage testing and inspection requirements, and that the utility has:

- Tested all of its publicly accessible electric facilities and street lights, as referred to in the body of the February 15th Report, and
- Inspected the requisite number of electric facilities.

The certifications are attached as Exhibit 1 of this report.

### **VIII. Results of Stray Voltage Tests and Causes of Findings of Stray Voltage**

Of the 172,512 electrical structures that comprise O&R's T&D system and non-Company owned equipment, 128,187 stray voltage tests were performed as part of its stray voltage-testing program in its service territory for 2011. The balance of electrical structures were not tested because the facilities are not accessible to the public or are fiberglass structures and wood poles that do not have metal-attached appurtenances capable of conducting electricity.

The chart below describes all Findings  $\geq 1.0$  volt identified and mitigated.<sup>8</sup>

<b><i>Structure Type</i></b>	<b><i>Cause of Voltage</i></b>	<b><i>Voltages Found <math>\geq 1</math> Volt</i></b>
Distribution Pole	Defective wiring, neutral to earth voltage and induced voltage	20
Distribution Underground	Hand hole energized by secondary wire	1
Street lights	Defective service box wires	3

Twenty voltage findings were identified on the overhead distribution system, 1 voltage finding on the underground system and 3 voltage findings on street lights. All 24 voltage findings  $\geq 1$  volt were mitigated.

Of the 24 voltage Findings  $\geq 1$  volt identified, O&R's investigation procedure determined that stray voltage was identified on 1 pole and 3 street lights. These 4 stray voltage findings were caused by defective wiring. The remaining 20 voltage findings were deemed induced or neutral to earth voltages. The list and voltage finding descriptions can be found in Appendix 2, Summary of Energized Objects, of the report.

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<sup>8</sup> Section 1(f) of the Safety Standards defines a Finding as "[a]ny confirmed voltage reading on an electric facility or streetlight greater than or equal to 1 volt measured using a volt meter and 500 ohm shunt resistor." Section 1(c) defines Stray Voltage as "[v]oltage conditions on electric facilities that should not ordinarily exist. These conditions may be due to one or more factors, including, but not limited to, damaged cables, deteriorated, frayed, or missing insulation, improper maintenance, or improper installation."

With such a small population of stray voltage cases, there are no major trends to analyze or root causes to address.

In accordance with the Safety Standards, when a finding was discovered on an electric facility or streetlight during stray voltage testing, the Company stray voltage tested all publicly accessible structures and sidewalks within a minimum 30 foot radius of the electric facility or streetlight. Of the 24 findings, no near-by structures were identified with voltage.

## **IX. Inspections Results and Analysis**

Of the 170,209 electrical structures that comprise O&R's T&D system, 44,977 (26%) were inspected during 2011. The charts below summarize the results of these inspections.

### **Overhead Distribution Structures**

***Table of Locations with Deficiencies***

<b>Locations Inspected</b>	<b>Locations w/ Deficiencies</b>	<b>% Locations w/ Deficiencies</b>
32,196	3,214	10%

### ***Breakdown of Deficiencies***

<b>Priority Rating</b>	<b>Number of Deficiencies</b>	<b>% Deficiencies Found</b>
1	2	0.05%
2	214	6%
3	487	13%
4	3,179	82%
Total	3,882	100%

### **Overhead Transmission Structures**

***Table of Locations with Deficiencies***

<b>Locations Inspected</b>	<b>Locations w/ Deficiencies</b>	<b>% Locations w/ Deficiencies</b>
6,671	2,482	37%

### ***Breakdown of Deficiencies***

<b>Priority Rating</b>	<b>Number of Deficiencies</b>	<b>% Deficiencies Found</b>
1	0	0
2	3	0.08%
3	329	9%
4	3,303	91%
Total	3,635	100%

**Underground Facilities**

***Table of Locations with Deficiencies***

<b>Locations Inspected</b>	<b>Locations w/ Deficiencies</b>	<b>% Locations w/ Deficiencies</b>
686	13	2%

***Breakdown of Deficiencies***

<b>Priority Rating</b>	<b>Number of Deficiencies</b>	<b>% Deficiencies Found</b>
1	23	74%
2	0	0%
3	8	26%
4	0	0%
Total	31	0%

**Pad-mount Transformers**

***Table of Locations with Deficiencies***

<b>Locations Inspected</b>	<b>Locations w/ Deficiencies</b>	<b>% Locations w/ Deficiencies</b>
5,303	52	1%

***Breakdown of Deficiencies***

<b>Priority Rating</b>	<b>Number of Deficiencies</b>	<b>% Deficiencies Found</b>
1	45	70%
2	6	9%
3	1	2%
4	12	19%
Total	64	100%

**Streetlights**

***Table of Locations with Deficiencies***

<b>Locations Inspected</b>	<b>Locations w/ Deficiencies</b>	<b>% Locations w/ Deficiencies</b>
121	0	0%

***Breakdown of Deficiencies***

<b>Priority Rating</b>	<b>Number of Deficiencies</b>	<b>% Deficiencies Found</b>
1	0	0%
2	0	0%
3	0	0%
4	0	0%
*Total	0	0%

➤ Priority 1 Conditions

In 2011, O&R visually inspected 44,977 structures and identified 70 Priority 1 conditions. The two Priority 1 conditions identified on the overhead system were a primary conductor off the pin insulator and a leaking transformer. The 68 Priority 1 conditions identified on the underground system were primarily pad mount transformers dislocated from their base, units with corroded exteriors, damaged locking equipment and cracked hand hole covers. No Priority 1 conditions were identified on the transmission system.

The small population of Priority 1 conditions on the overhead and transmission systems reflects O&R's successful and continuing evaluation and maintenance of its T&D systems through circuit reliability initiatives, the vegetation management program, and equipment maintenance programs.

➤ Priority 2 Conditions

In 2011, 223 Priority 2 conditions were identified on the T&D system. Three were identified on the transmission system and 220 on the distribution system. The 3 conditions on the transmission system are woodpecker holes, a defective cross arm and defective pole. Of the 220 Priority 2 distribution system conditions, the majority is rungs on poles located below 8'-0" and the remaining conditions are tree trimming issues, top support, conductor conditions, and damaged equipment, such as, broken guy wires, grounds and damaged covers.

➤ Priority 3 Conditions

In 2011, 825 Priority 3 conditions were identified on the T&D system. Approximately 329 were identified on the transmission system and the remaining on the distribution system. The majority of the Priority 3 conditions on the transmission system are woodpecker and insect damage and the remaining conditions pertain to pole conditions, grounding, vegetation/right-of-way conditions and anchors/guy wires. Of the 496 Priority 3 conditions identified on the distribution system the majority are grounding conditions, and the remaining pertain to anchors and guy wires not connected to the neutral wires, defective top supports, conductors, insulators, risers, lightening arrestors and damaged covers.

In an effort to reduce the Priority 2 and Priority 3 conditions, O&R continues to review and revise its construction standards and specifications. O&R continuously seeks methods to improve quality assurance and control to ensure that new construction is built to specification and NESC compliance. O&R's future distribution line upgrades, capital improvements and defective pole replacement program should result in a reduction in the number of Priority 2 and Priority 3 conditions during future inspection cycles.

## **X. Quality Assurance and Quality Control**

O&R's Quality Assurance and Compliance Department is responsible for the implementation of the Company's Electric Quality Assurance Program ("Electric QA Program"). In addition to assuring compliance with the requirements of the Safety Standards, the Company's Electric QA Program is designed to promote the health and safety of the public, the reliable and economical operation of the Company's electric system, compliance with applicable electric codes and regulations, and utilization of Company resources in an efficient manner.

The O&R Electric QA Program also includes a Corrective Action Documentation and Trending procedure.<sup>9</sup> The purpose of this procedure is to define the process by which Quality Assurance and Compliance maintains a corrective action database and trends discrepancies identified by the Electric QA Program. O&R personnel implementing the Electric QA Program are independent from the Electric Operations and Electric Engineering Groups and the Company personnel responsible for the implementation of the Stray Voltage Testing and Visual Inspection Programs.

Quality Assurance personnel ("QA") conducted a review of the Stray Voltage Testing and Visual Inspection programs from January 2011 to December 2011. QA performed stray voltage testing and visual inspection on a selective sample of previously tested and inspected Company and municipal streetlights, overhead and underground distribution facilities and transmission structures to ensure testing and inspection of equipment and the accuracy of data and records. QA conducted announced and unannounced field observations of field personnel to verify that tests were performed on all required structures. QA found the testing and inspections effectively performed and producing results consistent with the programs' objectives.

### **2011 Quality Assurance and Quality Control Results**

The Company's Quality Assurance Program ("QA Program") selectively sampled and retested 969 distribution and overhead transmission structures. This statistically significant sample size exceeds the 800 units required by the latest version of ANSI Z1.4 (MIL-STD-105D) for the determination of a normal sample size for a unit population of 150,001 to 500,000. The sample selection was distributed across the various structure types.

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<sup>9</sup> Details on the O&R Electric QA Program and the Corrective Action Documentation were included with the Company's February 18, 2005 filing with the Commission in Case 04-M-0159.

### **969 Structures Sampled**

<b>Category</b>	<b>Number of Structures Sampled</b>	<b>Percentage of Sample Size</b>
Overhead Distribution	351	36%
Underground Distribution	169	17%
Street Lights/Traffic Signals	321	13%
Substation Fences	14	1%
Overhead Transmission	114	12%
Total	969	100%

Of the 969 structures selected, Quality Assurance identified no stray voltage conditions during retesting and the re-inspections verified the visual inspection results reported by the contractor.

## **XI. Other Pertinent Information**

### **➤ Reports from the Public**

For 2011, O&R received 25 reports from customers regarding a stray voltage or shock hazard. In compliance with the Safety Standards, O&R responded, investigated and mitigated positive findings of shock incidents reported by the public.

Of the 25 incidents that were reported to O&R, 10 cases were substantiated and 15 incidents proved to be unsubstantiated. Of the 10 substantiated cases, 7 were attributable to O&R system equipment and 3 were due to non-Company equipment.

Of the 7 cases attributable to O&R system equipment, 6 were on the overhead system and 1 on the underground system. One defect pertained to a primary wire, 3 to service wires, 1 to a street light wire and the remaining 2 were related to grounding issues. The 3 cases attributable to other parties were a result of faulty customer-owned equipment/wiring, contractor damage and municipal owned equipment damaged during Hurricane Irene.

### **➤ Stray Voltage Initiatives**

O&R has worked and communicated with the PSC staff on issues attendant with the implementation of the Safety Standards. O&R continues to participate in joint meetings with the other New York utilities and PSC staff to seek best practices, employ lessons learned, and ensure a high degree of consistency in the implementation of the Safety Standards requirements.

➤ Temporary Repairs

In accordance with the Safety Standards, when a temporary repair is located during inspection or performed by the Company, best efforts are put forth to make a permanent repair of the facility within 90 days. Temporary repairs that remain on the system for more than 90 days are generally due to extraordinary circumstances, e.g. storms that require extensive repair activity, equipment outage not available, or customer work required. The Company has compiled a list of exceptions of temporary repairs that have remained in place longer than 90 days. The list and justifications can be found in Appendix 5, Temporary Repairs, of this report.

➤ Electric Inspection Management System (“EIMS”)

EIMS was developed collaboratively by O&R’s Stray Voltage Program management and O&R’s Information Technology Department, and is a data management tool designed to accept and retain the distribution system stray voltage tests, inspections and follow-up mitigation work. EIMS is the central data management warehouse for all distribution inspection and maintenance programs. During 2011, additional enhancements were developed, bringing greater functionality to the system.



## Appendix 1

### Stray Voltage Testing Summary

Orange & Rockland Utilities, Inc. Data as of 12/31/11	Total System Units Requiring Testing	Units Completed	Percent Completed	Units with Voltage Found ( $\geq$ 1.0v)	Percent of Units Tested with Voltage ( $\geq$ 1.0v )	*Units Classified as Inaccessible
Distribution Facilities	101,121	101,121	100.00%	20	0.02%	1,481
Underground Facilities	17,871	17,871	100.00%	1	0.01%	77
Street Lights / Traffic Signals	2,550	2,550	100.00%	3	0.12%	0
Substation Fences	68	68	100.00%	0	0.000%	0
Transmission	6,577	6,577	100.00%	0	0.000%	0
TOTAL	128,187	128,187	100.00%	24	0.02%	1,558

*\*Note: Structures classified as inaccessible are defined on page 5, of this Report.*

## Appendix 2

### Summary of Energized Objects

	Initial Readings			Readings after Mitigation			
	1-4.4V	4.5-24.9V	>25V	Totals	<1V	1V-4.4V	>4.5V
<b>Distribution Facilities</b>	10	9	1	20	19	1	
Pole							
Ground		6		6	6		
Guy	6	2		8	8		
Riser	2	1	1	4	4		
Other	2			2	1	1	
<b>Underground Facilities</b>	1			1	1		
Service Box							
Manhole							
Padmount Switchgear							
Padmount Transformer							
Vault-Cover/Door							
Pedestal							
Other (Handhole)	1			1	1		
<b>Street Lights / Traffic Signals</b>	1	1	1	3	3		
Metal Street Light Pole		1	1	2	2		
Traffic Signal Pole							
Control Box	1			1	1		
Pedestrian Crossing Pole							
Other							
<b>Substation Fences</b>							
Fence							
Other							
<b>Transmission (Total)</b>							
Lattice Tower							
Pole							
Ground							
Guy							
Other							
<b>Miscellaneous Facilities</b>							
Sidewalk							
Gate/Fence/Awning							
Traffic Sign							
Scaffolding							
Bus Shelter							
Fire Hydrant							
Phone Booth							
Traffic Control Box							
Water Pipe							
Riser							
Other							

\*3rd quarter report reported one "Pole" 4.5-24.9V. This was a public finding and not part of contractor tested. Finding deducted

\*3rd quarter report reported one "Pole" 1-4.4V. This was a public finding and not part of contractor tested. Finding deducted

\*3rd quarter report reported one "Other" as 4.5-24.9V. The actual voltage was under 4.4v and has been moved to the correct column.

### Appendix 3

#### Summary of Shock Reports from the Public

<b>Orange and Rockland Utilities, Inc. January 1, 2011 – December 31, 2011</b>	<b>Quarterly Update</b>	<b>Yearly Total</b>
<b>I. Total Shock calls received:</b>	<b>5</b>	<b>25</b>
Unsubstantiated	4	15
Normally Energized Equipment	1	10
<b>Stray Voltage:</b>	<b>1</b>	<b>10</b>
<b>Utility Responsibility (Total)</b>	<b>1</b>	<b>7</b>
Person	1	7
Animal		
<b>Customer Responsibility (Total)</b>		<b>2</b>
Person		2
Animal		
<b>Other Utility/Gov't Agency (Total)</b>		<b>1</b>
Person		1
Animal		
<b>II. Injuries Sustained/Medical Attention Received</b>		<b>1</b>
Person		1
Animal		
<b>III. Voltage Source: Stray Voltage Total</b>	<b>1</b>	<b>10</b>
<b>Utility Responsibility (Total)</b>	<b>1</b>	<b>7</b>
Issue with primary, joint, or transformer	1	1
Secondary joint (Crab)		
SL service Line		1
Abandoned SL service line		
Defective service line		
Abandoned service line		
OH Secondary		
OH Service		3
OH Service neutral		
Pole		2
Riser		
<b>Customer Responsibility (Total)</b>		<b>2</b>
Contractor damage		1
Customer equipment/wiring		1
<b>Other Utility/Gov't Agency (Total)</b>		<b>1</b>
SL Base Connection		
SL Internal wiring or light fixture		
Overhead equipment		1
<b>IV. Voltage Range</b>	<b>1</b>	<b>10</b>
1.0V to 4.4V		
4.5V to 24.9V		3
25V and above	1	3
No Reading		4

## Appendix 4

### Distribution

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process – Distribution															
As of 12/31/11															
Overhead Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Poles															
Pole Condition															
Number of Deficiencies	7	531	3	-	535	-	-	156	-	-	-	-	-	-	-
Repaired in Time Frame	7	284			517										
Repaired - Overdue		247			18										
Not Repaired - Not Due			3					156							
Not Repaired - Overdue															
Grounding System															
Number of Deficiencies	-	-	177	-	-	163	-	-	258	-	-	-	-	-	-
Repaired in Time Frame			80			7			57						
Repaired - Overdue															
Not Repaired - Not Due			97			156			201						
Not Repaired - Overdue															
Anchors/Guy Wire															
Number of Deficiencies	-	7	6,890	-	-	10,545	-	3	126	-	-	-	-	-	-

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process – Distribution															
As of 12/31/11															
Overhead Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Poles															
<b>Anchors/Guy Wire (Cont)</b>															
Repaired in Time Frame		7	5,170			227		3	5						
Repaired - Overdue															
Not Repaired - Not Due			1,720			10,318			121						
Not Repaired - Overdue															
<b>Cross Arm/Bracing</b>															
Number of Deficiencies	2	3		-	20	55	0	3	12	-	-	-	-	-	-
Repaired in Time Frame	2	3			17	5	0	1							
Repaired - Overdue															
Not Repaired - Not Due					3	50		2	12						
Not Repaired - Overdue															
<b>Riser</b>															
Number of Deficiencies	-	-	30	-	-	15	-	-	6	-	-	-	-	-	-
Repaired in Time Frame						1									
Repaired - Overdue															
Not Repaired - Not Due			30			14			6						
Not Repaired - Overdue															

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process – Distribution															
As of 12/31/11															
Overhead Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Conductors															
Primary Wire/Broken Ties															
Number of Deficiencies	4	4	211	1	20	310	1	1	27	-	-	-	-	-	-
Repaired in Time Frame	4	4	2	1	18	8	1	1							
Repaired - Overdue															
Not Repaired - Not Due			209		2	302			27						
Not Repaired - Overdue															
Secondary Wire															
Number of Deficiencies	6	-	13	-	-	95	-	1	1	-	-	-	-	-	-
Repaired in Time Frame	6					2		1							
Repaired - Overdue															
Not Repaired - Not Due			13			93			1						
Not Repaired - Overdue															
Neutral															
Number of Deficiencies	-	-	1	-		-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due			1												

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process – Distribution															
As of 12/31/11															
Overhead Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Conductors															
Neutral (Cont)															
Not Repaired - Overdue															
Insulators															
Number of Deficiencies	-	-		-	1	23	-	-	16	-	-	-	-	-	-
Repaired in Time Frame					1										
Repaired - Overdue															
Not Repaired - Not Due						23			16						
Not Repaired - Overdue															
Pole Equipment															
Transformers															
Number of Deficiencies	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-
Repaired in Time Frame	1			1			1								
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Cutouts															
Number of Deficiencies	-	5	-	-		-	-	6	-	-	-	-	-	-	-
Repaired in Time Frame		5													

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process – Distribution															
As of 12/31/11															
Overhead Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Pole Equipment															
<b>Cutouts (Cont)</b>															
Not Repaired - Not Due								6							
Not Repaired - Overdue															
<b>Lightning Arrestors</b>															
Number of Deficiencies	-	-	23	-	-	31	-	-	3	-	-	-	-	-	-
Repaired in Time Frame						1									
Repaired - Overdue															
Not Repaired - Not Due			23			30			3						
Not Repaired - Overdue															
<b>Other Equipment</b>															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															



Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process – Distribution															
As of 12/31/11															
Overhead Facilities		2009			2010			2011			2012			2013	
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Miscellaneous															
Trimming Related															
Number of Deficiencies	3	67	39	-	181	63	-	44	38	-	-	-	-	-	-
Repaired in Time Frame	3	46	9		180	12		14							
Repaired - Overdue		21													
Not Repaired - Not Due			30		1	51		30	38						
Not Repaired - Overdue															
Other															
Number of Deficiencies	-	-	245	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due			245												
Not Repaired - Overdue															

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Distribution															
As of 12/31/11															
Overhead Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Overhead Facilities Total															
Total															
Number of Deficiencies	23	617	7,632	2	757	11,300	2	214	487	-	-	-	-	-	-
Repaired in Time Frame	23	349	5,261	2	733	263	2	17	62	-	-	-	-	-	-
Repaired - Overdue	-	268	-	-	18	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	2,371	-	-	11,037	-	197	425	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-

# Transmission

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Transmission															
As of 12/31/11															
Transmission Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Towers / Poles															
Steel Towers															
Number of Deficiencies	-	-	87	-	-	73	-	-	12	-	-	-	-	-	-
Repaired in Time Frame			20												
Repaired - Overdue															
Not Repaired - Not Due			67			73			12						
Not Repaired - Overdue															
Poles															
Number of Deficiencies	-	80	2,547	-	20	1,216	-	2	173	-	-	-	-	-	-
Repaired in Time Frame		24	1,027		5	199			15						
Repaired - Overdue		24													
Not Repaired - Not Due			1,520		15	1,017		2	158						
Not Repaired - Overdue		32	4												
Anchors/Guy Wire															
Number of Deficiencies	-	-	35	-	-	10	-	-	11	-	-	-	-	-	-
Repaired in Time Frame			11			4			1						
Repaired - Overdue															

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Transmission															
As of 12/31/11															
Transmission Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Towers / Poles															
Anchors/Guy Wire (Cont)															
Not Repaired - Not Due			24			6			10						
Not Repaired - Overdue															
Crossarm/Brace															
Number of Deficiencies	-	6	392	-	1	76	-	1	19	-	-	-	-	-	-
Repaired in Time Frame		2	73		1	11		1	2						
Repaired - Overdue		1													
Not Repaired - Not Due			319			65			17						
Not Repaired - Overdue		3													
Grounding System															
Number of Deficiencies	-	7	23	-	2	33	-	-	26	-	-	-	-	-	-
Repaired in Time Frame			9		1	10			1						
Repaired - Overdue		4			1										
Not Repaired - Not Due			14			23			25						
Not Repaired - Overdue		3													

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Transmission															
As of 12/31/11															
Transmission Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Conductors															
<b>Cable</b>															
Number of Deficiencies	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Repaired in Time Frame						1									
Repaired - Overdue															
Not Repaired - Not Due						1									
Not Repaired - Overdue															
<b>Static/Neutral</b>															
Number of Deficiencies	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame		1													
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
<b>Insulators</b>															
Number of Deficiencies	-	3	31	-	-	11	-	-	2	-	-	-	-	-	-
Repaired in Time Frame		3	6			1									
Repaired - Overdue															
Not Repaired - Not Due			25			10			2						

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Transmission															
As of 12/31/11															
Transmission Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Conductors															
Insulators(Cont)															
Not Repaired - Overdue															
Miscellaneous															
Right of Way Condition															
Number of Deficiencies	-	8	439	-	-	144	-	-	86	-	-	-	-	-	-
Repaired in Time Frame		1	331			89			2						
Repaired - Overdue		4													
Not Repaired - Not Due			108			55			84						
Not Repaired - Overdue		3													
Other															
Number of Deficiencies	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue	3														
Not Repaired - Not Due			1												
Not Repaired - Overdue															

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Transmission															
As of 12/31/11															
Transmission Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Transmission Facilities Total															
Total															
Number of Deficiencies	3	105	3,555	-	23	1,565	-	3	329	-	-	-	-	-	-
Repaired in Time Frame	-	31	1,477	-	7	315	-	1	21	-	-	-	-	-	-
Repaired - Overdue	3	33	-	-	1	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	2,078	-	-	1,250	-	2	308	-	-	-	-	-	-
Not Repaired - Overdue	-	41	0	-	15	-	-	-	-	-	-	-	-	-	-

# Underground

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Underground															
As of 12/31/11															
Underground Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Underground Structures															
Damaged Cover															
Number of Deficiencies	18	4	5	-	-	-	-	-	8	-	-	-	-	-	-
Repaired in Time Frame	18	4													
Repaired - Overdue															
Not Repaired - Not Due			5						8						
Not Repaired - Overdue															
Damaged Structure															
Number of Deficiencies	3	4	11	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	3	4													
Repaired - Overdue															
Not Repaired - 'Not Due			11												
Not Repaired - Overdue															
Congested Structure															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															



Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Underground															
As of 12/31/11															
Underground Facilities		2009			2010			2011			2012			2013	
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Underground Structures															
<b>Congested Structure (Cont)</b>															
Not Repaired - Not Due															
Not Repaired - Overdue															
<b>Damaged Equipment</b>															
Number of Deficiencies	-	-	-	-	-	-	23	-	-	-	-	-	-	-	-
Repaired in Time Frame							23								
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Conductors															
<b>Primary Cable</b>															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Underground															
As of 12/31/11															
Underground Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Conductors															
Secondary Cable															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Neutral Cable															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Racking Needed															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Underground															
As of 12/31/11															
Underground Facilities		2009			2010			2011			2012			2013	
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Conductors															
Racking Needed(Cont)															
Not Repaired - Overdue															
Miscellaneous															
Other															
Number of Deficiencies	-	2	1,132	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame		2													
Repaired - Overdue															
Not Repaired - Not Due			1,132												
Not Repaired - Overdue															

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Underground															
As of 12/31/11															
Underground Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Underground Facilities Total															
Total															
Number of Deficiencies	21	10	1,148	-	-	-	23	-	8	-	-	-	-	-	-
Repaired in Time Frame	21	10	-	-	-	-	23	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	1,148	-	-	-	-	-	8	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
The majority of Other deficiencies are access issues.															

## Pad Mount Transformers

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Pad Mount Transformers															
As of 12/31/11															
Pad Mount Transformers	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Pad Mount Transformers															
Damaged Structure															
Number of Deficiencies	60	-	-	20	-	-	2	2	-	-	-	-	-	-	-
Repaired in Time Frame	60			20			2	1							
Repaired - Overdue															
Not Repaired - Not Due								1							
Not Repaired - Overdue															
Damaged Equipment															
Number of Deficiencies	1	2	-	3	1	-	-	1	-	-	-	-	-	-	-
Repaired in Time Frame	1	2		3	1										
Repaired - Overdue															
Not Repaired - Not Due								1							
Not Repaired - Overdue															
Cable Condition															
Number of Deficiencies	-	3	-	-	-	-	3	-	-	-	-	-	-	-	-
Repaired in Time Frame		3					3								
Repaired - Overdue															

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Pad Mount Transformers															
As of 12/31/11															
Pad Mount Transformers	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Pad Mount Transformers															
<b>Cable Condition(Cont)</b>															
Not Repaired - Not Due															
Not Repaired - Overdue															
<b>Oil Leak</b>															
Number of Deficiencies	3	-	-	-	-	-	26	-	-	-	-	-	-	-	-
Repaired in Time Frame	3						26								
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
<b>Off Pad</b>															
Number of Deficiencies	67	-	-	23	-	-	11	-	-	-	-	-	-	-	-
Repaired in Time Frame	67			23			11								
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
<b>Lock/Latch/Pen</b>															
Number of Deficiencies	12	-	14	3	-	2	3	3	1	-	-	-	-	-	-
Repaired in Time Frame	12		3	3		2	3	3							
Repaired - Overdue															

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Pad Mount Transformers															
As of 12/31/11															
Pad Mount Transformers	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Pad Mount Transformers															
Lock/Latch Penta (Cont)															
Not Repaired - Not Due			11						1						
Not Repaired - Overdue															
Miscellaneous															
Other															
Number of Deficiencies	-	-	191	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame			18												
Repaired - Overdue															
Not Repaired - Not Due			173												
Not Repaired - Overdue															
Pad Mount Transformer Total															
Total															
Number of Deficiencies	143	3	205	49	1	2	45	6	1	-	-	-	-	-	-
Repaired in Time Frame	143	3	21	49	1	2	45	4	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	184	-	-	-	-	2	1	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
The majority of the Other deficiencies are access issues.															

# Street Lights

Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Streetlights															
As of 12/31/11															
Streetlights		2009			2010			2011			2012			2013	
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Street Light															
Base/Light															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Handhole/Box															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Service Internal Wiring															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															



Orange and Rockland Utilities, Inc.															
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Streetlights															
As of 12/31/11															
Streetlights		2009			2010			2011			2012			2013	
Priority Level	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Repair Expected	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years	Within 1 week	Within 1 year	Within 3 years
Street Light															
Access Cover															
Number of Deficiencies	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue			2												
Not Repaired - Not Due															
Not Repaired - Overdue															
Miscellaneous															
Other															
Number of Deficiencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Street Light Total															
Total															
Number of Deficiencies	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

## Level IV Conditions

Orange and Rockland Utilities, Inc.										
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process – Level IV Conditions										
As of 12/31/11										
Level IV Conditions	2009	2009	2010	2010	2011	2011	2012	2012	2013	2013
	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired
Overhead Facilities										
Pole Condition	6,995	-	13,638	371	3,179	433	-	-	-	-
Pole Condition	768		2,868	59	360	14				
Grounding System	2,207		3,633	180	1,685	349				
Anchors/Guy Wire	4,020		7,134	132	1,134	70				
Cross Arm/Bracing			3							
Riser										
Conductors	-	-	1	-	-	-	-	-	-	-
Primary Wire/Broken Ties										
Secondary Wire										
Neutral			1							
Insulators										
Pole Equip	-	-	-	-	-	-	-	-	-	-
Transformers										
Cutouts										
Lightning Arrestors										
Other Equipment										
Miscellaneous	-	-	-	-	-	-	-	-	-	-
Trimming Related										
Other										
Overhead Facilities Total	6,995	-	13,639	371	3,179	433	-	-	-	-
Transmission Facilities										
Towers/Poles	214	-	1,017	-	2,437	24	-	-	-	-
Steel Towers	144		189		404					
Poles	70		828		2,033	24				

<b>Orange and Rockland Utilities, Inc.</b>										
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process – Level IV Conditions										
As of 12/31/11										
Level IV Conditions	<b>2009</b>	<b>2009</b>	<b>2010</b>	<b>2010</b>	<b>2011</b>	<b>2011</b>	<b>2012</b>	<b>2012</b>	<b>2013</b>	<b>2013</b>
	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired
<b>Transmission Facilities</b>										
<b>Towers/Poles (Cont)</b>										
Grounding System										
Anchors/Guy Wire										
Crossarm/Brace										
Conductors	-	-	-	-	-	-	-	-	-	-
Cable										
Static/Neutral										
Insulators										
Miscellaneous	<b>18</b>	<b>9</b>	<b>253</b>	-	<b>866</b>	-	-	-	-	-
Right of Way Condition			13		84					
Other	18	9	240		782					
Transmission Facilities Total	<b>232</b>	<b>9</b>	<b>1,270</b>	-	<b>3,303</b>	<b>24</b>	-	-	-	-

<b>Orange and Rockland Utilities, Inc.</b>										
<b>Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Level IV Conditions</b>										
As of 12/31/11										
Level IV Conditions	2009	2009	2010	2010	2011	2011	2012	2012	2013	2013
	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired
<b>Underground Structures</b>										
Underground Structures	-	-	2	-	-	-	-	-	-	-
Damaged Cover										
Damaged Structure			2							
Congested Structure										
Damaged Equipment										
Conductors	-	-	-	-	-	-	-	-	-	-
Primary Cables										
Secondary Cable										
Neutral Cable										
Racking Needed										
Miscellaneous	-	-	-	-	-	-	-	-	-	-
Other										
Underground Structures Total	-	-	2	-	-	-	-	-	-	-
<b>Pad Mount Transformers</b>										
Pad Mount Transformers	-	-	42	12	-	-	-	-	-	-
Damaged Structure			42	-						
Damaged Equipment										
Cable Condition										

<b>Orange and Rockland Utilities, Inc.</b>										
<b>Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Level IV Conditions</b>										
As of 12/31/11										
Level IV Conditions	2009	2009	2010	2010	2011	2011	2012	2012	2013	2013
	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired	Number of Conditions Found	Number of Conditions Repaired
<b>Pad Mount Transformers</b>										
Pad Mount Transformers (Cont)										
Oil Leak										
Off Pad										
Lock/Latch/Penta										
Miscellaneous	-	-	-	-	-	-	-	-	-	-
Other										
Pad Mount Transformer Total	-	-	42	12	-	-	-	-	-	-
<b>Streetlights</b>										
Street Light	-	-	-	-	-	-	-	-	-	-
Base/Standard/Light										
Handhole/Service Box										
Service/Internal Wiring										
Access Cover										
Miscellaneous	-	-	-	-	-	-	-	-	-	-
Other										
Street Light Total	-	-	-	-	-	-	-	-	-	-
<b>Total Level IV Conditions</b>										
Overall Total	7,227	9	14,951	383	6,494	457	-	-	-	-

## Summary

Orange and Rockland Utilities, Inc.							
Summary of Deficiencies and Repair Activity Resulting from the Inspection Process							
As of 12/31/11							
Year	Priority Level /Repair Expected		Deficiencies Found (Total)	Repaired In Time Frame	Repaired - Overdue	Not Repaired - Not Due	Not Repaired - Overdue
2009	I	Within 1 week	190	187	3	-	-
	II	Within 1 year	735	395	299	-	41
	III	Within 3 years	12,542	6,759	2	5,781	0
	IV	N/A	7,227	9	-	-	-
2010	I	Within 1 week	51	51	-	-	-
	II	Within 1 year	781	740	19	-	21
	III	Within 3 years	12,867	580	-	12,287	-
	IV	N/A	14,951	383	-	-	-
2011	I	Within 1 week	70	70	-	-	-
	II	Within 1 year	223	22	-	201	-
	III	Within 3 years	825	83	-	742	-
	IV	N/A	6,494	457			
2012	I	Within 1 week	-	-	-	-	-
	II	Within 1 year	-	-	-	-	-
	III	Within 3 years	-	-	-	-	-
	IV	N/A	-	-			
2013	I	Within 1 week	-	-	-	-	-
	II	Within 1 year	-	-	-	-	-
	III	Within 3 years	-	-	-	-	-
	IV	N/A	-	-			

## **Appendix 5**

### **Temporary Repair Exceptions**

<b>Reason &gt; 90 Days</b>	<b>Count</b>
Engineering evaluation in progress	<b>1</b>
Included in capital project	<b>1</b>
Waiting to schedule an outage	<b>2</b>
Waiting on customer	<b>2</b>
<b>Grand Total</b>	<b>6</b>

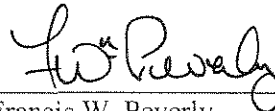
**Exhibit 1**

**CERTIFICATION**  
**STRAY VOLTAGE TESTING**

STATE OF NEW YORK                   )  
  ) ss.:  
COUNTY OF ROCKLAND            )


Francis W. Peverly, on this 8 day of February 2012, certifies as follows:

1. I am the Vice President of Orange and Rockland , Inc. ("Orange and Rockland" or "the Company"), and in that capacity, I make this Certification for the annual period ending December 31, 2011 ("annual period") based on my knowledge of the testing program adopted by the Company in accordance with the Public Service Commission's Orders issued and effective January 5, 2005, July 21, 2005, and December 15, 2008 in Case 04-M-0159 (collectively the "Orders"), including the Quality Assurance Program filed by the Company with the Commission.
2. In accordance with the requirements of the Orders, the Company developed a program designed to test (i) all of the publicly accessible electric facilities owned by the Company ("Facilities") and (ii) all publicly accessible metallic street light and traffic signal poles located in public thoroughfares in the Company's service territory ("Street Lights"), as identified through a good faith effort by the Company, for stray voltage (the "Stray Voltage Testing Program").
3. I hereby certify that, to the best of my knowledge, information and belief, the Company has implemented and completed its Stray Voltage Testing program for the annual period. Except for untested structures that are identified as inaccessible in the Company's Annual Report, submitted herewith, the Company is unaware of any Facilities or Street Lights that were not tested during the annual period.
4. I make this certification subject to the condition and acknowledgment that it is reasonably possible that, notwithstanding the Company's good faith implementation and completion of the Stray Voltage Testing Program, there may be Facilities and Street Lights that, inadvertently, may not have been tested or were not discovered or known after reasonable review of Company records and reasonable visual inspection of the areas of the service territory where Facilities and Street Lights were known to exist or reasonably expected to be found.



Francis W. Peverly

Sworn to before me this 8 day of February, 2012

Notary Public: 

JOANN E. DAGELE  
Notary Public, State of New York  
No. 01DA6005650  
Qualified in Orange County  
Commission Expires 4/20/ 2014

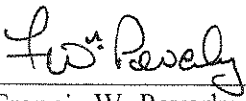


**CERTIFICATION**  
**FACILITY INSPECTIONS**

STATE OF NEW YORK                    )  
  ) ss.:  
COUNTY OF ROCKLAND                )

Francis W. Peverly, on this 8 day of February 2012, certifies as follows:

1. I am the Vice President, Operations of Orange and Rockland , Inc. ("Orange and Rockland" or "the Company"), and in that capacity I make this Certification for the annual period ending December 31, 2011 based on my knowledge of the inspection program adopted by the Company in accordance the Public Service Commission's Orders issued and effective January 5, 2005, July 21, 2005, and December 15, 2008 in Case 04-M-0159 (collectively the "Orders"), including the Quality Assurance Program filed by the Company with the Commission.
2. The Company has an inspection program that is designed to inspect on a five-year inspection cycle all of its electric facilities, as identified through a good faith effort by the Company ("Facilities"), in accordance with the requirements of the Orders (the "Facility Inspection Program").
3. I hereby certify that, to the best of my knowledge, information and belief, the Company has implemented and completed its Facility Inspection Program to inspect approximately 20 % of its Facilities during calendar year 2011, in order to comply with the five-year inspection cycle required under the Orders.

  
\_\_\_\_\_  
Francis W. Peverly

Sworn to before me this 8 day of February, 2012

Notary Public: Joann E. Dagele

JOANN E. DAGELE  
Notary Public, State of New York  
No. 01046005650  
Qualified in Orange County  
Commission Expires 4/20/ 2014