

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE

Interoffice Memorandum

June 16, 2011

TO: THE COMMISSION

FROM: OFFICE OF ELECTRIC, GAS, AND WATER

SUBJECT: Case 11-E-0267 – 2010 Compliance Report on Stray Voltage Testing and Inspections as Required by the Electric Safety Standards.

RECOMMENDATION: This item is for information only and reports on the status of compliance with the Commission's Electric Safety Standards.

SUMMARY

On January 5, 2005, the Commission established Electric Safety Standards to safeguard the public from exposure to stray voltage and to identify and eliminate potentially harmful conditions before serious safety hazards and/or reliability deficiencies develop.¹ To accomplish this goal, electric utilities are required to annually test all of their publicly-accessible electric facilities for stray voltage and to inspect all of their electric facilities at least once every five years. The utilities are also required to annually test streetlights² along public thoroughfares for stray voltage, regardless of ownership. Stray voltage testing is generally a manual process performed using handheld devices (manual testing). The Commission also requires that 12 mobile surveys be performed in

¹ Case 04-M-0159, Proceeding on Motion of the Commission to Examine the Safety of Electric Transmission and Distribution Systems, Order Instituting Electric Safety Standards (issued January 5, 2005).

² The term "streetlights" includes streetlights owned by electric utilities and municipalities located on, along, or adjacent to public thoroughfares and areas, and traffic signal poles and devices; it does not include privately-owned fixtures, such as those located in private parking lots.

New York City;³ two mobile surveys be completed in Buffalo; and one each in Yonkers, White Plains, Albany, Niagara Falls, Rochester, and New Rochelle.⁴ In areas served predominantly by underground facilities, it is also acceptable for utilities to use mobile testing instead of manual testing. Consolidated Edison Company of New York, Inc. (Con Edison), Niagara Mohawk Power Corporation d/b/a National Grid (National Grid), and Rochester Gas and Electric Corporation (RGE) all utilized mobile testing as a means of compliance and did not perform manual testing in the areas where mobile testing was ordered.

Manual stray voltage testing was performed on approximately 4 million facilities statewide in 2010, with 1,734 stray voltage findings identified; 1,670 were found by the investor-owned utilities⁵ and the remaining 64 were found by the municipal electric utilities. Of the total stray voltage findings, 599 (34%) were at voltage levels of 4.5 V or higher.⁶ Findings on streetlights accounted for 418 (70%) of the conditions at voltage levels of 4.5 V or higher.

In 2010, there were 243 calls from customers reporting shock incidents that resulted in confirmed cases of stray voltage; 84 were caused by problems with utility facilities and 159 were traced to faulty customer equipment or wiring.

Stray voltage found on streetlights continues to be a major concern, particularly in Con Edison's service territory and in Buffalo. Based on the results

³ Con Edison completed twelve mobile surveys of its underground network distribution system, which includes areas in Manhattan, the Bronx, Queens, and Brooklyn

⁴ Case 04-M-0159, supra, and Case 06-M-1467, Orange and Rockland Utilities, Inc., Order Adopting Changes to Electric Safety Standards (issued December 15, 2008) and Case 10-E-0271, In the Matter of Examining the Mobile Testing Requirement of the Electric Safety Standards, Order Requiring Additional Mobile Stray Voltage Testing (issued July 21, 2010).

⁵ The investor-owned utilities consist of Con Edison, Central Hudson Gas & Electric Corporation (Central Hudson), New York State Electric & Gas Corporation (NYSEG), Niagara Mohawk Power Corporation d/b/a National Grid, Rochester Gas and Electric Corporation, and Orange and Rockland Utilities, Inc. (Orange & Rockland).

⁶ As a result of the revision to the lower detection threshold, readings below 4.5V are now considered low voltage in nature.

observed to date, stray voltage testing is needed to continue to identify potentially unsafe conditions on these facilities. Staff also encourages the utilities to continue their development of programs focused on known areas of concern, such as streetlights.

The Electric Safety Standards also require that each utility visually inspect⁷ 20% of its electric facilities per year and repair the deficiencies found during the inspection process within appropriate time frames. The standards also require all facilities to be inspected within 5 years. Calendar year 2010 marked the first year of the second five year inspection cycle. Statewide, approximately 22% of the facilities were inspected in 2010, resulting in the identification of 148,265 deficiencies by the investor-owned utilities, of which 24,031 required repairs within one week. All of these deficiencies were made safe at the time of discovery and 92.4% have been permanently repaired. A total of 34,584 deficiencies were found that must be fixed within one year; 38% have been repaired and the remainder have been placed into work order systems for tracking and repair. Deficiencies that must be fixed within three years totaled 89,650; 11% have been repaired and 89% have been entered into work order systems. Since repair timeframes begin at the date of initial discovery the utilities still have time to make noncritical repairs before they are considered overdue. The utilities reported repairing 98% of deficiencies found in 2009 requiring repairs within one year and approximately 48% of those requiring repairs by 2012. In general, the visual inspection program has had a positive impact that raised the level of awareness of all involved.

BACKGROUND

On January 5, 2005, the Commission adopted Electric Safety Standards that established proactive steps to ensure the safety of the public from stray voltage and the reliability of the electric system in the State of New York. The Electric Safety Standards include: (1) annual stray voltage testing of electric facilities and streetlights accessible to

⁷ An inspection requires a qualified individual to evaluate and examine the entire structure to determine its condition and the potential for it to cause or lead to safety hazards or adversely affect reliability. Unlike stray voltage testing, this task requires opening access covers and entering underground facilities, such as manholes.

the public, using certified voltage detection devices; (2) inspection of utility electric facilities on a minimum of a five-year cycle; (3) recordkeeping, certification, quality assurance and reporting requirements; and (4) adoption of the National Electric Safety Code as the minimum standard governing utility construction, maintenance, and operations.

In December 2008, the Commission adopted several revisions to the Safety Standards. The revised standards became effective for the 2009 testing and inspection cycle. The major changes with respect to stray voltage testing involved the addition of a definition of a stray voltage finding,⁸ along with a requirement to mitigate all such findings, enhanced testing protocols for locations where voltage findings are encountered, and a revision from 8 V to 6 V as the lower threshold of the range for stray voltage testing equipment. Clarification of reporting formats was also included to foster consistency in the manner in which data is cataloged and transmitted to Staff.

Additionally, the 2008 Order amended requirements for utility inspections to include a common grading system for rating substandard conditions during facility inspections with defined repair guidelines. In the past, utilities individually defined unique ranking systems, but by initiating a common grading system, it is easier for Staff to review and compare submitted utility results. This grading system establishes expected timeframes for repairs based on the estimated amount of time that it would take for the equipment to fail and adversely affect public safety or the reliability of the utility system. These rankings correspond to the condition levels, which are described as follows: Level I discoveries must be fixed within one week, Level II discoveries must be fixed within one year, Level III occurrences must be fixed within three years, and Level IV which are conditions that do not require repair at this time, but should be tracked for monitoring purposes. The 2008 Order also calls for all temporary repairs to be made permanent within 90 days (longer only if there are extraordinary circumstances, such as

⁸ Any confirmed voltage reading on an electric facility or streetlight greater than or equal to 1V measured using a volt meter and a 500 ohm shunt resistor.

storms) and that these repairs be documented and entered into the utilities' tracking systems.

In 2008, Con Edison filed a formal petition with the Commission seeking approval to use mobile detection in lieu of manual testing to comply with the testing requirements of the Electric Safety Standards in areas where the mobile testing can be performed. As part of the revisions to the Electric Safety Standards mentioned above mobile testing was permitted as an alternative means of compliance. The 2008 Order also directed all utilities to conduct mobile stray voltage system surveys in calendar year 2009 in areas of their territories containing underground distribution in incorporated cities with populations of 50,000 or more, based on the 2000 census.⁹ A subsequent order in 2010 required two mobile stray voltage scans in Buffalo and one each in Yonkers, White Plains, Albany, Niagara Falls, Rochester, and New Rochelle based on the results of the initial surveys.

STRAY VOLTAGE TESTING

Table 1 lists the number of stray voltage findings of 1 V or above in 2010 resulting from manual testing, by facility type.¹⁰ Stray voltage testing was performed on approximately 4 million transmission and distribution facilities across the State. The table also contains the 2009 information for comparison.

⁹ The cities that were included under the requirements of the order were Buffalo, Syracuse, Utica, Albany, Schenectady, Niagara Falls (National Grid); Yonkers, White Plains, New Rochelle, Mount Vernon (Con Edison); and Rochester (RGE)

¹⁰ These findings do not include instances of stray voltage discovered by company personnel as part of their routine work or instances found by other means, such as customer reports. This data also does not include instances of stray voltage discovered by mobile detection performed by Con Edison (described in a subsequent section)

Table 1: Stray Voltage Findings from Manual Testing by Facility Type

2010 Test Cycle					
Company	Streetlights	Underground Distribution	Overhead Distribution	Transmission	Total Findings
Con Edison	350	16	19	3	388
National Grid	208	1	149	18	376
NYSEG	24	3	222	161	410
RGE	14	0	31	133	178
Central Hudson	6	5	283	5	300
Orange & Rockland	3	2	14	0	19
Municipal Electric Companies	23	8	33	0	64
Total	628	35	751	320	1734
2009 Test Cycle					
Company	Streetlights	Underground Distribution	Overhead Distribution	Transmission	Total Findings
Con Edison	414	6	18	0	438
National Grid	350	3	178	39	570
NYSEG	24	0	163	69	256
RGE	62	1	55	139	257
Central Hudson	12	7	381	17	417
Orange & Rockland	1	1	23	0	25
Municipal Electric Companies	6	5	33	0	44
Total	869	23	851	264	2007

Note: In tables 1 and 2, Overhead Distribution includes substation facilities, and Transmission includes both overhead and underground facilities.

In 2010, stray voltage findings were obtained on 0.04% of total utility facilities tested. Individual detection rates for underground distribution, overhead distribution, and transmission are 0.0008%, 0.019%, and 0.008%, respectively. The municipal electric utilities identified 64 stray voltage findings related to overhead distribution facilities, which equates to a detection rate of 0.06%.

The rate of findings declined from 2009 to 2010, the second consecutive year that the totals have decreased. NYSEG's rate of findings increased, mainly driven by Overhead Distribution and Transmission. However, 147, out of the increase of 154,

were low voltage. Yet NYSEG's 410 Total Findings in 2010 compares favorably to the 2008 total of 1,086. Of the 1,734 stray voltage conditions found via manual testing on transmission and distribution facilities, 1,135 were low voltage in nature (less than 4.5 V). Table 2 details the findings above 4.5 V.

**Table 2: Stray Voltage Findings from Manual Testing Greater Than 4.5 V
2010 Test Cycle**

Company	Streetlights	Underground Distribution	Overhead Distribution	Transmission	Total Findings
Con Edison	257	11	10	5	283
National Grid	121	0	29	3	153
NYSEG	20	0	42	16	78
RGE	12	1	1	44	58
Central Hudson	5	1	9	1	16
Orange & Rockland	3	1	3	0	7
Municipal Electric Companies	0	0	4	0	4
Totals	418	14	98	69	599

Mobile Detection Program

Since the Commission order in Case 07-M-0523,¹¹ Con Edison has been required to complete 12 system scans on an annual basis. In July of 2010, the Commission ordered two surveys be completed in Buffalo and one each in Yonkers, White Plains, Albany, Niagara Falls, Rochester, and New Rochelle. The results of the scans completed in 2010 are summarized in Tables 3, 4, and 5 below. The results and further recommendations are addressed in detail in a companion item.

¹¹ Consolidated Edison Company of New York, Inc., Order Establishing Rates for Electric Service (issued March 25, 2008).

**Table 3: Findings by Con Edison Utilizing Mobile Detection - 2010 Test Cycle
(New Rochelle, White Plains, Yonkers, and New York City)**

City	Facility	1.0-4.4V	4.5-24.9V	>25V	Total
New Rochelle	Distribution	0	0	0	0
	Underground	1	0	0	1
	Street Lights/Traffic Signals	1	8	2	11
	Miscellaneous	1	3	0	4
	Subtotal	3	11	2	16
White Plains	Distribution	0	0	0	0
	Underground	1	1	0	2
	Street Lights/Traffic Signals	8	4	3	15
	Miscellaneous	1	3	0	4
	Subtotal	10	8	3	21
Yonkers	Distribution	0	0	0	0
	Underground	7	4	0	11
	Street Lights/Traffic Signals	9	8	2	19
	Miscellaneous	17	7	1	25
	Subtotal	33	19	3	55
New York City (12 scans)	Distribution	11	5	0	16
	Underground	379	128	26	533
	Street Lights/Traffic Signals	1993	763	318	3074
	Miscellaneous	3520	1485	386	5391
	Subtotal	5903	2381	730	9014
Total		5949	2419	738	9106

**Table 4: Findings by National Grid Utilizing Mobile Detection - 2010 Test Cycle
(Albany, Niagara Falls, and Buffalo)**

City	Facility	1.0-4.4V	4.5-24.9V	>25V	Total
Albany	Distribution	0	0	0	0
	Underground	0	0	0	0
	Street Lights/Traffic Signals	136	74	3	213
	Miscellaneous	3	1	0	4
	Subtotal	139	75	3	217
Niagara Falls	Distribution	0	0	0	0
	Underground	0	0	0	0
	Street Lights/Traffic Signals	9	0	0	9
	Miscellaneous	2	0	0	2
	Subtotal	11	0	0	11
Buffalo (scan 1)	Distribution	0	0	0	0
	Underground	0	0	0	0
	Street Lights/Traffic Signals	647	264	10	921
	Miscellaneous	9	0	1	10
	Subtotal	656	264	11	931
Buffalo (scan 2)	Distribution	0	0	0	0
	Underground	0	0	0	0
	Street Lights/Traffic Signals	618	196	10	824
	Miscellaneous	7	4	2	13
	Subtotal	625	200	12	837
Total		1431	539	26	1996

**Table 5: Findings by RGE Utilizing Mobile Detection - 2010 Test Cycle
(Rochester)**

City	Facility	1.0-4.4V	4.5-24.9V	>25V	Total
Rochester	Distribution	0	0	0	0
	Underground	0	0	0	0
	Street Lights/Traffic Signals	26	5	8	39
	Miscellaneous	1	0	0	1
Total		27	5	8	40

SHOCK REPORTS

In addition to testing programs, the utilities are made aware of potential stray voltage locations from reports by the public. Utilities are required to respond to and investigate all shock reports received, including reports involving domestic animals, and regardless of whether or not injuries are involved. Table 6 provides a summary for 2010 and 2009, of the electric shock reports received by the utilities where investigation yielded actual voltage findings. The table also classifies the shock reports based on the source of the stray voltage. Investigations of shock reports where the cause of the voltage was determined to be the responsibility of the utility are classified as company responsibility. Customer responsibility issues include shock incidents that are caused by non-utility facilities or the improper use of customer-owned equipment.

Table 6: Summary of Shock Reports

2010			
Company	Shock Reports	Company Responsibility	Customer Responsibility
Con Edison	58	15	43
National Grid	129	49	80
NYSEG	16	5	11
RGE	8	3	5
Central Hudson	23	6	17
Orange & Rockland	9	6	3
Municipal Electric Companies	0	0	0
Total	243	84	159
2009			
Company	Shock Reports	Company Responsibility	Customer Responsibility
Con Edison	84	24	60
National Grid	124	38	86
NYSEG	8	0	8
RGE	9	2	7
Central Hudson	10	3	7
Orange & Rockland	16	7	9
Municipal Electric Companies	0	0	0
Total	251	74	177

INSPECTIONS OF ELECTRIC FACILITIES

The inspection process involves visual inspection of electric facilities to identify any damage that may cause hazardous conditions or reliability concerns. Inspections are performed by a combination of company employees and contractors, all of whom first receive training including instruction on the common grading system. If an inspection reveals a deficiency, the safety standards require utilities to make all repairs necessary to eliminate the deficiency based upon its severity:

- Level I discoveries must be fixed within one week of discovery,
- Level II discoveries must be fixed within one year of discovery,
- Level III discoveries must be fixed within three years of discovery, and
- Level IV conditions do not require repair but are identified to be monitored.

The Safety Standards also requires a detailed reporting system that captures deficiencies by equipment type (poles, transformers, cable), priority level, whether actions have been taken, and the timeliness of the repair activities in relation to the assigned priority level. Since 2009, the investor-owned utilities have made strides to capture the data as required and integrate the inspection process with the repair process.

Inspections

The Electric Safety Standards require utilities to complete inspections on 20% of their total facilities in each year, so that 100% of a utility's transmission and distribution facilities will be inspected at least once every five years. The 2010 inspections start the second five-year cycle.

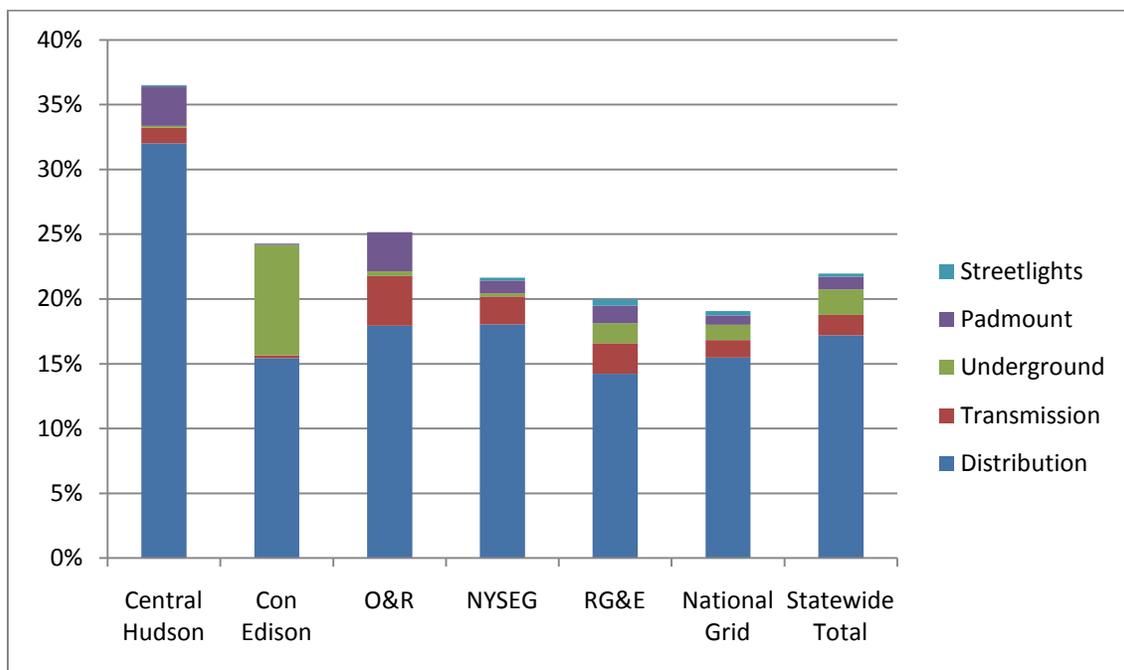
Statewide, the investor-owned utilities inspected approximately 22% of their electric facilities in 2010. Over 631,500 inspections were performed on the overhead distribution system; the bulk of which were completed by National Grid and NYSEG (approximately 233,000 and 169,000 respectively). Con Edison, Central Hudson, RGE, and Orange & Rockland completed approximately 85,000, 75,000, 39,000, and 31,000 inspections on their overhead distribution facilities.

Figure 1 shows the percentage of visual inspections completed for each of the investor-owned utilities by facility type. All utilities, except National Grid, met or

exceeded the 20% inspection target during the 2010 cycle. Central Hudson is well ahead of expectations having completed inspections on 36% of its facilities. Additionally, several smaller size municipal utilities were able to inspect their complete system during 2010.

National Grid’s distribution and transmission inspection programs target inspecting 20% of its circuit miles as opposed to the number of facilities. Consequently, the number of facilities inspected will vary depending on the density of the circuits inspected. National Grid, however, failed to verify that the Company inspected 20% of its facilities. Staff does not find this is acceptable since the Company tracks the number of facilities inspected throughout the year and should have been able to forecast its shortage such that additional inspections could be performed in the later part of the year to meet the requirement. Staff reviewed with the Company how the requirements are defined and National Grid confirmed it will inspect the requisite number of facilities going forward. Despite the shortcoming, National Grid met the performance mechanism requirement to inspect 95% of the annual target, as discussed later in the report, since it performed inspections on 19% of its facilities.

**Figure 1: Percentage of Visual Inspections
Investor-Owned Utilities (First Year of Five-Year Cycle)**



Although statewide the Companies are meeting our overall expectations, we are concerned that the percent of inspections completed on underground distribution facilities and streetlights lagged behind the other classifications during 2010. In order to complete its initial five-year underground inspection goal, Con Edison hired outside contractors to supplement its workforce during 2008 and 2009 the last two years of the five year cycle. The contractors assisted the Company in completing approximately 90,000 underground inspections in 2008 and 66,000 underground inspections in 2009. To avoid repeating this situation, Con Edison planned to complete underground inspections at a steady pace, compared to the approach used in the first five-year cycle. The Company's goal was to inspect 60,000 (21%) underground facilities in 2010. Instead, only 47,017 (16.9%) inspections were completed.

With regard to streetlight inspections only 11% were performed in 2010. Approximately three quarters of the 75,000 streetlights requiring inspections are owned by National Grid. In 2010, the Company reported inspecting 5,200 (8%) of its streetlights, well short of Staff's expectations after the first year of the inspection cycle. National Grid stated it will be placing additional emphasis on inspecting streetlights and anticipates completing 32% of its streetlight inspections in 2011. By doing so, the Company would have completed the requisite 40%, leaving 20% of the streetlights to be inspected annually thereafter.

Inspection Findings

In 2010 inspections were performed on approximately 807,000 facilities across the State. Inspections performed in 2009 totaled approximately 846,000. Table 7 provides a summary of deficiencies for 2010 and 2009 by company and facility type.¹² As shown in the table, most of the deficiencies identified in 2010 were classified as part of the overhead distribution system; this is not surprising since the majority of

¹² Several fields in Table 7 have been intentionally left blank. Con Edison does not own streetlight facilities. Orange & Rockland's streetlights facilities were not part of its 2010 inspection program and municipal electric companies include pad mount transformers as part of the underground category.

inspections were performed on the overhead distribution system. Underground deficiencies, including preventative maintenance activities performed as part of its underground inspections by Con Edison, decreased by approximately 100,000 between 2010 and 2009.

**Table 7: Deficiencies by Facility Type
Found by Investor Owned Utilities**

2010 Inspection Cycle						
Company	Underground	Distribution	Transmission	Pad Mount	Street Lights	Total
Con Edison	43,632	14,150	196	990	n/a	58,968
National Grid	2,042	59,767	1,516	1,228	2,315	66,868
NYSEG	116	1,791	859	429	108	3,303
RGE	95	413	71	306	1	886
Central Hudson	20	3,700	195	298	0	4,213
Orange & Rockland	0	12,167	1,808	52	n/a	14,027
Total	45,905	91,988	4,645	3,303	2,424	148,265
2009 Inspection Cycle						
Company	Underground	Distribution	Transmission	Pad Mount	Street Lights	Total
Con Edison	144,914 ¹³	11,995	128	897	n/a	157,934
National Grid	1,909	72,070	2,243	1,996	4,357	82,575
NYSEG	765	2,343	386	0	78	3,572
RGE	11	925	581	1,523	0	3,040
Central Hudson	24	2,974	223	164	0	3,385
Orange & Rockland	1,179	8,472	4,158	351	2	14,162
Total	148,802	98,779	7,719	4,931	4,437	264,668

Note: 2009 data in based on information provided in the 2010 Annual Reports.

¹³ Con Edison corrected the number of Level I deficiencies and repairs identified in its 2009 Annual Report. In 2009, the Company reported 257,058 Level I defects found before January 1, 2010, which represented the first five year cycle and not those found in calendar year 2010. The 2010 report identifies 108,799 Level I deficiencies were found in 2009.

**Table 8: Summary of Deficiencies by Severity Level
Found by Investor Owned Utilities**

2010 Inspection Cycle						
Level	Underground	Distribution	Transmission	Pad Mount	Street Lights	Total
I	20,528	716	105	367	2,315	24,031
II	9,449	23,214	513	1,300	108	34,584
III	15,928	68,058	4,027	1,636	1	89,650
Total	45,905	91,988	4,645	3,303	2,424	148,265
2009 Inspection Cycle						
Level	Underground	Distribution	Transmission	Pad Mount	Street Lights	Total
I	108,382	513	21	808	7	109,731
II	17,580	22,374	745	1,069	312	42,080
III	22,840	75,892	6,953	3,054	4,118	112,857
Total	148,802	98,779	7,719	4,931	4,437	264,668

Table 8 lists the number of deficiencies found in 2010 by severity level and facility type. The table also contains the 2009 information for comparison. A Level I deficiency is a safety hazard or poses an immediate threat to the delivery of power; Level I deficiencies could include limbs on the primary wire, oil leaks, or the conductor lying directly on a cross arm. In 2010, the investor-owned utilities reported finding 24,031 Level I deficiencies. Con Edison performs preventative maintenance activities as part of underground inspection and because of their safety nature, these activities are recorded as Level 1 priorities by the Company. By requiring ducts be sealed, the spread of carbon monoxide is limited during secondary burnouts or manhole fires. The Company sealed 109,915 ducts during the first five year cycle and 9,615 in 2010. In an effort to mitigate potential stray voltage concerns, Con Edison is also placing end caps on cables. The Company installed 9,124 end cap in 2010 and 138,885 during the previous five years. Excluding these events, Con Edison has identified 947 serious conditions requiring repair within one week, or approximately 22% of all 2010 Level I findings. National Grid reported finding 2,726; most of these (2,309) were related to streetlight inspections performed in response to mobile testing in National Grid's service area.

The investor-owned utilities identified 34,584 Level II deficiencies in 2010. Examples of Level II deficiencies include damaged underground covers, damaged cross arms, rotted or seriously damaged poles. Statewide the majority of 2010 inspections were classified as part of the overhead distribution system. Therefore, it is not surprising that overhead distribution facilities accounted for roughly 67% of all Level II deficiencies. Underground and pad mount facilities accounted for approximately 31% of 2010 Level II deficiencies. Based on the total number of facilities inspected in each category, deficiencies classified as underground and pad mount transformers, and transmission showed the greatest decrease from 2009 percentages. The rate of overhead distribution deficiencies remained relatively flat from 2009 to 2010. National Grid reported finding 83% of the statewide overhead distribution Level II deficiencies; but, the Company also completed the most inspections in this category.

Based on the total number of facilities inspected, the rate of Level III deficiencies remained relatively flat over last year's results. The investor owned utilities found 89,650 Level III deficiencies in 2010. Distribution pole deficiencies such as pole conditions, grounding, anchors and guy wires accounted for roughly half of the Level III deficiencies found.

In 2010, the municipal electric companies combined reported a total of 1,934 deficiencies. This is a decline from the 2,688 reported in 2009. Approximately 86% of the deficiencies were classified as part of the overhead distribution system. This is expected since most municipal electric companies are responsible for only the distribution of electricity to residents.

Repairs

For an inspection program to be meaningful, the data collected must be used to foster repair activities. Repair activities are based on a grading system that establishes expected timeframes for repairs based on the estimated time that it would take for the equipment to fail, adversely affect public safety, or system reliability. In general, the utilities maintain a good response time to Level I deficiencies. The repair must be considered a permanent repair to be removed from the Level I priority list. In 2010, the

utilities reported repairing 92.4% of Level I deficiencies; 85.3% were repaired within the one week time requirement and as discussed below, the remaining Level I deficiencies awaiting repair were made safe.

Con Edison reported 316 deficiencies as possibly improperly identified as Level I. These deficiencies account for the 7.4% of statewide Level I repairs classified as not repaired and overdue. The majority of the deficiencies were classified as damaged underground structures. The Company believes a specification change that encouraged inspectors to classify structure damage as a Level I deficiency created the problem. All of the locations are being revisited to verify they were properly identified. Con Edison has been monitoring the repair activity related to the overdue repairs and reports that all of the locations were made safe at the time of discovery. Staff understands that repairs of structural damages are rarely completed in one week because they require engineering evaluations, designs, and permits. We, however, will continue to actively monitor the repair activity and encourage Con Edison to update its underground inspection specification.

Other issues associated with Level I deficiencies recorded as repaired outside the one week time requirement include clerical errors and deficiencies that were made safe with temporary repairs within the one week time requirement. The permanent repairs were made within 90 days. Central Hudson reported four Level I deficiencies were improperly identified. The deficiencies were therefore given a lower repair priority. Three locations were repaired within three weeks. The fourth location was temporarily repaired and has a pending work order.

Statewide, the investor-owned utilities reported repairing 98% of Level II and 48% of Level III deficiencies found in 2009. For deficiencies found in 2010, 38% of Level II and 11% of Level III deficiencies were repaired. As previously mentioned, repair timeframes begin at the date of initial discovery. For example, if a Level III deficiency was found on December 31, 2010, the Company would have until December 30, 2013 to complete the repair. As a result, the utilities still have time to make Level II and Level III repairs before they are considered overdue. Table 9 lists the number of Level II and Level III repairs completed in 2010 and repairs recorded as outstanding on

December 31. The 2009 numbers reflect repairs completed in both 2009 and 2010 on deficiencies found in 2009.

Table 9: Level II/III Repair Activity by Investor Owned Utilities

2010 Deficiency Findings				
Company	Level II		Level III	
	Repaired	Outstanding	Repaired	Outstanding
Con Edison	5,313	5,097	3,724	24,143
National Grid	6,319	15,112	2,705	40,006
NYSEG	569	664	498	1,129
RGE	172	309	134	243
Central Hudson	140	55	2,616	1,310
Orange & Rockland	593	241	410	12,732
Total	13,106	21,478	10,087	79,563
2009 Deficiency Findings				
Company	Level II		Level III	
	Repaired	Outstanding	Repaired	Outstanding
Con Edison	17,686	608	22,322	8,519
National Grid	20,701	1	26,588	34,927
NYSEG	1,015	3	992	1,337
RGE	1,087	91	666	1,119
Central Hudson	103	37	2,083	1,080
Orange & Rockland	687	61	1,472	11,752
Total	41,279	801	54,123	58,734

Note: 2009 data is based on information provided in the 2010 Annual Reports.

National Grid has been more responsive in repairing Level II deficiencies. National Grid reported repairing 75% of its 2009 Level II deficiencies associated with overhead distribution during 2010.¹⁴ In addition, the Company reported repairing 32% of its 2010 Level II overhead distribution deficiencies. Staff is satisfied with the Company's Level II repair activity in this category over the last year, however, National

¹⁴ National Grid reported completing 4,686 Level II overhead distribution repairs in 2009 and an additional 13,690 repairs in 2010.

Grid still has a significant number of outstanding Level II and Level III repairs to be made. These remaining overhead distribution repairs are mainly transformers, grounding systems, and pole conditions. National Grid will need to remain diligent to ensure these repairs are made within the required timeframes.

Pad mount facilities accounted for roughly 3% of all Level II deficiencies in 2009. Collectively the utilities completed repairs on approximately 70% of pad mount transformer deficiencies. As of January 1, Con Edison reported 224 overdue Level II repairs associated with pad mount transformers. RGE also has 91 overdue 2009 Level II repairs associated with pad mount transformers. The majority of these deficiencies are damaged structures (70%) and cable condition (11%). The Companies are continuing to make progress on the Level II pad mount repairs. On May 10, Con Edison has completed 92 of its 224 pad mount repairs and RGE completed 87 of its 91 repairs. Staff will continue monitoring these repair efforts.

Overall, Con Edison's 2010 Level II and Level III repair activity on overhead distribution has been satisfactory. Staff is concerned, however, that Level II and III repair activity associated with underground facilities has dropped from approximately 71% in 2009 to 32% in 2010. The Company will need to focus on repairing damaged covers, damaged structures, and secondary cables to complete the required repairs on time.

As we stated last year, to the extent practical, utilities should develop work packages to perform the repairs in an efficient manner. In addition, accomplishing future repairs activities could be affected by unexpected events such as winter storms. By properly planning for them in advance, the utilities should be able to comply with the Commission's requirements despite experiencing unexpected events during the year.

CERTIFICATION AND PERFORMANCE MECHANISM

To ensure the utilities maintain the necessary focus on the safety and reliability of their electric systems, the Electric Safety Standards require an officer to annually certify the results of the testing and inspection programs. Each of the utilities

provided signed statements certifying that it performed the requisite number of stray voltage tests and inspections in 2010.

The Electric Safety Standards also establish a performance mechanism for the utilities to ensure compliance with the Electric Safety Standards. This mechanism includes two annual performance targets, one for stray voltage testing and one for facility inspections. Given the safety concerns associated with stray voltage, the target is set at 100% of all facilities. The inspection target is set at 95% of the annual requirement. The performance mechanism does require all facilities be inspected by the end of the fifth year of the cycle. Failure to meet a performance target would result in a negative 75 basis point revenue adjustment (total adjustments of 150 basis point maximum). The 2010 performance results are summarized in Table 10 below. As discussed above, National Grid did not inspect 20% of its facilities in 2010. The Company did, however, meet the 95% annual threshold requirement because it inspected 19% of its facilities. Therefore, all of the utilities achieved the target levels prescribed, and as a result no revenue adjustments should be imposed.

Table 10: Statewide Stray Voltage and Facility Inspection Target and Actual Performance

Company	Stray Voltage		Inspections	
	Target	Actual	Target	Actual
Con Edison	100%	100%	19%	24%
National Grid	100%	100%	19%	19%
NYSEG	100%	100%	19%	21%
RGE	100%	100%	19%	20%
Central Hudson	100%	100%	19%	36%
Orange & Rockland	100%	100%	19%	25%

COMPLIANCE MONITORING

To ensure proper compliance with the Electric Safety Standards, Staff has maintained frequent contact with all the utilities, individually and collectively, over the past six years. In early 2005, the investor-owned utilities formed a working group to collectively discuss issues related to stray voltage testing. The working group has proven to be an effective means to raise and resolve issues, identify best working practices, and

establish a common understanding of the extent of stray voltage across the State. The discussions have evolved over the years from addressing implementation issues, such as data collection, to focusing more on stray voltage mitigation efforts, alternative testing equipment, and repair activities. Staff actively participates in the working group sessions, which are held quarterly. These sessions have helped the utilities maintain an overall understanding of Staff's expectations and identify best working practices.

Electric Safety Standard compliance monitoring is also ensured through field visits. The focus of the visits is to ensure that stray voltage testing, inspections, and the quality assurance programs were being completed properly. Specifically, Staff verified that utilities located and tested required facilities for stray voltage. The field visits also monitor the quality assurance programs, which generally include a random sampling by Staff of the utility's testing and inspection records to verify the accuracy of data collected by the utilities.

To verify utility inspection activities Staff performed its own inspections and accompanied the utilities during inspections in certain cases. Staff then obtained inspection and Quality Assurance/Quality Control (QA/QC) data from the utility and verified the results by performing a side-by-side comparison of the utility's results and data collected during Staff's inspections. Utilities were notified of any conditions which were noted in Staff's results but not shown on utility data.

Staff also used field visits to confirm that utility reported repairs have been completed. Staff obtained Company repair statements which described the repair activity and specified the completion date. Staff would then field verify these documents. Additionally, Staff used this opportunity to inspect all components of the surrounding equipment in relation to the verified facility and noted any substandard conditions. The additional check was to ensure that crews did not ignore other existing problems in this area and also to ensure that no new conditions developed since the date of the repairs. Staff will continue monitoring the utilities in an effort to ensure that inspections are properly performed and that repairs are made to the discovered substandard conditions in the required timeframe.

CONCLUSION

All of the utilities are in compliance with the testing requirements of the Electric Safety Standards. Stray voltage testing was performed on approximately 4 million facilities across the state in 2010. All of the utilities are also in compliance with the inspection requirement for the first year of the second cycle; in total approximately 807,000 facilities were visually inspected in 2010. Since all of the requirements were met, no revenue adjustments should be imposed.

The requirements of the Electric Safety Standards have resulted in the identification of locations with sizable stray voltage levels where mitigation was necessary to maintain public safety. The standards remain an effective means to ensure the safe and reliable operation of the electric system. Stray voltage found on streetlights continues to be a major concern. Based on the results observed to date, stray voltage testing is needed to continue on these facilities to identify potentially unsafe conditions. Staff also encourages the utilities to continue their development of programs focused on known areas of concern, such as streetlights.

The inspection requirements have also resulted in the identification of numerous substandard conditions on the state's electric facilities. The majority of the serious deficiencies found in 2009 and 2010 have been permanently repaired and approximately 42.5% of the less serious deficiencies identified in 2009 and 2010 have been repaired. Overall, Staff is satisfied with the effort put forth by the utilities in repairing deficiencies. Repair efforts on Level II and Level III deficiencies will continue to be monitored to ensure repairs are made within the designated timeframes.

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