

Charles A. Freni, Jr.
Senior Vice President
Customer Services



February 12, 2010

RE: Case 04-M-0159

Honorable Jaclyn Brilling, Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

Dear Secretary Brilling,

Enclosed, for filing with the Commission, is one (1) original and five (5) copies of Central Hudson Gas and Electric's "Stray Voltage Test and Facility Inspection Annual Report for 2009" in compliance with the Safety Standards Order 04-M-0159 of January 5 and July 21, 2005 and December 15, 2008 for Stray Voltage Testing and Inspection.

This report details the completion status of Central Hudson's Stray Voltage Testing and Facility Inspection program for the period from January 1, 2009 through December 31, 2009. The program efforts in 2009 have resulted in the testing and/or inspection of over 240,000 devices. Central Hudson successfully completed all required stray voltage testing and inspection activities for all facility categories: Overhead Distribution, Manholes and Pull Boxes, Pad Mounted Equipment, Substation Fences, Streetlights and Traffic Signals, and Overhead Transmission.

There were fifty-nine (59) stray voltage conditions identified as defined by the Safety Standards definition of stray voltage, "voltage conditions on electric facilities that should not ordinarily exist". This represents a failure rate of 0.02% of all facilities tested for stray voltage. In 2009, no stray voltage was found on padmount transformers, manholes and pullboxes, transmission structures, and substation fences.

We look forward to working with the Commission Staff to further analyze the results of this completed round of stray voltage testing to explore opportunities to better align the program testing requirements with our significantly low failure rate. Communications concerning this matter should be directed to Donald L. DuBois – Electric Transmission and Distribution Manager via email at ddubois@cenhud.com or by phone at 845-486-5844.

Sincerely,

A handwritten signature in black ink that reads "Charles A. Freni, Jr." with a stylized flourish at the end.

Charles A. Freni, Jr.

SM/drh

Enclosures

cc: Michael Worden – NYS PSC

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CENTRAL HUDSON GAS AND ELECTRIC CORPORATION

STRAY VOLTAGE TESTING and FACILITY INSPECTIONS

Report on the results of the 2009 Stray Voltage Testing and Facility Inspections

February 15, 2010

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I. Background

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

This report describes Central Hudson's stray voltage detection program and equipment inspection program conducted in 2009.

II. Company Overview

Central Hudson Gas & Electric Corporation is a regulated transmission and distribution utility that provides electric service to approximately 300,000 customers in a service area of approximately 2,600 square miles in eight counties of New York State's Mid Hudson River Valley. Central Hudson's service territory extends north from the suburbs of metropolitan New York City to the Capital District of Albany.

Central Hudson owns substations having an aggregate transformer capacity of 5,300 MVA. Central Hudson's electric transmission system consists of 629 pole miles of line. The electric distribution system consists of 8,078 pole miles of overhead lines and 1,371 trench miles of underground primary lines.

III. Stray Voltage Testing Program

During the twelve-month period ending December 31, 2009, stray voltage testing was completed on all of Central Hudson's publicly accessible transmission and distribution facilities that are capable of conducting electricity along with all Company and non-Company owned metallic streetlights and traffic signals. Central Hudson also tested all publicly accessible facilities within thirty feet of a component found to have an elevated voltage in accordance with the Order.

In addition, as required by the Order, Central Hudson:

- a. Immediately safeguarded and/or mitigated all stray voltages ≥ 1.0 Volt. In instances where the stray voltage finding was determined to be caused by equipment not owned by Central Hudson, the area was immediately made safe and the municipalities, or customers that owns the equipment were notified of the unsafe condition and the need for them to arrange for a permanent repair. Voltage findings that were caused by a Central Hudson owned facility were immediately safeguarded and/or mitigated. All permanent repairs were completed within 45 days, except in extreme circumstances.

- b. Tested all publicly accessible structures and sidewalks within a 30 foot radius of the electric facility or streetlight where there was a voltage finding ≥ 1.0 Volt.
- c. Central Hudson responded to and investigated all shock incidents reported by the public and mitigated positive findings.

All of the facilities that are included in Central Hudson's Stray Voltage Testing Program were visited. Of the 240,252 facilities visited, 1,357 locations did not have a stray voltage test performed because their electrically conductive appurtenances were deemed to be inaccessible. Inaccessible locations were defined in the Order as locations that have locked gates/fences, are located in dangerous terrain, or are located on limited access highways.

Stray Voltage Mitigation Efforts

Central Hudson mitigated a total of 59 locations for stray voltage. Forty of the locations mitigated were found to have stray voltage, the remaining nineteen locations were difficult to classify as stray voltage or naturally occurring voltage but were mitigated as a precaution. These nineteen questionable locations were located on long single-phase spur lines with low voltage and high current loads which made the cause of the voltage findings difficult to determine. Therefore, in the interest of public safety, Central Hudson treated these locations as possible stray voltage conditions and mitigated the voltages as summarized below:

Ten distribution pole locations with voltage findings between 1.14 Volts and 3.68 Volts were concentrated along one road. Given the concentration and number of findings in this area, several alternatives were evaluated to eliminate the cause of the voltage findings. The mitigation implemented included replacing a number of transformers and inspecting and repairing secondary connections from an aerial position as required. All readings after mitigation were found to be less than 1 Volt.

Nine distribution pole locations with voltage findings between 1.06 Volts and 2.18 Volts were located in the eastern section of the Kingston Operating District in an area with rocky terrain and poor earth grounding. Normal stray voltage mitigation techniques were applied to the distribution poles in this area, without any sign of decreasing voltage level. A work order was created to extend the primary neutral to close a gap and mitigate the voltage at a group of three poles. This work was delayed due to permitting requirements, but was completed expeditiously after all of the required approvals were received. Guy break insulators, which are not bonded to the system neutral, were installed at the remaining six locations as a last resort to mitigate the voltage found on the guy wires. It should be noted that installation of an un-bonded guy break insulator is not a standard construction practice at Central Hudson due to the Wye-Wye configuration of the system and therefore required review and approval by Engineering. All readings after mitigation were found to be less than 1 Volt, but took longer to complete due to the need to obtain the required approvals prior to construction.

The nineteen locations discussed above required more than 45 days to mitigate the voltage findings due to the configuration of the circuitry and complications in completing the required field-work. These locations were all safeguarded from the public and monitored in accordance with the requirements of the Order. Ultimately, the voltages at all nineteen locations were determined to be naturally occurring based on the mitigation steps that were taken but for reporting purposes they have been categorized as stray voltage since they were completely mitigated based on the recorded readings of less than 1 Volt post mitigation.

Central Hudson was not required by the Order to perform mobile detection of its system between January 1, 2009 and December 31, 2009. Therefore, Central Hudson did not perform any mobile system scans during this time period.

IV. Facility Inspection Program

The Order requires Central Hudson to visually inspect 100% of its electric facilities every five years. This equates to inspecting approximately 20% of these facilities annually.

Central Hudson visually inspects its transmission system on a five year-cycle in accordance with the Order. The distribution system visual inspection is conducted on a three-year cycle, which exceeds the requirements of the Order.

In accordance with Order, Central Hudson uses the following severity levels to report deficiencies to the PSC and 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 represent 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 are 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.

In accordance with the PSC requirements, 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 due to extraordinary circumstances; such as storms, require extensive repair activity, and have special requirements. Central Hudson began tracking temporary repairs during the 2009 calendar year. Results from this tracking have been compiled and described in Appendix 5 of this report.

V. Company Facilities

Structure Categories

Based on the requirements of the Order, Central Hudson has identified approximately 240,252 individual electric facilities that require testing for the presence of stray voltage. The Order also requires Central Hudson to inspect 20% of its facilities annually. These facilities are broken down into four main categories as follows:

Distribution Overhead – The testing criteria for distribution overhead includes all utility owned or joint use wooden poles with utility electrical facilities that are located on public thoroughfares or customer property, including backyards and alleys. There are approximately 210,318 distribution pole structures in Central Hudson's service territory. 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. Distribution overhead facilities are included in both the stray voltage and inspection programs.

Underground Facilities – The testing criteria for underground facilities is comprised of subsurface structures, including above ground, pad-mounted structures. There are 14,802 underground facilities that comprise Central Hudson's system. Within this total are approximately 1,219 manholes and pullboxes and approximately 13,583 pad-mounted structures. Included in the underground facilities are padmount switchgear cases, padmount transformer cases, electric utility manhole covers, submersible transformer covers, electric utility handhole covers, network vaults and grates. These facilities are included in both the stray voltage and facility inspection programs.

Streetlights and Traffic Signals – The testing criteria for street lights and traffic signals includes all metal pole streetlights, traffic signals, and pedestrian crosswalk signals located on publicly accessible thoroughfares. There are approximately 5,545 metal pole streetlights and approximately 828 traffic signals within Central Hudson's service territory. This total includes 187 metal pole streetlights owned by Central Hudson with the balance of the equipment owned by various municipalities. All stray voltage testing of streetlights is performed at night while the fixtures are energized. Pursuant to the Order, area and street lighting that is privately owned is not included in the stray voltage testing program. All Company-owned streetlights are included in the facility inspection program.

Transmission Structures – The testing criteria for transmission structures includes all structures, guys, and down grounds attached to the structures. There are approximately 8,655 individual poles/towers that comprise Central Hudson's transmission system.

Transmission structures support circuit voltages of 69 kilovolts and above. Transmission poles as described above, with distribution underbuild, are included in this transmission category. Transmission structures are included in both the stray voltage and facility inspection programs.

Substation Fences – The testing criteria for substation fences consists of testing the fencing on the outside of the substation. There are approximately 104 substation fences in Central Hudson's territory. All substation fences are included in the stray voltage testing program.

VI. Annual Performance Targets

Central Hudson performed the required stray voltage testing and facilities inspections in accordance with the requirements set forth in the Order.

In compliance with the Order, Central Hudson has met the annual performance target for stray voltage by testing 100% of the publicly accessible electric facilities and streetlights/traffic signals for the twelve month period ending December 31, 2009.

In addition, Central Hudson has met the performance target for facility inspections by inspecting 100% of its electric facilities during five year period ending December 31, 2009 as defined in the Order.

The results are summarized in the table below:

Facility Inspection Program Results

Category	PSC Order Requirement	Actual Cumulative Inspected (as of 2009)
Overhead Distribution	100%	102.72% *
Overhead Transmission	100%	100%
Underground	100%	100%
Pad-mounted Transformers	100%	103.84% *
Streetlight	100%	100%

* Note: Cumulative inspections in excess of 100% will be clarified in the next section.

5-Year Inspection Performance Summary

Overhead Distribution Facilities

Central Hudson performs inspections on overhead distribution facilities on a three-year cycle. The overhead distribution facilities inspected in 2005 and 2006 were re-inspected in subsequent years (2007, 2008, or 2009). Pursuant to discussions with PSC Staff, overhead distribution facilities inspected in 2005 and 2006 were not included in the cumulative total of the system inspected.

Inspection Year	Overhead Distribution Structures Inspected	% of Overall System Inspected (Yearly)	% of Overall System Inspected (Cumulative)
2005	75,685	35.99%	N/A
2006	83,918	39.90%	N/A
2007	72,395	34.42%	34.42%
2008	82,849	39.39%	73.81%
2009	60,796	28.91%	102.72%*

* Note: The cumulative total is greater than 100% due to the addition and removal of poles throughout the five-year cycle along with 1,042 duplicated inspections.

Overhead Transmission Facilities

Central Hudson performs inspections on overhead transmission facilities on a five year cycle with the exception of the 345 kV transmission lines, which are on a yearly cycle. Between 2005 and 2006 Central Hudson inspected 100% of the transmission system. Therefore, Central Hudson reached 100% of the cumulative total at the end of 2006.

Inspection Year	Overhead Transmission Facilities Inspected	% of Overall System Inspected (Yearly)	% of Overall System Inspected (Cumulative)
2005	3,235	36.58%	36.58%
2006	6,112	69.11%	100%
2007	1,600	18.09%	100%
2008	2,842	32.13%	100%
2009	2,577	29.13%	100%

Manholes and Pullboxes

Central Hudson performs inspections on manholes and pullboxes on a three-year cycle. At the end of 2007, 100% of the manholes and pullboxes in Central Hudson's system were inspected.

Inspection Year	Manholes and Pullboxes Facilities Inspected	% of Overall System Inspected (Yearly)	% of Overall System Inspected (Cumulative)
2005	574	47.09%	47.09%
2006*	876	71.86%	70.30%
2007	362	29.70%	100%
2008	409	33.55%	100%
2009	418	34.29%	100%

* Note: 593 manholes and pullboxes inspected in 2006 were previously inspected in 2005.

Padmount Transformers

Central Hudson performs inspections on padmount transformers on a three-year cycle. The padmount transformers inspected in 2005 and 2006 were re-inspected in subsequent years (2007, 2008, or 2009). Pursuant to discussions with PSC Staff, padmounted transformers inspected in 2005 and 2006 were not included in the cumulative total of the system inspected.

Inspection Year	Padmount Transformers Inspected	% of Overall System Inspected (Yearly)	% of Overall System Inspected (Cumulative)
2005*	4,904	36.10%	N/A
2006*	3,199	23.55%	N/A
2007	5,594	41.18%	41.18%
2008	3,956	29.12%	70.30%
2009	4,556	33.54%	103.84%

* Note: The cumulative total is greater than 100% due to the addition and removal of padmount transformers throughout the five year cycle along with 17 duplicated inspections.

Streetlights

Central Hudson performs inspections on Company-owned streetlights yearly in conjunction with stray voltage testing. As stray voltage technicians perform stray voltage testing, they also perform a visual inspection of the streetlights.

Inspection Year	Streetlights Inspected	% of Overall System Inspected (Yearly)	% of Overall System Inspected (Cumulative)
2005	187	100%	100%
2006	187	100%	100%
2007	187	100%	100%
2008	187	100%	100%
2009	187	100%	100%

II. Certifications

Pursuant to Section 7 of Appendix A of the Order, 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 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/traffic signals, as referred to in the body of the February 15 Report, and
- Inspected the requisite number of electric facilities.

The certifications are attached as Exhibit 1 of this report.

VIII. Analysis of Causes of Findings and Stray Voltage

All New York State utilities compile an inventory of all findings and report on the number of these findings each year. Section 1(f) of the December 15, 2008 Order defines a finding as “any 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 “voltage 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.”

To distinguish between a hazardous situation and a naturally occurring situation, a handheld oscilloscope meter is utilized by field forces to classify these situations. By looking at the total harmonic distortion of a voltage waveform and the breakdown of the harmonics, in addition to the condition of the location, the proper actions can be taken.

If there is a non-naturally occurring voltage present, then the wave form will appear as a perfect 60 Hz sinusoidal wave with 5% or less total harmonic distortion. These voltages result from a variety of conditions including: deterioration of conductors; age of equipment; exposure to the elements; and various customer related issues. These voltages should not exist on normally operating electric facilities and are considered to be stray voltages per the Order definition in Section 1(c).

Section 3(h) of the Order requires “Mitigation shall be completed on any stray voltage findings.” Through the efforts of the Stray Voltage testing program, Central Hudson has been able to repair these issues and mitigate the danger associated with these elevated voltages.

When examining a naturally occurring voltage on a handheld oscilloscope, high harmonic content from different frequencies (generally 180 HZ and 300 Hz) will cause distortion in the voltage waveform. Causes of these voltages include, but are not limited to, naturally occurring neutral to earth voltages (as part of a multi-grounded WYE power system); poor soil grounding conditions; load balance between phases; long low voltage single phase circuit spurs with high current loads; capacitive coupling; and/or proximity to transmission lines. Since all of these voltage sources are considered part of a normally operating electrical distribution system, they do not require mitigation per the Order.

Although not all findings are due to stray voltage, utilities are required to report on all findings, regardless of whether or not the voltage is normal to the operating system. It has been established that 85.85% of the findings identified in this year's testing effort are normal to the operating system, and not due to stray voltage. Inclusion of these naturally occurring voltages in the findings gives the perception that there are more potentially hazardous voltage findings than actually exist. True hazardous voltages have been identified and mitigated through the stray voltage testing program.

In accordance with the PSC requirements, when a finding was discovered on an electric facility during stray voltage testing, the Company performed stray voltage testing on all publicly accessible structures and sidewalks within a minimum 30 foot radius of the electric facility or streetlight. Two publicly accessible structures (a padmount transformer and a fence) were identified and mitigated as a result of the 30-foot radius testing. Both structures were located near municipal-owned street lights with damaged secondary conductors. When the street lights were fixed, the voltage on these objects was effectively reduced to 0 volts.

IX. Analysis of 2009 Inspection Results

Discussion of Inspection Findings/Repairs

During the inspection process, two or more deficiencies can be reported at a single location during an inspection. Since it is impossible to correlate the number of deficiencies reported to the number of locations with deficiencies, this data has been tabulated separately.

The most common level of deficiencies found in Central Hudson's service territory were Level 4 conditions, 22,862 out of the 26,244 total (87.12%). The 3 most common deficiencies all involve overhead distribution poles. These deficiencies are Missing Guy Guards, (13,066; 57.14% of priority level 4 deficiencies), Broken Ground Moldings (5,873; 25.69% of priority level 4 deficiencies), and Tags Missing (2,720; 11.90% of priority level 4 deficiencies). Currently, Central Hudson is utilizing tree trimming crews to reduce the number of guy guards missing. As a tree trimming crew is working in an area, that crew is installing any missing guy guards on the circuit they are working. To address the broken ground moldings, Central Hudson is utilizing stray voltage technicians to replace the broken ground molding. Finally, to address the missing pole tags, Central

Hudson is looking to launch a pilot program in 2010 to ascertain the costs of replacing the pole tags as field inspectors perform overhead pole inspections.

Central Hudson maintains a good response time to Level 1 deficiencies. As in previous years, there were no Level 1 deficiencies that were repaired outside of the allotted time frame. Central Hudson strives to repair Level 1 deficiencies within 24 hours of discovery.

For the remainder of the high priority work (Level 2 and 3 deficiencies), Central Hudson sends a qualified representative to each location to validate the condition identified and determine what kind of repairs are needed at the facility. For these higher priority deficiencies, either a dispatch order will be opened or a work order will need to be created. After the work order or dispatch order is created, the repairs can be scheduled. Repairs are scheduled based on severity and concentration in a geographic area. Resources are utilized to maximize the amount of repairs completed in a given area or district.

In addition to working on the deficiencies found during the 2009 calendar year, Central Hudson also worked on the backlog of deficiencies found in prior years. Through efficient use of resources and personnel, Central Hudson reduced the backlog of uncompleted high priority (Level 2 and Level 3) deficiency repairs by 59.65% (677 out of 1,135 Repair Orders). This translates into a 62.38% reduction of estimated crew hours needed to complete these repairs (1,749.50 out of 2,804.45 crew hours).

Overhead Distribution Structures

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies	% Locations w/ Deficiencies Requiring Repair in 1 year
60,796	21,573	35.48%	0.27%

Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	41	0.16%
2	124	0.49%
3	2,806	11.13%
4	22,239	88.22%
Total:	25,210	100%

Overhead Transmission Facilities

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies	% Locations w/ Deficiencies Requiring Repair in 1 year
2,577	588	22.82%	0.16%

Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	0	0.00%
2	4	0.68%
3	219	37.18%
4	366	62.14%
Total:	589	100%

Manholes and Pullboxes

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies	% Locations w/ Deficiencies Requiring Repair in 1 year
418	76	18.18%	1.44%

Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	0	0.00%
2	6	7.23%
3	18	21.69%
4	59	71.08%
Total:	83	100%

Padmount Transformers

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies	% Locations w/ Deficiencies Requiring Repair in 1 year
4,556	343	7.53%	0.97%

Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	41	11.33%
2	3	0.82%
3	120	33.15%
4	198	54.70%
Total:	362	100%

Streetlights

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies	% Locations w/ Deficiencies Requiring Repair in 1 year
187	0	0.00%	0.00%

Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	0	N/A
2	0	N/A
3	0	N/A
4	0	N/A
Total:	0	100%

X. Quality Assurance

Central Hudson continues to utilize an external auditor to perform its QA/QC program to review the effectiveness and accuracy of the stray voltage testing and facility inspection programs and their associated activities. The external auditor reports directly to Central Hudson's Internal Auditing Department and submits audit reports simultaneously to the Internal Auditing Department and the Program Manager for review. If any findings are found, an action plan is assembled to address the concerns identified by the external auditor. This audit resulted in specific improvements to the various processes, which have contributed toward increasing program efficiency and accuracy as well as reducing potential for future errors. The QA/QC program calls for several types of audits and for constant feedback with respect to the data collection and processing. The various audits cover personnel training, field testing and inspection procedures and practices, testing and inspection records, and field trailing audits.

For 2009, there were four audits of field-testing and inspection activities, one audit of the initial training, and two audits of test data records. In addition, a comprehensive year-end audit for the 2009 records is currently being processed. The completed audits indicate that all significant activities associated with the stray voltage testing and facilities inspection programs were conducted in accordance with established protocols. The external auditor's findings resulted in zero issues that required formal remedial action plans.

Opportunities for improvements have lead to minor changes that were either implemented immediately or are currently being implemented. Opportunities presented to Central Hudson for improvement primarily centered on documentation of training.


XI. Other Pertinent Information

Central Hudson continues to participate in the NYS Residential Stray Voltage Committee Activities, and through its EPRI and CEA membership, continues to ensure that the best operational, construction and maintenance practices are being utilized. Central Hudson also participates with the New York State Utilities and the PSC in discussing issues and opportunities regarding both Stray Voltage Testing and Facility Inspections.

During 2009, Central Hudson worked closely with EPRI in the utilization of a handheld oscilloscope meter to analyze the harmonic content of voltages found during Stray Voltage testing. Through this collaborative effort, EPRI has been able to prepare documentation identifying the sources of voltage found in the field. By identifying the source of the voltage, technicians are able to determine if a voltage is naturally occurring relative to the operation of an electrical distribution system or due to stray voltage.

This effort was recognized by EPRI with a Technology Transfer Award. In addition to this national recognition, IEEE is in the preliminary phases of implementing the use of a hand held oscilloscope meter in its standard for testing and identifying stray and contact voltages. Based upon this collaborative effort, other utilities (including Consolidated Edison of New York and We Energies of Wisconsin) have begun to use handheld oscilloscopes as part of identifying voltage sources.


Appendix 1: Stray Voltage Testing Summary

		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		210,318	210,318	100.00%	381	0.181%	873
Underground Facilities Non-URD		14,802	14,802	100.00%	7	0.047%	128
		1,219	1,219	100.00%	0	0.000%	48
Street Lights / Traffic Signals		6,373	6,373	100.00%	12	0.188%	37
Substation Fences		104	104	100.00%	0	0.000%	1
Transmission (69kV and Above)		8,655	8,655	100.00%	17	0.196%	318
TOTAL		240,252	240,252	100.00%	417	0.174%	1,357

Findings will include naturally occurring and stray voltages. Of the 417 locations with voltages, 59 locations were mitigated and included; 40 locations of which were due to stray voltage, and 19 locations were later determined to be naturally occurring.


Appendix 2A: Summary of Stray Voltage Findings

The table below shows Central Hudson's Stray Voltage Mitigation efforts. Of the 417 locations with findings of 1 Volt or greater, 59 locations were mitigated. Forty of the mitigated locations were found to have stray voltage caused by the deterioration of conductors, contact voltage, or broken equipment. The remaining nineteen locations were hard to classify as stray voltage or naturally occurring voltage but in the interest of public safety were mitigated as a precaution. After further investigation, these 19 locations were determined to be naturally occurring and would not normally have required mitigation. For reporting purposes, since all 59 locations were mitigated they have been categorized as stray voltage. The remaining 358 voltage findings were deemed to have been caused by a natural source and therefore did not require mitigation. For a complete breakout of energized objects see Appendix 2B.


	Initial Readings				Readings after Mitigation		
	1V to 4.4V	4.5V to 24.9V	25V and Over	Totals	< 1 V	1V to 4.4V	4.5V and Over
Distribution Facilities	42	2	3	47	47	-	-
Pole	-	-	-	-	-	-	-
Ground	15	-	-	15	15	-	-
Guy	26	2	2	30	30	-	-
Riser	1	-	1	2	2	-	-
Other	-	-	-	-	-	-	-
Underground Facilities	-	-	-	-	-	-	-
Handhole / Pull box	-	-	-	-	-	-	-
Manhole	-	-	-	-	-	-	-
Padmount Switchgear	-	-	-	-	-	-	-
Padmount Transformer	-	-	-	-	-	-	-
Vault – Cover/Door	-	-	-	-	-	-	-
Pedestal	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
Street Lights / Traffic Signals	2	7	3	12	12	-	-
Metal Street Light Pole	2	6	3	11	11	-	-
Traffic Signal Pole	-	1	-	1	1	-	-
Control Box	-	-	-	-	-	-	-
Pedestrian Crossing Pole	-	-	-	-	-	-	-
Other - NOT LISTED	-	-	-	-	-	-	-
Substation Fences	-	-	-	-	-	-	-
Fence	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
Transmission (69kV and Above)	-	-	-	-	-	-	-
Lattice Tower	-	-	-	-	-	-	-
Pole	-	-	-	-	-	-	-
Ground	-	-	-	-	-	-	-
Guy	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
Miscellaneous Facilities	-	-	-	-	-	-	-
Sidewalk	-	-	-	-	-	-	-
Gate/Fence/Awning	-	-	-	-	-	-	-
Control Box	-	-	-	-	-	-	-
Scaffolding	-	-	-	-	-	-	-
Bus Shelter	-	-	-	-	-	-	-
Fire Hydrant	-	-	-	-	-	-	-
Phone Booth	-	-	-	-	-	-	-
Water Pipe	-	-	-	-	-	-	-
Riser	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-

Appendix 2B: Summary of Energized Objects

The table below shows the summary of energized objects. Of the 417 locations with findings of 1 Volt or greater, 59 locations were mitigated. Forty of the mitigated locations were found to have stray voltage caused by the deterioration of conductors, contact voltage, or broken equipment. The remaining nineteen locations were hard to classify as stray voltage or naturally occurring voltage but in the interest of public safety were mitigated as a precaution. After further investigation, these 19 locations were determined to be naturally occurring and would not normally have required mitigation. For reporting purposes, since all 59 locations were mitigated they have been categorized as stray voltage. The table below has a complete breakout of findings along with distinctions between naturally occurring voltage and stray voltage discovered through the Stray Voltage Testing Program.

	Initial Readings				Voltage Type		
	1V to 4.4V	4.5V to 24.9V	25V and Over	Totals	Naturally Occurring	Stray Voltage	Mitigated Locations (<1 Volt)
Distribution Facilities	362	16	3	381	334	47	47
Pole	-	-	-	-	-	-	-
Ground	117	6	-	123	108	15	15
Guy	232	9	2	243	213	30	30
Riser	5	-	1	6	4	2	2
Other	8	1	-	9	9	-	-
Underground Facilities	7	-	-	7	7	-	-
Padmount Switchgear	3	-	-	3	3	-	-
Other	4	-	-	4	4	-	-
Street Lights / Traffic Signals	2	7	3	12	-	12	12
Metal Street Light Pole	2	6	3	11	-	11	11
Traffic Signal Pole	-	1	-	1	-	1	1
Transmission (69kV and Above)	16	1	-	17	17	-	-
Lattice Tower	-	-	-	-	-	-	-
Ground	16	1	-	17	17	-	-
Grand Total	387	24	6	417	358	59	59

Appendix 3: Summary of Shock Reports from the Public

		Yearly Total
I. Total Shock Calls Received:		22
Unsubstantiated		5
Normally Energized Equipment		7
Stray Voltage:		
Person		8
Animal		2
II. Injuries Sustained/Medical Attention Received		2
Person		1
Animal		1
III. Voltage Source:		10
Utility Responsibility		
Issue with primary, joint, or transformer		1
Secondary Joint (Crab)		
SL Service Line		
Abandoned SL Service Line		
Defective service line		
Abandoned service line		
OH Secondary		
OH Service		
OH Service neutral		
Pole		
Riser		1
Other		1
Customer Responsibility		
Contractor damage		1
Customer Equipment / Wiring		5
Other Utility / Gov't Agency Responsibility		
SL Base Connection		
SL Internal Wiring or Light Fixture		1
Overhead Equipment		
IV. Voltage Range:		10
Unrecorded/Below 1V		2
1.0V to 4.4V		5
4.5V to 24.9V		2
25V and above		1

Appendix 4: Summary of Deficiencies and Repair Activity Resulting from the Inspection Process

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Distribution														
Overhead Facilities		2009			2010			2011			2012			2013
Priority Level		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 3 years
Poles														
Pole Condition														
Number of Deficiencies		4	48	369										
Repaired in Time Frame		4	18	71										
Repaired - Overdue		-	-	-										
Not Repaired - Not Due		-	30	298										
Not Repaired - Overdue		-	-	-										
Grounding System														
Number of Deficiencies		-	-	-										
Repaired in Time Frame		-	-	-										
Repaired - Overdue		-	-	-										
Not Repaired - Not Due		-	-	-										
Not Repaired - Overdue		-	-	-										
Anchors/Guy Wire														
Number of Deficiencies		-	-	634										
Repaired in Time Frame		-	-	203										
Repaired - Overdue		-	-	-										
Not Repaired - Not Due		-	-	431										
Not Repaired - Overdue		-	-	-										
Cross Arm/Bracing														
Number of Deficiencies		2	7	23										
Repaired in Time Frame		2	-	4										
Repaired - Overdue		-	-	-										
Not Repaired - Not Due		-	7	19										
Not Repaired - Overdue		-	-	-										
Riser														
Number of Deficiencies		1	-	-										
Repaired in Time Frame		1	-	-										
Repaired - Overdue		-	-	-										
Not Repaired - Not Due		-	-	-										
Not Repaired - Overdue		-	-	-										
Conductors														
Primary Wire/Broken Ties														
Number of Deficiencies		27	5	80										
Repaired in Time Frame		27	-	20										
Repaired - Overdue		-	-	-										
Not Repaired - Not Due		-	5	60										
Not Repaired - Overdue		-	-	-										
Secondary Wire														
Number of Deficiencies		2	-	22										
Repaired in Time Frame		2	-	7										
Repaired - Overdue		-	-	-										
Not Repaired - Not Due		-	-	15										
Not Repaired - Overdue		-	-	-										

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Distribution

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	
Neutral																
Number of Deficiencies	-	-	22													
Repaired in Time Frame	-	-	3													
Repaired - Overdue	-	-	-													
Not Repaired - Not Due	-	-	19													
Not Repaired - Overdue	-	-	-													
Insulators																
Number of Deficiencies	1	-	20													
Repaired in Time Frame	1	-	3													
Repaired - Overdue	-	-	-													
Not Repaired - Not Due	-	-	17													
Not Repaired - Overdue	-	-	-													
Pole Equipment																
Transformers																
Number of Deficiencies	-	-	21													
Repaired in Time Frame	-	-	5													
Repaired - Overdue	-	-	-													
Not Repaired - Not Due	-	-	16													
Not Repaired - Overdue	-	-	-													
Cutouts																
Number of Deficiencies	-	34	-													
Repaired in Time Frame	-	20	-													
Repaired - Overdue	-	-	-													
Not Repaired - Not Due	-	14	-													
Not Repaired - Overdue	-	-	-													
Lightning Arrestors																
Number of Deficiencies	-	-	4													
Repaired in Time Frame	-	-	-													
Repaired - Overdue	-	-	-													
Not Repaired - Not Due	-	-	4													
Not Repaired - Overdue	-	-	-													
Other Equipment																
Number of Deficiencies	-	-	-													
Repaired in Time Frame	-	-	-													
Repaired - Overdue	-	-	-													
Not Repaired - Not Due	-	-	-													
Not Repaired - Overdue	-	-	-													
Miscellaneous																
Trimming Related																
Number of Deficiencies	4	25	1,583													
Repaired in Time Frame	4	14	1,355													
Repaired - Overdue	-	-	-													
Not Repaired - Not Due	-	11	228													
Not Repaired - Overdue	-	-	-													

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Distribution

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
Other																
Number of Deficiencies		-	5	28												
Repaired in Time Frame		-	-	3												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	5	25												
Not Repaired - Overdue		-	-	-												
Total		41	124	2,806												
Number of Deficiencies		41	52	1,674												
Repaired in Time Frame		-	-	-												
Repaired - Overdue		-	72	1,132												
Not Repaired - Not Due		-	-	-												
Not Repaired - Overdue		-	-	-												
Overhead Facilities Total																

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Transmission

Transmission Facilities	2009			2010			2011			2012			2013		
Priority Level	I	II	III	I	II	III	Within 1 week	Within 1 year	Within 3 years	I	II	III	Within 1 week	Within 1 year	Within 3 years
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
Towers/Poles															
Steel Towers															
Number of Deficiencies	-	-	-												
Repaired in Time Frame	-	-	-												
Repaired - Overdue	-	-	-												
Not Repaired - Not Due	-	-	-												
Not Repaired - Overdue	-	-	-												
Poles															
Number of Deficiencies	-	3	31												
Repaired in Time Frame	-	2	12												
Repaired - Overdue	-	-	-												
Not Repaired - Not Due	-	1	19												
Not Repaired - Overdue	-	-	-												
Anchors/Guy Wire															
Number of Deficiencies	-	-	112												
Repaired in Time Frame	-	-	5												
Repaired - Overdue	-	-	-												
Not Repaired - Not Due	-	-	107												
Not Repaired - Overdue	-	-	-												
Crossarm/Brace															
Number of Deficiencies	-	-	-												
Repaired in Time Frame	-	-	-												
Repaired - Overdue	-	-	-												
Not Repaired - Not Due	-	-	-												
Not Repaired - Overdue	-	-	-												
Grounding System															
Number of Deficiencies	-	-	-												
Repaired in Time Frame	-	-	-												
Repaired - Overdue	-	-	-												
Not Repaired - Not Due	-	-	-												
Not Repaired - Overdue	-	-	-												
Conductors															
Cable															
Number of Deficiencies	-	-	-												
Repaired in Time Frame	-	-	-												
Repaired - Overdue	-	-	-												
Not Repaired - Not Due	-	-	-												
Not Repaired - Overdue	-	-	-												
Static/Neutral															
Number of Deficiencies	-	-	-												
Repaired in Time Frame	-	-	-												
Repaired - Overdue	-	-	-												
Not Repaired - Not Due	-	-	-												
Not Repaired - Overdue	-	-	-												

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Transmission

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 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
Insulators																
Number of Deficiencies	-	-	1	4	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous																
Right of Way Condition																
Number of Deficiencies	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other																
Number of Deficiencies	-	-	-	71	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	-	71	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transmission Facilities Total																
Total			4	219												
Number of Deficiencies	-	-	4	219	-	-	-	-	-	-	-	-	-	-	-	-
Repaired in Time Frame	-	-	3	18	-	-	-	-	-	-	-	-	-	-	-	-
Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Not Due	-	-	1	198	-	-	-	-	-	-	-	-	-	-	-	-
Not Repaired - Overdue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Manholes and Pullboxes													
Underground Facilities		2009			2010			2011			2012		
Priority Level		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
Underground Structures													
Damaged Cover													
Number of Deficiencies	-	4	1										
Repaired in Time Frame	-	2	-										
Repaired - Overdue	-	-	-										
Not Repaired - Not Due	-	2	1										
Not Repaired - Overdue	-	-	-										
Damaged Structure													
Number of Deficiencies	-	2	10										
Repaired in Time Frame	-	-	-										
Repaired - Overdue	-	-	-										
Not Repaired - Not Due	-	2	10										
Not Repaired - Overdue	-	-	-										
Congested Structure													
Number of Deficiencies	-	-	-										
Repaired in Time Frame	-	-	-										
Repaired - Overdue	-	-	-										
Not Repaired - Not Due	-	-	-										
Not Repaired - Overdue	-	-	-										
Damaged Equipment													
Number of Deficiencies	-	-	-										
Repaired in Time Frame	-	-	-										
Repaired - Overdue	-	-	-										
Not Repaired - Not Due	-	-	-										
Not Repaired - Overdue	-	-	-										
Conductors													
Primary Cable													
Number of Deficiencies	-	-	2										
Repaired in Time Frame	-	-	-										
Repaired - Overdue	-	-	-										
Not Repaired - Not Due	-	-	2										
Not Repaired - Overdue	-	-	-										
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	-	-	-										

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Manholes and Pullboxes

Underground Facilities	Priority Level	2009			2010			2011			2012			2013		
		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
Racking Needed																
Number of Deficiencies		-	3	1												
Repaired in Time Frame		-	3	-												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	-	1												
Not Repaired - Overdue		-	-	-												
Miscellaneous																
Other																
Number of Deficiencies		-	-	5												
Repaired in Time Frame		-	-	1												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	-	4												
Not Repaired - Overdue		-	-	-												
Underground Facilities Total																
Total			6	18												
Number of Deficiencies		-	6	18												
Repaired in Time Frame		-	2	1												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	4	17												
Not Repaired - Overdue		-	-	-												

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Padmount Transformers

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		19	-	1												
Repaired in Time Frame		19	-	1												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	-	-												
Not Repaired - Overdue		-	-	-												
Damaged Equipment																
Number of Deficiencies		-	-	9												
Repaired in Time Frame		-	-	6												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	-	3												
Not Repaired - Overdue		-	-	-												
Cable Condition																
Number of Deficiencies		-	-	-												
Repaired in Time Frame		-	-	-												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	-	-												
Not Repaired - Overdue		-	-	-												
Oil Leak																
Number of Deficiencies		-	-	-												
Repaired in Time Frame		-	-	-												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	-	-												
Not Repaired - Overdue		-	-	-												
Off Pad																
Number of Deficiencies		21	3	-												
Repaired in Time Frame		21	2	-												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	-	-												
Not Repaired - Overdue		-	-	-												
Lock/Latch/Penta																
Number of Deficiencies		1	-	-												
Repaired in Time Frame		1	-	-												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	-	-												
Not Repaired - Overdue		-	-	-												
Miscellaneous																
Other																
Number of Deficiencies		-	-	110												
Repaired in Time Frame		-	-	4												
Repaired - Overdue		-	-	-												
Not Repaired - Not Due		-	-	106												
Not Repaired - Overdue		-	-	-												

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Padmount Transformers															
Pad Mount Transformers		2009			2010			2011			2012			2013	
Priority Level		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		
Pad Mount Total															
Total															
Number of Deficiencies		41	3	120											
Repaired in Time Frame		41	2	11											
Repaired - Overdue		-	-	-											
Not Repaired - Not Due		-	-	109											
Not Repaired - Overdue		-	-	-											

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Streetlights

Streetlights	2009			2010			2011			2012			2013		
	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
Priority Level	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
Repair Expected															
Streetlight															
Base/Standard/Light															
Number of Deficiencies	-	-	-												
Repaired in Time Frame	-	-	-												
Repaired - Overdue	-	-	-												
Not Repaired - Not Due	-	-	-												
Not Repaired - Overdue	-	-	-												
Handhole/Service 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	-	-	-												
Not Repaired - Overdue	-	-	-												
Access Cover															
Number of Deficiencies	-	-	-												
Repaired in Time Frame	-	-	-												
Repaired - Overdue	-	-	-												
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	-	-	-												
Streetlight Total															
Total															
Number of Deficiencies	-	-	-												
Repaired in Time Frame	-	-	-												
Repaired - Overdue	-	-	-												
Not Repaired - Not Due	-	-	-												
Not Repaired - Overdue	-	-	-												

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Level IV Conditions

Level IV Conditions		2009		2010		2011		2012		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											
Pole Condition		7	-								
Grounding System		6,375	2,927								
Anchor/Guy Wire		13,066	1,152								
Cross Arm/Bracing		-	-								
Riser		-	-								
Conductors											
Primary Wire/Broken Ties		-	-								
Secondary Wire		-	-								
Neutral		-	-								
Insulators		-	-								
Pole Equipment											
Transformers		-	-								
Cutouts		-	-								
Lightning Arrestors		-	-								
Other Equipment		-	-								
Miscellaneous		-	-								
Trimming Related		-	-								
Other		2,791	126								
Overhead Facilities Total		22,239	4,205								
Transmission Facilities											
Towers/Poles											
Steel Towers		-	-								
Poles		76	1								
Anchor/Guy Wire		99	-								
Crossarm/Brace		10	-								
Grounding System		-	-								
Conductors											
Cable		6	-								
Static/Neutral		-	-								
Insulators		3	2								
Miscellaneous											
Right of Way Condition		1	-								
Other		171	16								
Transmission Facilities Total		366	19								

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Level IV Conditions										
Level IV Conditions		2009		2010		2011		2012		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
Underground Facilities										
Underground Structures										
	Damaged Cover	3	-							
	Damaged Structure	4	-							
	Congested Structure	-	-							
	Damaged Equipment	-	-							
	Conductors									
	Primary Cable	35	-							
	Secondary Cable	-	-							
	Neutral Cable	-	-							
	Racking Needed	7	-							
	Miscellaneous									
	Other	10	4							
	Underground Facilities Total	59	4							
Padmount Transformers										
Underground Structures										
	Damaged Structure	-	-							
	Damaged Equipment	-	-							
	Damaged Cable	-	-							
	Oil Leak	-	-							
	Off Pad	-	-							
	Lock/Latch/Penta	-	-							
	Miscellaneous									
	Other	198	73							
	Pad Mount Transformer Total	198	73							
Streetlights										
Streetlights										
	Streetlight									
	Base/Standard/Light	-	-							
	Handhole/Service Box	-	-							
	Service/Internal Wiring	-	-							
	Access Cover	-	-							
	Miscellaneous									
	Other	-	-							
	Streetlight Total	0	0							
Total Level IV Conditions										
Overall Total		22,862	4,301							

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process						
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	82	82	0	0	0
	II Within 1 year	137	59	0	77	0
	III Within 3 years	3,163	1,704	0	1,456	0
	IV N/A	22,862	4,301	N/A	18,561	N/A
2010	I Within 1 week					
	II Within 1 year					
	III Within 3 years					
	IV N/A					
2011	I Within 1 week					
	II Within 1 year					
	III Within 3 years					
	IV N/A					
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 Repairs

Central Hudson began tracking temporary repairs on a formal basis in 2009. The process of tracking temporary repairs throughout all divisions in Central Hudson is a complex one requiring interfacing of multiple systems and coordination of several organizations. Currently, the tracking method is a labor intensive, manual process for temporary repairs found through the stray voltage testing program. Central Hudson decided to utilize stray voltage technicians to collect and populate the initial inventory since they visit every facility annually.

Overall, Central Hudson has completed permanent repairs on 107 out of 133 locations (80.45%). Of the repairs completed, 55 were completed within the 90 day time frame stated in the Order (41.35%). The average completion time for all completed temporary repairs was 97.8 days after discovery.

Many factors contributed to temporary repairs being completed outside of the 90 day window. Since 2009 was the first year that Central Hudson began formally tracking temporary repairs, the backlog for all previous years was collected in addition to temporary repairs that were created in 2009. In addition, the process of obtaining permits and approvals can cause the permanent repair to be completed outside of the 90 day time frame. Similar to deficiencies identified during inspections, qualified personnel are prioritizing temporary repairs based on circuit reliability and public safety. Note: Once a temporary condition is identified, the Company re-evaluates the location and determines if additional safeguards are required to protect the interest of the public, and does so immediately. Other conditions outside of Central Hudson's control have also caused delays such as; weather, field conditions, equipment rentals, and available load capacity due to switching requirements.

In 2010, Central Hudson looks to improve performance relative to identifying temporary repairs as well as completion of repairs. There should be fewer locations identified as temporary repairs going forward. A process for automating notifications for temporary repairs is currently being developed. In the spirit of the Order, Central Hudson was successful in identifying temporary repairs, creating an inventory, and reducing the number of outstanding temporary repairs in field.

Exhibit 1: Certifications

CERTIFICATION
[STRAY VOLTAGE TESTING]

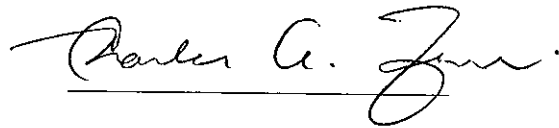
STATE OF NEW YORK)
) ss.:
COUNTY OF DUTCHESS)

Charles A. Freni, on this 12th day of February 2010, certifies as follows:

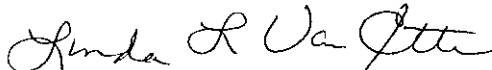
1. I am the Senior Vice President, Customer Services of Central Hudson Gas and Electric (the “Company”), and in that capacity I make this Certification for the annual period ending December 31st, 2009 based on my knowledge of the testing program adopted by the Company in accordance the Public Service Commission’s Orders issued and effective January 5, 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 streetlights located in public thoroughfares in the Company’s service territory (“Streetlights”), as identified through a good faith effort by the Company, for stray voltage (the “Stray Voltage Testing Program”).
3. I am responsible for overseeing the Company’s Stray Voltage Testing Program and in that capacity I have monitored the

Company's Stray Voltage Testing Program during the twelve months ended December 31st, 2009 (the "Twelve-Month Period").

4. 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 Twelve Month Period. Except for untested structures that are identified as temporarily inaccessible in the Company's Annual Report, submitted herewith, the Company is unaware of any Facilities or Streetlights that were not tested during the Twelve-Month Period.
5. 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 Streetlights 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 Streetlights were known to exist or reasonably expected to be found.



Sworn to before me this 12th day of February, 2010

Notary Public: 

LINDA L. VANETTEN
Notary Public, State of New York
Qualified in Ulster County
Reg. No. 01VA6068532
Commission Expires January 7, 2014

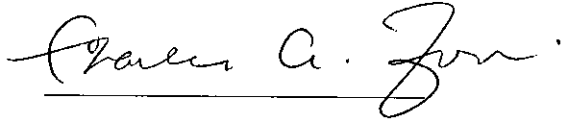
CERTIFICATION
[FACILITY INSPECTIONS]

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

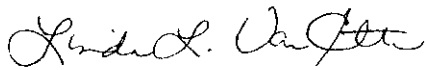
Charles A. Freni, on this 12th day of February 2010, certifies as follows:

1. I am the Senior Vice President, Customer Services of Central Hudson Gas and Electric (the “Company”), and in that capacity I make this Certification for the annual period ending December 31st, 2009 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, 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 all of its electric facilities on a five-year inspection cycle, 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 am responsible for overseeing the Company's Facility Inspection Program and in that capacity I have monitored the program during the twelve months ended December 31st, 2009 (the "Twelve-Month Period").
4. 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 2009, in order to comply with the five-year inspection cycle required under the Orders. I further certify that, to the best of my knowledge, information and belief, the Company has inspected 100% of its Facilities for the five-year period ended December 31, 2009.



Sworn to before me this 12th day of February, 2010

Notary Public: 

LINDA L. VANETTEN
Notary Public, State of New York
Qualified in Ulster County
Reg. No. 01VA6068532
Commission Expires January 7, 2014