



Rochester Gas and Electric Corporation

STRAY VOLTAGE TEST AND FACILITY INSPECTION PROGRAM

Report on the results of Stray Voltage Tests and
Facility Inspections for the 12-month period ending
on December 31, 2020

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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, December 15, 2008, March 22, 2013, July 21, 2010 and January 13, 2015 (Case 10-E-0271), (collectively referred to herein as the "Safety Standards" or "Order"), require electric utilities in New York State, including Rochester Gas and Electric Corporation ("RG&E" or the "Company") to test annually all of their publicly accessible streetlights and underground electric facilities, and test their overhead distribution facilities, overhead and underground transmission facilities, underground residential distribution facilities (URD), and substation fences for stray voltage every five years coinciding with their electric facility inspections.

This report describes the RG&E Stray Voltage Detection Program, the Mobile Stray Voltage Program, and the Facility Inspection Program conducted in 2020.

II. Company Overview

RG&E, a subsidiary of AVANGRID serves approximately 386,500 electricity customers and 321,200 natural gas customers in a nine-county region centered on the City of Rochester.

RG&E's electric delivery infrastructure consists of approximately 215,798 distribution structures, 16,608 transmission structures, 50,022 underground/URD facilities, 166 substations, and 9,153 streetlight facilities.

III. Stray Voltage Testing Program

During the 12-month period ending December 31, 2020, RG&E conducted stray voltage testing of all its publicly accessible underground electric facilities, and all Company and non-Company owned metallic streetlights and traffic signals, as well as approximately 20% of its overhead transmission and distribution facilities, and underground residential distribution facilities that are capable of conducting electricity. The Company also tested all publicly accessible third party facilities in close proximity to their system components identified with elevated voltage.

In accordance with the Order, RG&E:

- a. Immediately safeguarded and/or mitigated all voltage findings ≥ 1.0 volt. In instances where the stray voltage finding was determined to be caused by customer-owned equipment, the area was immediately made safe and the customer or responsible party associated with the premises was notified of the unsafe condition and the need for the customer to arrange for a permanent repair. Voltage findings determined to be caused by a utility-owned facility were immediately safeguarded and/or mitigated. All permanent repairs were made within 45 days.

- b. Tested all publicly accessible structures within a 30 foot radius of the electric facility or streetlight where there was a stray voltage finding ≥ 1.0 volt.
- c. Responded, investigated, and mitigated positive findings of shock incidents reported by the public.

Structures Inaccessible to the Public

Contractors made every attempt to locate and test all structures. If the contractor could not reach a structure to perform a test, it was identified as “Inaccessible” and all other pertinent data was collected in the field. Of the 79,131 facilities visited, 477 were deemed Inaccessible to the public. As described below, there are several types of Inaccessible structures:

- a. Private Property – The structure was not tested if it was located on private property and was inaccessible due to walls, fences or barriers such as a locked gate, if excavation or bush/tree removal was required, or if there was unauthorized construction around the structure.
- b. RG&E Property – Structure located on Company property, such as substations, are accessible only to Company personnel and authorized contractors.
- c. Buried / Paved Over – The structure was not tested if it had been covered over with dirt, pavement, or other foreign objects that would prohibit public access and prevent testing the structure.
- d. Inside Building – The structure was not tested if it is customer owned equipment inside a building, in a locked equipment room, that is accessible to authorized personnel only.
- e. Limited Access Highways – Structures located on highways, exit and entrance highway ramps. The performance of stray voltage testing would constitute an unacceptable risk to the employee/contractor.
- f. Dangerous Terrain – Poles located on cliffs and other dangerous terrain are generally inaccessible to personnel and are approached only under urgent circumstances. The performance of stray voltage testing would constitute an unacceptable risk to the employee/contractor.

As required by the Safety Standards, RG&E completed its annual mobile stray voltage scan of the underground network within the City of Rochester in 2020. The report on results from the mobile scan filed with the Public Service Commission in June can be found in Appendix 5 of this report.

IV. Stray Voltage Testing Facilities

Structure Categories

As presented in Appendix 1, RG&E visited a total of 79,131 individual facilities in 2020. Of the 79,131 facilities visited, 14,458 facilities did not require stray voltage testing because these structures and their associated equipment are non-metallic and incapable of conducting electricity. Additionally, 477 facilities were deemed inaccessible. As a result, approximately 64,196 facilities required testing for the presence of stray voltage. These facilities are broken down into five main categories including:

Distribution Overhead – Of the 44,735 facilities visited there are approximately 30,520 distribution pole structures that required testing for the presence of stray voltage in RG&E’s territory. The testing criteria include all utility-owned or joint use wooden poles with utility electrical facilities located on both public thoroughfares and customer property, including backyards or alleys. Stray voltage tests are performed on all wooden poles with metallic attachments such as ground wires, ground rods, anchor guy wires, riser pipes, or any electrical equipment within reach of the general public. Distribution overhead facilities are included in both the stray voltage and inspection programs.

Underground Facilities – Of the 17,270 facilities visited there are approximately 16,819 underground facilities that required testing for the presence of stray voltage that comprise RG&E’s system. The testing criteria are comprised of subsurface structures, including above ground 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.

Street lights and Traffic Signals – Of the 14,353 facilities visited there are approximately 6,223 metallic street lights and approximately 8,130 traffic signals within RG&E’s service territory that required stray voltage testing. This total includes all conductive street lights owned by RG&E with the balance of the equipment owned by various municipalities. The testing criterion includes all metallic streetlights, traffic signals, and pedestrian crosswalk signals located on publicly accessible thoroughfares. All stray voltage testing of street lights is performed at night while the fixtures are energized. All Company-owned streetlights are included in the facility inspection program.

Transmission Structures – Of the 2,696 facilities visited there are approximately 2,504 individual poles/towers that required testing for the presence of stray voltage that comprise RG&E’s transmission system. The testing criteria are comprised of all structures, guys, and down leads attached to the structures. Transmission structures support circuit voltages of 34.5 kilovolts and greater. Transmission poles as described above, with distribution under-build, are included in this transmission category. All transmission structures are included in both the stray voltage and facility inspection programs.

Substations – There are approximately 166 substation fences in RG&E’s territory that require testing for the presence of stray voltage every five years. No substation fences were tested under this program in 2020 since 100% was achieved in 2018.

V. Analysis of Causes of Findings and Stray Voltage

All New York State utilities maintain an inventory on all findings and report on the number of these findings each year. Section 1(f) of the 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.”

Generally, there are two types of reported findings;

The first is a confirmed voltage reading greater than or equal to 1 volt measured using a volt meter and 500 ohm shunt resistor which is the result of an abnormal power system condition.

The second type is a confirmed voltage reading greater than or equal to 1 volt measured using a volt meter and 500 ohm shunt resistor which results from the normal delivery and/or use of electricity. Transmission structures in the absence of apparent damage to the structure grounding system typically are found having an induced voltage deemed normal to operating conditions. Inclusion of these normal occurring voltages in the total findings can result in the perception that there are more potentially hazardous voltage findings than actually exist.

Utilities are required to report on all findings, regardless of whether or not the voltage is abnormal or normal to operating conditions. Causes of these findings can 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 imbalance between phases; long low voltage single phase circuit spurs with high current loads; and/or proximity to transmission lines.

True hazardous voltages have been identified and mitigated through the stray voltage testing program. These voltages resulted from a variety of conditions including: deterioration of conductors; age of equipment; exposure to the elements; and various customer related issues. Through the efforts of the stray voltage testing program, RG&E has been able to repair these issues and mitigate the danger associated with the elevated voltage. A summary of energized objects included as Appendix 2 in this report displays the voltage ranges found for each stray voltage condition encountered this year.

In accordance with the PSC requirements; when a finding is discovered on an electric facility or streetlight during stray voltage testing, the Company is obligated to perform stray voltage testing on all publicly accessible structures and sidewalks within a minimum 30 foot radius of the electric facility or streetlight. In this year's testing cycle there was one energized object reported within a 30 foot radius of a stray voltage finding and it was cleared with mitigation of the finding.

VI. Facility Inspection Program

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

The objective of all inspections is to conduct a careful and critical examination of an electric facility by a qualified individual to determine the condition of the facility and the potential to cause, or lead to safety hazards, or adverse effects on reliability.

Inspections conducted during routine maintenance and other work not directly related to the inspection program count as an inspection visit, provided that the inspection is performed using the same safety and reliability criteria and to the same extent as would otherwise be required under the Electric Safety Standards.

In accordance with the Safety Standards, RG&E uses the following severity levels to establish priority for repairs and scheduling:

Level I – Repair as soon as possible but not longer than one week. A Level I deficiency is an actual or imminent safety hazard to the public or poses a serious and immediate threat to the delivery of power. Critical safety hazards present at the time of the inspection shall be guarded until the hazard is mitigated.

Level II – Repair within one year. A Level II deficiency is likely to fail prior to the next inspection cycle and 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 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 shall 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, i.e. storms, and require

extensive repair activity. The Company puts forth best efforts to conduct permanent repairs in the field, and only construct a temporary repair if/when absolutely necessary. For cycle year 2020, RG&E had no open temporary repair exceptions to report at the end of the year.

VII. Annual Inspection Performance Targets

RG&E performed the required stray voltage testing and facilities inspections in accordance with the requirements set forth in the Order.

In compliance with the Safety Standards, RG&E has met the annual performance target for stray voltage testing of 100% of streetlights and underground electric facilities, and approximately 20% of the overhead distribution facilities, overhead and underground transmission facilities, underground residential distribution facilities, and substation fences for the period ending December 31, 2020.

In addition, in compliance with the Safety Standards, RG&E has met the first-year annual performance target for inspection of its electric facilities for the period ending December 31, 2020; thus, beginning the fourth cycle and a five-year term 2020-2024. The table below provides the annual inspection percentage for each year of this inspection cycle, based on the total number of structures inspected, and is in compliance with the Safety Standards performance targets.

Facility Inspection Annual Performance

Year	Inspection Percentage
2020	20%
2021	
2022	
2023	
2024	
2020-2024 Cumulative	20%

The inspection results are summarized in the table below.

Facility Inspection Program Results

Category	RG&E Inspection Target	Actual Cumulative Inspected as of 2020
Overhead Distribution	20%	21%
Overhead Transmission	20%	16%
Underground	20%	12%
Padmounts	20%	22%
Streetlights	20%	25%
Substation	20%	100%

5-Year Inspection Performance Summary

Overhead Distribution Facilities

Inspection Year	Number of Overhead Distribution Structures Inspected	% of Overall System Inspected (Cumulative in Five Year Cycle 2020-2024)
2020	44,535	21%
2021		
2022		
2023		
2024		

Overhead Transmission Facilities

Inspection Year	Number of Overhead Transmission Facilities Inspected	% of Overall System Inspected (Cumulative in Five Year Cycle 2020-2024)
2020	2,712	16%
2021		
2022		
2023		
2024		

Underground Facilities

Inspection Year	Number of Underground Facilities Inspected	% of Overall System Inspected (Cumulative in Five Year Cycle 2020-2024)
2020	3,002	12%
2021		
2022		
2023		
2024		

Padmount Facilities

Inspection Year	Number of Padmount Facilities Inspected	% of Overall System Inspected (Cumulative in Five Year Cycle 2020-2024)
2020	5,581	22%
2021		
2022		
2023		
2024		

Streetlights

Inspection Year	Number of Streetlights Inspected	% of Overall System Inspected (Cumulative in Five Year Cycle 2020-2024)
2020	2,259	25%
2021		
2022		
2023		
2024		

VIII. Analysis of Inspection Results

Overhead Distribution Facilities

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies
44,535	1,299	2.92%

Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	24	1.85%
2	186	14.32%
3	771	59.35%
4	318	24.48%
Total:	1,299	100%

Overhead Transmission Facilities

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies
2,712	103	3.80%

Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	0	0.00%
2	11	10.68%
3	92	89.32%
4	0	0.00%
Total:	103	100%

Underground Facilities

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies
3,002	202	6.73%

Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	3	1.49%
2	22	10.89%
3	163	80.69%
4	14	6.93%
Total:	202	100%

Padmount Facilities

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies
5,581	75	1.34%

Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	11	14.67%
2	16	21.33%
3	47	62.67%
4	1	1.33%
Total:	75	100%

Streetlights

Table of Locations with Deficiencies

Locations Inspected	Locations w/ Deficiencies	% Locations w/ Deficiencies
2,259	20	0.89%

Breakdown of Locations with Deficiencies

Priority Rating	Number of Deficiencies	% Deficiencies Found
1	0	0.00%
2	0	0.00%
3	20	100%
4	0	0.00%
Total:	20	100%

In 2020, a total of 1,699 Level I – IV deficiencies were identified out of the 58,089 scheduled inspections representing a deficiency rate of about 2.92% of the unique inspections performed. As described by the Safety Standards, Level IV conditions represent “Condition[s] found but repairs not needed at this time. Level IV is used to track atypical conditions that do not require repair within a five-year timeframe. This level should be used for future monitoring purposes and planning proactive maintenance activities.” (Safety Standards Section 4 (j)). By excluding these atypical conditions focusing only on the 1,366 Level I - III deficiencies results in a deficiency rate of 2.35% which is a more accurate representation.

IX. QA/QC Programs

Overhead Transmission and Distribution, Streetlights, and Underground inspections were performed using a Field Workforce Mobility (FWM) Toughbook. The FWM Toughbooks are portable tablet computers with pre-loaded software that displays all assets to be inspected and includes pre-formatted inspection pick tables the inspectors

use to document individual inspections. The FWM Toughbook has built-in GPS capability that displays its real-time position in relation to any Company asset. Inspectors are required to document all inspections on the FWM Toughbook, and the resulting data is uploaded into the Company SAP system.

Notifications are automatically generated from the deficiencies uploaded into the SAP system. Any structure reported as inaccessible due to being buried or paved over in the Field Workforce Mobility (FWM) application is turned in to T&D Network Maintenance for verification with the Master Data Department. If Master Data confirms that the structure does exist, Company and contractor crews follow up and attempt to locate, uncover, and inspect/test the structure. If the structure could not be found, it was then considered removed from the field, and updated as such in SAP, our system of record. The Company routinely monitors these notifications to report status of the program and track any follow-up repairs.

Stray Voltage Testing QA/QC Program

Stray voltage testing data is acquired through three means. The first is in conjunction with a distribution line or transmission line (DLI/TLI) facility inspection where a stray voltage test is performed at the same time an inspector is doing an inspection. Stray voltage test data is stored on the FWM Toughbook and is uploaded weekly along with inspection data.

Test Data with Inspections

Stray voltage tests are conducted on all distribution and transmission facilities and underground residential distribution facilities scheduled for inspection. Since the testing is done at the same time of inspection, test records are linked to the inspection record assuring a test for each asset. Inspectors upload this test data into SAP each week. Upon receipt of these files, QA/QC personnel verify a test record is received for each inspection and all the required data fields are populated accurately.

The second means is in conjunction with the annual obligation to test all streetlights, traffic signal equipment, and underground manhole and handhole facilities.

Stray Only Test Data

Stray voltage tests are conducted on all streetlights, traffic signal equipment, and underground manhole and handhole facilities. This testing data is also pre-loaded onto the FWM Toughbook device and displays all assets to be tested and includes pre-formatted pick tables the testers use to document individual tests. Similar to DLI/TLI Inspections, the Stray Only test data is uploaded from the FWM device into the SAP system weekly. Upon receipt of the data, QA/QC personnel verify the consistency, completeness, and accuracy of this testing data.

The third means is through our mobile testing effort where data is acquired and tracked in a database system managed by the mobile testing vendor. The mobile testing vendor submits critical findings to the Company on a daily basis and detailed finding information weekly in the form of batches.

Mobile Testing Data

Prior to the mobile scan of the City of Rochester, RG&E provides the vendor with specific locations within the City they are to mobile scan. All data is collected by the mobile vendor in a database system and submitted to RG&E in a specific format. RG&E QA/QC personnel assure that all specified locations are scanned and all critical findings are collected and documented correctly.

At the end of each year, QA/QC personnel check Company asset records to gather any new installations constructed in the current year as well as any devices that may have been removed from the field. This evaluation allows us to identify any new structures to include in the testing contractor's scope to obtain or any structures to omit going forward.

On an ongoing basis, RG&E performs additional quality assurance measures to ensure testing data accuracy. These include, but are not limited to; investigations into inaccessible structures to determine the nature of inaccessibility, performance of individual testers, miscellaneous anomalies found in the test data, and checking circuit maps to ensure all structures have been visited. Problem testers, if any are identified to the testing contractor and, if need be, removed from the inspection/ testing effort. If necessary, problem areas are retested in order to ensure accuracy.

In addition to these measures, Field Coordinators conduct random field visits to ascertain that field contractors are performing tests on all required structures. During these visits, the Field Coordinator will observe testers performing their work to ensure they're doing it correctly and answer any questions about map reading, structure IDs, and location of structures. The Field Coordinator also performs follow up on randomly chosen structures to check that they were tested and recorded properly.

Facility Inspections QA/QC Program

A thorough review of inspection data is made by QA/QC personnel to evaluate the effectiveness of the following three primary focus areas.

Focus Area 1- Ensure all planned inspections (that make up the 20% obligation) developed for the current year are performed. To do this, a 5 year plan is established for each cycle which details what transmission and distribution circuits, and accompanying assets, are scheduled for any given year. This plan assures that all circuits are scheduled and any given year's asset count is balanced to the 20% goal. The scope of the inspection plan is communicated to the inspector contractor through data on the FWM toughbook.

Inspection results are returned to the Company each week. QA/QC personnel review progress to validate all planned inspections are made.

Focus Area 2 - Ensure inspector's evaluation of asset condition is accurate, consistent, and performed in accordance with established procedures and applicable training manuals. To do this, QA/QC personnel conduct two types of assessments.

Field Assessments

In the field review QA/QC personnel are given a list of assets to visit and inspect. This asset list consists of recent inspections made by our inspection contractor and the QA/QC personnel are unaware of the reported results. The QA/QC personnel independently inspect the assets and record their result. The results are then compared and any inconsistencies are discussed at the weekly meeting with the inspection contractor. Meeting Minutes and a Communication Log is used to document reporting decisions.

Internal Assessments

This review looks at deficiencies reported by the inspection contractor. All reported Level 1 – 3 deficiencies have photographs attached. QA/QC personnel review deficiencies and their pictures to assert the accuracy of the reported problem and assigned priority. Any discrepancies noted from this focus area are communicated back to the inspectors for correction. A total of 1,417 pictures were reviewed with 1,405 deemed accurately reported, resulting in a 99.2% confidence level.

Additionally, QA/QC personnel review all inaccessible inspections from the past week and provide contact information to the inspection supervisor. This enables the supervisor to contact the owner, explain the importance of the program and to coordinate a revisit the following week while the inspectors are still in the general area.

Focus Area 3 – Ensure all reported repairs made on deficiencies found, as a result of the inspection program are completed. QA/QC personnel select a sample set of reported deficiencies and associated repairs made throughout each division. This sample set is given to the QA/QC personnel to be field verified. QA/QC personnel visit each specific asset and validate whether the reported repair work has been made. Any discrepancies found with this effort are communicated back to Company personnel for follow-up action.


X. Certifications

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

The certifications are attached as Exhibit 1 of this report.

Appendix 1


Stray Voltage Testing Summary

 RG&E	2020 Targets	Units Completed	Percent Completed	Units with Voltage Found (>= 1.0v)	Percent of Units Tested with Voltage (>= 1.0v)	Units Classified as Inaccessible
Distribution Facilities	45,363	44,735	99%	0	0.000%	19
Underground Facilities	17,198	17,270	100%	0	0.000%	405
Street Lights / Traffic Signals	14,377	14,430	100%	3	0.021%	44
Substation Fences	166	0	N/A	0	N/A	0
Overhead Transmission	2,698	2,696	100%	0	0.000%	9
TOTAL	79,802	79,131	99%	3	0.004%	477

* 100% of all streetlights, traffic signals, and underground manholes and handholes were tested as required


Appendix 2

Summary of Energized Objects

	Initial Readings				Readings after Mitigation		
	1-4.4V	4.5-24.9V	>25V	Totals	< 1V	1-4.4V	>4.5V
Distribution Facilities	0	0	0	0	0	0	0
Pole				0			
Ground				0			
Guy				0			
Riser				0			
Other				0			
Underground Facilities	0	0	0	0	0	0	0
Manhole/ Pull box				0			
Manhole				0			
Padmount Switchgear				0			
Padmount Transformer				0			
Vault-Cover/Door				0			
Pedestal				0			
Other				0			
Street Lights/Traffic Signals	0	3	0	3	2	0	0
Metal Street Light Pole		3		3	2		
Traffic Signal Pole				0			
Pedestrian Crossing Pole				0			
Traffic Control Box				0			
Other				0			
Substation Fences	0	0	0	0	0	0	0
Fence				0			
Other				0			
Transmission (Total)	0	0	0	0	0	0	0
Lattice Tower				0			
Pole				0			
Ground				0			
Guy				0			
Other				0			
Miscellaneous Facilities	0	0	0	0	0	0	0
Sidewalk				0			
Gate/Fence/Awning				0			
Control Box				0			
Scaffolding				0			
Bus Shelter				0			
Fire Hydrant				0			
Phone Booth				0			
Water Pipe/Cap				0			
Riser				0			
Other				0			

Appendix 3

Summary of Shock Reports from the Public

 Data collected as of December 31, 2020	Yearly Total
I. Total Shock Calls Received:	15
Unsubstantiated	3
Normally Energized Equipment	5
Stray Voltage:	7
Person	7
Animal	0
II. Injuries Sustained/Medical Attention Received:	0
Person	0
Animal	0
III. Stray Voltage Source:	7
Utility Responsibility (Total)	1
Overhead Distribution System	1
Underground Distribution System	0
Transmission System	0
Other Utility/Gov't Agency (Total)	0
Streetlight	0
Other (Total)	0
Customer Responsibility (Total)	6
IV. Stray Voltage Range:	7
1.0V to 4.4V	0
4.5V to 24.9V	0
25V and above	0
Unknown	7

Appendix 4

Rochester Gas and Electric

Annual Summary of Deficiencies and Repair Activity Resulting from the Inspection Process

As of December 31, 2020

Detail of Deficiencies by Facilities	2016				2017				2018				2019				2020			
	I Within 1 week	II Within 1 year	III Within 3 years	IV	I Within 1 week	II Within 1 year	III Within 3 years	IV	I Within 1 week	II Within 1 year	III Within 3 years	IV	I Within 1 week	II Within 1 year	III Within 3 years	IV	I Within 1 week	II Within 1 year	III Within 3 years	IV
Overhead Facilities																				
Repaired in Time Frame	23	287	686	523	27	217	958	15	18	66	1,062	1	21	285	631	0	24	102	43	0
Repaired - Overdue	11	715	631	0	1	896	70	0	5	465	0	0	2	66	0	0	0	0	0	0
Not Repaired - Not Due	0	0	0	2,022	0	0	0	1,607	0	0	777	351	0	0	848	183	0	84	728	318
Not Repaired - Overdue	0	2	241	0	0	5	949	0	0	6	0	0	0	2	0	0	0	0	0	0
Total Overhead Facilities	34	1,004	1,558	2,545	28	1,118	1,977	1,622	23	537	1,839	352	23	353	1,479	183	24	186	771	318
Underground Facilities																				
Repaired in Time Frame	4	1	30	24	28	0	143	0	21	0	61	0	18	133	2	0	3	20	0	0
Repaired - Overdue	0	52	0	0	5	122	21	0	2	88	0	0	4	1	0	0	0	0	0	0
Not Repaired - Not Due	0	0	0	14	0	0	0	2	0	0	461	0	0	0	878	376	0	2	163	14
Not Repaired - Overdue	0	3	75	0	0	22	392	0	0	37	0	0	0	0	0	0	0	0	0	0
Total Underground Facilities	4	56	105	38	33	144	556	2	23	125	522	0	22	134	880	376	3	22	163	14
Pad Mount Facilities																				
Repaired in Time Frame	16	2	1	38	13	6	11	0	2	3	2	0	5	6	0	0	9	12	2	0
Repaired - Overdue	2	15	1	0	3	48	10	0	3	27	0	0	4	3	0	0	1	0	0	0
Not Repaired - Not Due	0	0	0	7	0	0	0	65	0	0	19	4	0	0	15	1	1	4	45	1
Not Repaired - Overdue	0	2	15	0	0	4	41	0	0	2	0	0	0	0	0	0	0	0	0	0
Total Pad Mount Facilities	18	19	17	45	16	58	62	65	5	32	21	4	9	9	15	1	11	16	47	1
Streetlight Facilities																				
Repaired in Time Frame	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repaired - Overdue	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Not Repaired - Not Due	0	0	0	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0	20	0
Not Repaired - Overdue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Streetlight Facilities	0	0	0	1	0	0	4	1	0	0	0	0	0	0	1	0	0	0	20	0
Transmission Facilities																				
Repaired in Time Frame	0	2	48	6	2	1	92	0	0	1	71	0	0	3	35	0	0	0	7	0
Repaired - Overdue	0	12	140	0	0	62	49	0	0	29	0	0	0	6	0	0	0	0	0	0
Not Repaired - Not Due	0	0	0	43	0	0	0	26	0	0	205	6	0	0	362	3	0	11	85	0
Not Repaired - Overdue	0	6	205	0	0	5	102	0	0	13	0	0	0	14	0	0	0	0	0	0
Total Transmission Facilities	0	20	393	49	2	68	243	26	0	43	276	6	0	23	397	3	0	11	92	0

Appendix 4a

RG&E 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
2016	I	Within 1 week	56	43	13	0	0
	II	Within 1 year	1,099	292	794	0	13
	III	Within 3 years	2,073	765	772	0	536
	IV	N/A	2,678	591	n/a	2,087	n/a
2017	I	Within 1 week	79	70	9	0	0
	II	Within 1 year	1,388	224	1,128	0	36
	III	Within 3 years	2,842	1,207	151	0	1,484
	IV	N/A	1,716	15	n/a	1,701	n/a
2018	I	Within 1 week	51	41	10	0	0
	II	Within 1 year	737	70	609	0	58
	III	Within 3 years	2,658	1,196	0	1,462	0
	IV	N/A	362	1	n/a	361	n/a
2019	I	Within 1 week	54	44	10	0	0
	II	Within 1 year	519	427	76	0	16
	III	Within 3 years	2,772	668	0	2,104	0
	IV	N/A	563	0	n/a	563	n/a
2020	I	Within 1 week	38	36	1	1	0
	II	Within 1 year	235	134	0	101	0
	III	Within 3 years	1,093	52	0	1,041	0
	IV	N/A	333	0	n/a	333	n/a



Rochester Gas and Electric Corporation

Background

Pursuant to the Public Service Commission's *Order Requiring Additional Mobile Stray Voltage Testing* ("Order"), Case 10-E-0271- In the Matter of Examining the Mobile Testing Requirements of the Electric Safety Standards, issued and effective July 21, 2010 and June 23, 2011; Rochester Gas and Electric Corporation ("RG&E") submits its 2020 Mobile Stray Voltage Testing Results.

In accordance with the Order, RG&E's annual Mobile Stray Voltage Testing obligation consists of one mobile scan of the underground network within the City of Rochester. This year (2020) marks the twelfth consecutive year RG&E has been performing mobile testing in the City of Rochester, which began in 2009. RG&E contracted with Osmose, 25 Campus Drive, Kearny, NJ 07031 to perform the 2020 mobile stray voltage testing effort.

The Mobile Scan of Rochester

Mobile testing commenced on April 6, 2020 at darkness each night to ensure all street light circuits would be energized. OSMOSE provided a single crew (2 Technicians) and their truck mounted test equipment and drove the 331 street miles identified by RG&E as requiring mobile testing. RG&E gave advance notice to city agencies of the event to prepare for any questions or concerns residents of the city might have. Upon conclusion of field-testing, all data was received and validated through various QA/QC reviews by RG&E personnel.

Mobile Testing Process

OSMOSE scanned all identified city streets using their SVD2000 mobile system and upon detecting an electric field stopped the vehicle to investigate, identify, measure, and properly document any stray voltage finding in accordance to RG&E's Stray Voltage Mobile Test Procedure.

In addition to the mobile detection equipment and technicians provided by OSMOSE, an RG&E Field Coordinator and an electrician assisted with the endeavor. The Field Coordinator and electrician accompanied the OSMOSE crew throughout the testing effort, monitoring the mobile testing activities. The Field Coordinator also ensured all documented voltage reads were accurate, and with the electrician, made sure all findings equal to or greater than 4.5 volts were immediately made safe.

Mobile Testing Results

The mobile scan of the City of Rochester included approximately 19,300 testable structures and the results from this effort are as follows:

2020 Mobile Testing Summary of Events		
Total Number of Findings	116	
Below 4.5 Volts	83	71.6%
Greater or Equal to 4.5 And Less Than 25 Volts	29	25%
Greater or Equal to 25 Volts	4	3.4%

2020 Findings by Structure Type	
Streetlights	46
Traffic Signals	14
Other	39
Underground	17
Total findings	116

All stray voltage findings greater than or equal to 1 volt and less than 4.5 volts were immediately safeguarded and all findings greater than or equal to 4.5 volts were immediately made safe and/or the property owner contacted.

Observations

Upon analyzing the 116 energized objects detected during the mobile scan, it should be noted that 52 of those objects were discovered after testing everything within a 30-foot radius of the primary energized object detected. Therefore, the number of discrete detections by the actual mobile scan was 64.

Overall, the number of discrete detections decreased from 83 discrete detections in 2019 to 64 discrete detections in 2020.

The following chart displays the 52 objects found within the 30-foot radius and the primary structures detected.

Primary Detection Structure	Number of additional detections w/in 30-foot radius	Object(s)
Traffic sign pole	3	Manhole, Traffic Sign Pole, Vault Cover
Traffic signal pole	1	Traffic signal cabinet
Manhole	1	5' x 10 grass patch
3 Roll down gates	6	2 Water caps, gas cap, sign pole, access hatch, metal gate
Streetlight Aluminum pole	2	5' x 5' sidewalk, tree guard
Streetlight Aluminum pole	3	3 Aluminum poles
Illuminated sign	2	Water cap, manhole
Traffic signal pole	1	Traffic signal pole
Manhole	4	2 Tree guards, storm drain, access hatch
Storm drain	1	5' x 5' dirt patch
Traffic signal pole light	1	Metal cap
Streetlight Aluminum pole	1	Metal bolt
Streetlight Aluminum pole	14	2 Access hatch, grass patch, 2 storm drain, 4 water cap, aluminum pole, hydrant, 3 sign pole,
Metal conduit	2	Conduit, 5' x 5' grass patch
Guard rail	1	Guard rail
Aluminum pole	2	guard rail, aluminum pole
Streetlight Aluminum pole	5	4 Streetlight Aluminum pole, 100' guard rail
Streetlight Aluminum pole	2	Streetlight Aluminum pole, 100' guard rail

Every year since mobile testing started, the majority of energized objects detected are streetlights owned by the City of Rochester, and traffic signal equipment owned by Monroe County.

Status of Findings and Repairs

Following completion of this year's scan, municipalities and private property owners were notified of all findings on their assets, and of their responsibility for follow-up, mitigation, and repair.

RG&E worked with the City of Rochester, Monroe County, and private owners to assure mitigation of all detected objects was completed. Out of the 116 detected objects, repair crews have completed all 116 repairs.

There has been great value in conducting mitigation efforts during the night-time hours and RG&E will continue to do so, and will encourage other municipalities and private property owners to do the same to help ensure appropriate investigation and mitigation of equipment.

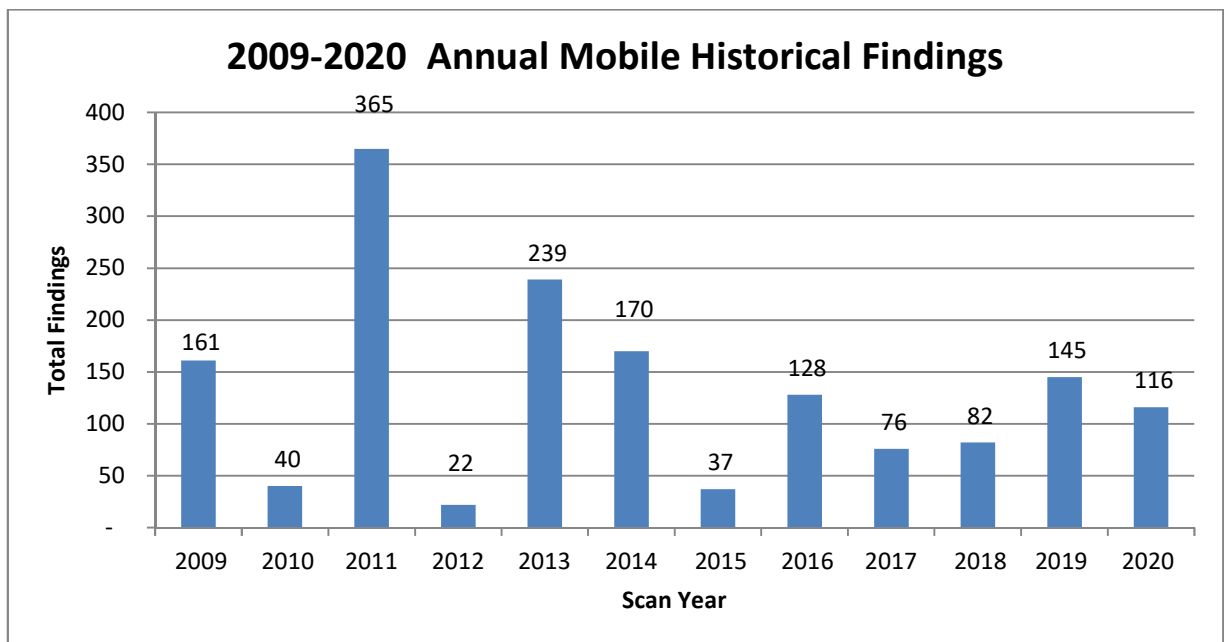
A detailed summary of the energized objects found during the 2020 mobile testing effort and the status of repairs is included in the Appendix to this report.

Historical Costs and Detections for Mobile Testing

The table below lists historical costs associated with performing the mobile scan in Rochester, along with an estimate of the cost of manual testing being performed for the same area in accordance with the current Electric Safety Standards Order 04-M-0159.

Test Year	Total Number of Detections	Mobile Program Cost	Associated Cost to Manually Test
2020	116	\$135,421	\$76,309
2019	145	\$135,421	\$76,309
2018	82	\$135,421	\$75,062
2017	76	\$149,716	\$73,912
2016	128	\$145,355	\$97,880
2015	37	\$140,440	\$97,880
2014	170	\$133,752	\$97,880
2013	239	\$117,984	\$97,880
2012	113	\$46,897	\$97,567
2011	365	\$80,000	\$129,000
2010	40	\$93,000	\$129,000

The chart below illustrates the total findings from the inception of the Mobile Testing program through the current year.



The table below summarizes the 12-year cumulative total number of findings from the inception of the Mobile Testing program through the current year.

Historical Findings by Structure Type 2009 - 2020	
Streetlights	1,089
Traffic Signals	201
Underground	77
Other	214
Total	1,581

APPENDIX

2020 Mobile Summary of Energized Objects

RG&E	Initial Readings				Readings after Mitigation		
	1- 4.4V	4.5- 24.9V	>25V	Totals	< 1V	1- 4.4V	>4.5V
Distribution Facilities	0	0	0	0	0	0	0
Pole				0			
Ground				0			
Guy				0			
Riser				0			
Other				0			
Underground Facilities	14	3	0	17	16	1	0
Handhole				0			
Manhole	6			6	5	1	
Padmount Switchgear				0			
Padmount Transformer				0			
Vault-Cover/Door	2			2	2		
Pedestal				0			
Other	6	3		9	9		
Street Lights/Traffic Signals	44	14	2	60	49	11	0
Metal Street Light Pole	30	13	2	45	36	9	
Traffic Signal Pole	4	1		5	4	1	
Pedestrian Crossing Pole				0			
Traffic Control Box	9			9	8	1	
Other	1			1	1		
Substation Fences	0	0	0	0	0	0	0
Fence				0			
Other				0			
Transmission (Total)	0	0	0	0	0	0	0
Lattice Tower				0			
Pole				0			
Ground				0			
Guy				0			
Other				0			
Miscellaneous Facilities	25	12	2	39	36	3	0
Sidewalk	1			1	1		
Gate/Fence/Awning	1	1		2	2		
Sign Pole	2	5		7	7		
Metal Cap	2			2	2		
Fire Hydrant	1			1	1		
Guard Rail	3	2		5	2	3	
Water Pipe (Cap)	7			7	7		
Grass/Dirt Patch	3	2		5	5	0	
Other	5	2	2	9	9		
Totals	83	29	4	116	101	15	0

Exhibit 1

CERTIFICATION
(STRAY VOLTAGE TESTING)

STATE OF Connecticut)
) ss. *Orange*
COUNTY OF New Haven)

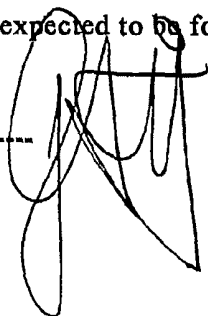
Jorge Fernando Brisolla Aith, on this 4th day of February 2021 certifies as follows:

1. I am the Vice President, Processes and Technology, Avangrid Networks and in that capacity I make this Certification for Rochester Gas and Electric (the "Company") for the annual period ending December 31st, 2020 based on my knowledge of the testing program adopted by the Company in accordance with the Public Service Commission's Orders issued and effective January 5, July 21, 2005, December 15, 2008, March 22, 2013 and January 13, 2015 in Case 04-M-0159 and July 21, 2010 and June 23, 2011 in Case 10-E-0271 (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, 2020 (the "Twelve-Month Period").

4 I hereby certify that the Company exercised due diligence in carrying out a plan designed to meet the stray voltage testing requirements, including quality assurance, and, to the best of my knowledge, the Company has tested all of its publically accessible electric facilities and streetlights, except those identified in the Annual Report. 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 4th day of February, 2021

Notary Public: Kathleen M. Noce

KATHLEEN M. NOCE
NOTARY PUBLIC
MY COMMISSION EXPIRES SEPT. 30, 2022

CERTIFICATION
[FACILITY INSPECTIONS]

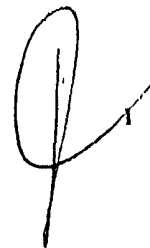
STATE OF Connecticut)
) ss.: *Orange*
COUNTY OF New Haven)

Jorge Fernando Brisolla Aith, on this 4 day of February 2021, certifies as follows:

1. I am the Vice President, Processes and Technology, Avangrid Networks and in that capacity I make this Certification for Rochester Gas and Electric (the "Company") for the annual period ending December 31st, 2020 based on my knowledge of the inspection program adopted by the Company in accordance with the Public Service Commission's Orders issued and effective January 5, July 21, 2005, December 15, 2008, March 22, 2013 and January 13, 2015 in Case 04-M-0159 and July 21, 2010 and June 23, 2011 in Case 10-E-0271 (collectively the "Orders"), including the Quality Assurance Program filed by the Company with the Commission.

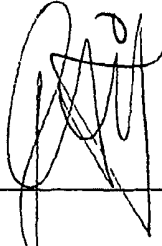
2. The Company has an inspection program that is designed to inspect all of its electric facilities on a five-year inspection cycle, as identified through a good faith effort by the Company ("Facilities"), in accordance with the requirements of the Orders (the "Facility Inspection Program").

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, 2020 (the "Twelve-Month Period").

4 I hereby certify that the utility has exercised due diligence in carrying out a plan designed to meet the inspection requirements, including quality assurance, and, to the best of my knowledge, the utility has inspected the requisite number of electric facilities. In addition, the utility has inspected all of its electric facilities during the previous five year period, except those identified in the Annual Report.



Sworn to before me this 4th day of February, 2021

Notary Public: Kathleen M. Noce

KATHLEEN M. NOCE
NOTARY PUBLIC
MY COMMISSION EXPIRES SEPT. 30, 2022