David P. Warner
Associate Counsel

February 16, 2021

Via Electronic Filing
Honorable Michelle L. Phillips
Secretary to the Commission
New York State Public Service Commission
Empire State Plaza, Agency Building 3
Albany, NY 12223-1350

Re: Case 04-M-0159, Proceeding on the Motion of the Commission to Examine the Safety of Electric Transmission and Distribution Systems

Consolidated Edison Company of New York, Inc.'s *2020 Contact Voltage Test and Facility Inspection Annual Report*

Dear Secretary Phillips:

Consolidated Edison Company of New York, Inc. submits for filing its *2020 Contact Voltage Test and Facility Inspection Annual Report* ("Report"). The Report is submitted pursuant to the requirements of the Public Service Commission's Electric Safety Standards issued in the referenced proceeding.

Thank you for your assistance.

Sincerely,

Att:

Consolidated Edison Company of New York, Inc.
4 Irving Place New York NY 10003 212 460 4286 212 677 5850 fax warnerd@coned.com

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2020

CONTACT VOLTAGE TEST &

FACILITY INSPECTION

ANNUAL REPORT

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

Report on the results of contact voltage tests & facility inspections for the period beginning

January 1, 2020 and ending on December 31, 2020.

February 15, 2021

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Table of Contents

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I. Background

The New York State Public Service Commission's ("PSC" or "Commission") Electric Safety Standards ("Safety Standards")[1] in Case 04-M-0159, require utilities to conduct an annual system-wide contact (stray) voltage detection program for underground assets and municipally owned streetlights and a five-year equipment inspection program to mitigate contact (stray) voltage risks to the public and promote reliability.

The term "stray voltage" is historically associated with voltages that exist at animal accessible locations encountered by farm livestock[2]. More recently, stray voltage has been described as the presence of voltage from unintentionally energized objects in publicly accessible areas. This definition does not draw a distinction between publicly accessible voltage exposure that is the result of normal electric system operation ("stray voltage") versus publicly accessible voltage exposure that are the result of an existing electrical fault ("contact voltage").[3]

When performing voltage detection between two conductive surfaces, it is important to understand that an elevated voltage could be stray voltage, contact voltage or both. The detection methodology should account for impedance levels in the electrical circuit, as perceptible exposure is proportional to the levels of current flow through the person or animal than solely the voltage level at the time a shock occurs.

This report describes Consolidated Edison Company of New York, Inc.'s ("Con Edison" or "the Company") contact voltage detection program and equipment inspection program conducted in 2020.

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[1] The Commission's *Order Granting in Part Petition to Modify Electric Safety Standards,* Appendix A, issued January 13, 2015 in Case 04-M-0159, provides the current version of the Safety Standards. The Safety Standards were originally issued on January 5, 2005, with subsequent revisions issued on July 21, 2005, December 15, 2008, March 22, 2013 and January 13, 2015.

[2] Electrical systems — both farm systems and utility distribution systems — are grounded to the earth to ensure safety and reliability. Inevitably, some current flows through the earth at each point where the electrical system is grounded and a small voltage develops. This voltage is called neutral-to-earth voltage (NEV). When NEV is found at animal contact points, it is frequently called stray voltage. Stray voltage is the small voltage that is measured between two points that livestock can simultaneously touch. If these points are simultaneously contacted by an animal, a current will flow through the animal. See http://psc.wi.gov/SiteAssets/svUpdate2006.pdf

[3] Difference between stay and contact voltage — Under normal operating conditions, with a code compliant electrical system, publicly accessible voltages are usually imperceptible to both people and their animals. Special circumstances (e.g., confined livestock) or special exposure conditions (e.g., barefoot in an outdoor shower) can however result in perceptible exposures even when the electrical systems, utility and customer, are operating as intended. As defined by the Institute of Electrical and Electronics Engineers, this type of accessible voltage is termed "stray voltage". Publicly accessible voltages that are the result of an existing fault condition (i.e., a short-circuit or an unintended open circuit), are referred to by the IEEE as "contact voltage". See https://standards.ieee.org/standard/1695-2016.html

II. Company Overview

Con Edison is an investor-owned utility that provides electric service to approximately 3.5 million customers in a service area of approximately 604 square miles within New York State encompassing New York City, except the Rockaway Peninsula, and most of Westchester County. The Company operates an electric transmission and distribution ("T&D") system that provides a high level of reliability in a very dense urban environment.

- Distribution

  a. *Underground* – The underground system has approximately 283,000 manholes, service boxes, transformer vaults, and above ground pad mounted structures; approximately 25,500 miles of underground duct; and approximately 96,600 miles of underground cable including primary, secondary, and service cables. Underground network cables operating at primary voltages of 33kV, 27 kV and 13.8 kV supply underground transformers that step the primary voltages down to 120/208 distribution voltages that are used by customers.

  b. *Overhead* – The overhead system includes: 195 auto loops, 13 - 4 kV multi-bank substations, 217 – 4 kV unit substations, approximately 270,000 Con Edison joint owned poles, and approximately 34,400 miles of overhead wires including primary, secondary, and services. Cables operating at primary voltages of 33 kV, 27 kV, 13.8 kV, and 4 kV supply approximately 51,700 overhead transformers that step the primary voltages down to 120/208/240 distribution voltages that are used by customers.

  c. *Streetlights* – Con Edison does not own, install, or maintain streetlights and traffic signals within its service territory. The New York City Department of Transportation (NYCDOT) and local Westchester municipalities primarily own the streetlights and traffic signals in New York City and Westchester County. There are approximately 185,000 metal pole streetlights and metal pole traffic signals within Con Edison's service territory.

- Transmission

  a. *Underground* – The underground transmission system delivers power at 69 kV, 138 kV, and 345 kV to various switching substations and area substations. The underground system has approximately 2,200 underground transmission facilities and approximately 810 circuit miles of cable. Of the 810 circuit miles, Con Edison owns approximately 727 miles.

b. *Overhead* - The overhead transmission system consists of 138 kV and 345 kV high voltage cable supported on approximately 1,286 towers and poles on rights-of-way located for the most part, north of New York City and terminating in Westchester County where the underground transmission system begins.

- Substations and Unit Substations
  Con Edison operates 41 transmission and 62 area substations located on 71 properties. In addition, the Company operates 232-unit substations and multi-banks which include the six customer-owned NYC airport multibanks.

III. Inspection and Contact Voltage Testing Frequency for Company and Municipally Owned Facilities

On January 5, 2005, the Commission established Electric Safety Standards that require the inspection of all utility-owned electric facilities and testing for contact (stray) voltage. Overhead Distribution facilities, Underground Residential Distribution System facilities, Underground and Overhead Transmission facilities and Substation fences must be inspected and tested for contact (stray) voltage once every five years. Under the pilot program authorized by the Commission,[4] Con Edison must inspect Underground Distribution Facilities once every eight years[5] and contact (stray) voltage tested once per year. The Safety Standards also require annual contact voltage testing for all city and municipally owned streetlights.

[4] The Commission's January 25, 2017 *Order Approving Electric and Gas Rate Plans* in Case 16-E-0060, et al, authorized Con Edison's pilot program to increase the inspection cycle for underground distribution equipment from five to eight years. The Commission authorized continuation of the pilot program in its January 16, 2020 *Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plan* in Case 19-E-0065, et al.

[5] The Commission's January 28, 2021 *Order Granting in Part and Subject to Modifications Petition to Enhance Electric Safety Standards* issued January 28,2021 in Case 04-M-0159, et al, authorizes the Company to implement an asset-based inspection program for underground facilities. Under the asset-based program, high priority facilities will be inspected every five years; medium priority facilities will be inspected every eight years and low priority structures will be inspected ten years. Con Edison must complete a minimum of the sum total of 85 percent of the number of facilities for each risk profile in the inspection cycle each year, and complete 100 percent of each risk profile by the final year of the inspection cycle applicable to each risk profile. Any Facilities that are still pending from the eight-year pilot program will be prioritized such that high and medium risk structures will be inspected by 2022 and low priority structures to be inspected by 2024.

The following eight categories of facilities in Con Edison's service area must be inspected and tested for the presence of contact voltage:

- *Underground Distribution* – Con Edison has approximately 266,000 underground facilities in its distribution systems. A subsurface structure is defined as any manhole (MH), service box (SB), transformer vaults (V, VS), transformer manholes (TM) associated with the underground distribution system. All Underground Distribution facilities are inspected each cycle and are tested for contact voltage annually in either the manual or mobile contact voltage testing programs.

- *Underground Residential Distribution (URD) System* – Con Edison has approximately 17,700 URD facilities in its distribution systems. A subsurface structure is defined as any manhole (MH), service box (SB), transformer vaults (V, VS), transformer manholes (TM), injunction boxes (IJ), P-Boxes (PB), and T-Tap boxes and switchgear associated with the URD system. All URD facilities are inspected and contact voltage tested every five years.

- *Overhead Distribution* – Con Edison has approximately 270,000 distribution pole structures that support electric facilities in the overhead distribution system. Distribution overhead facilities are inspected and tested for contact voltage every five years. The contact voltage testing criteria include all utility-owned or joint use wooden poles with utility electrical facilities located on public thoroughfares or customer property, including backyards or alleys. Contact 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.

- *StreetLights and Traffic Signals* – There are approximately 185,000 metal pole streetlights and/or traffic signals within Con Edison's service territory. Streetlights and traffic signals are included in the Company's annual contact voltage testing program. Con Edison does not own any metal pole streetlights, and therefore, these structures are not included in the facility inspection program. Privately owned area and street lighting is not included in the contact voltage testing program, as per the Safety Standards. The contact voltage testing criteria include all municipally owned metal pole streetlights, traffic signals, and pedestrian crosswalk signals located on publicly accessible thoroughfares and areas that have streetlights directly supplied by the Company. All contact voltage testing of streetlights is performed at night while the fixtures are energized.

- *Substations* – Con Edison's 103 substations are located within 71 properties which are inspected and tested for contact voltage every five years. The contact voltage testing criteria consist of perimeter fencing and other electrically conductive materials where such materials are accessible to the general public. These materials include but are not

limited to fences, doors, roll-up gates, metallic delivery boxes, dielectric fluid delivery ports and Siamese connections.

- *Unit Substations* – Con Edison's 232 - 4kV multi-bank and unit stations are required to be inspected and tested for contact voltage every five years. The contact voltage testing criteria consist of perimeter fencing and other electrically conductive materials where such materials are accessible to the general public. These materials include but are not limited to fences, doors, roll-up gates, metallic delivery boxes, and fire department connections.

- *Overhead Transmission* – Con Edison's overhead transmission system includes 1,286 individual poles or towers. These transmission structures support circuit voltages of 69 kilovolts and greater. Structures that support circuits of lower voltage in addition to the transmission voltage levels are included in this category. Con Edison's overhead transmission structures are inspected and tested for contact voltage every five years. The contact voltage testing criteria include all structures, guys, and down leads attached to these structures.

- *Underground Transmission* – Con Edison's underground transmission system includes approximately 2,200 facilities. These transmission facilities support circuit voltages of 69 kilovolts and greater. Con Edison's underground transmission facilities are inspected and tested for contact voltage every five years or sooner.

IV. Contact Voltage Testing Program

The Safety Standards require that Con Edison complete annual contact (stray) voltage testing of all underground electric distribution facilities and streetlights by December 31 of each year.

In accordance with the contact voltage testing frequencies of the Safety Standards, all underground electric distribution facilities were tested as well as all municipally owned metallic streetlights and traffic signals located on thoroughfares or areas that are publicly accessible and directly supplied with electricity by the Company.

In addition, and in compliance with the Safety Standards, Con Edison:

- Immediately safeguarded and/or mitigated all voltage findings greater than or equal to 1.0 volt. The Company uses its best efforts to effectuate a permanent repair within 45 days to any Company-owned equipment that caused a voltage finding and is still needed to provide safe and reliable service to our customers. Permanent repairs not completed

within 45 days are periodically monitored and tracked to completion. In instances where the contact voltage finding was determined to be caused by equipment that is not owned by Con Edison, the Company, after making the area safe, notified a responsible person associated with the premises of the unsafe condition and the need for the owner to arrange for a permanent repair.

- Tested all publicly accessible structures, streetlights, sidewalks and metal objects within a 30-foot radius of an energized structure, or contact voltage finding greater than or equal to 1.0 volt.

- Responded to, investigated, and mitigated positive findings of shock incidents reported by the public.

Training

Con Edison manages its contact voltage testing program and uses both Company field personnel and contractor forces to conduct the testing of utility-owned electric facilities and municipal streetlights.

Training for the contact voltage testing program consists of an eight-hour class conducted by our training facility for contractor forces and on-the-job training, performed by Supervisors for Company field forces. The training is based on Company specifications on how to properly test an electric facility for contact voltage. Topics covered in the training are:

- The PSC Safety Standards
- Scope of the contact voltage testing program
- Performing the test and completing the testing form
- Data entry process
- Status of contact voltage testing to annual goal
- Abnormal systems conditions to be reported
- Performance mechanism

Underground Distribution Contact Voltage Testing

Of approximately 266,000 underground facilities, 137,735 were fielded for manual testing. The remaining facilities were tested under the mobile contact voltage program. Of the 137,735 underground facilities visited during manual testing, the Company could not test for contact voltage on 262 structures that were inaccessible, retired structures, or customer owned structures. Inaccessible underground facilities include:

a. *Locked Gate/Fence* – Structures behind locked gates and fences that are not accessible to the public, i.e., facilities located in fenced areas owned by other utilities, such as Water Companies.

b. *Company Property* – Structures located on Company property, such as substations, that are accessible only to Company personnel and authorized contractors.

c. *Construction* – A structure located within a construction site. These structures are accessible only to construction personnel.

d. *Buried* – A structure below grade that requires excavation to access the structure.

e. *Vaults* – Structures located inside buildings. These structures are accessible only to Company and building maintenance personnel.

f. *Highway* – Structures located on highways and on exit and entrance highway ramps. The performance of contact voltage testing would constitute an unacceptable risk to the employee.

Underground Residential Distribution (URD) System

Contact voltage testing for the URD system is conducted concurrently with the safety inspection program. Of approximately 17,700 URD facilities, 3,959 facilities were visited and tested for contact voltage in 2020.

Overhead System Contact Voltage Testing

Contact voltage testing for the Overhead system is conducted concurrently with the safety inspection program. Of approximately 270,000 overhead facilities, 59,246 facilities were visited and tested for contact voltage in 2020.

Streetlight and Traffic Signal Contact Voltage Testing

Of approximately 185,000 streetlight and traffic signal facilities, which the Company directly supplies electric service, and which are located on public thoroughfare, 111,454 facilities were required to be tested manually. The remaining facilities were tested under the mobile contact voltage program. Of the facilities visited, 404 could not be tested for contact voltage because these structures were not publicly accessible or were retired. Inaccessible streetlights and traffic signals include:

a. *Construction* – A structure located within a construction site. These structures are only accessible to construction personnel.

b. *Restricted Access* – Structures located within areas with active public improvement efforts or the World Trade Center.

c. *Highway* – Structures located on highways or access roads to highways.

Underground Transmission Contact Voltage Testing

Contact voltage testing for the Underground Transmission system is conducted concurrently with the safety inspection program. Of approximately 2,200 underground transmission facilities, 656 were fielded for manual testing. Those facilities that are not publicly accessible do not require contact voltage testing. Inaccessible transmission facilities include:

a. *Construction* – A structure located within a construction site. These structures are only accessible to construction personnel.

b. *Con Edison Property* – Structures located on or adjacent to Con Edison properties which are secured from the public via fencing or other barriers and are inaccessible to the public.

c. *Bridges* – Structures located on bridges, such as bridge joints

d. *Buried* – A structure below grade that requires excavation to access the structure

Overhead Transmission Contact Voltage Testing

Contact voltage testing for the Overhead Transmission system is conducted concurrently with the safety inspection program. Con Edison visited and tested all the 1,286 Overhead Transmission facilities on the Company's overhead transmission system.

Mobile Contact Voltage Testing

In accordance with the PSC's "Order Establishing Rates for Electric Service," issued March 25, 2008 in Case 08-E-0539, Con Edison performed 12 underground system scans in the underground distribution areas of New York City using mobile contact voltage detection technology. In accordance with the PSC's "Order Adopting Changes to Electric Safety Standards," issued December 15, 2008 in Case 04-M-0159, the 12 underground system scans must be performed within each rate year (April 1st to March 31st). Furthermore, Con Edison performed one additional underground system scan using mobile contact voltage detection

technology in New Rochelle, Yonkers, and White Plains, as ordered in Case 10-E-0271. Con Edison also performed an underground system scan in Mount Vernon.

Results of the 2020 Contact Testing Program

The results of the 2020 Contact Testing Program are provided in the following appendixes of this report:

- Appendix 1 titled, "Summary of MANUAL Contact Voltage Testing"
- Appendix 2a titled, "Summary of Energized Objects - Mobile Testing"
- Appendix 2b titled, "Summary of Energized Objects - Manual Testing + Other"
- Appendix 3 titled, "Summary of Shock Reports from the Public."

V. Facility Inspection Program

The Commission's Safety Standards in effect during this reporting period require that Overhead Distribution Facilities, Underground Residential Distribution (URD) Facilities, Underground and Overhead Transmission Facilities and Substation fences be inspected at least once every five years. The first five-year cycle covered the period from 2005 through 2009, the second from 2010 through 2014, and the third from 2015 through 2019. The current cycle began in 2020. The Safety Standards also require that utilities inspect a minimum number of electric facilities each year of the five-year cycle based on an annual percentage of total electric facilities as follows: 17 percent in the first year, 18 percent in the second year, and 19 percent in the third, fourth and fifth years except that by the end of every fifth year, the utility must inspect 100 percent of its facilities. A utility may inspect its facilities pursuant to a compressed schedule and complete its inspection cycle prior to the end of the five-year period so long as the cumulative number of inspections at the end of any year is at least the minimum number required by the annual target formula: 17 percent in first year, 35 percent by end of second year, 54 percent by end of third year, 73 percent by end of fourth year, and 100 percent by end of fifth year.

For Underground Distribution Facilities, Con Edison is using an eight-year inspection cycle, from 2015 to 2022, under its pilot inspection program. The minimum number of inspections to be performed on a yearly basis for this eight-year pilot program is based on an annual percentage of total electric facilities as follows: 10.6% in the first year, 21.9% in the second year, 33.8% in the third, 45.7% in the fourth year, 57.5% in the fifth year, 69.4% in the sixth year, 81.3% in the seventh year and 100% in the eight year.

In addition, the Safety Standards require that defective equipment found during an inspection be repaired. In accordance with the Safety Standards, Con Edison 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 is used for future monitoring purposes and planning proactive maintenance activities.

In accordance with the Safety Standards, when a temporary repair is located during inspection or performed by the Company, best efforts are put forth to make a permanent repair of the facility within 90 days.

Training

Con Edison manages its inspection program and uses both company field personnel and contractor forces to conduct the inspection of utility owned electric facilities.

Training of the contractor force utilized to perform inspections on our overhead and underground systems consists of classes conducted by our learning facility as well as on-the-job training performed by Contractor Oversight Supervisors who have attended a train-the-trainer session with a Con Edison Subject Matter Expert (SME). For Company field forces, the training is based on Company specifications on how to properly inspect an electric facility which is acquired through their promotional classes, as well as on-the-job training performed by their supervisor.

In addition to the above, the System & Program Engineering, Analysis and Reporting (SPEAR) department of Distribution Engineering have conducted train-the-trainer sessions as required in workout locations since the inception of the program. The participants included the managers, planners, and supervisors of the crews that would be performing the

inspections. The SPEAR department has also conducted various training seminars at work-out locations which included the following topics:

- The PSC Safety Standards
- Scope of the inspection
- Completing the inspection form
- Data entry process
- Status of inspections to annual goal
- Repairs pending
- Accounting of the inspection
- Performance mechanism

In addition to the train-the-trainer sessions, an E-Learning Training Module was developed. This training module can be accessed from any computer on the Con Edison Network. This class is also part of the curriculum in career advancement for new mechanics.

Results of the 2020 Facility Inspection Program

The results of the 2020 Facility Testing Program and associated facility repairs are provided in Appendix 4, entitled "Summary of Deficiencies and Repair Activity Resulting from the Inspection Process."

VI. Annual Performance Targets

Con Edison performed the required contact voltage testing and facilities inspections in accordance with the requirements of the Commission's Safety Standards.

This being the first year of the fourth cycle ending December 31, 2024 for Overhead Distribution facilities, Underground Residential Distribution System facilities, Underground and Overhead Transmission facilities and Substation fences, Con Edison has cumulatively inspected 22.4% of its overall population of electric facilities. Underground Distribution Facilities are in the sixth year of the third cycle ending December 31, 2022 and Con Edison has inspected 71.9% of its overall population of electric facilities. The percentages of inspections through December 31, 2020 by structure category are summarized in Table 1. Con Edison does not own streetlight facilities; these facilities are owned by the City of New York and by municipalities in Westchester.

Con Edison inspects its underground transmission system at multiple intervals all in less than 5 years (Table 5). The total number of underground facilities to be inspected is approximately 2,200 and 656 inspections were completed in 2020.

Con Edison inspects the overhead transmission facilities (Table 3) and Unit substations/multi-bank fences (Table 7) every year.

Table 1
Facility Inspection Program Results

Category	Actual Cumulative Inspected as of 2020
Overhead Distribution	21.9%
Overhead Transmission	100%
Underground Distribution	71.9%
Pad Mount (URD) Distribution	22.4%
Underground Transmission	29.8%
Substation	22.5%
Unit Substations	100%
Company-owned Streetlights	N/A

5-Year Inspection Performance Summary

The following tables provide the annual completion and the cumulative percentages of inspections by structure category over the current five-year (2020-2024) inspection cycle.

Table 2
Overhead Distribution Facilities

Inspection Year	Unique Number of Overhead Distribution Structures Inspected	% of Overall Facilities Inspected (Cumulative)
2020	59,246	21.9%
2021		
2022		
2023		
2024		

Table 3
Overhead Transmission Facilities

Inspection Year	Unique Number of Overhead Transmission Facilities Inspected	% of Overall Facilities Inspected (Cumulative)
2020	1,286	100%
2021		
2022		
2023		
2024		

Table 4
Underground Residential Distribution (URD) Facilities

Inspection Year	Unique Number of Pad Mount (URD) Facilities Inspected	% of Overall Facilities Inspected (Cumulative)
2020	3,959	22.4%
2021		
2022		
2023		
2024		

Table 5
Underground Transmission Facilities

Inspection Year	Unique Number of Underground Transmission Facilities Inspected	% of Overall Facilities Inspected (Cumulative)
2020	656	29.8%
2021		
2022		
2023		
2024		

Table 6
Substation Facilities

Inspection Year	Unique Number of Substation Sites	% of Overall Facilities Inspected (Cumulative)
2020	16	22.5%
2021		
2022		
2023		
2024		

Table 7
Unit Substation Facilities

Inspection Year	Unique Number of Unit Substation Facilities Inspected	% of Overall Facilities Inspected (Cumulative)
2020	232	100%
2021		
2022		
2023		
2024		

8-Year Underground Inspection Pilot Program Performance Summary

The following table provides the annual completion and the cumulative percentages of the underground distribution eight-year (2015-2022) inspection cycle.

Table 8
Underground Distribution Facilities

Inspection Year	Unique Number of Underground Facilities Inspected	% of Overall Facilities Inspected (Cumulative)
2015	51,142	19.2%
2016	53,866	39.4%
2017	25,980	49.1%
2018	15,640	55.0%
2019	16,190	61.1%
2020	28,916	71.9%
2021		
2022		

VII. Certifications

Pursuant to Section 7 of the Safety Standards, attached as Exhibit 1 of this report are the certifications of Con Edison's officer with direct responsibility for overseeing contact voltage testing and facility inspections that Con Edison has, to the best of the officer's knowledge, exercised due diligence in carrying out a plan, including quality assurance, that is designed to meet the contact voltage testing and inspection requirements in 2020, and that Con Edison has:

- Tested its publicly accessible electric facilities and streetlights in accordance with the Electric Safety Standards Case 04-M0159 effective January 13, 2015.

- Inspected the requisite number of electric facilities.

VIII. Analysis of Causes of Findings and Contact Voltage

All New York State utilities prepare an inventory of all Contact Voltage "findings" and report each year. Section 1(f) of the Safety Standards defines a "finding" as "any confirmed voltage reading on an electric facility or streetlight greater than or equal to 1 volt measured using a voltmeter and 500-ohm shunt resistor." Section 1(c) defines Stray Voltage (referred to herein as Contact 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."

Although not all findings are due to contact voltage, NYS Utilities are required to report on all findings, regardless of whether the voltage is normal for the operating system. In 2020, 6,048 voltage findings resulted from contact voltage testing. These findings resulted from 2,063 sources of contact voltage. A total of 5,809 findings, approximately 96%, were detected by the Mobile Contact Voltage Testing Program. There were 239 findings (approx. 4%) identified by manual contact voltage testing.

In accordance with the Safety Standards requirements, when a finding is discovered on an electric facility or streetlight during contact voltage testing, the Company must manually test all publicly accessible structures, streetlights, and sidewalks, within a minimum 30-foot radius of the energized object. Four findings were recorded as a result of the 30-foot radius testing during manual contact voltage testing.

Contact voltage findings during 2020 resulted from a variety sources as detailed in Tables 9 and 10. Table 9 provides the sources that were Con Edison's responsibility.

Table 9
2020 Sources of Contact Voltage Finding
Con Edison Responsibility

Source of Contact Voltage	Con Edison
UG Streetlight Service	444
UG Service	335
UG Main	131
Secondary Burnout	104
UG Service Con Edison Neutral	93
Crab	40
Sump Pump	30
UG Streetlight Con Edison Neutral	27
Overhead Service	13
Overhead Service Neutral	14
UG Main Con Edison Neutral	12
Abandoned Service	12
Overhead Streetlight Service	11
Overhead Secondary	4
Defective Riser/Insulator	5
Loose UG Service Connection at CE Structure	5
Abandoned Streetlight Service	4
Overhead Streetlight Con Edison Neutral	3
Overhead Primary	1
Defective Transformer Equipment/Gap	1
Loose UG SL Service Connection at CE Structure	1
Loose Main Connection at CE Structure	1
Total	**1,291**

Table 10 contains the 2020 sources of contact voltage findings that were the responsibility of entities other than Con Edison ("Non-Con Edison Responsibility").

Table 10
2020 Sources of Contact Voltage
Non-Con Edison Responsibility

Source of Contact Voltage	Non-Con Edison
Defective Pigtail/Internal City Streetlight Wiring/Loose Connection at Lamp Base/Open Ended Control Wiring	496
Defective Customer Equipment	237
Defective Contractor Equipment	36
Contractor or Customer Damage	3
Total	**772**

Mitigation through Detection

Five factors affect the likelihood that a member of the public or an animal could experience a shock. These factors are the number of energized structures (ENEs), duration of time an ENE remains undetected ("exposure time"), voltage and current levels associated with the ENEs, pedestrian density, and the weather. Appendix 3 contains the breakdown of electric shocks (ESRs) reported to Con Edison in 2020.

Since the likelihood of an ESR will increase or decrease in proportion to the total number of energized structures and exposure time, the timely detection and repair of identified sources of contact voltage is the principal mitigation effort for reducing ESRs. Each completed repair effectively represents a mitigation of possible ESRs and over time, the potential ESRs decrease accordingly. As can be observed in Chart 1, the sources of ENEs have been decreasing since the inception of the program. Similarly, the Con Edison responsibility ESRs (Chart 2) and Non-Utility responsibility ESRs (Chart 3) show a similar trend.

Chart 1
ENE Sources

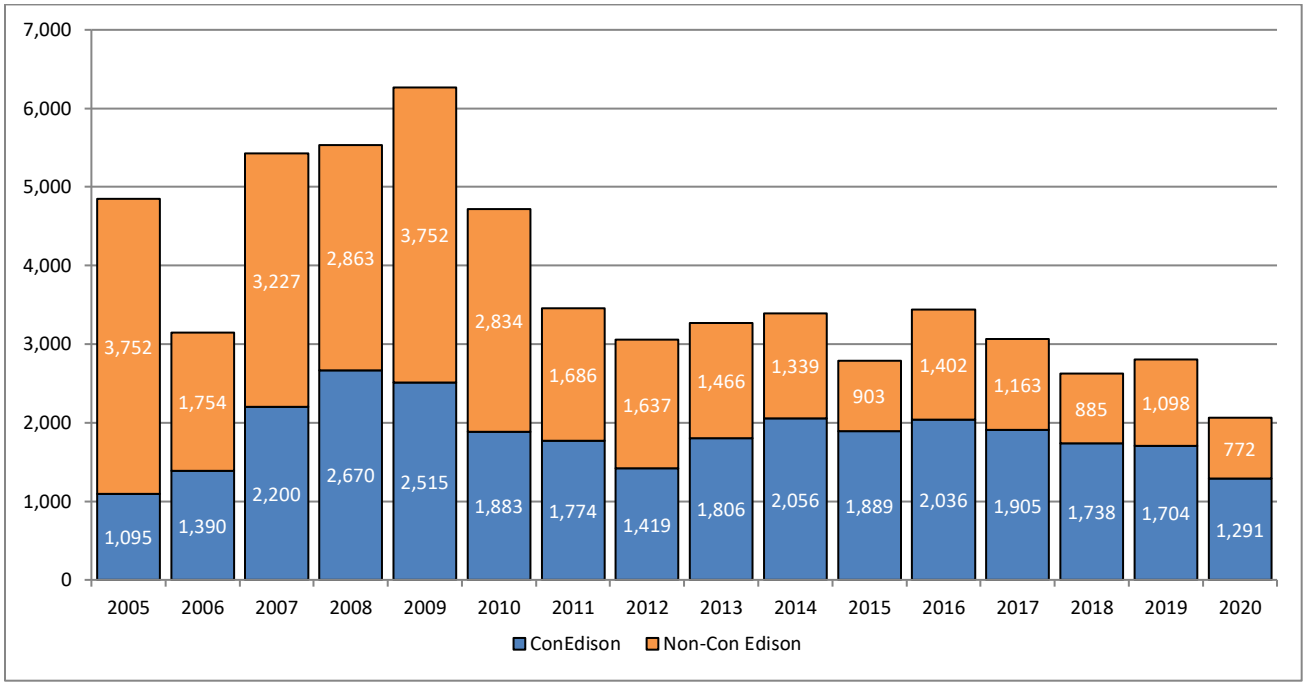


Chart 2
Con Edison ESR

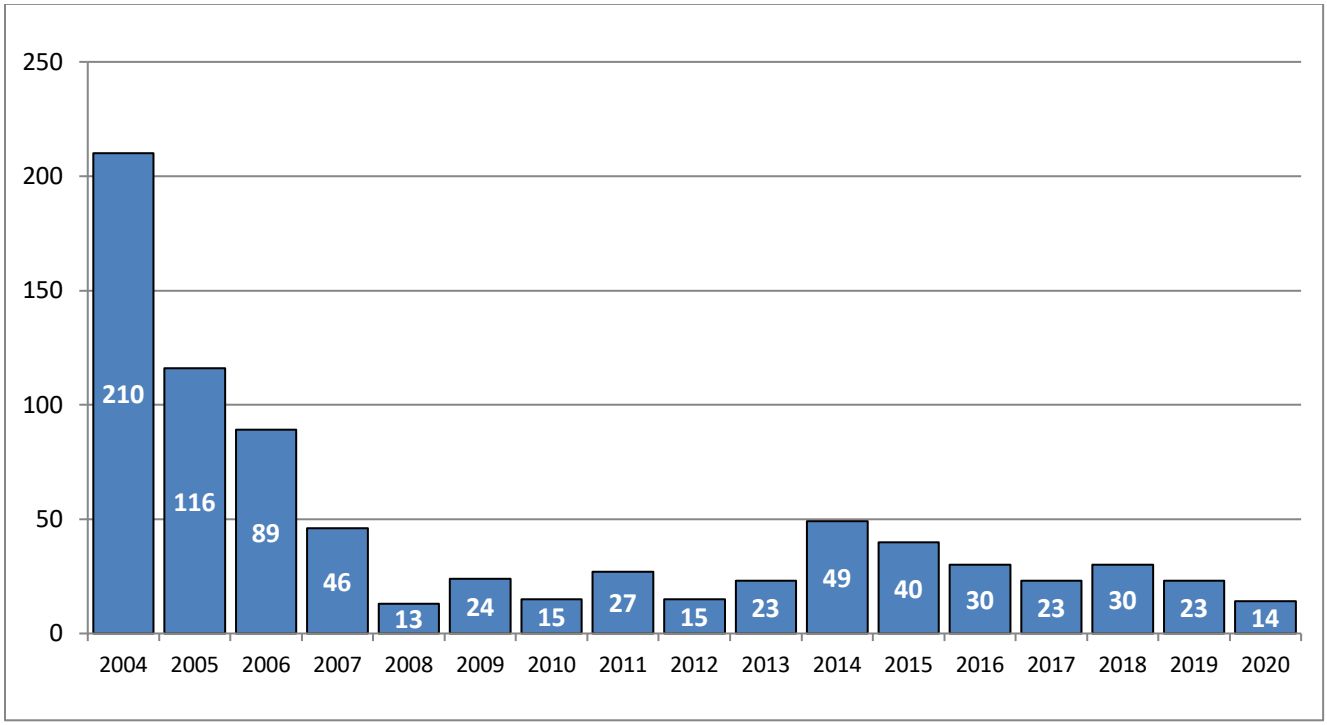
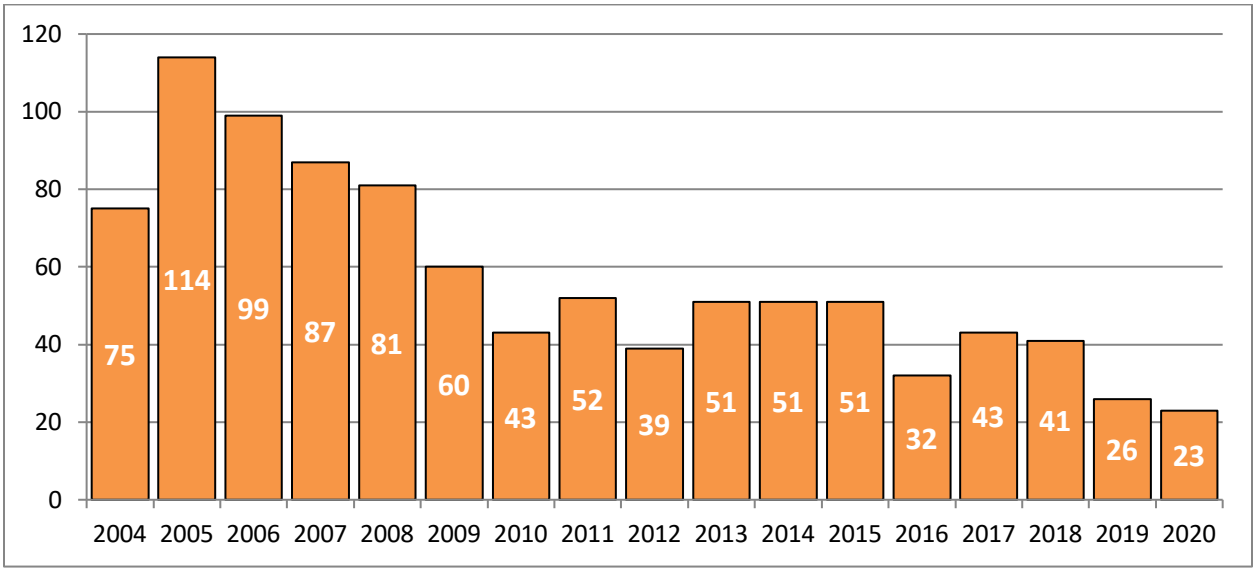


Chart 3
Non-Company ESR



IX. Analysis of Inspection Results

Table 11 details the number of annual inspections performed for the current cycle for each facility type for the period from 2020 to 2024 (Cycle 4). Table 11A show the annual inspections performed for the Underground Distribution Structures for the period from 2015 to 2022 (Cycle 3).

Table 11
Cycle 4 - Yearly Inspection Breakdown

Facility Inspection Program	2020	2021	2022	2023	2024	5-Year Cumulative Unique Inspections	Percent Completed
Distribution URD	3,959					3,959	22.4%
Distribution Overhead	59,246					59,246	21.9%
Transmission Underground	656					656	29.8%
Transmission Overhead	1,286					1,286	100%
Area Substation Fences	16					16	22.5%
Unit Substations	232					232	100%
Totals	**65,395**					**65,395**	**22.4%**

Table 11A
Cycle 3 - Yearly Inspection Breakdown

Facility Inspection Program	2015	2016	2017	2018	2019	2020	2021	2022	8-Year Cumulative Unique Inspections	Percent Completed
Distribution Underground	51,142	53,866	25,980	15,640	16,190	28,916			191,734	71.9%

Tables 12 through 15 show the number of deficiencies found in each inspected structure in 2020 by defect level. For example, Table 12 shows that 1,197 deficiencies or 10.3% of the total deficiencies found in the overhead were Level 2 and they were found on 1,032 overhead structures. Because a structure can have more than one deficiency, the same structure may be counted multiple times in different defect levels. However, the total number of structures in each of the tables is the unique number of structures inspected. In addition, the table does not show the structures that had no deficiencies.

Table 12
Overhead Distribution
Breakdown of Locations with Deficiencies

Defect Level	Number of Structures	Number of Deficiencies	% Deficiencies Found
1	201	244	2.1%
2	1,032	1,197	10.3%
3	3,721	4,021	34.5%
4	5,701	6,207	53.1%
Totals	**9,479**	**11,669**	**100%**

Table 13
Underground Distribution
Breakdown of Locations with Deficiencies

Defect Level	Number of Structures	Number of Deficiencies	% Deficiencies Found
1	4,080	4,135	7.2%
2	10,752	15,994	27.7%
3	1	1	0%
4	20,602	37,599	65.1%
Totals	**24,284**	**57,729**	**100%**

Table 14
Underground Residential Distribution (URD)
Breakdown of Locations with Deficiencies

Defect Level	Number of Structures	Number of Deficiencies	% Deficiencies Found
1	196	266	23.9%
2	229	270	24.3%
3	4	8	0.7%
4	369	569	51.1%
Totals	**660**	**1,113**	**100%**

Table 15
Overhead Transmission
Breakdown of Locations with Deficiencies

Defect Level	Number of Structures	Number of Deficiencies	% Deficiencies Found
1	0	0	0.0%
2	0	0	0.0%
3	4	5	8.3%
4	49	55	91.7%
Totals	**52**	**60**	**100%**

Streetlights

Con Edison does not own streetlight facilities. Streetlight facilities within the Company's service area are owned by the City of New York and municipalities located in Westchester County.

Repair of Deficiencies

During 2020, the Company repaired 82.6% of the Level I, II, and III defects found: 99.4% Level I; 93.1% Level II and 19.1% Level III. Furthermore, as part of the pilot enhancement plan to the Structure Inspection Program, the Company repaired an additional 22,229 Level II and III deficiencies towards eliminating the repair backlog.

Table 16
Deficiencies Repaired in 2020

	Repaired Deficiencies that were Generated before 12/31/2019	Repaired Deficiencies that were Generated in 2020	Total Completed Repairs
Underground Facilities	2,265	19,425	21,690
Overhead Facilities	19,681	1,809	21,490
Pad Mount (URD) Facilities	283	340	623
Total	22,229	21,574	43,803

There is no Level I deficiencies pending for the Underground or for Overhead and there are 26 Level I deficiencies pending repair for the Pad Mount (URD) facilities.

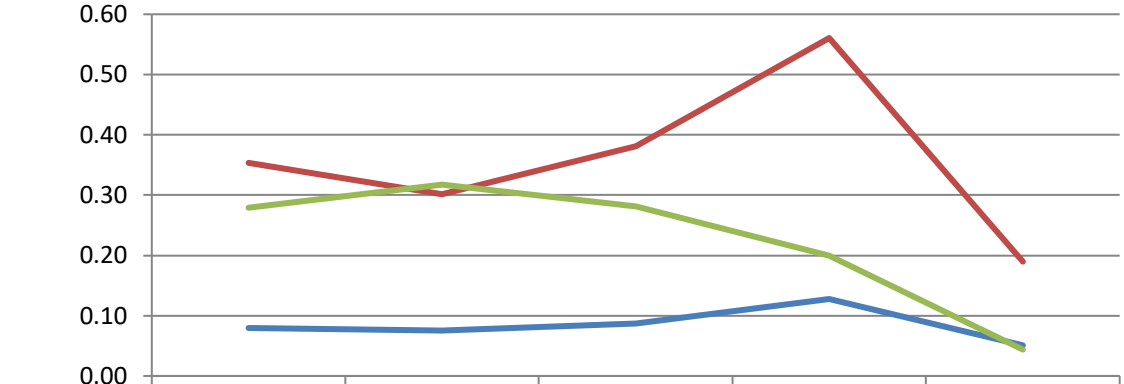
Temporary Repairs

There are no Level I temporary repairs over 90 days.

Analysis of Defects Found

Chart 5 shows the number of defects found per inspection by classification level. The generation rate of L1, L2 and L3 defects found this year show a downward trend and are below the five-year average.

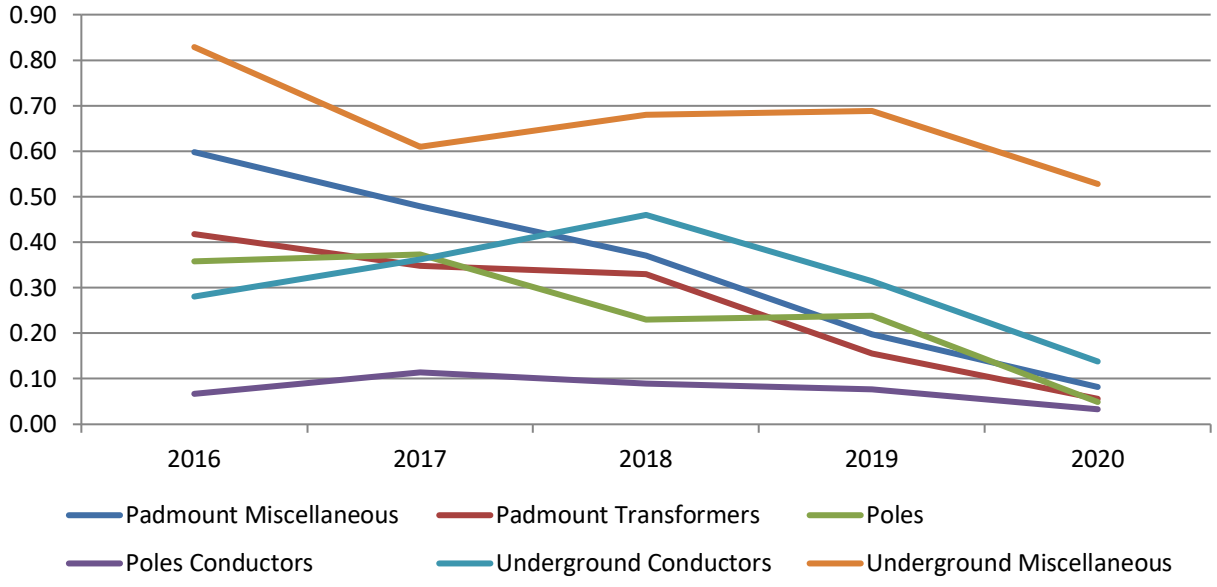
Chart 5
Defect Rate by Level



	2016	2017	2018	2019	2020
Level 1	0.08	0.075	0.087	0.128	0.051
Level 2	0.35	0.302	0.381	0.561	0.190
Level 3	0.28	0.317	0.281	0.199	0.044

Chart 6 shows the 2020 Defect Rate by Category. The Defect Rate shows a downward trend for all the six major categories listed and they are all below the five-year average.

Chart 6
Defect Rate by Category



X. Quality Assurance

The Safety Standards require electric companies to develop a quality assurance program to "ensure timely and proper compliance with these safety standards." Con Edison has developed a comprehensive quality assurance program to address the contact voltage testing and facility inspections requirements. The quality assurance program includes:

- Contact voltage testing of underground distribution structures including Underground Residential Distribution (URD), overhead distribution structures and municipality-owned streetlights.
- Contact voltage testing of transmission and substation facilities.
- Facility inspections of underground distribution, URD, and overhead distribution structures.
- Facility inspections of transmission facilities and substation facilities.

This section addresses Con Edison's quality assurance program for the above-referenced contact voltage testing and facility inspections.

Quality Assurance Measures Instituted: Contact Voltage Testing of Underground Distribution Structures, Overhead Distribution Structures, and Municipality Owned Streetlights.

Con Edison developed a quality assurance plan to review whether contact voltage testing was performed as specified. The reliability and error design parameters used were:

- 95% reliability within a ±10% relative precision level and satisfy established industry sample design criteria.

Based on the total inspections performed in 2020, 683 quality assurance checks were conducted on all tested structures to achieve a 95% confidence rate with a ±10% overall error that the contact voltage tests were conducted in accordance with Company specifications.

The Company's specification EO-10315 (Quality Assurance of the Contact (Stray) Voltage and Periodic Distribution Structure Safety Inspection Programs) calls for quality assurance checks to be performed on the contact voltage testing. The quality assurance checks are randomly selected from a database of all contact voltage tests and include a field test for contact voltage. Con Edison performed 154 quality assurance checks of the underground distribution structures including underground residential distribution (URD), 265 quality assurance checks of overhead distribution structures and 264 quality assurance checks of municipality owned streetlights. Contact voltage was not found during any of these quality assurance reviews. In addition to the 683 quality assurance checks discussed above, Con Edison also conducted Random Quality Assurance reviews of "work in progress."

Quality Assurance Measures Instituted: Contact Voltage Testing of Transmission and Substation Facilities.

In accordance with CE-ES-1043, a planner in Transmission Line Maintenance who has knowledge and expertise in overhead transmission, but who did not perform or directly supervise the contact voltage testing, conducted quality assurance inspections at locations on various transmission lines for overhead transmission facilities. Contact voltage was not found during any of these quality assurance reviews.

Con Edison performed several types of quality assurance on the underground transmission contact voltage-testing program. Contractors, who also performed testing on underground distribution structures, performed the contact voltage testing of underground transmission facilities. Following this contact voltage testing, Con Edison Construction Management personnel performed audits at several locations. Contact voltage was not found during any of these quality assurance reviews.

Con Edison's Asset Management Engineering group performed quality assurance for the substation contact voltage-testing program. The quality assurance consisted of a documents

search, records review, as well as physical contact voltage testing. Contact voltage was not found during any of these quality assurance reviews.

Quality Assurance performed a quality review on a randomly selected sample of unit substations. Contact voltage was not found during any of these quality assurance reviews.

These QA checks confirmed the accuracy of the results from the Contact voltage-testing program.

Quality Assurance Measures Instituted: Inspections of Underground Distribution Structures and Overhead Distribution Structures.

Con Edison has a Central Quality Assurance group (QA) to oversee work done on the underground electrical system. QA observes specification compliance of the underground inspection program. The Company's specification EO-10315 (Quality Assurance of the Contact Voltage and Periodic Distribution Structure Safety Inspection Programs) establishes standards for the QA program in order to perform underground structure inspections in accordance with the Safety Standards and Con Edison's specifications. The reliability and error design parameters used were:

- 95% reliability within a ±10% relative precision level and satisfy established industry sample design criteria.

Based on the total inspections performed in 2020, 588 quality assurance checks were required to achieve a 95% confidence rate with a ±10% overall error that the inspections were conducted in accordance with Company specifications.

Con Edison employees from the centralized quality assurance department conduct the quality assurance for each of the Company's operating regions. These employees are experienced cable splicers, linemen and mechanics that have been trained in facility inspection and the quality assurance specifications.

The quality assurance personnel performed a complete re-inspection of 339 underground and 249 overhead facilities. The results of the inspections of the randomly selected facilities are compared with the results of the previous inspected of those facilities. Deficiencies identified during quality assurance reviews are communicated to field crews, supervisors, planners, and managers who have been required to reinforce inspection procedures with field crews.

Quality Assurance Measures Instituted: Transmission and Substation Facility Inspections.

Company specifications CE-TS-6830 (Low and Medium Feeder Pressure Periodic Inspection Procedure), CE-TS-6045 (Inspection and Preventive Maintenance and Contact Voltage Testing of Pipe Type Cable Systems) and CE-TS-6972 (Procedure for Periodic Inspection of Solid Dielectric Transmission Cable Systems) require that quality assurance inspections of

randomly selected transmission components be performed. These randomly selected components are re-inspected or re-tested by trained and knowledgeable employees who did not perform or directly supervise this work.

Substation Operations' quality assurance program consists of periodic document reviews and field observations to ensure that 100% of the required contact voltage tests and a minimum of 20% of the Safety and Reliability Inspections of Substation facilities will be completed by December 31 of each year and that the testing and inspections are properly conducted.

Quality assurance was performed by members of the Central Engineering QA and Support Team along with Substation Operations QA -- it consisted of a documents search, records review, and physical critical visual inspection. Critical visual inspection quality assurance was also performed. In addition, all inspection and follow-up work order documentation were reviewed. Work orders are entered into the Company's work management system and processed by appropriate personnel. These work orders are tracked closely until all repairs are completed. All personnel are trained on proper reporting and referral of repairs identified during facility inspections. The quality assurance inspections yielded results indicating that the original inspections were performed in accordance with the applicable specifications.

XI. Other Pertinent Information

Con Edison continues to evolve our engineering and analytical solutions to mitigate public safety risk. In addition, we are integrating new technology to make service more reliable.

Among our technology initiatives includes the Structure Observation System devices. To-date, Con Edison has installed 5,500 devices in manholes to detect environmental and equipment conditions in underground structures and communicate this information back to our engineers. Another 2,500 are planned for 2021. By remotely monitoring these conditions, we were able to *dispatch a crew to* eliminate a condition that could have led to injury to the public or our employees.

Con Edison has also developed a new tool to perform an inspection of underground equipment in manhole structures for faults and other defects not visible to the human eye without removing the manhole cover. This new device is designed to be inserted through the vents in a manhole cover thereby reducing the setup time and physical effort needed to conduct a typical inspection. Using infra-red technology, the device's handheld monitor displays temperature anomalies that may indicate that equipment repairs are required. This tool is the latest addition to the technology arsenal that Con Edison is deploying to help reduce the number of manhole events.

Lastly, Con Edison is in active development of a device capable of continuous remote monitoring of contact voltage in streetlights. In 2020, streetlights represent that largest source of contact voltage findings at 444 that were the responsibility of Con Edison and 496 that were the responsibility of entities other than Con Edison. Since the likelihood of an ESR will increase or decrease in proportion to the total number of energized structures and exposure time, the timely detection and repair of identified sources of contact voltage is the principal mitigation effort for reducing ESRs. We conclude that prioritize early detection and repairs in streetlights will be effective at improving public safety.

XII. Level II Deficiency Repairs

As part of Con Edison's Reliability Performance Mechanisms,[6] for all Level II deficiencies that come into existence on or after January 1, 2020, Con Edison will attempt to make repairs to all within 365 days from the date of discovery or at a minimum complete 85% within 365 days.

The Company is required to report its performance in this contact voltage and inspection report in addition to the Annual RPM report that will be filed on March 31, 2021. The Company's annual RPM report will include the number of Level II Deficiencies discovered during the prior year; the status of Level II repairs; a description of any Level II Deficiencies that have been reclassified to a different level; a description of any deficiencies that were reclassified as a Level II deficiencies, and; extraordinary circumstances, if any, that prevented the Company from achieving the target level for repairs.

During 2020, the Company discovered 17,461 Level II defects and repaired 16,246 (93%) within 365 days of discovery. In addition, there were no Level II defects found in 2020 that were reclassified to a different deficiency level and no other deficiencies were reclassified as Level II. The Company will provide additional detail on the Level II RPM work in the RPM Report on March 31, 2021.

[6] Case 19-E-0065, et al, *Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plan*, issued January 16, 2020, Joint Proposal, Appendix 14, pp. 18-19.

Appendix 1: Summary of Manual Contact Voltage Testing

	Total System Units Requiring Testing	Units Completed	Percent Completed	Units with Voltage Found[1] (>= 1.0v)	Percent of Units Tested with Voltage (>= 1.0v)	Units Classified as Inaccessible
Overhead Distribution Facilities	59,246	59,246	100.00%	5	0.008%	0
Quarterly Update		8,430	14.23%	0	0.000%	0
Underground Distribution Facilities	137,735	137,735	100.00%	0	0.000%	262
Quarterly Update		28,858	20.95%	0	0.000%	164
Street Lights / Traffic Signals[2]	111,454	111,454	100.00%	183	0.164%	404
Quarterly Update		16,928	15.19%	8	0.047%	262
Substation Fences[3]	248	248	100.00%	0	0.000%	0
Quarterly Update		4	1.61%	0	0.000%	0
Transmission (69kV and Above)	1,286	1,286	100.00%	0	0.000%	0
Quarterly Update		0	0.00%	0	0.000%	0
TOTAL	309,969	309,969	100.00%	188	0.061%	666
Quarterly Update		54,220	17.49%	8	0.015%	426

1. Contact voltage sources on Con Edison structures and streetlights - found by contractors
2. Con Ed does not own streetlight/traffic signal facilities. These facilities are owned by the City of New York and municipalities located in Westchester County
3. 2020 is the first year of the five-year testing cycle for area substation fences. 16 of 71 area substation fences have been completed as of 12/31/20 for this cycle. Unit SS fences are tested annually.

Appendix 2a: Summary of Energized Objects -Mobile Testing

	1/1/2020 - 12/31/2020						
	Initial Readings				Reading After Mitigation		
	1.0V-4.4V	4.5V-24.9V	>25V	Totals	<1.0V	1.0V - 4.4V	>4.5V
Distribution Facilities	**18**	**8**	**4**	**30**	**30**	**0**	**0**
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	1	0	0	1	1	0	0
Pole	16	8	4	28	28	0	0
Riser	1	0	0	1	1	0	0
Underground Facilities	**336**	**145**	**17**	**498**	**498**	**0**	**0**
Manhole	1	1	0	2	2	0	0
Other	0	0	0	0	0	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Pedestal	1	0	1	2	2	0	0
Service Box	304	132	16	452	452	0	0
Vault - Cover/Door	30	12	0	42	42	0	0
Street Lights / Traffic Signals	**440**	**288**	**262**	**990**	**990**	**0**	**0**
Metal Street Light Pole	213	189	206	608	608	0	0
Other	3	5	6	14	14	0	0
Pedestrian Crossing Pole	26	23	12	61	61	0	0
Traffic Control Box	1	0	0	1	1	0	0
Traffic Signal Pole	197	71	38	306	306	0	0
Substation Fences	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fence	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Transmission (Total)	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lattice Tower	0	0	0	0	0	0	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	**2751**	**1286**	**254**	**4291**	**4291**	**0**	**0**
Bus Shelter	9	3	0	12	12	0	0
Control Box	1	0	0	1	1	0	0
Fire Hydrant	76	16	1	93	93	0	0
Gate/Fence/Awning	562	303	60	925	925	0	0
Other	1008	437	83	1528	1528	0	0
Phone Booth	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Scaffolding	53	15	14	82	82	0	0
Sidewalk	849	427	79	1355	1355	0	0
Traffic Sign	167	74	17	258	258	0	0
Water Pipe	26	11	0	37	37	0	0
Total	**3545**	**1727**	**537**	**5809**	**5809**	**0**	**0**

Appendix 2b: Summary of Energized Objects - Manual Testing + Other

	1/1/2020 - 12/31/2020						
	Initial Readings				Reading After Mitigation		
	1.0V-4.4V	4.5V-24.9V	>25V	Totals	<1.0V	1.0V - 4.4V	>4.5V
Distribution Facilities	**3**	**0**	**5**	**8**	**8**	**0**	**0**
Ground	0	0	1	1	1	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	1	1	1	0	0
Pole	2	0	2	4	4	0	0
Riser	1	0	1	2	2	0	0
Underground Facilities	**1**	**2**	**2**	**5**	**5**	**0**	**0**
Manhole	0	0	2	2	2	0	0
Other	0	0	0	0	0	0	0
Padmount Switchgear	0	0	0	0	0	0	0
Padmount Transformer	0	0	0	0	0	0	0
Pedestal	0	0	0	0	0	0	0
Service Box	1	2	0	3	3	0	0
Vault - Cover/Door	0	0	0	0	0	0	0
Street Lights / Traffic Signals	**48**	**89**	**82**	**219**	**219**	**0**	**0**
Metal Street Light Pole	47	83	79	209	209	0	0
Other	0	0	0	0	0	0	0
Pedestrian Crossing Pole	0	0	0	0	0	0	0
Traffic Control Box	0	0	0	0	0	0	0
Traffic Signal Pole	1	6	3	10	10	0	0
Substation Fences	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fence	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Transmission (Total)	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lattice Tower	0	0	0	0	0	0	0
Pole	0	0	0	0	0	0	0
Ground	0	0	0	0	0	0	0
Guy	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Miscellaneous Facilities	**5**	**1**	**1**	**7**	**7**	**0**	**0**
Bus Shelter	0	0	0	0	0	0	0
Control Box	0	0	0	0	0	0	0
Fire Hydrant	0	0	0	0	0	0	0
Gate/Fence/Awning	1	0	0	1	1	0	0
Other	1	0	1	2	2	0	0
Phone Booth	0	0	0	0	0	0	0
Riser	0	0	0	0	0	0	0
Scaffolding	0	0	0	0	0	0	0
Sidewalk	1	1	0	2	2	0	0
Traffic Sign	1	0	0	1	1	0	0
Water Pipe	1	0	0	1	1	0	0
Total	**57**	**92**	**90**	**239**	**239**	**0**	**0**

Appendix 3: Summary of Shock Reports from the Public

2020	10/1/2020 - 12/31/2020	Yearly Total
I. Total shock calls received	**37**	**110**
Unsubstantiated	15	62
Normally Energized Equipment	3	10
Substantiated Stray Voltage	19	38
# Persons	14	33
# Animals	10	12
II. Injuries Sustained	**1**	**1**
Utility Responsibility - Person	0	0
Utility Responsibility - Animal	0	0
Non Utility Responsibility - Person	0	0
Non Utility Responsibility - Animal	0	0
Unsubstantiated - Person	1	1
Unsubstantiated - Animal	0	0
III. Medical Attention Received	**4**	**10**
Utility Responsibility - Person	0	1
Utility Responsibility - Animal	0	0
Non Utility Responsibility - Person	4	8
Non Utility Responsibility - Animal	0	0
Unsubstanitated - Person	0	1
Unsubstanitated - Animal	0	0
IV. Voltage Source	**19**	**38**
Utility Responsibility	8	14
Issue with primary, joint or transformer	0	0
Secondary joint(Crab)	1	1
SL service Line	0	2
Abandoned SL Service Line	0	0
Defective service line	4	6
Abandoned Service Line	0	0
OH Secondary	1	1
OH Service	0	1
OH Service neutral	1	2
OH SL Service	0	0
OH SL Service neutral	0	0
Pole	0	0
Riser	0	0
Other	1	1
Customer Responsibility	11	23
Contractor damage	0	0
Customer Equipment/Wiring	11	23
Other Utility/Gov't Agency Responsibility	0	1
SL Base Connection	0	0
SL Internal Wiring or Light Fixture	0	0
Overhead Equipment	0	0
Other - Utility	0	1
V. Voltage Range	**19**	**38**
1.0V to 4.4V	3	8
4.5V to 24.9V	5	11
25V and above	11	19
No Reading	0	0

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															
Detail of Deficiencies by Facilities	**2016**			**2017**			**2018**			**2019**			**2020**		
Priority Level	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Repair Expected	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**	**Within 1 week**	**Within 1 year**	**Within 3 years**
Overhead Facilities															
Repaired in Time Frame	**347**	**84**	**3,791**	**584**	**251**	**1,025**	**58**	**247**	**584**	**10**	**65**	**79**	**212**	**808**	**758**
Repaired - Overdue	**424**	**178**	**2,726**	**222**	**172**	**1,161**	**103**	**193**	**0**	**6**	**15**	**0**	**32**	**0**	**0**
Not Repaired - Not Due	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,838**	**0**	**0**	**1,495**	**0**	**389**	**3,263**
Not Repaired - Overdue	**0**	**2,622**	**26,264**	**0**	**1,706**	**13,532**	**0**	**1,150**	**0**	**0**	**267**	**0**	**0**	**0**	**0**
Total Overhead Facilities	**771**	**2,884**	**32,781**	**806**	**2,129**	**15,718**	**161**	**1,590**	**6,422**	**16**	**347**	**1,574**	**244**	**1,197**	**4,021**
Underground Facilities															
Repaired in Time Frame	**9,621**	**41,796**	**2,935**	**3,308**	**16,433**	**3,316**	**2,113**	**11,343**	**2,391**	**2,600**	**11,694**	**1,652**	**4,117**	**15,346**	**1**
Repaired - Overdue	**81**	**2,221**	**34**	**28**	**588**	**1**	**38**	**234**	**0**	**19**	**94**	**0**	**18**	**10**	**0**
Not Repaired - Not Due	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**638**	**0**
Not Repaired - Overdue	**0**	**1,233**	**35**	**0**	**525**	**7**	**0**	**469**	**0**	**0**	**628**	**0**	**0**	**0**	**0**
Total Underground Facilities	**9,702**	**45,250**	**3,004**	**3,336**	**17,546**	**3,324**	**2,151**	**12,046**	**2,391**	**2,619**	**12,418**	**1,652**	**4,135**	**15,994**	**1**
Pad Mount Facilities															
Repaired in Time Frame	**675**	**379**	**52**	**512**	**204**	**33**	**934**	**243**	**148**	**495**	**164**	**41**	**177**	**92**	**8**
Repaired - Overdue	**74**	**38**	**0**	**85**	**22**	**0**	**80**	**16**	**0**	**56**	**10**	**0**	**63**	**0**	**0**
Not Repaired - Not Due	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**178**	**0**
Not Repaired - Overdue	**0**	**109**	**0**	**0**	**125**	**0**	**0**	**147**	**0**	**0**	**109**	**0**	**26**	**0**	**0**
Total Pad Mount Facilities	**749**	**526**	**52**	**597**	**351**	**33**	**1,014**	**406**	**148**	**551**	**283**	**41**	**266**	**270**	**8**
Streetlight Facilities															
Repaired in Time Frame															
Repaired - Overdue															
Not Repaired - Not Due															
Not Repaired - Overdue															
Total Streetlight Facilities	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Transmission Facilities															
Repaired in Time Frame	**2**	**0**	**34**	**0**	**0**	**16**	**0**	**2**	**6**	**0**	**0**	**11**	**0**	**0**	**3**
Repaired - Overdue	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Not Repaired - Not Due	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**
Not Repaired - Overdue	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Transmission Facilities	**2**	**0**	**34**	**0**	**0**	**16**	**0**	**2**	**6**	**0**	**0**	**12**	**0**	**0**	**5**

Appendix 4: Summary of Deficiencies and Repair Activity Resulting from the Inspection Process (Cont.)

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	11,224	10,645	579	0	0
	II	Within 1 year	48,660	42,259	2,437	0	3,964
	III	Within 3 years	35,871	6,812	2,760	0	26,299
	IV	N/A	108,504	18,925	NA	89,579	NA
2017	I	Within 1 week	4,739	4,404	335	0	0
	II	Within 1 year	20,026	16,888	782	0	2,356
	III	Within 3 years	19,091	4,390	1,162	0	13,539
	IV	N/A	61,287	13,539	NA	47,748	NA
2018	I	Within 1 week	3,326	3,105	221	0	0
	II	Within 1 year	14,044	11,835	443	0	1,766
	III	Within 3 years	8,967	3,129	0	5,838	0
	IV	N/A	31,188	8,221	NA	22,967	NA
2019	I	Within 1 week	3,186	3,105	81	0	0
	II	Within 1 year	13,048	11,923	119	2	1,004
	III	Within 3 years	3,279	1,783	0	1,496	0
	IV	N/A	25,531	7,340	NA	18,191	NA
2020	I	Within 1 week	4,645	4,506	113	0	26
	II	Within 1 year	17,461	16,246	10	1,205	0
	III	Within 3 years	4,035	770	0	3,265	0
	IV	N/A	44,430	8,550	NA	35,880	NA

Appendix 4: Summary of Deficiencies and Repair Activity Resulting from the Inspection Process (Cont.)

Summary of Deficiencies and Repair Activity Resulting from the Inspection Process - Level IV Conditions										
	2016		2017		2018		2019		2020	
	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										
Overhead Facilities Total	33,408	1,254	15,053	367	9,983	398	1,472	32	6,207	339
Underground Facilities										
Underground Facilities Total	74,660	17,327	45,866	12,892	20,309	7,411	23,115	6,868	37,599	7,815
Pad Mount Transformers										
Pad Mount Transformers Total	370	278	308	220	843	371	824	359	569	349
Streetlight Facilities										
Streetlight Facilities Total										
Transmisssion Facilities										
Transmission Facilities Total	66	66	60	60	53	41	120	81	55	47
Overall Level IV Deficiencies										
Level IV Deficiencies Total	108,504	18,925	61,287	13,539	31,188	8,221	25,531	7,340	44,430	8,550

Exhibit 1: Certifications

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Certification of Contact Voltage Testing

Patrick G. McHugh, on this 16 day of February 2021, certifies as follows:

1. I am Vice President of Consolidated Edison Company of New York, Inc. ("Con Edison" or "the Company").

2. I am responsible for overseeing Con Edison's contact voltage testing program, and in that capacity, I have monitored the Company's contact voltage testing program during the twelve months ending December 31, 2020 ("the twelve-month period"). During the twelve-month period, Con Edison instituted and diligently carried out a program designed to meet the contact voltage testing requirements of the Public Service Commission's Safety Standards, issued in Case 04-M-0159, Proceeding Instituting Safety Standards.

3. To the best of my knowledge, information, and belief, during the twelve month period, Con Edison identified and tested for contact voltage (i) all publicly accessible electric facilities owned by the Company, and (ii) all publicly accessible streetlights and traffic signals located in public thoroughfares in the Company's service territory and directly supplied by the Company as identified through a good faith effort by the Company, except for such facilities that are identified in the Company's Annual Report, submitted herewith.

Patrick G. McHugh

Patrick G. McHugh

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Certification of Inspections

Patrick G. McHugh, on this 16 day of February 2021, certifies as follows:

1. I am Vice President of Consolidated Edison Company of New York, Inc. ("Con Edison" or "the Company").

2. I am responsible for overseeing Con Edison's electric facility inspection program, and in that capacity, I have monitored the Company's inspection program during the twelve months ending December 31, 2020 ("the twelve-month period"). During the twelve-month period, Con Edison instituted and diligently carried out a program designed to meet the inspection requirements established by the Public Service Commission's Safety Standards, issued in Case 04-M-0159, Proceeding Instituting Safety Standards.

3. To the best of my knowledge, information, and belief, Con Edison has visually inspected the requisite number of electric facilities during the twelve-month period, including the requirement to have conducted a visual inspection of 17% of Overhead and URD electric distribution facilities, 17% of underground and overhead transmission, 17% of substation fences and at least 69.4% of its Underground electric distribution facilities through December 31, 2020.

Patrick G. McHugh

Patrick G. McHugh

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