

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION**

IN RE: PROCEEDING TO ESTABLISH A :
CONTACT VOLTAGE DETECTION AND REPAIR :
PROGRAM APPLICABLE TO NATIONAL GRID'S : **DOCKET NO. 4237**
REVIEW OF CONTACT VOLTAGE ANNUAL :
REPORT – FISCAL YEAR 2017 :

ORDER

I. National Grid's Annual Report

On July 28, 2017, The Narragansett Electric Company d/b/a National Grid (National Grid or Company) filed with the Public Utilities Commission (PUC) its 2017 Contact Voltage Annual Report.¹ The report contains nine sections: (1) background and summary, (2) survey and mobile testing results for the contact voltage risk areas, (3) the contact voltage program costs, (4) calls into the shock line, (5) updated emergency operating procedures, (6) results of the total harmonic distortion pilot program, (7) recommendations to test 20% of the contact voltage risk areas in 2017, (8) an update on standards and equipment for testing, and (9) recommendations for fiscal year 2018 Contact Voltage program.

In the report, National Grid stated that the fourteen contact voltage risk areas were surveyed during the period August 7-19, 2016, and covered a total of 134.2 miles, including both sides of the road. A total of eight mobile events were recorded during mobile scanning for one volt or greater. The testing also included the total harmonic distortion pilot, designed to determine whether readings between one volt and 4.5 volts were contact voltage or not. Seven assets registered between one and 4.5 volts. Three locations were remediated after total harmonic distortion testing revealed readings that suggested the cause of this elevated voltage was contact

¹ An electronic copy of National Grid's 2017 Contact Voltage Annual Report can be found at: <http://www.ripuc.org/eventsactions/docket/4237-NGrid-CVAnnualRept-2017.pdf>. This report provides a summary of the Company's surveying and testing results for the period April 1, 2016 to March 31, 2017.

voltage. The other four locations were remediated as well, although the results of the total harmonic distortion indicated that the voltage reading was not hazardous to the public. One asset, which was on a streetlight, registered above 4.5 volts requiring immediate remediation.² According to the Company, all assets that registered greater than one volt were permanently repaired by August 24, 2016.

In its Order approving the FY 2016 Annual Report, the PUC ordered National Grid to include in its FY 2017 Contact Voltage Annual Report a multi-year comparison of the number and types of mobile events together with an analysis of the comparison of the results of the mobile testing.³ According to National Grid, the number of mobile events with readings less than one volt were lower than each year except FY 2015; readings between one and 4.5 volts were less than each of the other years except FY 2013, which had an equal number of readings.

In its Order approving the FY 2014 Annual Report, the PUC ordered National Grid to conduct follow-up scans in areas where remediation work had been completed between mobile testing scans. The PUC further required National Grid to implement a process where random objects are selected in each contact voltage risk area for manual testing in order to verify areas not shown by mobile technology. According to National Grid, on December 6, 2016, it conducted post-mitigation manual testing of the eight FY 2016 mobile event areas and found five readings at or below one volt, thus requiring no additional remediation.⁴ Additionally, the post-mitigation manual testing showed that the remaining three event areas had readings of 1.1 volts, 1.3 volts, and 2.08 volts.⁵

² National Grid's FY 2017 Contact Voltage Annual Report at 10-11.

³ PUC Order 22567, Docket No. 4237. (Oct. 7, 2016).

⁴ National Grid's FY 2017 Contact Voltage Annual Report at 14.

⁵ Email from National Grid attorney Raquel Webster to PUC attorney Linda George (Jan. 19, 2017). Additional details of the Company's post-mitigation manual testing are provided in National Grid's 2017 Contact Voltage Annual Report at Exhibit 2.

In addition, from December 7 through 9, 2016, 981 National Grid-owned and customer-owned assets located within the contact voltage risk areas were tested. No elevated voltage was found on 972 of the assets; the remaining nine were inaccessible to the public or not located within the mobile testing field.⁶ The total cost of the mobile testing, post-mitigation manual testing, quality assurance manual testing, remediation, and repair was \$228,215.⁷

During FY 2017, National Grid received two calls to its shock line from the public. Subsequent testing of the relevant assets revealed no instances of elevated voltage in excess of 4.5 volts.⁸ At one of the locations that was the subject of a shock line call, the Company found voltage of four volts and preformed remedial measures. At the second location, the Company reported voltage of three volts. The Company noted that any voltage under five volts is safe, but as a precaution referred the asset to engineering for review.⁹

Next, the Company reviewed the contact voltage risk areas and recommended no changes to the previously identified designated contact voltage risk areas.¹⁰ National Grid did recommend that the PUC approve testing of 20% of the contact voltage risk areas in FY 2018 and 20% thereafter for FY 2019, FY 2020, FY 2021, and FY 2022 to complete 100% over a five-year period.¹¹

The Company remarked that its costs for implementing the annual Contact Voltage Program are recovered through the Electric Infrastructure, Safety, and Reliability (ISR) Plan.

⁶ FY 2017 Contact Voltage Annual Report at 15. In Order 22567 (Oct. 7, 2016), the Company was directed to notify the PUC when it successfully remediated the elevated voltage at the Westwind Drive, South Kingstown locations, with an explanation of the source of the problem and the manner of remediation. The Company indicated that stray voltage on Westwind Drive in South Kingstown has been remediated. Email from National attorney Raquel Webster to PUC attorney Linda George (Nov. 8, 2017). A summary of the Company's remediation work from August 2011 through May 2017 was provided to the Service List in this docket.

⁷ National Grid's 2017 Contact Voltage Annual Report at 17.

⁸ *Id.* at 19.

⁹ *Id.* at 21.

¹⁰ *Id.* at 27.

¹¹ *Id.* 32.

Noting that a number of municipalities have assumed ownership of their streetlights, the Company proposed a new contact voltage testing program that shifts the costs of repair and/or mitigation work to those municipalities that currently own the majority of streetlight assets in their communities.¹² National Grid provided as an exemplar the July 2017 agreement it had entered into with the City of Providence:

The Company and Municipalities will work together to determine mutually agreed upon Contact Voltage Survey and Testing dates. The Company/TRC will perform the contact voltage survey and testing. Contractor(s) hired by Municipalities to perform repair/mitigation work will shadow the Company/TRC performing the survey and testing so they are available to immediately mitigate any elevated voltage findings discovered during the surveying and testing. Municipality-hired Contractor(s) will then directly invoice the Municipalities for any and all costs associated with mitigation efforts.¹³

The Company also proposed that for FY 2018, it limit its post-mitigation manual testing to remediation work completed as part of the prior year's mobile survey on Company-owned assets only. Currently, the Company performs post-mitigation manual testing on both Company and customer owned assets. The Company further propose it discontinue the post-mobile survey audit testing, the purpose of which is to spot verify the accuracy of the mobile technology. The Company based this recommendation on the fact that “[h]istorical quality assurance audits for this program have found no instances of elevated voltage.”¹⁴

Finally, providing an update on standards and equipment, National Grid noted that the Institute of Electrical and Electronics Engineers (IEEE) Standards Boards approved standard P1695, *Guide to Understanding, Diagnosing and Mitigating Stray and Contact Voltage*, which is

¹² *Id.* at 32

¹³ *Id.* at 32.

¹⁴ *Id.*

currently pending editorial revisions and approval. Since the IEEE has not officially published any final documentation or final recommendations on elevated voltage, however the Company indicated it will continue using existing manual technology and its vendor's chosen mobile technology for the FY 2018 Contact Voltage Program.¹⁵

II. Division's Position on the Contact Voltage Annual Report

On October 6, 2017, the Division of Public Utilities and Carriers (Division) submitted a letter from its consultant, Gregory L. Booth, P.E., of Power Services, Inc. Mr. Booth stated that after reviewing the Contact Voltage Annual Report, he found that it met the requirements set forth in R.I. Gen. Laws § 39-2-25(b)(6) "while incorporating all previous recommendations of the Division and multiple PUC Orders incorporating program additions and enhancements."¹⁶ Mr. Booth opined that the significant decrease in mobile events from FY 2016 to FY 2017, currently 32 compared to 59 in 2016, evidences the benefits of remediation as the program matures. Mr. Booth also indicated that his testimony on behalf of the Division in National Grid's FY 2018 ISR Plan included recommendations to complete 100% of the Designated Contact Voltage Risk Areas over five years and to continue the current testing method.¹⁷ Mr. Booth supported the Company's proposals for the 2018 Program, finding them to be consistent with the Division's recommendations for the ISR FY 2018 Plan.¹⁸

III. PUC Findings

At an Open Meeting conducted on November 9, 2017, the PUC reviewed National Grid's FY 2017 Contact Voltage Annual Report, as revised and supplemented, along with the Division's

¹⁵ *Id.* at 29. The Company also indicated that it was not aware of any additional changes to mobile testing technology.

¹⁶ Letter from Gregory Booth to Steve Scialabba (Oct. 6, 2017); [http://www.ripuc.org/eventsactions/docket/4237-DPU-Booth-Letter\(10-25-17\).pdf](http://www.ripuc.org/eventsactions/docket/4237-DPU-Booth-Letter(10-25-17).pdf).

¹⁷ *Id.* Testing in each Designated Contact Voltage Risk Area includes Total Harmonic Distortion (THD) pilot during which any voltage greater than 1 volt but less than 4.5 volts that has a total harmonic distortion of less than 10 percent is considered contact voltage.

¹⁸ *Id.*

recommendations. The PUC unanimously found National Grid’s annual report to be in compliance with R.I. Gen. Laws § 39-2-25(b)(6) and PUC Order Nos. 20871, 20950, 21414, 21780, 22357, and 22567. The PUC also approved National Grid’s proposal to test 20% of the contact voltage risk areas in FY 2018 and 20% thereafter for FY 2019, FY 2020, FY 2021, and FY 2022, to complete 100% over a five-year period.¹⁹

Additionally, the PUC found the Company’s written agreement with the City of Providence to be reasonable. Given the shift to municipal ownership of streetlights, it is reasonable that the Company continue to be responsible for performing the contact voltage survey and testing while municipalities that have assumed ownership of the bulk of their streetlights be responsible for immediately performing remediation work of any elevated voltage findings discovered during the surveying and testing. The Commission directed the Company to determine whether municipalities with Designated Contact Voltage Risk Areas would enter into this agreement and report back to the PUC within three months. The Company shall also continue the random testing within the contact voltage risk areas and the post-remediation testing previously recommended by Mr. Booth.

Accordingly, it is hereby

(23270) ORDERED:

1. The Narragansett Electric Company d/b/a/ National Grid is in compliance with Public Utilities Commission Order Nos. 20871, 20950, 21414, 21780, 22357, and 22567.
2. The Narragansett Electric Company d/b/a National Grid shall adopt a survey and testing schedule for completing 20% of the Designated Contact Voltage Risk Areas in FY 2018, all of which shall be located in the City of Providence.

¹⁹ R.I. Gen. Laws § 39-2-25(b)(1).

3. The Narragansett Electric Company d/b/a National Grid shall continue to include in its FY 2018 Contact Voltage Annual Report the recommendations that were outlined in Order Nos. 21414, 21780, 22357, and 22567.
4. The Narragansett Electric Company d/b/a National Grid shall: (1) conduct follow-up scans in areas where remediation work has been completed between mobile testing scans, (2) implement a process for selecting random objects in each contact voltage risk area, and (3) manually test for contact voltage to spot-verify in areas where mobile testing identified no contact voltage.
5. The Narragansett Electric Company d/b/a National Grid shall comply with all other findings and instructions contained in this Order.

EFFECTIVE AT WARWICK, RHODE ISLAND ON NOVEMBER 9, 2017, PURSUANT TO AN OPEN MEETING DECISION. WRITTEN ORDER ISSUED SEPTEMBER 4, 2018.

PUBLIC UTILITIES COMMISSION



Margaret E. Curran

Margaret E. Curran, Chairperson

Marion S. Gold

Marion S. Gold, Commissioner

Abigail Anthony

Abigail Anthony, Commissioner

NOTICE OF RIGHT OF APPEAL: Pursuant to R.I. Gen. Laws § 39-5-1, any person aggrieved by a decision or order of the PUC may, within seven days from the date of the order, petition the Supreme Court for a Writ of Certiorari to review the legality and reasonableness of the decision or order.