



STATE OF RHODE ISLAND

DIVISION OF PUBLIC UTILITIES & CARRIERS
89 Jefferson Boulevard
Warwick, Rhode Island 02888
(401) 941-4500
(401) 941-9207 - Fax

March 15, 2022

Via Electronic Mail

Luly Massaro
Commission Clerk
89 Jefferson Blvd.
Warwick, RI 02888

RE: Docket 4237 – National Grid’s Contact Voltage Annual Report for 2022

Dear Ms. Massaro:

On behalf of the Division of Public Utilities and Carriers (“Division”), please accept the attached letter from Division consultant Gregory L Booth, PE, in the above-referenced matter. Contained within are Mr. Booth’s comments and recommendations made upon careful review of the current, and past, filing(s). The Division adopts the position and recommendations contained within Mr. Booth’s letter.

Thank you for your attention to this filing.

Very truly yours,

A handwritten signature in blue ink that reads "Christy Hetherington".

Christy Hetherington, Esq.
Chief of Legal Services
Division of Public Utilities and Carriers

Enclosure, cc: Service List

March 14, 2022

Mr. John Bell
Chief Accountant
Rhode Island Division of Public Utilities and Carriers
89 Jefferson Boulevard
Warwick, Rhode Island 02888

Subject: Docket 4237; National Grid February 17, 2022 Contact Voltage Annual Report

Dear John:

I have reviewed National Grid's *2022 Contact Voltage Annual Report* dated February 17, 2022 (the "2022 Annual Report"). This letter outlines my review, comments, and recommendations. On September 18, 2012 I prepared and filed testimony concerning Docket 4237, on December 19, 2013, I filed a memorandum with the Division of Public Utilities and Carriers ("Division") in which I commented and provided recommendations concerning the National Grid *Stray and Contact Voltage Compliance Report* dated August 29, 2013. I have also provided letters containing comments and recommendations concerning each of the National Grid Contact Voltage Annual Reports from 2014 through 2021. My testimony and recommendations associated with the National Grid FY 2018 ISR Plan filing included an adjustment to the Contact Voltage Program due to the trend in changing ownership of streetlights to the municipalities. The Division recommended, and the Public Utilities Commission ("PUC") subsequently approved, moving from completing a 100% area survey to a 20% survey of the Designated Contact Voltage Risk Areas ("DCVRA"). I recommend continuing the 20% survey of the DCVRA and the process of municipal contractors shadowing the field-testing vendor.

I found that National Grid's 2022 Annual Report meets the requirements set forth in R.I. Gen. Laws §39-2-25(b)(6)¹, while also incorporating all previous recommendations of the Division and multiple PUC Orders incorporating program additions and enhancements. Specifically, National Grid (or the "Company") complied with the PUC directive to complete surveys in 20% of DCVRA, and located in Providence.²

The Company explained in detail the contact voltage survey process, and the findings and actions taken. It compared the FY 2022 results to the FY 2021 mobile surveys. I had a conference call with the Company in order to obtain a more detailed explanation regarding the Osmose testing concerns remaining from the FY 2021 testing and report, which I believed could not be fully articulated in a data request response. While the Company's report indicates a slight decline in mobile events recorded in excess of 1 volt (2021 was 21, and 2022 was 16), the past two years have been much higher than the historical number of events. The FY 2021 and FY 2022 testing was performed by OSMOSE, who used the

¹ R.I. Gen. Laws §39-2-25(b)(6)- Annually report on contact voltage findings, including, but not limited to, the number and type of energized objects on both company-owned and customer-owned assets, voltage level, corrective action taken, shocks that occur to members of the public or to pets owned by members of the public, and any other information that the commission deems appropriate.

² Docket 4237 PUC Written Order No. 23270 issued September 4, 2018; page 6.

PowerSurvey technology they acquired. This is different technology than the University of Wisconsin developed technology used by TRC, the vendor who performed the testing in prior years. The Company explained that OSMOSE was always over reporting and that there were more false positives than in the past. The Company additionally explained its analysis of the testing and why it is comfortable with the testing process. The increased number of events were partially explained by the fact that in FY 2021 and FY 2022 the DCVRA had not been visited in 4 years and 5 years, respectively. Additionally, 10 of the 13 streetlights with recorded voltage events were in close proximity to each other. I am satisfied the Company has appropriately addressed the concern raised with FY 2021 testing. As DCVRA testing begins to be repeated by OSMOSE in areas covered by TRC, we should be able to make direct comparisons of test data for the same DCVRA.

The majority of FY 2022 and FY 2021 events were associated with streetlights (2022 Annual Report, Table 2). In 2022 the majority of the events were associated with Customer-owned streetlight assets. Newport now remains the only municipal area in which the Company owns the streetlights. Since streetlights continue to account for the majority of mobile events detected, as expected, the Company should notify the municipalities which have taken ownership of streetlight assets of this continuing trend and the findings.

Table 3
Comparison of Number of Mobile Events FY 2021 to FY 2022

Type of Mobile Events	FY 2022 Number of Events	FY 2021 Number of Events
Readings less than 1 volt	1	5
Readings greater than 1 volt but less than 4.5 Volts	3	13
Readings greater than 4.5 volts	13	8
Total	17	26

The comparison provided in the 2022 Annual Report at Table 3 (above) is for a 20% survey each year. It is important to note that for 2022, there were 16 events greater than 1 volt of which 13 events were greater than 4.5 volts. This is a significant increase in the more hazardous higher voltage events, versus years 2015 through 2020. For 2019 there were 0 events greater than 1 volt, and for 2020 there was only one event in excess of 1 volt. Now this quantity has increased to 21 events in excess of 1 volt in year 2021, and 16 events in excess of 1 volt in 2022. The 2018 through 2022 table comparing the number of events over 1 volt shows a trend which needs to be addressed as DCVRA testing is repeated by OSMOSE. The next testing cycle will be in Providence. It must be recognized that the first few years of the analysis included testing 100% DCVAR, whereas the later years only include 20% DCVAR testing. Testing results from the three years of the Osmose contract will be informative, particularly as related to testing equipment sensitivity and accuracy. While there still remains no conclusion regarding the much higher FY 2021 and 2022 event results, the next two testing cycles should provide data for more direct comparison. The recent conference call with the Company on February 28, 2022 helped to explain its analysis of the Osmose testing, however, there still remains no clear answer for the dramatic difference in recorded events between vendors.

Mr. John Bell
March 14, 2022

The Company utilized total harmonic distortion "THD" readings for contact voltages between 1 and 4.5 volts to evaluate the usability of these readings in determining actionable contact voltage events. This pilot practice should be continued. The Company has also incorporated a Shock Line, on which it received no calls in 2021 or 2022, and only one call in 2020. While the Shock Line has had only one call in three years, it remains a worthwhile additional tool in the effort to identify and mitigate hazardous contact voltage conditions.

The repair of identified events on municipal owned streetlights has transitioned to municipal contractors. The Company's post mitigation assessment of eight (8) events identified in 2021 indicated all were now below 1 volt. This quality control was associated with Company equipment. There is no quality control verification that the municipal vendors have mitigated the contact voltage event. The Company only expended \$592 on post mitigation and quality assurance in FY 2022. There were no Company repairs required in FY 2022.

National Grid proposes to complete a survey of 20% of the DCVRA areas in prospective years. The Company also proposes continuation of post-mitigation annual testing and the use of THD testing.

Lastly, the Company has also recognized that the Institute of Electrical and Electronics Engineers ("IEEE") Standard P1695, *Guide to Understanding, Diagnosing and Mitigating Stray and Contact Voltage*, is a valuable standard upon which to rely, and it will continue to follow its final approval process for revision. The Company should continue its present process. The Company should continue to monitor IEEE committee activities and developments, and bring any standards changes to the attention of the Division and PUC for future consideration.

The program is mature and the remediation benefits have become evident. I support the Company's recommendations contained in Section 9 of its report, including continuing a 20% DCVRA survey each year. I recommend that the Company:

1. Continue to pursue with Osmose why its shunt reading process is producing results so dramatically different than prior years and vendors;
2. Reports continue to include the additions incorporated in previous PUC Orders;
3. Develop a comparison of results from the same DCVRA between new results and prior results for the DCVRA in order to gain more insight into the event differences between testing technologies.

If you have any questions or would like additional clarification, please contact me.

Sincerely,



Gregory L. Booth, PE
President

glb/sk