Raquel J. Webster
Senior Counsel

November 5, 2019

BY HAND DELIVERY AND ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Docket 4237 – National Grid 2019 Contact Voltage Annual Report
Responses to Division Data Requests – Set 1

Dear Ms. Massaro:

I have enclosed ten (10) copies of the Company's[1] responses to the Division's First Set of Data Requests in the above-referenced docket.

Thank you for your attention to this filing. If you have any questions, please contact me at 781-907-2121.

Very truly yours,

Raquel J. Webster

Enclosure

cc: Docket 4237 Service List
John Bell, Division
Leo Wold, Esq.

[1] The Narragansett Electric Company d/b/a National Grid (the Company).

40 Sylvan Road, Waltham, MA 02451
T: 781-907-2121 ■ raquel.webster@nationalgrid.com ■ www.nationalgrid.com

Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate was electronically transmitted to the individuals listed below.

The paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission and to the Rhode Island Division of Public Utilities and Carriers.

Joanne M. Scanlon

November 5, 2019
Date

Docket No. 4237 – Commission's Proceeding Relating to Stray and Contact Voltage Pursuant to Enacted Legislation Service List updated 10/15/19

Name	E-mail Distribution List	Phone
Raquel Webster, Esq. National Grid 280 Melrose Street Providence, RI 02907-1438	Raquel.webster@nationalgrid.com; Celia.obrien@nationalgrid.com; Joanne.scanlon@nationalgrid.com;	401-784-7667
Christy Hetherington, Esq. Dept. of Attorney General 150 South Main St. Providence, RI 02903	Chetherington@riag.ri.gov; John.bell@dpuc.ri.gov; Al.contente@dpuc.ri.gov; Thomas.kogut@dpuc.ri.gov; joseph.shilling@dpuc.ri.gov; Mfolcarelli@riag.ri.gov; dmacrae@riag.ri.gov;	401-274-4400
Gregory L. Booth, PLLC 14460 Falls of Neuse Rd. Suite 149-110 Raleigh, N. C. 27614	gboothpe@gmail.com;	919-441-6440
Original & 9 copies file w/: Luly E. Massaro, Commission Clerk Margaret Hogan, Commission Counsel Public Utilities Commission 89 Jefferson Boulevard Warwick, RI 02888	Luly.massaro@puc.ri.gov; Margaret.hogan@puc.ri.gov; Cynthia.WilsonFrias@puc.ri.gov; Alan.nault@puc.ri.gov;	401-780-2107

R-I-1

Request:

In its 2019 Contact Voltage report, the Company indicated there were zero mobile events recorded, versus prior years of 2015, 2016, 2017 and 2018. Considering that some of the prior years involved a 100 percent DCVRA survey, and 2019 was 20 percent, does the Company anticipate finding elevated voltages in future surveys? Also, does the Company believe the zero events in 2019 compared to years with 100 percent area surveys is still a reasonable comparison, or does the Company believe the 20% survey results should be accumulated to be compared with years in which a 100% survey was completed?

Response:

There are fourteen different Designated Contact Voltage Risk Areas (DCVRAs) to be surveyed: Newport, Pawtucket, Woonsocket, Westerly, and ten designated sections in the City of Providence (College Hill, Downtown, Elmwood, Federal Hill, Lower South Providence, Olneyville, Smith Hill, Upper South Providence, Washington Park, and West End). The Company moved from performing a 100 percent to a 20 percent DCVRA annual survey in 2018.

While there were zero elevated voltages findings of one volt or greater in 2019, this survey covered only a portion of the total DCVRA, focused in the City of Providence. The Company has determined the City of Providence will be the focus of the first three years of the cycle (FY18, FY19, FY20). After that time, the remainder of the schedule will be determined, which is subject to change. It is reasonable to assume the Company may find elevated voltages in the future as more of the DCVRA is surveyed. The Company believes that the 20 percent survey results should be accumulated over a five-year period to be compared with years in which a 100 percent survey was completed.

Since 2015, of the fifty-seven elevated voltage findings reported of 1 volt or greater, 44, or 77% were in the City of Providence, 4, or 7% were in Pawtucket, 4, or 7%, were in Newport, 4, or 7% were in Woonsocket, and 1, or 2% was in Westerly.

Prepared by or under the supervision of: Bartholemew J. Cass

R-I-1, page 2

Survey Year	% Surveyed	DCVRA Surveyed	Findings 1 Volt or Greater
2019	20	City of Providence	0
2018	20	City of Providence	4 – Providence
2017	100	Newport, Pawtucket, Woonsocket, Westerly, City of Providence	5 – Providence 2 – Pawtucket 1 – Newport
2016	100	Newport, Pawtucket, Woonsocket, Westerly, City of Providence	17 – Providence 2 – Pawtucket 2 – Newport 4 – Woonsocket 1 – Westerly
2015	100	Newport, Pawtucket, Woonsocket, Westerly, City of Providence	18 – Providence 1 – Newport

R-I-2

Request:

The Company's 2019 Contact Voltage report Table 2 indicates 17 streetlights identified. How many of these lights are municipal owned?

Response:

All seventeen of the streetlights identified in the Company's 2019 Contact Voltage report in Table 2 are municipal-owned.

R-I-3

Request:

In Section 4 of the Company's 2019 Contact Voltage report, page 17, the Company describes an elevated voltage condition at 1656 Boston Neck Rd, North Kingstown, RI. Has the Company verified that the Customer installed the appropriate and adequate grounds?

Response:

The source of the elevated voltage condition was determined to be from a broken aluminum street light pole on the ramp to Rt. 138. The hot leg had welded itself to the ground wire at the base of the street light. Once the broken neutral was found and repaired, all elevated voltage was cleared at the 1656 Boston Neck Rd location. Earth grounds were not needed. The customer was notified.

R-I-4

Request:

In Section 4 of the Company's 2019 Contact Voltage report, page 17, the Company describes an elevated voltage condition it remedied by removing a capacitor bank from service. Explain what the Company's long-term solution is for having adequate power factor correction on its portion of the system, and whether the problem was due to issues with the capacitor bank itself or simply the existence of the capacitor bank at this location.

Response:

When reviewing distribution feeder reactive performance, distribution planning engineers attempt to achieve either leading power factor or one that is no less than 1.0 on the substation transformer low voltage side during peak loading periods. A power factor up to 1.0 and not leading on the transformer high side is acceptable for the same condition. During minimum loading periods, the power factor target remains 1.0 and not leading on the substation transformer low voltage side. Although the guideline targets the substation transformer low voltage side to lessen reactive power requirements from the transmission system, planners carry these guidelines to the individual circuits served by the transformer in a practical manner. Due to the combination of shifting loads, discretely sized capacitor units, and limited controls, electric utilities often struggle to keep peak power factors from lagging and off-peak power factors from leading.

Distribution planners are encouraged to prioritize peak power factor correction as this can mitigate peak loading of equipment and reduce more costly infrastructure investment. A peak focus has a consequence of greater potential for leading off peak power factor. Again, this is deemed acceptable to reduce overall infrastructure investment.

Notably, distribution feeder reactive performance is not reviewed under a regular cycle (ex. annual, bi-annual, etc.). Feeder reactive performance review is completed when area studies are executed and/or when ad hoc reviews of a feeder or a group of feeders is prompted for other reasons (ex. voltage performance concerns, large new spot load addition, etc.).

Looking at the feeder load data over the last year we found the power factor is ~ 98% Lagging during peak load time and 99.5% Leading during minimum load times. We will be conducting a more detailed review to address the long-term power factor for peak load.

Without really knowing all the steps that were taken to address the elevated voltage other than the cap being disconnected, the Company cannot state with certainty what caused the issue at this location. The Company would also need to inspect all the neutral connections. The Company's reactive performance review will provide guidance on replacement and location.

Prepared by or under the supervision of: Bartholemew J. Cass