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*Peter F. Neronha*  
*Attorney General*

February 23, 2024

*Via Electronic Mail*

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

**RE: Docket 4237** – Rhode Island Energy's Contact Voltage Annual Report for 2023

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,

*/s/ Gregory S. Schultz*

Gregory S. Schultz  
Special Assistant Attorney General  
On behalf of the Division of Public Utilities and Carriers

Enclosure

cc: Docket 4237 Service List  
Linda George, Esq., Division Administrator  
Christy Hetherington, Esq., Division Chief Legal Counsel  
Paul Roberti, Esq., Division Chief Economic and Policy Analyst

February 23, 2024

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

Subject: Docket 4237; Rhode Island Energy  
2023 Contact Voltage Annual Report Filed January 12, 2024 and January 31,  
2024

Dear John:

Rhode Island Energy ("RIE") filed its 2023 Contact Voltage Report on January 12, 2024 and subsequently filed a revised report on January 31, 2024. Typically, this report would have been filed in February or March of 2023 for the testing which was performed in December of 2022. The report filing is nearly a year late for the testing which took place between December 12, 2022 and December 15, 2022. RIE explained that the report was late as a result of the transition from National Grid to RIE. I have reviewed *RIE's 2023 Contact Voltage Annual Report* dated January 12, 2024 and January 31, 2024. 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 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 2022. 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 PUC subsequently approved, moving from completing a 100 percent area survey to a 20 percent area survey of the Designated Contact Voltage Risk Areas ("DCVRA"). I recommend continuing the 20 percent survey of the DCVRA and the process of municipal contractors shadowing the field-testing vendor in order to remedy defects identified.

Additional recommendations and concerns are addressed which have arisen from the 2023 mobile survey. The Division and I held a conference with RIE to address our list of 17 questions and discussion items. A copy of this list and the RIE written responses is attached to this letter. Additionally, there were a series of formal data requests submitted as PUC Set 7. I have incorporated into my assessment and recommendations the RIE responses to the Division questions and the PUC data request. The Division found the RIE responses to be acceptable.

Mr. John Bell  
February 23, 2024

I found that RIE's 2023 *Contact Voltage Annual Report* submitted January 12, 2024 and revised January 31, 2024 meets the requirements set forth in §39-2-25(b)(6)<sup>1</sup>, while also incorporating all previous recommendations of the Division and multiple Commission Orders incorporating program additions and enhancements. Specifically, the Company complied with the PUC directive to complete surveys in 20 percent of DCVRA, and located in Providence.<sup>2</sup>

The Company explained in detail the contact voltage survey process, and the findings and actions taken. It compared the FY 2023 results to the FY 2022 mobile surveys. On February 1, 2024, the Division and I had a conference call with the Company in order to obtain a more detailed explanation regarding my concern with the dramatic increase in the mobile events. The Company's report indicates a dramatic increase in mobile events recorded in excess of 1 volt (2021 was 21, and 2022 was 16 while 2023 was 73). The RIE responses to the Division's questions during our conference addressed all the issues. The increase in mobile events is a direct result of the vendor and its use of a superior detection technology to that used by prior vendors combined with more stops. The SVD2000 equipment is the leading-edge technology now recognized as the standard by the Institute of Electrical and Electronics Engineers ("IEEE"). Furthermore, the contracted vendor staff are dedicated to the contact voltage detection process across many states and therefore have a presumed increased level of technical competence and experience gained through utilization in multiple states. Additionally, they are performing manual assessment in a 30-foot radius of a mobile event.

The majority of FY 2022 and FY 2021 events were associated with streetlights, whereas the 2023 events were primarily manhole covers followed closely by streetlights (Table 2). The manhole covers had typically not been identified in the past. The high number of streetlight events were associated with customer-owned streetlight assets. This raises a concern about the level of maintenance being performed by the municipalities. RIE continues to own streetlights. RIE response to Division question 9 attached indicates the areas in which RIE continues to own 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. Additionally, there is no quality control process to assure that municipally owned streetlights with deficiencies detected have been adequately mitigated since that mitigation repair is exclusively with the municipality.

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<sup>1</sup> §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.

<sup>2</sup> Docket 4237 PUC Written Order issued September 4, 2018; page 6

**Table 3**  
**Comparison of Number of Mobile Events FY 2022 to FY 2023**

Type of Mobile Events	FY 2022 Number of Events	FY 2023 Number of Events
Readings less than 1 volt	1	0
Readings greater than 1 volt but less than 4.5 Volts	3	24
Readings greater than 4.5 volts	13	49
<b>Total</b>	<b>17</b>	<b>73</b>

The comparison provided in Table 3 is for a 20% survey each year. It is important to note that for 2023, there were 24 events greater than 1 volt and 49 events greater than 4.5 volts. This is a disturbing increase in the more hazardous higher voltage events, versus years 2015 through 2022. 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 73 events in excess of 1 volt in year 2023. Federal Hill is certainly one of the older infrastructure areas. RIE has provided an explanation for the dramatic increase and the reason for so many manhole covers being detected with elevated voltage. It must be recognized that the first few years of the analysis included testing 100 percent DCVAR, whereas the later years only include 20 percent DCVAR testing. The recent conference call with the Company helped to explain some of the questions, however there are still some unanswered serious questions, such as when the municipalities complete repairs. Additionally, there still remains no clear answer for the dramatic difference in recorded events between the Company's selected vendors. Additionally, the large number of events now detected requires an assessment of the reason, which must be addressed by the municipalities.

The Company utilized 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 minimal calls over the 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. RIE repairs all events which are associated with RIE equipment including RIE equipment and faults causing an elevated voltage on municipal owned streetlights or manholes. Thus, there is a complete quality control process on RIE equipment. There is no quality control verification that the municipal vendors have mitigated the contact voltage event.

RIE proposes to complete a survey of 20 percent of the DCVRA areas in prospective years. The Company also proposes continuation of post-mitigation annual testing and the use of THD testing. The Division supports this practice.

Mr. John Bell  
February 23, 2024

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. RIE explained that not only is it continuing its monitoring of the IEEE standard's enhancements. It is also in communication with its vendor which is actively involved in the IEEE committee for this standard. 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.

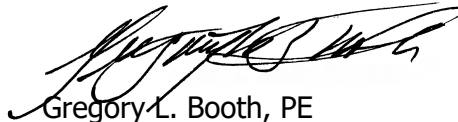
The program is mature and the remediation benefits have become evident. I support the Company's recommendations contained in Section 9 of its report, including continuing a 20% DCVRA survey each year. I recommend that the Company:

1. Determine the specific reason for the identification of 21 manhole cover events and report back the findings;
2. Determine the reason for 19 streetlight events and the dramatic increase in recorded events;
3. Continue to include the additions incorporated in previous Commission Orders in reports; and
4. Develop a comparison of results from the same DCVRA between new results and prior results for the DCVRA once the current vendor using the advanced technology has completed all five 20 percent area assessments so comparable data is being used. This will provide better insight into the changing events pattern.

The Division and RIE have concurred that the testing and reporting cycle should transition back to the earlier schedule. That will mean testing will move toward February of each year and the report will be published in the July to August time frame each year.

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

Sincerely,



Gregory L. Booth, PE  
President

glb/sk

Attachment

# Docket 4237

## 2023 Contact Voltage Report

### DPUC Questions and Discussion Items

1. What were the results in Federal Hill and other 2023 areas during its previous survey?
  - a. The previous Contact Voltage scans for Federal Hill, Upper South Providence, Lower South Providence, and Olneyville were completed in FY2017. These scans were performed by TRC with technology that is now considered obsolete.
  - b. Please see Table 1 and Table 2 below for FY2023 scans and FY2017 scans respectively.

**Table 1**  
Mobile Events by DCVRA

DCVRA	Dates Tested	Estimated Investigatory Mobile Survey Stops	Mobile Events	Readings < 1 Volt	Readings > 1 Volt but < 4.5 Volts		Readings >= 4.5 Volts	
				Customer and Company Asset	Customer Asset	Company Asset	Customer Asset	Company Asset
Federal Hill	12/12/23-12/13/23	6	63	0	12	3	44	4
South Providence	12/13/23-12/14/23	2	5	0	1	3	1	0
Lower South Providence	12/14/23-12/15/23	2	2	0	2	0	0	0
Olneyville	12/15/23	2	3	0	2	1	0	0
<b>Total</b>		<b>12</b>	<b>73</b>	<b>0</b>	<b>17</b>	<b>7</b>	<b>45</b>	<b>4</b>

Table 1: FY2023 Contact Voltage Scans

DCVRA	Dates Tested	Estimated Investigatory Mobile Survey Stops	Mobile Events	Readings < 1 Volt	Readings > 1 Volt but < 4.5 Volts		Readings >= 4.5 Volts	
				Customer and Company Asset	Customer Asset	Company Asset	Customer Asset	Company Asset
Federal Hill	8/9/16-8/10/16	10	7	6	1	0	0	0
Lower So. Prov.	8/7/16-8/8/16	19	3	3	0	0	0	0
Olneyville	8/9/16-8/10/16	8		0	0	0	0	0
Upper So. Prov.	8/8/16-8/9/16	13		0	0	0	0	0

Table 2: FY2017 Contact Voltage Scans

2. Why is the Company seeing so many more manhole cover events and what appears to be the main source of voltage?
  - a. The FY23 scans indicated more manhole cover events due to there being three faults within the UG system that contributed to the manhole events. After reviewing historical data, most contact voltage root causes have involved loose connections in a streetlight or other low voltage faults that didn't impact a large area. All but one of the manhole contact voltage events can be traced back to three Company equipment faults.
    - i. 13 manhole events from fault in MH1509.
    - ii. Three manhole events from abandoned lead service.
    - iii. Four manhole events from separated neutral connection.

- b. This area of Providence also contains older Paper Insulated Lead Covered (PILC) cable which is one of the main cable types targeted by the Company for replacement under the Underground Cable Replacement Program.
- c. The Company also believes that the improved accuracy of the contact voltage equipment has resulted in the contractors finding more contact voltage events. This includes contact voltage found on manhole covers.
- d. The table shown below summarizes the number of manhole events by Fiscal Year.

<b>Fiscal Year</b>	<b>Area</b>	<b>Total Manhole</b>	<b>Customer</b>	<b>Company</b>
FY23	Lower/Upper S. Prov, Federal Hill, Olneyville	21	11	10
FY22	Pawtucket/Westerly	0	0	0
FY21	Newport/Woonsocket	0	0	0
FY20	College Hill/Downtown/Smith Hill	3		
FY19	Downtown/Elmwood/Washington Park/West End	0	0	0
FY18	College Hill/Downtown	0	0	0
FY17	100% of the DCVRA's	0	0	0

- 3. Is the increase in streetlight events representative of a decline in maintenance of the structures and lighting systems?
  - a. The Company cannot conclude that the increase in streetlight events are a direct result of a decline in maintenance of the structures and lighting systems. Most of the streetlights within the approved DCVRA's are customer owned and the Company does not have access to customer maintenance programs. Contact Voltage found on streetlights can also be caused by faults external to the streetlight. Therefore, it is difficult to narrow down the cause of streetlight contact voltage events to a decline in maintenance.
- 4. Is Osmose now more skilled at the survey and therefore collecting more events?
  - a. Osmose has been using the same equipment since they started performing contact voltage scans in Rhode Island. The equipment is industry standard and has proven to be accurate. Their personnel are very proficient with the contact voltage scanning process and the Company has no reason to believe that they were less proficient when they started in FY21.
  - b. The previous contractors that performed contact voltage scanning used equipment that was proven to be less accurate. Therefore, it's believed that the contact voltage equipment prior to FY21 might not have indicated a need to stop, which would limit the number of events that those contractors would have recorded.

5. Has there been any upgrades in the survey equipment or methodology?
  - a. There have not been upgrades to the survey equipment or methodology since Osmose began performing the survey work in FY21.
  - b. Prior to Osmose conducting the survey, Premier and TRC used different equipment that is no longer considered acceptable for contact voltage testing.
  
6. Are the areas surveyed in 2023 some of the older areas and lighting systems? What types of lights have the greatest contact voltage identification?
  - a. The lighting system statewide ranges from 75 years old to brand new. Providence and Newport contain some of the oldest streetlights in the state. However, the streetlights that tested high for contact voltage during the FY23 scan were between 0-52 years old.
  - b. Metallic underground streetlights are the most prevalent streetlight to test high for contact voltage.
  
7. Does the Company believe there is anything driving the significant increase in events?
  - a. After reviewing the results, the Company does not believe that there is an increase in the number of root causes. However, Osmose has more accurate equipment which identifies contact voltage more accurately. Therefore, more manual reads on various equipment are then done within 30' of an object that is identified as having contact voltage. This makes it seem as though there are more events, but just more data indicating that there is an issue somewhere in the vicinity.
  
8. Page 26 of the filing states that the Company does not see a trend of increased mobile events. Does the Company believe this increase is an anomaly and if so, why?
  - a. The Company would like to clarify that even though the number of mobile events increased this year, the mobile investigatory stops have remained relatively consistent since the 20% DCVRA scans were initiated and since Osmose started to complete these scans. The increase in mobile events could be caused by having more metallic/measurable objects within 30' of the equipment in question. However, since these three DCVRA's haven't been tested since FY2017, it is hard to make an apples to apples comparison since different companies and different equipment were used for the previous scan.
  - b. Please see the table below summarizing the number of mobile stops and mobile events since Fiscal Year 2013.



					Less than 1 Volt	Greater than 1 Volt but less than 4.5 Volts		Greater than 4.5 Volts	
Scan Year	Scan %	Company	Mobile Stops	Mobile Events	Customer & Company	Customer	Company	Customer	Company
FY13	100%	Premier	N/A	75	N/A	1	6	4	9
FY14	100%	Premier	828	88	72	1	8	0	7
FY15	100%	Premier	943	21	2	5	7	4	3
FY16	100%	Willbros	17	59	33	0	14	0	12
FY17	100%	TRC	230	32	24	4	3	1	0
FY18	20%	TRC	13	13	9	2	0	2	0
FY19	20%	TRC	32	32	32	0	0	0	0
FY20	20%	TRC	18	18	17	0	0	1	0
FY21	20%	Osmose	26	21	5	0	13	0	8
FY22	20%	Osmose	18	17	1	3	0	13	0
FY23	20%	Osmose	12	73	0	17	7	45	4

9. Does the Company still own the streetlights in the Newport area? What other areas (municipalities) does RIE still own the streetlights?

- a. The Company still owns the streetlights in the Newport area.
- b. RIE still owns streetlights in the following cities/towns:
  - i. Burrillville (Town owned)
    1. Fire Districts within Burrillville purchased their streetlights.
  - ii. Coventry (Town owned)
    1. Most Fire Districts within Coventry purchased their streetlights.
  - iii. Exeter
  - iv. Gloucester (Town owned)
    1. Fire Districts within Gloucester purchased their streetlights.
  - v. Johnston
  - vi. Middletown
  - vii. Newport
  - viii. Portsmouth – Sale Pending
  - ix. Scituate – Sale Pending
  - x. W. Greenwich

10. Please verify that the Company has performed a QC assessment that all 73 events identified have been mitigated and no voltage is now present.

- a. The Company has performed a QC assessment on 54 of the 73 locations. These 54 locations signify the assets that tested high for contact voltage readings and were presumed to be caused by Company equipment faults. The remaining locations were customer owned and assumed to be customer equipment faults. The Company can confirm that no voltage is now present on the 54 locations that were tested.

11. What discussion has the Company had with the municipality concerning the high level of events being found?
  - a. The Company informed the City of their customer owned assets showing elevated voltage and asked them to make repairs. No other discussions have occurred, and the city has not provided any updates.
  
12. Have any municipalities taken on a preventative maintenance program or follow-up process to verify mitigation of contact voltage?
  - a. The Company is not aware of municipal preventative maintenance programs.
  
13. How is the Company assessing updates and following the latest IEEE P1695 standard?
  - a. The Company continuously checks for IEEE 1695 updates and has ongoing discussions with Osmose. Osmose employs an engineer who has direct involvement with the IEEE 1695 document and the Company discusses updates with this contact.
  - b. The Company is also requesting contact information for contact voltage program owners at various utilities to discuss changes and to compare programs.
  
14. Does the Company compare the first survey of each area with the subsequent surveys since the program is now 10 years old? It is important to assess the events being identified and if the mitigation efforts are successful.
  - a. The Company does compare the surveys from previous scans. However, it is important to note that the Company has used two previous contractors to perform the contact voltage scanning and the equipment used was different and is now considered obsolete. Therefore, the Company does not believe it is an apples to apples comparison to compare the current FY scans to scans from 5-10 years ago.
  - b. The Company does perform audits on the previous year scans before commencing on the next round of scans to verify the repairs have been maintained.
  
15. Considering the maturity of the Contact Voltage program, please explain why the Company believes so many events were identified in this recent survey?
  - a. The Company would like to note that even though the number of mobile events increased this year, the mobile investigatory stops have remained relatively consistent since the 20% DCVRA scans were initiated and since Osmose started to complete these scans. The increase in mobile events could be caused by having more metallic/measurable objects within 30' of the equipment in question. However, since these three DCVRA's haven't been tested since FY2017, it is hard to make an apples to apples comparison

since different companies and different equipment was used for the previous scan.

16. What follow-up steps has the Company developed?
- a. The Company plans on continuing the CV program in its current state and will continue to review results and make necessary recommendations. Once Osmose has performed a complete 5-year cycle, the Company believes we will be in a better position to analyze the effectiveness of the existing program and suggest improvements.
17. The 2023 Contact Voltage Annual Report reflects the results of testing conducted in December 2022. Please explain why the report wasn't submitted earlier? Did the Company conduct testing in 2023? If so, when? When does the Company anticipate submitting its next Contact Voltage Annual Report?
- a. The Company was taking over the program from National Grid and was still in the process of identifying the work that needed to be captured in the report. These challenges have been rectified and the Company plans to get back on schedule for the FY24 scans.
  - b. The FY24 scans have not been conducted yet. They are tentatively scheduled for 2/9/2024. The Company will look to resume the original scanning schedule such that scans are performed in February or March and the report is submitted in August or September of the same calendar year.
  - c. Please see the table below summarizing historical scan dates and filing dates.

Rhode Island Contact Voltage Annual Report			
FY	% of DCVRAs Scanned	Scan Dates	Filing Date
13	100	3/18/13-3/30/13	8/29/2013
14	100	3/12/14-3/28/14	6/26/2014
15	100	3/8/15-3/23/15	6/30/2015
16	100	10/26/15-11/10/15	4/6/2016
17	100	8/7/16-8/19/16	11/28/2017
18	20	1/22/18-1/25/18	8/28/2018
19	20	3/18/19-3/20/19	9/18/2019
20	20	3/4/20-3/7/20	6/25/2020
21	20	2/22/21-2/25/21	8/18/2021
22	20	11/15/21-11/17/21	2/17/2022
23	20	12/12/22-12/15/22	1/12/2024