

## MEMORANDUM

To: Commissioners  
Cc: Service List – Docket No. 4237  
From: Cynthia Wilson-Frias, Senior Legal Counsel  
Date: October 3, 2012  
Re: Open Meeting – October 4, 2012 - Distributed

Dkt. 4237 – Contact Voltage

The transcript came in on September 28, 2012.

In this decision, the Commission must establish a contact voltage detection and repair program.

The program must include the following:

(1) Establish procedures within the program which:

a. Does the proposed plan designate contact voltage risk areas?

- i. Intervenor: “The proposed contact voltage areas are generally comprehensive” with the exception that they don’t include underground residential distribution systems (“URDs”). (Homyk Pre-Filed at 7)
- ii. Division: Initially stated, “I agree with Mr. Homyk’s suggestions of expanding the contact voltage areas to include direct buried cables to residences.” (Div. Pre-Filed at 34). At the hearing, Mr. White testified that the Division’s intent was to include URDs that were within the contact voltage risk area rather than designating them as new contact voltage risk areas. (Tr. 9/24/12 at 201, 213.)
- iii. National Grid’s concern is that adding URDs to the contact voltage risk areas would “significantly expand the scope of testing beyond the statute” and would require a large increase the costs. “The Company does not believe that URDs are pedestrian dense areas intended to be included in contact voltage risk areas under the statute.” The Company proposes to continue manual testing of its assets in URDs. (Grid Pre-Filed Rebuttal to Homyk at 8.)
- iv. National Grid represented that it does not perform mobile testing of URDs in MA or NY. (Tr. at 82.)
- v. Potential costs are not quantified by any party.

b. Does the proposed plan require National Grid to survey no less than 40% of the contact voltage risk areas by June 30, 2013 and no less than 20% each year thereafter?

- i. National Grid identified 13 contact voltage risk areas and simply took 40% of those to come up with 6 to test in the first year. The Company did not look at miles or number of assets to determine the 40%. National Grid maintained that until it is able to catalog the areas, taking 40% of the areas rather than the mileage or other measure is reasonable and consistent with the statute. Ms. Grimsley noted that some of the larger areas are covered in the first year (Downtown Providence, College Hill, Woonsocket, Pawtucket and Newport). (Tr. at 57-58).
- ii. The Division initially took issue with this interpretation but dropped its objection. The Division did recommend that National Grid test all of its

- streetlights on a three-year cycle rather than a five-year cycle. National Grid agreed to this schedule. (Division Pre-Filed at 34, 43).
- iii. The Intervenor argued for an annual testing cycle of the entire system, either by mobile testing where feasible or by manual testing in other areas. He suggested that the schedule be adjusted based on the number of energized objects detected during each successive scan. (Homyk Pre-Filed at 9).
  - iv. National Grid responded that “Mr. Homyk offers no reason to deviate from the ongoing 20% per year schedule proposed in the statute nor does he address the issue of increased costs from significantly modifying the Company’s existing practices to an annual basis.” (Grid Rebuttal at 12).
  - v. At the hearing, Mr. Homyk stated that annual testing is based on a philosophy to look for problems early on very often to understand the failure rate of the system by component and geographic area. He indicated that a failure that might happen the day after testing would not be detected for five years. (Tr. at 161-62). He believed a three year testing cycle for streetlights was a step in the right direction, but still inadequate given National Grid’s statistics relative to street light related contact voltage issues. Tr. at 162-63).
  - vi. Potential costs are not quantified by any party.
- c. Does the proposed plan require National Grid to repair power system faults of National Grid’s underground distribution system, that result in contact voltage appearing on publicly accessible surfaces of a level to be determined by the Division of Public Utilities and Carriers?
- i. On September 26, 2012, the Division filed a letter from John Spirito, Jr., Chief Legal Counsel, stating that: “...the Division’s expert consultant(s) recommended that the Commission ‘accept the National Grid program voltage threshold level of 4.5 volts...’ Please be advised that the consultants’ testimony in this regard reflects the Division’s ‘determination’ of a proper ‘level’ of contact voltage that must appear on publicly accessible surfaces in the context of R.I.G.L. §39-2-25(b)(4).”
  - ii. The intervenor recommends that “wherever practical, mobile automated scanning should be performed at a level of 1 volt confirmed with a multimeter equipped with a 500 ohm shunt resistor.” Mr. Homyk indicated that a 1 volt contact voltage reading shows a fault in the system that could “rapidly degrade to a point where an individual could be exposed to full line voltage due to changes in environmental conditions....” (Homyk Pre-Filed at 7).
  - iii. National Grid agrees with the Division’s determination and initially held to the 4.5 volt level. However, in response to Record Request 4, the Company “propose[d] to gather additional information and use the [total harmonic distortion] method in a pilot program” during the first year of testing under the new program. According to National Grid, this has been suggested by IEEE as a method for determining whether elevated voltage is contact voltage or stray voltage. In the event the total harmonic distortion levels of a reading between 1 volt and 4.5 volts in the contact

voltage risk area is less than 10%, the voltage will be considered contact voltage and the area will be safeguarded and repairs will be made. (Response to RR-4).

- iv. Mr. Keough filed a responsive letter on October 2, 2012. The Division filed a letter renewing its objection to the admission and reliance on the IEEE Draft Report.
- d. Does the proposed plan allow National Grid to notify property owners where contact voltage is found on a non-utility asset (National Grid already does this under Operating Procedure G016)
  - i. Yes, consistent with the Company's current practices. There was no dispute on this point.
- e. Does the proposed plan require National Grid to 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 the commission deems appropriate AND
- f. Does the proposed plan require National Grid to maintain records of testing and maintenance and repair and submit copies to the Commission which shall be public records?
  - i. The Company proposed to include the following information in its annual report in a searchable pdf or Excel document:
    - 1. Event Record Number
    - 2. Location of testing
    - 3. Date and time of testing
    - 4. Company or customer asset
    - 5. Failed equipment type
    - 6. Voltage recorded
    - 7. Personal Injuries to public or pet or property damage
    - 8. Any other equipment involved and age
    - 9. Prior incidents at this location in the past five years
    - 10. Corrective actions taken at the location
    - 11. Number of customers if service is interrupted
    - 12. Duration of the interruption
    - 13. Summary of investigation into cause of the incident
    - 14. Number of calls to the Company's 'shock' line
  - ii. At the hearing, the Company agreed that, in addition, to provide the date when the corrective actions are taken/when the issue is rectified. The Company also indicated that it could include the aggregate cost to repair for each contact voltage risk area. (Tr. at 95, 97).
  - iii. Intervenor suggests a more detailed database that includes maps. (Homyk Pre-Filed at 8). At the hearing, National Grid indicated that it could provide the information listed in Section 7.2 of the NY EOP but expressed concern that it would not be a very user-friendly report for the public. (Tr. at 41-42).

- iv. At the hearing, the Company indicated that it could provide its proposed annual report together with the back-up information included in Section 7.2 of the EOP. (Tr. at 101).

(2) Identify which equipment and technology shall be used.

- a. For the specific requirements of the statute, National Grid proposes to use a combination of mobile technology and manual technology in the contact voltage risk areas (the mobile testing shows where there is voltage above 1 volt, but does not tell the tester where it is, so manual is also needed as part of the testing). The equipment used by the mobile technology that will be capable of testing from a level of 1 volt. The vendor/tester using the mobile technology and associated equipment will be chosen through a proposed RFP. National Grid has requested the Commission approve the RFP process as a reasonable approach. As part of its Record Response 4, the Company proposed, for the first year, to also use a power quality clamp meter or scope meter to measure for total harmonic distortion levels.
  - i. Intervenor did not comment on the RFP. The Division indicated that the pilot survey was a common approach and further recommended that if a bidder did not participate in a pilot testing under the RFP that it be disqualified. (Division Pre-Filed at 32-33).
  - ii. Parameters of the pilot test were discussed at pages 85-90 of the transcript.
  - iii. If the Commission requires the use of the total harmonic distortion, the Company will revise and reissue the RFP but indicated that it should still be able to complete the testing of the contact voltage risk areas on time. (Response to RR-4).
- b. National Grid also proposes to continue its overhead and underground testing program (areas not included in the contact voltage risk areas) through the use of manual technology and to continue using manual technology to test Company assets in areas where there are underground assets but which cannot be tested by mobile technology because of limitations of the mobile technology. The Company proposes to use hand held proximity detection units which are certified to detect voltages between 5 and 600 volts and portable AC digital high impedance volt meters which have the ability to take reading with and without an input load impedance of 500 ohms.

(3) Allow for cost recovery through a fully reconciling mechanism. National Grid has proposed cost recovery of the statutory testing and the non-statutory testing be recovered as part of the ISR program. No cost recovery tariff has been proposed and therefore, is not before the Commission at this time. Currently, the non-statutory testing is included in base rates. If the Commission decides to include both the statutory and non-statutory testing as one program in ISR, it will be making a policy decision regarding the treatment of non-statutory testing.

Power Survey emailed comment relative to this memorandum on October 3, 2012:  
These are some comments to the Memorandum of yesterday afternoon.

1. National Grid already had the benefit of a competitive bid to drive the best prices, however, rate payer safety calls for the use of a proven technology, ie. Power Survey Company and a pilot program would be the best insurance for rate payer safety.

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