**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS**
**ENERGY FACILITY SITING BOARD**

| | | |
|---|---|---|
| In re The Narragansett Electric Company | : | |
| d/b/a National Grid | : | Docket No. SB-2008-2 |
| (Rhode Island Reliability Project) | : | |

National Grid's Responses to the
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EFSB RECORD REQUEST 1:

How many homes along the ROW are within 100 feet of the location of the proposed transmission line structures?

RESPONSE:

The attached Table 1 is a tabulation of the number of homes, by town, that are located within 50 feet and 100 feet of the relocated T172 115 kV transmission line structures. Table 2 is a tabulation of the number of homes, by town, that are located within 50 feet and 100 feet of the eastern edge of the ROW.

Note: Commissioner Flynn asked about transmission structures located within 50 feet of abutting owners' property lines. The typical ROW cross sections (Fig. 4-2, Sheets 1 and 2 of 5, Ex. NG-19) show that the proposed T172 structures will be located 25 feet from the edge of the ROW. If National Grid owns the ROW in fee, the edge of the ROW often coincides with the property line. If National Grid holds easement rights, the fee of the ROW may be owned by the abutting property owner and the property line may be within the ROW.

Response prepared by or under the supervision of
David J. Beron, P.E., P.M.P.

**Table 1: Summary of Residences by Town Near Proposed Structures for the Rhode Island Reliability Project**

| Town | Total Residences within 50' of Proposed Structures | Total Residences within 100' of Proposed Structures |
|---|---|---|
| North Smithfield | 0 | 0 |
| Smithfield | 0 | 1 |
| Johnston | 0 | 1 |
| Cranston | 0 | 3 |
| West Warwick | 1 | 7 |
| Warwick | 1 | 1 |
| Total | 2 | 13 |

**Table 2: Summary of Residences by Town Adjacent to the Eastern Edge of the Right of Way (ROW) for the Rhode Island Reliability Project**

| Town | Total Residences within 50' of the Eastern Edge of the ROW | Total Residences within 100' of the Eastern Edge of the ROW |
|---|---|---|
| North Smithfield | 0 | 1 |
| Smithfield | 1 | 2 |
| Johnston | 0 | 3 |
| Cranston | 5 | 12 |
| West Warwick | 9 | 16 |
| Warwick | 2 | 3 |
| Totals | 17 | 37 |

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EFSB RECORD REQUEST 2:

Please provide a history of this transmission corridor including the approximate date when the corridor was acquired by National Grid and the dates when the existing transmission lines were constructed.

RESPONSE:

The West Farnum to Kent County right-of-way (ROW) was acquired by The Narragansett Electric Company in the 1950s. The first 115 kV line was built on the ROW in 1956, the second 115 kV line in 1963 and the 345 kV line was built in 1973.

Response prepared by or under the supervision of
David J. Beron, P.E., P.M.P.

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EFSB RECORD REQUEST 3:

Please provide information as to any penalty to electric reliability (e.g., exposure to lightning and other outages) and loss of efficiency that would result from using the alternative overhead route as compared to the proposed route.

RESPONSE:

(a) Based on National Grid system experience and assuming good design, construction practices, grounding, and ROW management, National Grid does not expect any material difference between the reliability of the proposed and alternate routes.

(b) Under peak load conditions with a stressed generation dispatch, there is approximately a 100 kW different in losses between the two routes. The proposed route would have lower losses. For a typical load day without any contingencies, there is approximately a 100 kW loss advantage to the alternate route.

Thus, it appears that line losses between the proposed Project and the alternate route would be similar.

Response prepared by or under the supervision of
Julian Cox and Mark Stevens, P.E.

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EFSB RECORD REQUEST 4:

How many acres of clearing would be needed for the proposed line in comparison to the amount of clearing that would be required if the alternate overhead route were used.

RESPONSE:

Approximately 7 ½ acres of clearing would be required for the Project as proposed. If National Grid were to use the alternative overhead route, approximately 780 acres of clearing would be required.

Response prepared by or under the supervision of
Susan Moberg, P.W.S.

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EFSB RECORD REQUEST 5:

Please provide the data used to generate Exhibit National Grid-24 (Example - Magnetic Field Exposures) in an Excel spreadsheet.

RESPONSE:

See file entitled *Att RR-5 48 Hour Mag Field Exposure.xls*, contained on CD.

Response prepared by or under the supervision of
William H. Bailey, Ph.D.

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EFSB RECORD REQUEST 6:

Please identify and provide electronic copies of the principal articles upon which Dr. Bailey relied as support for his prefiled testimony.

RESPONSE:

Listed below are the references in Dr. Bailey's testimony that summarize a good many of the major, individual scientific publications upon which he bases his opinions relating to EMF and health. These references can be accessed at the Internet links below or by opening the .pdf files on the attached CD. The CD also contains a publication by Bailey and Nyenhuis (2005) that describes the analyses of peripheral nerve stimulation of subjects exposed to pulsed magnetic fields in a MRI-exposure apparatus and the derivation of measured thresholds for this neurostimulatory effect of 60-Hertz magnetic fields in human subjects.

References

Health Council of the Netherlands (HCN). Electromagnetic Fields: Annual Update 2008. The Hague: Health Council of the Netherlands, 2008; publication no. 2009/02.
http://www.gezondheidsraad.nl/en/publications/electromagnetic-fields-annual-update-2008

International Agency for Research on Cancer (IARC). IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Volume 80: Static and Extremely Low-Frequency (ELF) Electric and Magnetic fields. IARC Press, Lyon, France, 2002.
http://monographs.iarc.fr/ENG/Monographs/vol80/mono80.pdf

International Commission on Non-Ionizing Radiation Protection (ICNIRP). Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz). Health Phys. 74:494-522, 1998.

http://www.icnirp.de/documents/emfgdl.pdf

National Institute of Environmental Health Sciences (NIEHS). Health Effects From Exposure to Power Line Frequency Electric and Magnetic Fields. NIH Publication No. 99-4493. Research Triangle Park, NC: National Institute of Environmental Health Sciences of the U.S. National Institutes of Health, 1999.

http://www.niehs.nih.gov/health/docs/niehs-report.pdf

National Institute of Environmental Health Sciences (NIEHS). EMF – Electric and Magnetic Fields Associated with the Use of Electric Power: Questions and Answers. Research Triangle Park, NC: National Institute of Environmental Health Sciences of the U.S. National Institutes of Health, 2002.

http://www.niehs.nih.gov/health/docs/emf-02.pdf

National Radiological Protection Board (NRPB). Review of the Scientific Evidence for Limiting Exposure to Electromagnetic Fields (0-300 GHz). National Radiological Protection Board (NRPB). Volume 15, No 3, 2004.

http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1194947383619

Swedish Radiation Protection Authority (SSI). Fifth annual report from SSI's Independent Expert Group on Electromagnetic Fields, 2007: Recent Research on EMF and Health Risks. SSI Rapport 2008:12.

SSI only provides document search feature in Swedish at this time.
http://www.stralsakerhetsmyndigheten.se/In-English/Publications/

World Health Organization (WHO). Fact sheet No. 322: Electromagnetic Fields and Public Health – Exposure to Extremely Low Frequency Fields. World Health Organization, 2007a.

http://www.who.int/mediacentre/factsheets/fs322/en/

World Health Organization (WHO). Environmental Health Criteria 238: Extremely Low Frequency (ELF) Fields. WHO, Geneva, Switzerland, ISBN 978-92-4-157238-5, 2007b.

http://www.who.int/peh-emf/publications/elf_ehc/en/

Response prepared by or under the supervision of
William H. Bailey, Ph.D.

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EFSB RECORD REQUEST 7:

Provide references to the studies related to genetic modifications of animals to increase sensitivity to cancer referred to by Dr. Bailey in his oral testimony.

RESPONSE:

The studies are as follows:

Boorman GA, Rafferty CN, Ward JM, Sills RC. Leukemia and lymphoma incidence in rodents exposed to low-frequency magnetic fields. Radiat. Res. 153, 627-636, 2000.

McCormick DL, Ryan BM, Findlay JC, Gauger JR, Johnson TR, Morrissey RL, Boorman GA. Exposure to 60 Hz magnetic field and risk of lymphoma in PIM transgenic and TSG-p53 (p53 knockout) mice. Carcinogenesis. 19:1649-1653, 1998

Copies are provided on the CD.

Response prepared by or under the supervision of
William H. Bailey, Ph.D.

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EFSB RECORD REQUEST 8:

What is the width of the right-of-way for the Middletown-Norwalk transmission line in Connecticut and explain why it was necessary for the utility to propose underground construction for a segment of the line.

RESPONSE:

The ROW that Northeast Utilities (NU) had available between Middletown and Norwalk was identified in their Connecticut siting application as Segment 3, "East Devon to Singer", and Segment 4, "Singer to Norwalk". In its filing, NU indicated that these two ROW segments are typically only 80 feet wide and there are two existing 115 kV lines that were required to remain in service on this ROW. At other places along these segments, the ROW is 250 feet wide and is occupied by five 115 kV lines. Because the ROW was essentially "full" with existing 115 kV transmission lines, there was not room to add a 345 kV overhead line to this ROW. Given the dense commercial and residential development adjacent to the ROW corridor (southwest Connecticut), NU concluded that acquiring additional ROW was not practical. An underground solution was proposed based on lack of suitable ROW for the overhead 345 kV line.

Prepared by or under the supervision of
David J. Beron, P.E., P.M.P.