

**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-2008-02  
(Rhode Island Reliability Project) :

Testimony of

David J. Beron, P.E., P.M.P.

June 29, 2009

1 INTRODUCTION

2 Q. Please state your name and business address.

3 A. My name is David J. Beron. My business address is 40 Sylvan Road, Waltham,  
4 Massachusetts 02451.

5 Q. Have you previously filed testimony in this matter?

6 A. Yes. I filed prefiled testimony with the PUC on February 20, 2009. I understand that the  
7 pre-filed testimony in RIPUC Dkt. No. 4029 will be incorporated in this proceeding. I  
8 also filed rebuttal testimony in SB-2008-02 on June 4, 2009 regarding this matter.

9 SCOPE OF TESTIMONY

10 Q. What is the scope of your testimony in this proceeding?

11 A. In this testimony I will provide a project update and address issues raised in several of the  
12 advisory opinions to the EFSB. I will also comment on the recommendations contained  
13 in the EDR Visual Impact Assessment (“VIA.”)

14 PROJECT UPDATE

15 Q. Mr. Beron, in addition to the reconfigurations of the 115 kV S171 and T172 lines, are  
16 relocations or reconfigurations of any other lines on the West Farnum to Kent County  
17 ROW required to accommodate the new 345 kV 359 line?

18 A. Yes, as is shown in Figure 4-2, at various locations along the route, segments of existing  
19 12 kV and 23 kV lines currently located on wood poles along the easterly side of the  
20 ROW need to be relocated and reconfigured to insure compliance with applicable safety

1 code clearance requirements between the 12 kV or 23 kV line and structures of the  
2 relocated T172 line.

3 Q. How will the 12 kV and 23 kV lines be relocated and reconfigured where necessary to  
4 achieve the applicable safety code clearance requirements?

5 A. The 12 kV and 23 kV lines will be installed on the steel pole structures of the  
6 reconfigured T172 line resulting in a double circuit structure configuration. Since  
7 preparing Figure 4-2 for the ER, we have refined the design. The new configuration is  
8 shown on revised Figure 4-2, Sheets 1 through 5 of the ER which are attached as  
9 Attachment DJB-5.

10 Q. Have you made other changes to this figure?

11 A. Yes. We have separated the existing and proposed views and omitted the detailed  
12 dimensional information in an attempt to make the figure easier to understand. The  
13 dimensional information is provided on Figures 4-3 (345 kV) and 4-4 (115 kV). We have  
14 also modified the titles of Sheets 1 and 2 of 5 to indicate that they are typical cross-  
15 sections for much of the length of the ROW. The difference between these is that Sheet 1  
16 does not show a 12 or 23 kV line on the ROW while Sheet 2 does. Finally, we have  
17 noted the general location of the Tennessee Gas Pipeline Company (TGP) gas  
18 transmission line on the ROW. The gas line is co-located along the eastern edge of the  
19 ROW for much of the length of the ROW.

20 Q. What steps will you take to avoid conflicts with the TGP gas line and National Grid's  
21 new construction?

1 A. We will review the location of the TGP gas line in relation to our proposed structures. In  
2 the event of any conflict, we can shift our structures along the ROW to avoid conflicts. It  
3 is important to understand that any shifts would be along the line and not closer to the  
4 edge of the ROW. As design verification, we will also stake each structure location  
5 before construction and ask Tennessee Gas Pipeline to review the locations. Finally  
6 National Grid will notify Dig Safe as required by law.

7 Q. What will be the distance between the new T172 structures and the edge of the ROW?

8 A. The T172 line structure will be no less than 25 feet from the east edge of the ROW, as is  
9 shown in Figure 4-2, Sheets 1 through 4.

10 Q. Mr. Beron, will there be any reduction in the distance from the closest 115 kV power  
11 conductor (wire) to the ROW edge?

12 A. No, the location of the T172 power conductor nearest the easterly ROW edge will remain  
13 unchanged following reconfiguration of the T172 line.

14 ADVISORY OPINIONS

15 Q. Mr. Beron, have you reviewed the advisory opinions that have been submitted to the  
16 Energy Facility Siting Board (“EFSB” or “Board”) in this proceeding?

17 A. Yes. I have reviewed all of the advisory opinions that have been submitted to the EFSB.  
18 The Smithfield Planning and Zoning Boards heard our applications and voted in favor of  
19 the Project but have not submitted advisory opinions as of June 26. In addition, a number  
20 of other Designated Agencies have not submitted advisory opinions.

21 Q. How would you characterize the Advisory Opinions?

1 A. Generally, the advisory opinions from the state agencies have been positive. The State  
2 Planning Council determined that the Project “substantially conforms to the goals,  
3 policies and objectives of the State Guide Plan ..., will have positive local and regional  
4 economic benefits... [and] negative social and environmental impacts produced in  
5 building the project will generally be temporary in nature or can be reasonably  
6 remediated through the application of standard mitigation measures or the passage of  
7 time.” The State Planning Council determined that “the most significant, permanent and  
8 difficult to mitigate negative social impact of the proposed project will be the lasting  
9 visual mark that the increased height and quantity of transmission facilities will leave on  
10 the region’s landscape.” I will address the recommendations of the State Planning  
11 Council subsequently in my testimony. The Department of Transportation noted that the  
12 Project will require a utility permit for any work on or over any state road right-of-way.  
13 We agree, and routinely apply for and obtain these permits as part of our projects.  
14 RIDOT also determined that the construction of the new transmission line and relocation  
15 of the existing lines “provide[s] less of an impact to state roads than the stand-alone  
16 installation of an underground duct bank for the new [345] kV transmission line.”  
17 While the West Warwick Zoning and Planning Boards’ advisory opinions were negative,  
18 the West Warwick Building Official submitted a positive opinion.

19 West Warwick Advisory Opinions

20 Q. Mr. Beron, do you have any comments on the West Warwick advisory opinions?

21 A. Yes, I do. First of all, we are disappointed that West Warwick denied our applications

1 for zoning relief. We believe that National Grid has made a clear case for relief under  
2 the West Warwick Zoning Ordinance. I would like to address several issues that are  
3 raised in the West Warwick decisions. First, in the Planning Board decisions, the Town  
4 criticizes National Grid for failing to address the effect of the Project on properties within  
5 the “fall zone.” As I understand it, “fall zone” is a concept most often applied to free  
6 standing (guyed or unguyed) communications towers. The concept is that if the  
7 communications tower were to collapse, it should fall entirely within property owned by  
8 or under the control of the owner of the tower. I understand that zoning ordinances of  
9 several municipalities incorporate this concept in the zoning regulations. In contrast,  
10 electric transmission structures are bolted to concrete foundations and connected to  
11 adjacent structures by multiple conductors (wires). In the case of the proposed 345 kV  
12 transmission line, there will be three power conductors and two shield wires at the tops of  
13 the structures for a total of five wires. In the case of the relocated 115 kV lines, there  
14 will be three conductors and one shield wire at the tops of the structures. Given the  
15 multiple lines that hold the transmission structures in place, the “fall zone” concept  
16 applicable to free standing communications towers is not applicable to National Grid’s  
17 transmission structures, because even if there was a failure at the base of a structure, the  
18 transmission lines themselves would tend to support the structure upright, or guide it in  
19 the direction of the line, not allowing it to fall sideways.

20 A second criticism from the Planning Board is that there is no assurance that National  
21 Grid will not seek to increase the voltage in the lines. The design of the lines is

1 dependent on the planned voltage. If National Grid needed to increase the voltage in any  
2 existing transmission line, it would, in all likelihood, require a total reconstruction of the  
3 line. By statute, such a proposal would also require application to and approval from the  
4 EFSB and other boards and agencies.

5 Third, the Planning Board comments that the “original transmission lines were of lower  
6 voltage and not constructed close to residential property.” In fact, the right-of-way has  
7 had a 115 kV transmission line on it since 1956 and the 345 kV transmission line on it  
8 since 1973. The majority of the residences that abut the right-of-way were built after the  
9 transmission lines were installed.

10 Q. Mr. Beron, do you agree with the finding by the West Warwick Planning and Zoning  
11 Boards that the hardship faced by National Grid in seeking to exceed the maximum  
12 height limitations is not due to unique characteristics of land or structure, but is instead  
13 due to economic desires of National Grid to realize greater financial gain.

14 A. No, I do not. It is not possible to construct transmission lines in compliance with the  
15 dimensional restrictions of the West Warwick Zoning Ordinance. The height of  
16 transmission line structures is a result of the design of the line and clearance requirements  
17 specified in the National Electrical Safety Code. Therefore, the hardship is due to the  
18 unique characteristics of the structure. Most important, National Grid is not undertaking  
19 the Project to realize greater financial gain, but rather to fulfill its statutory duty to  
20 maintain reliable electric service to its customers.

21

1 Q. What are you asking the EFSB to do with the Warwick Zoning and Planning Board  
2 decisions?

3 A. While we disagree with these decisions, we understand that the EFSB is charged with  
4 reviewing the Project from a statewide perspective. We ask the EFSB to issue a waiver  
5 under §11(b)(2) of the Siting Act from these decisions and the requirements of the West  
6 Warwick zoning ordinance.

7 RIHPHC Advisory Opinion

8 Q. Please discuss the comments contained in the RIHPHC advisory opinion.

9 A. The RIHPHC noted that work to identify significant cultural resources is ongoing and  
10 must be completed before it can comment on impacts on cultural resources. As explained  
11 in the ER (§§7.6 and 8.13), the Public Archeological Laboratory (PAL) has been engaged  
12 by National Grid to perform such a survey. Initial investigations to determine the  
13 presence of archaeological and historical resources have been undertaken by PAL. In its  
14 initial assessment of the ROW, PAL stratified the ROW into zones of low, moderate and  
15 high archaeological sensitivity. Subsequent investigation is continuing. A report  
16 detailing the results and recommendations will be submitted by PAL to RIHPHC late this  
17 summer. As we have in other projects, we will continue to work with RIHPHC on the  
18 resolution of any issues.

19 State Planning Council

20 Q. Mr. Beron, are you familiar with the 6 recommendations made by the State Planning  
21 Council in its advisory opinion?

1 A. Yes I am.

2 Q. Please comment on each of these recommendations.

3 A. Certainly. The recommendations and my comments are as follows:

4 *1. Any approved design alternative minimizes the visual impact of the project to the*  
5 *most cost effective degree possible. Recognizing that construction within the existing*  
6 *ROW is the most cost effective starting point, the EFSB should consider securing*  
7 *independent engineering professionals to provide an objective technical assessment*  
8 *of the overall design approach; height, quantity and placement of individual*  
9 *structures and potential alternatives for limiting the visual impact including partial*  
10 *burials in the most severely impacted areas.*

11 The design of the transmission line is dictated in large part by the requirements of the  
12 National Electrical Safety Code. In order to maintain the clearances required under  
13 the NESC while minimizing environmental impacts, we must strike a balance  
14 between number of structures (distance between them) and height of structures.  
15 Thus, one could reduce the number of structures by increasing the height of  
16 individual structures and locating them farther apart or vice versa. Our second goal in  
17 designing this Project was to line up the new and relocated line structures with the  
18 structures of the existing 345 kV transmission line to reduce the visual clutter or  
19 “picket fence” effect on the ROW. The State Planning Council also suggests “partial  
20 burials in the most severely impacted areas.” This issue is addressed in Mr.

1 Campilii's testimony where he explains the impacts (environmental, operational and  
2 economic) associated with constructing underground "dips" in the transmission line.

3 2. *Wetland and flood water storage capacity losses are appropriately compensated for*  
4 *within the applicable watersheds.*

5 3. *Appropriate stormwater and erosion control procedures are required for all areas of*  
6 *vegetation clearing and excavation.*

7 We are proposing compensation for wetlands filling in our applications to RIDEM  
8 and the Army Corps of Engineers. We will also submit soil erosion and sediment  
9 control plans with the wetlands application and to the municipalities.

10 4. *Affected municipalities are empowered to enforce their respective noise control*  
11 *ordinances if any.*

12 National Grid will comply with local noise ordinances – see ER §8.11.

13 5. *Appropriate police details are provided for necessary roadway restrictions.*

14 National Grid will provide police traffic details as part of its traffic management plans  
15 – see ER §§7.7 and 8.12.

16 6. *Impacts to cultural resources are avoided through investigation and coordination*  
17 *with the Rhode Island Historical Preservation and Heritage Commission (RIHPHC).*

18 We are investigating cultural resources and will coordinate with RIHPHC as I have  
19 explained in this testimony and in the ER §§7.6 and 8.13.

20

21

1 COMMENTS ON EDR VISUAL IMPACT ASSESSEMENT

2 Q. Mr. Beron, have you reviewed the recommendations made by EDR in its Visual Impact  
3 Assessment (“VIA”) on this Project?

4 A. Yes, I have. The two recommendations by EDR were (i) National Grid should consider  
5 screen plantings to mitigate the impact of the new lines on abutters and (ii) National Grid  
6 should consider consolidating the transmission lines or using transmission line structures  
7 that matched the existing design.

8 Q. Would you please comment on each of these recommendations.

9 A. Yes. With respect to the screen plantings, we have conducted an extensive project  
10 community outreach for this Project, as we have on previous projects, and which is  
11 described in Section 4.8 of the ER. As part of this outreach, in a situation where an  
12 abutter to the transmission line will have a transmission line structure adjacent to their  
13 property, we will discuss the feasibility of off-ROW screen plantings with the abutter. If  
14 the abutter is interested, we will provide funding for such plantings. We believe that it is  
15 more feasible to screen the view of the structures or the base of the structures rather than  
16 attempting to screen the view of all of the transmissions lines.

17 With respect to the second suggestion of consolidating circuits, it is not possible to  
18 combine the 115 kV lines on a double circuit davit arm structure. We did consider  
19 combining the new 345 kV line with one of the 115 kV line on a common structure but  
20 determined that the loss of reliability made this an undesirable alternative. See ER  
21 §5.5.2. The final alternative would be to seek to widen the ROW and construct the new

1 345 kV line on an H-frame structure. This would involve the purchase or condemnation  
2 of substantial additional property from abutters and we rejected it. See ER §5.5.1. EDR  
3 acknowledges that acquiring and clearing additional right-of-way for this alternative  
4 would have additional visual impacts; it would also have other land use impacts and be  
5 disruptive to many abutters.

6 CONSTRUCTION

7 Q. Mr. Beron, are you aware that Eugenia Marks of the Audubon Society of Rhode Island  
8 suggested that construction should be restricted during bird-breeding season (April 15  
9 through July 15)?

10 A. Yes. I was present at the EFSB hearing in North Smithfield where Ms. Marks made this  
11 suggestion. The construction of this Project is a very complicated undertaking because  
12 of the need to take the existing 115 kV transmission lines out of service as we construct  
13 the new lines. Because of operating restrictions and reliability concerns, the ability to  
14 take the existing facilities out of service is severely restricted, and can generally only to  
15 accomplished in the spring and fall time frames. If we were further constrained from  
16 construction during the spring, it would become very difficult to accomplish this Project  
17 in a timely manner. Ms. Moberg has addressed this issue in her pre-filed testimony as  
18 well.

19 Q. Does this conclude your testimony?

20 A. Yes, it does.

The Narragansett Electric Company  
EFSB Dkt. No. SB-2008-2  
Witness: David J. Beron, P.E., P.M.P.

ATTACHMENT

DJB-5 Revised ER Figure 4-2, Sheets 1 through 5