The Narragansett Electric Company

d/b/a National Grid (Interstate Reliability Project)

RIPUC Dkt. No. 4360

Testimony of

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

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INTRODUCTION

Q. Please state your name and business address.

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

Q. By whom are you employed and in what position?

A. I am employed by National Grid USA Service Company as a Principal Project Manager in the Project Management & Complex Construction Department.

Q. What is National Grid USA Service Company?

A. National Grid USA Service Company (the "Service Company") is a wholly owned subsidiary of National Grid USA, an energy company specialized in the transmission and distribution of electricity and natural gas. The Service Company provides administrative and technical services (such as engineering, accounting and legal services) to the other subsidiaries of National Grid USA, including The Narragansett Electric Company d/b/a National Grid ("National Grid" or the "Company").

Q. What are your responsibilities as Project Manager?

A. As Project Manager I am responsible for managing all aspects of assigned projects, including developing and gaining approval for project scope, cost estimation, project schedule, project budget and resourcing, compliance with environmental and safety standards and policies, project licensing and permitting, project communications, engineering and design, procurement, construction and commissioning of facilities.

Q. Please describe your education, training and experience.

A. I have a Bachelor of Science Degree in Civil Engineering from the University of Rhode Island and a Masters of Management Degree from Lesley University. I am a registered Professional Engineer in the State of Rhode Island, and a certified Project Management Professional. I have 25 years of professional experience in the areas of engineering, design, and project management of electric utility infrastructure projects.

Q. Have you previously testified before the Public Utilities Commission or the Energy Facility Siting Board?

A. Yes, on numerous occasions and in various proceedings; for example, I testified before the PUC on the L-190, E-183 and Southern Rhode Island Transmission Line Projects and before the EFSB in those and numerous other transmission line reconductoring and relocation projects, including the Rhode Island Reliability Project.

Q. Are you familiar with National Grid's Interstate Reliability Project (the "Project")?

A. Yes, I am the Project Manager for the Interstate Reliability Project and am responsible for managing the engineering, design, licensing and other aspects of the Project.

SCOPE OF TESTIMONY

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

A. In my testimony, I will provide an overview of the Project, explain Project details including Project cost, and address alternatives to the Project.

Q. Are you familiar with National Grid's Energy Facility Siting Board Application dated July, 2012 for the Project, including the Environmental Report ("ER") prepared by AECOM?

A. Yes, these documents were prepared under my supervision and direction.

DESCRIPTION OF PROJECT

Q. Please describe the components of the Interstate Reliability Project.

A. The Interstate Reliability Project is a project which will expand and significantly reinforce the existing transmission system in Rhode Island, Massachusetts and Connecticut. National Grid and Northeast Utilities ("NU") propose to construct seventy-five (75) miles of new 345 kV transmission line in the three states. In Rhode Island, National Grid proposes to construct new 345 kV transmission lines in existing right-of-way ("ROW") from the Rhode Island – Massachusetts border in North Smithfield to the West Farnum Substation in North Smithfield and from the West Farnum Substation to the Connecticut – Rhode Island border in Burrillville.

The Project will establish two new connections between Rhode Island and the New England 345 kV transmission grid. The individual components of the Project, which are listed in Table 4.1 and described in more detail in section 4.3 of the ER, include the following:

- Construct approximately 4.8 miles of new 345 kV transmission line (366 Line) on existing ROWs from the Massachusetts/Rhode Island border in North Smithfield, Rhode Island to the West Farnum Substation in North Smithfield.
- Construct approximately 17.7 miles of new 345 kV transmission line (341 Line) on existing ROWs from the West Farnum Substation to the Rhode Island/Connecticut border in Burrillville.
- Reconstruct and reconductor approximately 9.2 miles of an existing 345 kV transmission line (328 Line) from the West Farnum Substation in North Smithfield to the Sherman Road Switching Station in Burrillville.
- Reconstruct the existing Sherman Road Switching Station.[1]

[1] The West Farnum Substation has facilities in place to accept the proposed 341 and 366 Lines.

- Reconstruct and realign approximately 0.25 miles of the existing 345 kV transmission line (3361 Line) from the Sherman Road Switching Station to the NSTAR segment of the 3361 Line at the Massachusetts/Rhode Island border in Burrillville.
- Reconstruct and realign approximately 0.25 miles of the existing 345 kV transmission line (333 Line) from the Sherman Road Switching Station to the Ocean State Power Generating Plant in Burrillville.
- Reconstruct and realign approximately 0.25 miles of the existing 345 kV transmission line (347 Line) outside of the Sherman Road Switching Station, and replace and/or modify other 347 Line structures to accommodate the construction of the 341 Line.
- Replace and/or modify a number of existing structures on the 115 kV transmission line (B-23 Line) to accommodate the construction of the 341 Line.

Figure 2-1 (United States Geological Survey ("USGS") Topographic Map) provides an overview of the Project location in Rhode Island, and Figure 2-2 (Sheets 1-41) provide Project alignment details.

ALTERNATIVES

Q. Please discuss the alternatives that National Grid considered in connection with the Project.

A. A variety of alternatives were considered and evaluated in connection with the Project, including the "No-Build" alternative, alternative overhead routes, overhead alternatives utilizing the existing ROWs, underground transmission line alternatives, and non-transmission alternatives.

The regulations of the EFSB require examination of a "No-Build" alternative; in this case the Company considered alternatives that would not require building the proposed transmission lines. As explained in Section 5.2 of the ER, the proposed transmission system improvements are required to relieve existing transmission constraints on the

transfer of power from east to west and from west to east across Southern New England. The Project is also needed to satisfy national and regional transmission planning standards. Thus a "no-action" alternative would not meet these needs. However we did examine non-transmission solutions as "No-Build" alternatives. National Grid retained ICF Resources LLC (ICF) to prepare a study of non-transmission alternatives. ICF considered the addition of active and passive demand-side resources (including distributed generation), traditional central generation supply, and combined demand-side and generation resources as possible alternatives to the Project. ICF determined that non-transmission alternatives to the Project were not satisfactory or sufficient in nature to displace or defer the need for the Project. More detail regarding the ICF analysis and conclusion is contained in Section 5.5[2] of the ER, in the prefiled testimony of Judah Rose from ICF, and in ICF's report which is Appendix K to the ER.

National Grid also considered five (5) electrical alternatives to the Project. These alternatives included four (4) options (including the preferred option) which would connect the Millbury No. 3 Switching Station in Massachusetts, the West Farnum Substation and/or the Sherman Road Switching Station in Rhode Island, and the Card Street Substation and the Lake Road Switching Station in Connecticut. The fifth option connects the Millbury No. 3 Switching Station with the Carpenter Hill Substation in Massachusetts and the Manchester Substation in Connecticut. These alternatives, which are described in Section 5.3 of the ER and are fully discussed in the prefiled testimony of

[2] Originally Section 5.4 of the ER, as filed. Renumbered with the November 20, 2012 update. All section references are to the updated section 5.

Gabriel Gabremicael and Mark Stevens, were found to have significant disadvantages to the preferred option.

In addition to the "No-Build", non-transmission alternatives and electrical alternatives, we evaluated alternative overhead routes for the proposed 345 kV transmission lines including using public streets and highways and existing pipeline rights-of-way. These alternatives are discussed more fully in Section 5.6 of the ER. None was found to be a preferable routing alternative for the proposed transmission line. In Section 5.6.3 of the ER, we explained the "Noticed Alternative Route" which we have filed with the Massachusetts Energy Facilities Siting Board for the Massachusetts portion of the Project. This route would be significantly longer overall (37 miles versus 20 miles for the proposed route) and the Rhode Island portion would be 8 miles versus 4.2 miles for the proposed route.

National Grid has also evaluated alternate structure types for constructing the proposed transmission line within the existing ROW. These included constructing the new transmission line using davit arm structures, and constructing the new transmission lines using "Double-Circuit Davit Arm" type structures. As discussed in ER Section 5.7, we concluded that using the proposed single-circuit H-Frame structures for constructing the new transmission lines offered more advantages, created fewer impacts, and was a more cost-effective solution than either of the alternative structure types.

National Grid also evaluated an underground transmission line alternative for the new transmission line. The underground transmission line alternative is detailed in Section 5.8 of the ER, and is more fully discussed in the prefiled testimony of David M. Campilii.

After review of several underground routing and technology options, an alternative which consisted of a solid dielectric cable installed along the public roadway network was selected as the most feasible means by which to construct an alternative underground transmission line. When compared to the proposed overhead transmission line, however, it was determined that the underground alternative was much less desirable based on cost and operational issues.

Q. Did you consider alternatives to reconstructing the Sherman Road Switching Station?

A. Yes, we did. Numerous alternatives to reconstructing the Sherman Road Switching Station are detailed in the 2012 Solutions Report. The alternatives that are relevant to the proposed Project include the following:

- Rebuild the existing station in place with air-insulated switchgear ("AIS").
- Build a new gas-insulated station ("GIS").
- Build a new station with air-insulated switchgear.

These alternatives are described in Section 5.9 of the ER and summarized in Table 5-18[3]. The third alternative, constructing a new 2-bay AIS Station, was determined to be the best solution for the Sherman Road Switching Station, based on lowest cost, low equipment outage requirements, minimal construction sequencing and outage difficulties, opportunity for future expansion, and minimizing environmental impacts given the constraints of the existing site conditions.

[3] Originally Table 5-12.

ESTIMATED PROJECT COSTS

Q. What is the estimated cost of the Interstate Reliability Project?

A. National Grid has prepared study grade estimates of the costs associated with its portion of the Project. Study grade estimates are prepared prior to detailed engineering and are based upon historical cost data, data from similar projects, and other stated assumptions. The accuracy of study estimates is expected to be ± 25 percent. Estimated costs include costs of materials, labor and equipment. The estimated capital costs of the Project in Rhode Island, Massachusetts and Connecticut is $542,000,000 (see 2012 Solution Report). The estimated cost of the Rhode Island components of the Project is $181,000,000, as shown in Table 4-3 of the ER.

CONSTRUCTION PRACTICES AND SCHEDULE

Q. Please explain the construction practices that National Grid will use in constructing the Project.

A. Our construction practices and process are described in Section 4.4.1 of the ER. Once all necessary permits and licenses have been obtained for the work, National Grid will commence construction of the new transmission lines. The first activities to take place will be vegetation mowing/clearing within the ROW as necessary, and the installation of appropriate erosion and sedimentation control devices. These activities are detailed in Sections 4.4.1.1 and 4.4.1.2 of the ER. The next step in the construction sequence is to perform access road and work pad construction and maintenance, including the construction of temporary swamp mat access roads where required. Improving the access along the ROW, which is described in Section 4.4.1.3 of the ER, will allow construction

personnel and equipment to reach work locations in a safe, efficient and environmentally sensitive manner. After access has been improved along the corridor, construction crews will remove unused steel lattice towers along the route of the 366 Line. The next step is the installation of foundations and pole structures as described in Section 4.4.1.5 of the ER. Following the erection of transmission pole structures, insulators will be installed on the structures. Shield wires and conductors will then be installed using stringing blocks and tensioning equipment. ROW restoration efforts, including final grading and stabilization of disturbed areas, will be completed following the construction operations. Throughout the entire construction process, National Grid will retain the services of an environmental monitor whose primary responsibility will be to ensure compliance with all federal, state and local permit requirements and National Grid company policies.

Q. Please summarize the process for construction of the Sherman Road Switching Station.

A. The sequence is described in detail in Section 4.4.2 of the ER. Briefly, the site would be surveyed and prepared, the new switching station yard will be graded to create a level surface and filled with gravel and aggregate, and the yard will be fenced. The next step is to install foundations for the electrical equipment and the new control house. Once the foundations are prepared, installation of the electrical equipment and the control building will take place. Certain transmission structures will be relocated as described in ER Section 4.4.2.4 and the existing transmission lines will be tied into the new switching station. After the new switching station is in service, the old station will be removed. The final equipment in the step is the restoration of the areas that have been impacted by construction.

Q. What is the schedule for the Project?

A. We expect to commence construction of the Project in early 2014 and to have the facilities in service by late 2015. A high level project schedule is contained in Table 4-4.

Q. Does this complete your testimony?

A. Yes, it does.