

THE NARRAGANSETT ELECTRIC COMPANY

RIPUC Dkt. No. 3732

Testimony of

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

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PREFILED TESTIMONY OF DAVID J. BERON, P.E., P.M.P.

1 INTRODUCTION

2 Q. Please state your name and business address.

3 A. My name is David J. Beron. My business address is 25 Research Drive, Westborough,  
4 Massachusetts 01582.

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

6 A. I am employed by National Grid USA Service Company as a Project Manager in the  
7 Project Management Department.

8 Q. What is National Grid USA Service Company?

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

15 Q. What are your responsibilities as Project Manager?

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

21 Q. Please describe your education, training and experience.

1 A. I have a Bachelor of Science Degree in Civil Engineering from the University of Rhode  
2 Island and a Masters of Management Degree from Lesley University. I am a registered  
3 Professional Engineer in the State of Rhode Island, and a certified Project Management  
4 Professional. I have 18 years of professional experience in the areas of engineering,  
5 design, and project management of electric utility infrastructure projects.

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

8 A. Yes, on numerous occasions and in various proceedings; for example, I testified before  
9 the PUC on the L-190 and E-183 Transmission Line Projects and before the EFSB in  
10 those and numerous other transmission line reconductoring and relocation projects.

11 Q. Are you familiar with Narragansett Electric's Southern Rhode Island Transmission  
12 Project (the "Project")?

13 A. Yes, I am the Project Manager for the Southern Rhode Island Transmission Project and  
14 am responsible for managing the engineering, design, licensing and other aspects of the  
15 Project.

16 SCOPE OF TESTIMONY

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

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

20 Q. Are you familiar with Narragansett's Energy Facility Siting Board Application dated  
21 October, 2005 for the Project, including the Environmental Report ("ER") prepared by  
22 Vanasse Hangen Brustlin, Inc. (VHB) and the visual impact assessments prepared by  
23 Environmental Design & Research, P.C. (EDR)?

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

2 DESCRIPTION OF PROJECT

3 Q. Please describe the components of the Southern Rhode Island Transmission Project?

4 A. The Southern Rhode Island Transmission Project is a grouping of projects which  
5 collectively will expand and reinforce the existing transmission system in southern Rhode  
6 Island. A new 115 kV transmission line, two new transmission tap lines and a new 115-  
7 12.47 kV substation will be constructed, existing 115 kV transmission lines will be  
8 reconducted, and an existing substation will be expanded and modified as part of the  
9 Southern Rhode Island Transmission Project. Collectively, these projects span from  
10 Warwick to Charlestown along an existing right-of-way (“ROW”).

11 The Project will establish a second 115 kV transmission supply line to  
12 Narragansett Electric’s existing West Kingston Substation by extending the L-190 115  
13 kV transmission line a distance of approximately 12.3 miles from its existing terminus at  
14 the Old Baptist Road Tap Point in East Greenwich to a new terminal at the West  
15 Kingston Substation, located in South Kingstown. The L-190 transmission line will be  
16 extended along the same ROW which presently contains a 115 kV transmission line and,  
17 in places, a 34.5 kV subtransmission line. To accept this new supply line, the existing  
18 West Kingston Substation will be expanded and modified through equipment additions.

19 The proposed Project also includes the construction of a new 115-12.47 kV  
20 substation in the vicinity of Tower Hill Road in North Kingstown. This proposed  
21 substation will be served by two new 115 kV transmission tap lines, each approximately  
22 2,800 feet in length originating from the existing G-185S ROW.

1           Lastly, the proposed transmission system reinforcements include the  
2 reconductoring of three existing 115 kV transmission lines in the southern Rhode Island  
3 area: the L-190 transmission line from the Kent County Substation in Warwick to the Old  
4 Baptist Road Tap Point in East Greenwich, the 1870N transmission line from the West  
5 Kingston Substation in South Kingstown to the Kenyon Substation in Charlestown, and  
6 the 1870 transmission line from the Kenyon Substation to the Wood River Substation in  
7 Charlestown.

8           The individual components which make up the Project are described more fully in  
9 Section 4.3 of the Environmental Report. Figure 2-1 from the ER is a project overview  
10 map which shows the locations and routes of the proposed transmission system additions  
11 and reinforcements that are part of the Southern Rhode Island Transmission Project.

12 ALTERNATIVES

13 Q.     Please discuss the alternatives that Narragansett considered in connection with the  
14 Project?

15 A.     A variety of alternatives were considered and evaluated in connection with the Project,  
16 including the “No-Build” alternative, alternative overhead routes for the L-190  
17 transmission line extension, overhead alternatives utilizing the existing ROW,  
18 underground transmission line alternatives, alternative system improvements, and  
19 alternative substation sites.

20           The regulations of the EFSB require examination of a “No-Build” alternative; in  
21 this case the Company considered alternatives that would not require building the  
22 proposed L-190 transmission line extension. We identified three “No-Build” alternatives

1 for consideration, as discussed in Section 5.1 of the ER. The first “No-Build” alternative  
2 would rely on Demand Side Management (DSM) and/or Distributed Generation (DG) to  
3 address the electrical system reliability issues that were identified in the planning studies.  
4 In the case of DSM, we noted that Narragansett’s load forecasts already incorporate the  
5 expected load and energy reductions due to DSM programs, and that the need for the  
6 proposed transmission system improvements still exists despite these expected  
7 reductions.. With regard to DG, we concluded that generation supply in New England is  
8 based on a competitive market model, which relies on the premise that if generation is a  
9 viable solution to market needs, then the market will respond to the needs. If, however,  
10 the market does not respond, as it has not in the case of the southern Rhode Island area,  
11 then transmission providers have an obligation to provide any transmission upgrades  
12 required to maintain reliable service to the system. As such, both DSM and DG were  
13 determined not to be viable solutions to meet the electrical needs of the southern Rhode  
14 Island area.

15 The second “No-Build” alternative addressed thermal line loadings with a  
16 reconductoring of the G-185S 115 kV transmission line, and maintained voltages with the  
17 installation of 115 kV capacitors. This option was not chosen because it is more costly  
18 and would not perform as well as the proposed L-190 transmission line extension and  
19 thus would provide lower quality of service. This option would also create a more  
20 complicated system to operate. This alternative is more fully discussed in the testimony  
21 of my colleague Melissa Scott, and in Sections 3.4.2.1 and 5.1 of the ER.

22 The third “No-Build” alternative addressed thermal line loadings with a

1 reconductoring of the G-185S 115 kV transmission line and maintained voltages with the  
2 installation of a Flexible AC Transmission System device. This option was not chosen  
3 because it is more costly and would not perform as well as the L-190 transmission line  
4 extension and thus would provide lower quality of service. This alternative is more fully  
5 discussed in the testimony of my colleague Melissa Scott, and in Sections 3.4.2.1 and 5.1  
6 of the ER.

7 In addition to the “No-Build” alternatives, we evaluated alternative overhead routes  
8 for the L-190 transmission line extension, including using the Amtrak Northeast corridor,  
9 acquiring new right-of-way, and utilizing the network of public streets and highways as  
10 an alternate overhead route. These alternatives are discussed more fully in Section 5.2 of  
11 the ER. None was found to provide a feasible routing alternative for the proposed L-190  
12 transmission line extension.

13 Narragansett also evaluated overhead alternatives utilizing the existing ROW. These  
14 included constructing the L-190 transmission line extension using “H-Frame” type  
15 structures, and constructing the L-190 transmission line extension using “Double-Circuit  
16 Davit Arm” type structures. As discussed in ER Section 5.3, we concluded that using the  
17 proposed single-circuit davit arm structures for constructing the new L-190 transmission  
18 line extension offered more advantages, created fewer impacts, and was a more cost-  
19 effective solution than either of the two alternative structure types.

20 In addition to the “No-Build” alternatives, alternative overhead routes, and overhead  
21 alternatives utilizing the existing ROW, Narragansett also evaluated an underground  
22 transmission line alternative for the L-190 transmission line extension. The underground

1 transmission line alternative is detailed in Section 5.4 of the ER, and is more fully  
2 discussed in the prefiled testimony of my colleague, David M. Campilii. After  
3 considerable analysis, an alternative which consisted of a solid dielectric cable installed  
4 along the public roadway network was selected as the most feasible means by which to  
5 construct an alternative underground transmission line. When compared to the proposed  
6 overhead L-190 transmission line extension, however, it was determined that the  
7 underground alternative was much less desirable based on cost and operational issues.

8 Narragansett also considered alternative system improvements which could be made  
9 in lieu of the proposed L-190 transmission line extension. These alternative system  
10 improvements included an examination of alternative sources of supply, alternative  
11 voltage levels, and the alternative system improvements as described under the “No-  
12 Build” scenario. These alternatives, which are described in Sections 3.4, 5.5 and 5.6 of  
13 the ER and which are fully discussed in the prefiled testimony of my colleague Melissa  
14 Scott, were all found to have significant disadvantages as compared to the proposed L-  
15 190 transmission line extension.

16 In addition to alternatives to constructing the proposed L-190 transmission line  
17 extension, Narragansett also evaluated alternatives in connection with the proposed  
18 Tower Hill Substation. The alternatives to the proposed Tower Hill Substation which  
19 were examined included a “No-Build” alternative, and an alternative of making  
20 conversions and upgrades of existing facilities in lieu of constructing a new substation.  
21 These alternatives are described in Sections 5.7.1 and 5.7.2 of the ER, and are discussed  
22 in the prefiled testimony of my colleague Alan T. LaBarre. It was determined that the

1 “No-Build” alternative to Tower Hill Substation would result in near-term equipment  
2 overloads at two area substations and on several overhead supply and distribution lines,  
3 and additionally that area load growth and new customers could not be adequately  
4 supported. As such, the No-Build Alternative was not considered a feasible alternative to  
5 constructing the proposed Tower Hill Substation. The alternative of making conversions  
6 and upgrades of existing facilities was also determined to be an inferior alternative as  
7 compared to the proposed plan of developing the Tower Hill Substation. The  
8 recommended plan provides more capacity and greater flexibility to serve future loads,  
9 and has a lower estimated cost than the alternative of converting and upgrading the  
10 existing facilities.

11 Lastly, Narragansett also considered and evaluated alternative sites for the proposed  
12 substation. The alternative substation site analysis is described in Section 5.7.3 of the ER  
13 and is fully discussed in the prefiled testimony of my colleague Daniel McIntyre.

14 Alternative sites which were considered for the substation include a site east of Tower  
15 Hill Road, a site at Indian Corner Road, a site at the transmission line tap point, the Oak  
16 Hill Road Town Well site, the Route 4 Town Well site, and a site owned by the Rhode  
17 Island Department of Transportation at the intersection of West Allentown Road and  
18 Route 4. The alternative sites considered for the new substation are shown on Figure 5-5  
19 of the ER. Each of the alternative sites for the substation was found to be inferior to the  
20 proposed site, as explained in the ER and the testimony of Daniel McIntyre.

1 ESTIMATED PROJECT COSTS

2 Q. Please discuss the estimated costs of the Southern Rhode Island Transmission Project as  
3 proposed by Narragansett.

4 A. Narragansett has prepared study grade estimates of the costs associated with the proposed  
5 Project. Study grade estimates are prepared prior to detailed engineering and are based  
6 upon historical cost data, data from similar projects, and other stated assumptions. The  
7 accuracy of study estimates is expected to be  $\pm 25$  percent. Estimated costs include costs  
8 of materials, labor and equipment. The estimated capital costs associated with the  
9 proposed Project total \$25,100,000 and can be broken down among the component  
10 projects as follows:

- 11 • Reconductor 5.3 Miles of Existing L-190 115 kV Transmission Line from Kent  
12 County Substation to the Old Baptist Road Tap Point, \$1,900,000
- 13 • Construct New 12.3 Mile Extension of L-190 115 kV Transmission Line from the  
14 Old Baptist Road Tap Point to the West Kingston Substation, \$6,200,000
- 15 • Reconductor 4.3 Miles of Existing 1870N 115 kV Transmission Line from the  
16 West Kingston Substation to the Kenyon Substation, \$3,100,000
- 17 • Reconductor 3.9 Miles of Existing 1870 115 kV Transmission Line from the  
18 Kenyon Substation to the Wood River Substation, \$2,200,000
- 19 • Construct Two New Tap Lines to Tower Hill Substation, \$1,850,000
- 20 • Construct New Tower Hill Substation, \$7,000,000
- 21 • Expand and Modify West Kingston Substation, \$2,600,000
- 22 • Equipment additions at Kent County Substation, \$100,000
- 23 • Equipment additions at Kenyon Substation, \$100,000

- Equipment additions at Wood River Substation, \$50,000.

## CONSTRUCTION PRACTICES AND SCHEDULE

Q. Please explain the construction practices that Narragansett will use in constructing the proposed L-190 transmission line extension.

A. Once all necessary permits and licenses have been obtained for the work, Narragansett Electric will commence construction of the new transmission line extension. The first activities to take place will be tree clearing within the right-of-way and the installation of appropriate erosion and sedimentation control devices. These activities are detailed in Section 4.4.1 of the ER. The next step in the construction sequence is to perform access road construction and maintenance, including the construction of temporary swamp mat access roads where required. Improving the access along the right-of-way 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 commence the installation of pole structures and any necessary foundations, as described in Section 4.4.3 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. Right-of-way restoration efforts, including final grading and installation of permanent erosion control devices, will be completed following the construction operations. Throughout the entire construction process, Narragansett will retain the services of an environmental monitor whose primary responsibility will be to enforce compliance with all federal, state and local permit requirements and Narragansett company policies.

1 Q. What is the schedule for the Project?

2 A. The planning studies indicate that the facilities are needed now. We presently anticipate  
3 that all necessary licenses and permits for the Project will be obtained in early 2007. We  
4 expect to commence construction of the various component projects in the Spring of  
5 2007, and to have completed the majority of the work by the end of 2007. In the case of  
6 the transmission line reconductoring projects and the modifications to existing  
7 substations, the timing and sequencing of our specific construction activities is impacted  
8 by our ability to take the existing facilities out of service to perform the necessary work.  
9 Due to reliability concerns and because the transmission system in southern Rhode Island  
10 is already heavily loaded, our construction timeframes for this work will be limited to  
11 Spring and Fall windows, avoiding the high load levels which typically exist in the  
12 Summer and Winter.

13 Q. Does this complete your testimony?

14 A. Yes, it does.