

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

IN RE: ISSUANCE OF ADVISORY OPINION :
TO ENERGY FACILITY SITING BOARD :
REGARDING NARRAGANSETT ELECTRIC : DOCKET NO. 3564
COMPANY'S APPLICATION TO RELOCATE :
THE E-183 TRANSMISSION LINE BETWEEN :
PROVIDENCE AND EAST PROVIDENCE :

**ADVISORY OPINION TO THE ENERGY FACILITY SITING BOARD
PURSUANT TO NOTICE OF DESIGNATION ISSUED OCTOBER 28, 2003**

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I. Introduction

On April 9, 2003, the Narragansett Electric Company (“Narragansett” or “Company”) filed with the Energy Facility Siting Board (“EFSB”) an application for modification of the E-183 115 kV Transmission Line (the “E-183 line”). The E-183 line extends 16.2 miles between the Franklin Square Substation in Providence, Rhode Island and the Brayton Point Power Station in Somerset, Massachusetts. In its application to the EFSB, Narragansett proposed a relocation of 6200 feet of the E-183 line between the west bank of the Providence River, across India Point, to the east bank of the Seekonk River in East Providence. According to Narragansett, the relocation of the E-183 line between the east bank of the Providence River and the west bank of the Seekonk River is to accommodate the Rhode Island Department of Transportation’s (“RIDOT”) relocation of Interstate 195. According to Narragansett, the reconstruction of the E-183 line across the two rivers is necessitated by the age, condition and configuration of the transmission structures at the river crossings. Furthermore, Narragansett indicated that reconstructing the river crossings now will allow the Company to take advantage of the concept of economies of scale.

Narragansett had filed its application with the EFSB pursuant to EFSB Rule 1.6(f), which provides for an abbreviated application followed by a public hearing in one or more of the cities and towns affected by the proposal. After numerous public hearings held by the EFSB where parties called for a full proceeding on October 28, 2003, the EFSB approved a Stipulation and Consent Order entered into by all parties before the EFSB. The Stipulation called for a hybrid proceeding whereby the EFSB would entertain advisory opinions from various state agencies, including the Public Utilities Commission (“Commission”), with the participation of the Division of Public Utilities and Carriers (“Division”), the State Energy Office (“SEO”) and the Division of Planning.¹ However, rather than the customary six months, the parties agreed that the agencies would only have 45 days from the date of the EFSB Order to render an advisory opinion.

On October 28, 2003, the EFSB issued a Notice of Designation to the Public Utilities Commission to Render an Advisory Opinion on or before December 12, 2003. Accordingly, on November 5, 2003, after notice to all parties to the EFSB docket, Commission Legal Counsel conducted a pre-hearing conference. During that conference, it became clear that the Commission would be unable to render a thoughtful and meaningful recommendation and further, would not afford the parties adequate due process. Therefore, the Commission requested, and was granted by the EFSB, an extension until January 30, 2004 to render its Advisory Opinion.²

¹ The Division of Planning did not participate in the Commission proceeding, presumably because it was charged with rendering its own advisory opinion to the EFSB.

² EFSB Order No. 51A (issued November 14, 2003). The Commission notes, at the outset, that the Attorney General specifically signed on to the Stipulation and Consent Order that was approved by the EFSB. Furthermore, it was the Commission that requested the extension of time rather than forfeiting its right to render an advisory opinion to the EFSB. Therefore, it was the parties to the EFSB docket and not this Commission that set the tight time line in this case with which all participants before the Commission and the Commission itself had to live.

The charge to the Commission was “to render an advisory opinion to the EFSB as to alternatives (which shall include Narragansett’s Proposal) including routes and configuration, verification of the reasonableness of the costs of constructing any of the alternatives, and safety issues related to the alternatives...” as set forth in Narragansett’s filing to the EFSB.³

The Commission interpreted the EFSB’s charge to require responses to the following questions: Is there a need to relocate the lines (including those across the Providence and Seekonk rivers? If there is a need to move all or a portion of the line, what configuration and route should be used? What are the costs of constructing each alternative that is presented? Are the costs of constructing any of the alternatives reasonable? What are the safety issues related to each alternative presented? The safety issues can be broken down into three general areas: reliability, recreational safety and attractive nuisance.⁴

II. Narragansett’s Pre-Filed Testimony

On December 5, 2003, Narragansett submitted the pre-filed testimony of David J. Beron, P.E., Lead Senior Engineer in National Grid USA Service Company’s (“National Grid”) Transmission Line Engineering Department, David M. Campilii, P.E., Principal Engineer in National Grid’s Transmission and Distribution Services, specializing in underground cable engineering, and Edmund T. Parker, P.E., Chief Engineer for RIDOT in support of its application.

³ Notice of Designation to an Agency to Render an Advisory Opinion, 10/28/03. EFSB Order No. 51 (issued October 28, 2003), p. 3. In EFSB Order No. 51A, granting an extension to the agencies, the EFSB also clarified that the Commission was not to consider EMFs.

⁴ The Commission later expanded the docket to include the issue of Regionalized Cost Recovery.

Mr. Beron explained that the E-183 line originates at the Franklin Square Substation at Manchester Street Power Station, crosses the Providence River, proceeds adjacent to I-195 along the waterfront to India Point where it crosses the Seekonk River and extends up to the Veterans Memorial Parkway where the line continues approximately fifteen miles to Brayton Point Power Plant. He indicated that the portion of the line between the two rivers needs to be relocated due to the RIDOT project and that the river crossings should be reconstructed due to the age and condition of the equipment.⁵ He indicated that, while it would be possible to move only the portion of the project affected by the I-195 relocation, it is likely that the Seekonk River crossing will need to be reconstructed in the near future.⁶ According to Mr. Beron, the E-183 line needs to be relocated no later than November of 2005 to accommodate RIDOT's schedule.⁷

Mr. Beron noted that while Narragansett's preferred overhead method of realignment of the line is a minor change to the existing configuration, Narragansett has been able to redesign it in such a way that the number of support structures will be reduced from twelve lattice and monopole structures to seven monopoles. Furthermore, Narragansett proposes lowering the structures at the Seekonk River Crossing from 180 feet above grade to 110 feet above grade.⁸ He noted that two of the five structures that will be removed are currently located in Corliss Landing Park and India Point Park. Additionally, he opined that the fact that the transmission line and India Point Park have co-existed for years, the line having come first, and a new playground recently having

⁵ Narragansett Exhibit 1 (Pre-Filed Testimony of David J. Beron, P.E.), p. 3.

⁶ Id. at 8.

⁷ Id. at 9.

⁸ Id. at 4.

been constructed near the line, suggests the uses are consistent.⁹ Mr. Beron indicated that the Study Grade Estimate for the preferred overhead alternative is \$1.7 million with an expected accuracy of plus or minus 25%.¹⁰

Mr. Beron discussed the alternatives the Company examined while designing the relocation. He noted that the Company always evaluates a no-build alternative. In this case, the no-build alternative is not an option because if the lines are not moved, RIDOT cannot complete the I-195 relocation. Additionally, Narragansett reviewed several underground alternatives which, Mr. Beron noted, are discussed in Mr. Campilli's testimony. Finally, Mr. Beron indicated that there are no other feasible overhead alternatives other than the one Narragansett has proposed.¹¹

Addressing reliability of the proposed relocated line, Mr. Beron indicated that all work will comply with the National Electric Safety Code ("NESC") and other applicable codes and regulations. Addressing reliability, Mr. Beron indicated that Narragansett expects the new overhead segment of the E-183 line to be marginally more reliable than the existing segment. He noted that Narragansett's design exceeds the NESC specifications regarding the storm loading conditions for which transmission lines should be designed. Additionally, he noted that in order for a blackout to occur, the system needs to experience the loss of multiple components. Finally, he indicated that if an overhead transmission line experiences an outage, the typical repair time is 24 to 48 hours compared to 300 hours for an underground line.¹²

⁹ Id. at 5.

¹⁰ Id. at 7.

¹¹ Id. at 7-8. Mr. Beron indicated that although it may not be feasible to have only a small portion of the transmission line underground from an operations perspective, Narragansett would put the lines underground if there were a funding source to do so. Id. at 8.

¹² Id. at 11-12.

Turning to the recreational issue, Mr. Beron noted that as of the time of his pre-filed testimony, Narragansett had obtained the necessary U.S. Army Corps of Engineers permits addressing the Seekonk River crossing. Addressing a concern that people could climb the transmission towers, Mr. Beron maintained that it would be almost impossible for someone to shimmy up a davit-arm transmission tower with a four-foot diameter base and with the first climbing rung at twelve feet off of the ground. Finally, he noted that Narragansett complies with the NESC regulations regarding the posting of warning signs which include written and pictorial warnings.¹³

Next, Mr. Campilii testified regarding the four underground alternatives that Narragansett examined, namely, the Point Street Bridge Alignment, a Bridge Route using the new Washington River and Providence River Bridges (“Bridge Route”), Directional Drilling under the two rivers (“river crossing underground route”), and directly crossing from Manchester Street to Bold Point (“direct underwater route”). At the outset, he noted that each alternative would require the construction of two transition stations where the line transfers from overhead to underground technology. Additionally, in order to install underground transmission lines, Mr. Campilii believed that the design, permit and construction process would take 2 to 2½ years.¹⁴

Mr. Campilii quickly dismissed the Point Street Bridge Alignment because there is no place on the bridge from which to hang lines.¹⁵ Addressing the Bridge Route, Mr. Campilii indicated that there are significant schedule and design issues related to this alternative. First, the bridges were designed such that no allowance was made to hang

¹³ Id. at 12-14. Mr. Beron indicated that he was not aware of transmission systems experiencing outages from mylar balloons or kite flying.

¹⁴ Narragansett Exhibit 4 (Pre-Filed Testimony of David M. Campilii, P.E.), p. 3, 11-12.

¹⁵ Id. at 3.

utilities from it. Second, the E-183 line needs to be relocated by November 2005 and the new bridges will not be completed until the 2007/2008 timeframe. Furthermore, Narragansett would have to obtain land in the vicinity of the I-195/Taunton Avenue interchange in East Providence for a transition station and would have to rebuild the Phillipsdale Tap to increase the capacity of that overhead line in order to use the Washington Bridge.¹⁶ The study grade estimate for this alternative is \$8.7 million with a margin plus or minus 25%.¹⁷

Turning to the river crossing underground route, Mr. Campilii explained that Narragansett looked at a technique called horizontal directional drilling (“HDD”) to run the cables under the two rivers. On land, the transmission lines would be installed either within the street network or in easements on private property. This route, like the Providence/Washington Bridge Route, would necessitate the building of a transition station in East Providence, albeit right near the banks of the Seekonk river.¹⁸ The study grade estimate for this alternative is \$8.1 million for a High Pressure Fluid Filled (“HPFF”) installation and \$9.1 million for a solid dielectric installation. Each of the estimates has a margin of error plus or minus 25%.¹⁹ According to Mr. Campilii, this would be the most practical underground route.²⁰

Finally, addressing the direct underwater route, Mr. Campilii indicated that the water crossing length would be approximately 3,000 feet with a conduit length of 3,500 to 4,000 feet. According to Mr. Campilii, this is an impractical length to pull a solid dielectric cable and a marginal pull for a pipe type cable. Additionally, he maintained

¹⁶ Id. at 3-5.

¹⁷ Id. at 8.

¹⁸ Id. at 5.

¹⁹ Id. at 8.

that 3,000 feet is a difficult length for HDD. Finally, he indicated that this option would require Narragansett to cross the Fox Point Hurricane Barrier, a significant above and below grade obstacle. Therefore, this alternative was also dismissed.²¹

Turning to reliability of an underground line, Mr. Campilii noted that unlike overhead transmission lines, an outage is almost never temporary. He indicated that repair times for underground transmission lines are anywhere from two weeks to a month and that submarine cables can take even longer to repair. Additionally, he noted that it can be difficult to match the power rating of an overhead line with underground cables. He maintained that from an operational point of view, adding a small segment of underground line to an overhead line exposes the entire line to the disadvantages of both systems.²²

Addressing safety issues related to underground lines, Mr. Campilii noted that like overhead lines, Narragansett constructs an underground line in accordance with the NESC, which is designed to protect utility workers and the general public from the hazards of high voltage electricity. Additionally, Mr. Campilii indicated that with underground transmission lines, there is the possibility of electric shock or burns associated with a dig-in. Electrical failures in manholes can dislodge manhole covers. Finally, transition stations pose electrical hazards to anyone who may climb a fence.²³

²⁰ Id. at 8-9.

²¹ Id. at 5-6.

²² Id. at 6-7. According to Mr. Campilii, if only the portion of the line affected by the I-195 relocation is relocated and put underground and the river crossings were left as they are, it would be impractical. He noted that this option would require an overhead to underground (“OH/UG”) transition station on the east side of the Providence River and in India Point Park. Siting of the two transition stations would be a significant constraint in doing the relocation underground in this manner as Narragansett does not have land rights in either area. Id. at 9-10.

²³ Id. at 13.

Mr. Parker provided testimony in his capacity as Chief Engineer for RIDOT to stress the importance of a decision in this case. He stated that the I-195 relocation has an overall cost of approximately \$450 million. He indicated that the project has been broken down into several contracts and construction under some of those contracts is already underway. The commencement of construction under each contract is somewhat dependent upon the preceding one. Therefore, if one contract is delayed by some event such as a delay in moving the power lines, subsequent projects can be delayed. This is what happened to Boston's "Big Dig." Therefore, to avoid unnecessary delay, Mr. Parker indicated that the lines have to be moved by November 2005.²⁴

Addressing the relocation of the E-183 line, Mr. Parker noted that the Final Environmental Impact Statement regarding the I-195 relocation included consideration of the overhead configuration and two underground alternatives (the Point Street Bridge Alternative and the river crossing underground alternative). Mr. Parker indicated that the overhead configuration was chosen because there is no State or Federal regulation requiring the line to be underground and according to the Federal Highway Administration requirements, RIDOT can pay for "in kind" relocations of utility facilities, but cannot use federal funds for a "betterment," such as placing lines underground.²⁵ Additionally, Mr. Parker indicated that the bridges were specifically designed for aesthetic purposes and there is no place on them to which a line could be attached.²⁶

²⁴ Narragansett Exhibit 10 (Pre-Filed Testimony of Edmund T. Parker, P.E.), pp. 3, 8-9.

²⁵ However, RIDOT has indicated that if the lines are put underground, it will pay the cost that it would have paid to put the lines overhead and contribute an additional \$800,000 for a total contribution of \$2.5 million. Id. at 4-6.

²⁶ Id. at 6.

III. Attorney General's Pre-Filed Testimony

On December 5, 2003, the Attorney General submitted the joint pre-filed testimony of his consultants Peter J. Lanzalotta, Principal of Lanzalotta & Associates, LLC in Maryland and David A. Schlissel, Senior Consultant at Synapse Energy Economics, Inc. in Massachusetts. Mr. Lanzalotta holds an undergraduate degree in Electric Power Engineering and a Masters degree in Business Administration. Mr. Schlissel holds an undergraduate degree in Engineering, a Masters degree in Engineering and a Law Degree. Additionally, he studied nuclear engineering.²⁷

Messers. Lanzalotta and Schlissel concluded that the proposed overhead alternative will have greater long-term impacts than the underground alternative. Furthermore, they believed that Narragansett's estimates were "contrived to minimize the estimated cost of the overhead alternative while maximizing the estimated costs of the overhead [sic] [underground] alternatives." This belief was based on comparing the 1992 cost estimates to the 2002 cost estimates. According to Messers Lanzalotta and Schlissel, reviewing the Handy Whitman Index, they would expect the costs estimates to have risen approximately 23% between 1992 and 2002. However, they noted, while the cost estimates for the underground alternatives did rise close to 23%, the cost estimate for the overhead alternative did not rise to the expected \$2.68 million, but rather, decreased. Therefore, they questioned the validity of Narragansett's cost estimates.²⁸

Messers. Lanzalotta and Schlissel also maintained that the underground alternatives would have the benefits of higher reliability, reduced long-term impacts on the areas being traversed and increased safety which would justify the likely higher costs

²⁷ Attorney General Exhibit 1 (Pre-Filed Testimony of Peter J. Lanzalotta and David A. Schlissel), pp. 1-2.

²⁸ Id. at 3-7.

associated with constructing underground facilities.²⁹ They indicated that the long-term impacts associated with overhead lines include the visual impact of looking at the lines, something that would not exist if the lines are put underground. Additionally, overhead lines create problems with overhead clearance, a concern that would not exist if the lines are put underground. They also maintained that land development and recreational activities would be adversely impacted if the lines are put overhead rather than underground.³⁰

Addressing reliability, Messers. Lanzalotta and Schlissel indicated that when comparing the number of outages on overhead transmission lines to underground transmission lines, there is a higher percentage of outages on overhead lines. Furthermore, they noted that almost two-thirds of the outages were of zero duration and 27 out of the 83 sustained outages lasted less than 15 minutes. In other words, they were transient faults where the circuit opened and reclosed almost immediately or were outages driven by transient faults. These types of faults can be caused by things like lightning strikes. According to Messers. Lanzalotta and Schlissel, transient faults do not occur on underground transmission line components because the lines are “completely insulated from outside contact or factors, such as lightning, smoke, kite strings and the like.”³¹ Additionally, Messers. Lanzalotta and Schlissel indicated that because Narragansett has designed the underground options to include two separate conductors, unlike a single overhead transmission line where one fault takes out the entire circuit, it

²⁹ Id. at 4.

³⁰ Id. at 8-9.

³¹ Id. at 10-14.

would take two separate and concurrent faults, one on each conductor, to take out the entire line.³²

IV. Public Comment Hearing

On December 16, 2003, after publishing a public notice in the Providence Journal in a form that was amended to satisfy the Attorney General, a public hearing was conducted at the Commission's offices, 89 Jefferson Boulevard, Warwick, Rhode Island for the purpose of taking public comment. Twelve members of the public, including elected officials, testified against Narragansett's proposed E-183 overhead realignment.³³ No one spoke in favor of the overhead line.

V. Division/State Energy Office's Pre-Filed Testimony

On January 5, 2004, the Division, together with the SEO, submitted the pre-filed testimony of Gregory L. Booth, P.E., President of Booth & Associates, Inc. in North Carolina. Mr. Booth holds an undergraduate degree in Electrical Engineering and is a registered professional engineer in nine states. Mr. Booth has been involved in the planning, design and construction management of generation, transmission, substation and distribution line facilities. Booth & Associates, Inc. has a sister company involved in constructing transmission facilities and another involved in directional boring projects.³⁴

After reviewing Narragansett's filing and testimony, contrary to the conclusions of the Attorney General's witnesses, Mr. Booth determined that Narragansett has substantially underestimated the cost of the underground duct bank construction and the river construction costs. Mr. Booth indicated that he did not believe that Narragansett

³² *Id.* at 10.

³³ In addition, the Commission received several letters from Providence residents in support of the underground proposal. See the Public Comment folder in the Docket.

³⁴ Division Exhibit 1 (Pre-filed Testimony of Gregory L. Booth), pp. 1-4.

performed the underground cost estimates with sufficient detail to accurately encompass all of the costs and to adequately identify all of the risk involved.³⁵ Furthermore, Mr. Booth maintained that Narragansett had somewhat underestimated the cost of constructing the overhead transmission line.³⁶

Addressing the overhead route configuration and costs, Mr. Booth indicated that the proposed method is consistent with current standard electric utility transmission line construction practices and route selection methodology. However, in preparing a detailed independent construction cost estimate, Mr. Booth estimated the cost of construction at \$1,775,760 plus a fifteen percent contingency factor to increase the cost estimate to \$2,042,124. Mr. Booth indicated that he compared his estimates to historical cost estimates, to the most current pricing for labor and materials and to construction projects of similar types and sizes that have recently been designed. He maintained that his estimate is more accurate than Narragansett's due to the fact that the Company's estimates have a spread of fifty percent (plus or minus 25%). Finally, Mr. Booth indicated that in his experience, the level of unknowns in an underground project almost always increase the costs of the project. Therefore, in his opinion, there is much less risk in the construction methodology and costs estimates for an overhead transmission line than for an underground duct bank transmission facility.³⁷

³⁵ Id. at 8.

³⁶ Id. at 9.

³⁷ Id. at 10-14. Mr. Booth also believes that it is prudent for Narragansett to replace the two river crossings with modern facilities during this relocation because the current standards impose substantially greater strength requirements on transmission line construction than prior standards. Considering the size of the construction project and the relatively small cost associated with replacement of the two crossings, even absent studies to indicate there would be an economic benefit, to the extent that the overhead line construction is approved, it would be prudent to change the overhead lines over the rivers at this time so that the entire line segment will meet the most current edition of NESC requirements. Id. at 34-35.

In developing his independent cost estimate of Narragansett's proposed underground river crossing route, Mr. Booth noted that he utilized a different design which he believed to be more appropriate. He indicated that it appeared Narragansett had approached the design as if this were to be a distribution project as opposed to a transmission project and therefore, did not include sufficient manholes to allow for reasonable construction access. Additionally, Mr. Booth recommended the use of the more expensive solid dielectric cable rather than HPFF technology because he believes the solid dielectric technology is safer for an underwater environment. His total cost estimate for the entire underground river crossings route was \$20,702,145.³⁸

Addressing safety, Mr. Booth disagreed that the overhead transmission line poses an additional safety hazard to the public. He indicated that it is more likely that the public will come into contact with underground facilities not readily visible to the eye than with overhead facilities that are visible.³⁹

Addressing reliability of the proposed overhead versus underground configurations, Mr. Booth stated that he did not fully agree with the assessments of either Narragansett's or the Attorney General's witnesses. He maintained that the Attorney General's witnesses confuse the reliability issues of distribution facilities with those of transmission facilities, for which there is a significant difference in the operation, maintenance and performance of each. He also indicated that he did not completely agree with Narragansett's position that adding a small segment of underground lines to the overhead configuration would expose the entire line to the disadvantages of both systems. He stated that "putting underground facilities in a major feeder...can result in a

³⁸ Id. at 16-20.

³⁹ Id. at 25.

reduction in the overall reliability of the facilities due to the insertion of additional equipment subject to failure....[but] if properly designed and installed, the underground transmission line facilities should perform at a comparable level of reliability to the overhead transmission line facilities.”⁴⁰

Turning to specific reliability concerns raised by the Attorney General’s witnesses, Mr. Booth stated that he did not believe that statistical support exists to show that there are increased outages to overhead transmission lines as compared to underground transmission lines as a result of weather related incidents. He noted that given the specific NESC design requirements associated with transmission systems, he did “not believe the Attorney General’s witnesses’ statements to be factual or supportable.”⁴¹ Furthermore, he stated that “it is a known fact that the elimination of lightning induced power surges and lightning damage to overhead or underground systems is impossible.” He maintained, contrary to the Attorney General’s witnesses’ statements, that the applications of lightning arresters does not eliminate 100% of damage to underground transmission lines, but only mitigates the damage.⁴²

Addressing the duration of outages, Mr. Booth indicated that a failure in an underground transmission system or in an overall hybrid system would result in a more extended outage than would exist on an overhead transmission system. However, he did not agree with Narragansett’s estimate that the minimum repair time for an underground transmission line is a minimum of 300 hours. Mr. Booth estimated that because of the urgency associated with transmission facilities, most repairs are typically handled within one week. This is still in excess of the half-day to day restoration time for an overhead

⁴⁰ Id. at 27.

⁴¹ Id. at 27-28.

restoration time, absent a catastrophic failure.⁴³ However, he concluded that “there is no real appreciable and measurable distinction in the reliability between an underground project and the overhead project.”⁴⁴

VI. Filings on Cost Allocation/Regionalized Cost Recovery

On January 20, 2004, the parties submitted filings to address whether the incremental costs associated with undergrounding the lines will be regionalized, meaning that Rhode Island ratepayers would pay approximately 6% of those costs. The submissions responded to six questions put forth by the Commission on January 15, 2004, following the January 14, 2004 evidentiary hearing where the Commission determined it wished to address the issue. Narragansett submitted “Responses to January 15, 2004 Questions from the Public Utilities Commission and Comments regarding customer bill impacts,” authored by Peter Zschokke, Vice President, State Government Policy, US Transmission, National Grid USA.⁴⁵ The Attorney General submitted “Testimony of David A. Schlissel and Paul R. Peterson.” Mr. Peterson is a Senior Associate at Synapse Energy Economics, Inc. in Massachusetts. Prior to working for Synapse, Mr. Peterson was employed by ISO-NE.⁴⁶ The Division submitted a letter from its legal counsel, Mr. Leo Wold, Special Assistant Attorney General.⁴⁷

⁴² Id. at 30.

⁴³ Id. Mr. Booth indicated that a catastrophic failure of overhead facilities that would require complete replacement of a structure would be upwards of a week whereas a catastrophic failure on an underground system could take up to two weeks to repair. He noted that this is far in excess of the half-day to day restoration on an overhead line. Id. at 30-31.

⁴⁴ Id. at 37.

⁴⁵ Narragansett Exhibit 22 (Comments of Peter Zschokke).

⁴⁶ Attorney General Exhibit 10 (Pre-Filed Testimony of Messers. Schlissel and Peterson).

⁴⁷ The letter from Mr. Wold was not put into evidence, as it was considered to be a document containing legal analysis and conclusion which the Commission recognizes in the same way it would a Motion or Brief.

In response to the questions addressing the rules regarding cost recovery of relocating transmission lines (socialization across the region, or not), whether or not the costs for undergrounding can be socialized across the region if it is for reasons other than engineering, and the likelihood of success on an application for regionalization, each party referred to the FERC Order approving a series of amendments to the NEPOOL transmission tariff (“100th Amendment” or “TCA Amendments”).⁴⁸ Part of the 100th Amendment, is Schedule 12C, which sets forth four standards that ISO-NE will use in determining whether or not the costs associated with a transmission project are localized costs, which should not be allowed regional rate recovery.⁴⁹ Both Narragansett’s and the Attorney General’s witnesses explained that the TCA Amendments were developed to provide a methodology by which to allocate the costs of upgrades which will provide regional benefits over the life of the facilities across the region. The TCA Amendments also create a process by which ISO-NE will determine whether a project contains costs that should be borne by local beneficiaries, rather than the entire region.⁵⁰

Both Narragansett’s and the Attorney General’s witnesses agreed that costs of undergrounding will not automatically be socialized.⁵¹ They noted that in reviewing a project for purposes of determining whether the costs should be regionalized or not, ISO-NE will look at the reasonableness of the proposed design and construction method with respect to four factors. The factors are (1) Good Utility Practice, (2) the current engineering design and construction practices in the area in which the Transmission

⁴⁸ FERC Order on Complaint and the Proposed Amendments to the NEPOOL Tariff and the Restated NEPOOL Agreement, 105 FERC ¶ 61,300, issued December 18, 2003 (“Transmission Cost Allocation Order”).

⁴⁹ One Hundredth Agreement Amending New England Power Pool Agreement (Transmission Cost Allocation Agreement), Schedule 12C.

⁵⁰ Narragansett Exhibit 22, pp. 1-3, AG Exhibit 10, pp. 2-5.

⁵¹ Narragansett Exhibit 22, pp. 2-3, AG Exhibit 10, pp. 6-7.

Upgrade⁵² is built, (3) alternate feasible and practical Transmission Upgrades, and (4) the relative costs, operation, timing of implementation, efficiency and reliability of the proposed Transmission Upgrades. The types of construction that will be considered local costs are those such as “gold plating or the construction of transmission lines underground when such construction is not justified.”⁵³

Mr. Zschokke indicated that the costs associated with replacing existing facilities with similar facilities that will not provide additional reliability or economic improvements would not necessitate a review of cost recovery allocation unless the construction changed the nature of the facilities, such as moving existing overhead lines underground. However, he stated that “[t]he concern regarding costs to underground facilities that may have a feasible overhead alternative is that the immediate local beneficiary remains the only beneficiary over the life of the unit. Undergrounding facilities in and of itself does not provide any incremental benefit to the regional flow of power.”⁵⁴ Furthermore, he noted that “the question of whether the costs of a specific undergrounding project would be allocated regionally or locally has not been tested.”⁵⁵ Therefore, because no entity has requested recovery of costs of undergrounding transmission facilities under Schedule 12C, Narragansett did not provide an opinion on the likelihood of ISO-NE finding that the incremental costs associated with undergrounding the E-183 line would be eligible for Regional Cost Recovery.⁵⁶

⁵² Transmission Upgrade is defined as an upgrade, modification or addition to the PTF that becomes subject to the terms and conditions of this Tariff governing rates and service on the PTF on or after January 1, 2004. The categorization and cost allocation of Transmission Upgrades shall be as provided for in Schedule 12 of this Tariff.

⁵³ Narragansett Exhibit 22, pp. 2-3, AG Exhibit 10, pp. 3, 6-7.

⁵⁴ Narragansett Exhibit 22, pp. 1-3.

⁵⁵ *Id.* at 2.

⁵⁶ *Id.* at 3.

The Attorney General, however, maintained that the relocation and rebuilding of the E-183 line will not be a Local Benefit Upgrade.⁵⁷ The witnesses noted that the line is rated at 115kV and is considered a Pool Transmission Facility (“PTF”), providing regional transmission benefits. They further indicated that although not on the Regional Transmission Expansion Plan (“RTEP”) lists for 2002 and 2003, this project has been planned since before December 20, 2002.⁵⁸ Additionally, they maintained that the relocation and rebuilding of the E-183 line is necessary to ensure the continued reliability of the NEPOOL system. They pointed to the contribution of RIDOT and the City of Providence to the project along with the potential cost of easements across India Point Park as favoring undergrounding. Finally, they indicated that other similar projects have been included by ISO-NE on the RTEPs. For each of the projects the witnesses pointed to as similar to the E-183 relocation, ISO-NE will, in the future, determine whether or not any incremental costs associated with undergrounding will be regionalized.⁵⁹

Contrary to the Attorney General’s witnesses, the Division stated that after reviewing the Schedule12C criteria in the context of the E-183 line, “it is the opinion of the Division that ISO-NE would probably determine that the costs associated with placing part or all of the proposed 115kV underground are localized costs not recoverable on a regional basis.”⁶⁰

In response to the question of how the RIDOT’s stated deadline of January 30, 2004 for a decision of where, when and how this line will be relocated could affect costs,

⁵⁷ AG Exhibit 10, p. 6.

⁵⁸ AG Exhibit 10, pp. 5-6. In the Transmission Allocation Order, FERC stated, “...the same rate treatment would apply to those upgrades ‘already planned or under construction as of the date of this order, such as the transmission upgrades in ISO-NE’s 2002 Transmission Expansion Plan.’ The Commission is accepting ISO-NE and NEPOOL’s proposal and thus, the issue of whether the SWCT and RTEP02 upgrades should be rolled in is not applicable.” Transmission Allocation Order, ¶ 37, n. 34.

⁵⁹ AG Exhibit 10, pp. 6-9.

Mr. Zschokke opined that it would take two to two and one half years to design, license, obtain material and construct the underground option. Therefore, due to the RIDOT schedule, if a temporary relocation were required during that time, it would increase the underground cost an additional \$1.4 to \$2.5 million.⁶¹ The Attorney General's witnesses indicated that if the relocation causes a threat of delay to RIDOT such that a temporary relocation needs to occur, the \$1.7 million will not be available to cover a later overhead relocation and the \$800,000 contribution toward undergrounding may likely not be there anymore, leaving a grant of only \$375,000 toward undergrounding.⁶² The Division did not speculate on the effect of RIDOT's schedule on the project or its costs.⁶³

Commenting on whether or not it is in the best interest of ratepayers to take the risk that costs of undergrounding will or will not be considered to be eligible for Regional Rate Recovery, Mr. Zschokke noted that the lowest cost alternative and lowest risk to ratepayers is the overhead option. He believed that the Commission should assess whether incurring additional costs to underground the E-183 line is good policy regardless of whether ISO-NE requires these costs to be recovered regionally or locally. He reminded the Commission that a decision from ISO-NE regarding cost recovery will not be made until long after the Commission's advisory opinion is due to the EFSB.⁶⁴ The Attorney General's witnesses maintained that it would be in the best interests of Rhode Island ratepayers to take the risk that costs of undergrounding will be socialized because the benefits of undergrounding and the likelihood that the incremental costs of

⁶⁰ Letter from Mr. Wold to Luly Massaro, Commission Clerk, January 15, 2004.

⁶¹ Narragansett Exhibit 22, pp. 3-4. Mr. Zschokke reduced his original estimate of "\$2.5 to \$3.1 million" to \$1.4 to \$2.5 million" at the January 22, 2004 hearing.

⁶² AG Exhibit 22, p. 9.

⁶³ Letter from Mr. Wold to Luly Massaro, Commission Clerk, January 22, 2004.

⁶⁴ Narragansett Exhibit 22, p. 4.

undergrounding will be socialized justify the risk.⁶⁵ The Division indicated that in forming its advisory opinion, it would be prudent for the Commission to assume that Rhode Island ratepayers would pay the incremental costs associated with undergrounding.⁶⁶

Addressing the question of the potential risk of the Commission's position before FERC, opposing regionalization of transmission upgrades, if it makes its decision based on the possibility that costs will be socialized, only the Attorney General's witnesses provided an opinion. The other two parties contended that it was up to the Commission to undertake its own litigation risk analysis. The Attorney General's witnesses maintained that the Commission would have no risk before FERC if it chooses to recognize the potential for cost regionalization when making its decision because, *assuming* the incremental cost of undergrounding will be regionalized, the Commission would be denying the State the benefits associated with undergrounding and Regional Cost Recovery.⁶⁷

VII. Evidentiary Hearings

On January 13, 14 and 22, 2004, after due notice, a public hearing was conducted at the Commission's offices, 89 Jefferson Boulevard, Warwick, Rhode Island for the purpose of considering the evidence. The following appearances were entered:

FOR NARRAGANSETT:

Peter V. Lacouture, Esq.
Terry L. Schwennesen, Esq.

FOR ATTORNEY GENERAL

Paul J. Roberti, Esq.
Assistant Attorney General
Terrence Tierney, Esq.
Special Assistant Attorney General

⁶⁵ AG Exhibit 10, p. 9.

⁶⁶ Letter from Mr. Wold to Luly Massaro, Commission Clerk, January 22, 2004.

⁶⁷ AG Exhibit 10, pp. 9-10.

FOR PROVIDENCE: Adrienne Southgate, Esq.
Assistant City Solicitor

FOR EAST PROVIDENCE: Mark Russo, Esq.

FOR DIVISION: Leo Wold
Special Assistant Attorney General

FOR COMMISSION: Cynthia G. Wilson, Esq.
Senior Legal Counsel

A. January 13 – 14, 2004 Hearings

Narragansett presented Messers. Beron, Campilli and Parker in support of its position. The Attorney General presented Messers. Schlissel and Lanzalotta in support of his position. The Division presented Mr. Booth in support of its position and the Cities presented no witnesses at the hearing.

1. Mr. Beron and EDC

On direct examination, Mr. Beron revised his cost estimates for the overhead alternative, by updating his costs and reducing the margin for error from plus or minus 25% to plus or minus 10%. The revised estimate is \$2 million, with a range from \$1.8 million to \$2.2 million.⁶⁸ Addressing the Attorney General’s witnesses’ criticism that the 2002 estimates were not what they expected when compared to the 1992 estimates, Mr. Beron stated that he would expect the 1992 estimate to be less accurate because it was done with “very conceptual information and very preliminary design information.”⁶⁹

On cross-examination, Mr. Beron conceded that Narragansett does not currently have authority from the Army Corps of Engineers to lower the line across the Seekonk

⁶⁸ Tr. 1/13/04, pp. 28-30.

⁶⁹ Id. at 30-31.

River to 70 feet (as would be accomplished by lowering the towers to 110 feet).⁷⁰

On cross-examination, Mr. Beron noted that Narragansett does not have all of the easements it will need for the overhead configuration, but maintained that the Company did not wait until a “late date” because the design of the project has only recently been finalized by RIDOT. Furthermore, he noted that some of the relocation will remain within existing easements and some of the easements will be provided by RIDOT. In total, Mr. Beron indicated that on the 6200 foot line, Narragansett will need approximately 400 to 500 feet of new easement. However, he conceded that he was not aware of any studies done to determine the cost of those easements.⁷⁶ He also conceded that underground easements can be narrower than overhead easements, but still with construction/development restrictions.⁷⁷ He further indicated that to his knowledge, the Company has not met with the City of East Providence to discuss the impact of the proposed easements on the City of East Providence’s waterfront development project.⁷⁸ However, he also indicated that if the line is put under ground and a transition station is required in East Providence, it would be placed “in the lowlands down near the waterfront.”⁷⁹

Addressing the recreational safety issues of kite-flying and mylar balloon flying that were raised by the Attorney General, Mr. Beron indicated on cross-examination that he did not see mylar balloons as presenting any safety risk. With regard to kite flying, he conceded that there is a remote risk of electrocution under very specific conditions.⁸⁰

⁷⁶ Id. at 68-75, 79.

⁷⁷ Id. at 152.

⁷⁸ Id. at 147-48.

⁷⁹ Id. at 157.

⁸⁰ Id. at 96-102.

However, he indicated that to his knowledge, no one has ever been electrocuted on the E-183 line due to kite flying.⁸¹

Addressing outages on an overhead system, Mr. Beron indicated that momentary outages are short interruptions where the transmission line opens and recloses and remains energized so that the service on the line is only interrupted for a few cycles or moments. A typical example is when a tree branch brushes a line. He clarified that end-users typically do not lose power when these momentary outages occur.⁸²

Additionally, the Commission did listen to additional public comment at this hearing, including that of Mr. Andrew Dzykewicz from the Rhode Island Economic Development Corporation (“EDC”). He provided the Commission with a memorandum outlining his verbal comment. He indicated that EDC supports undergrounding based on several fundamental premises: (1) the solution should not delay the I-195 relocation project, (2) the State of Rhode Island should not pay more than has already been committed by RIDOT, (3) all beneficiaries of the project should contribute some funds in proportion to the benefits they receive, (i.e., Rhode Island ratepayers would bear a small portion of the cost through socialization of the costs across the region, the City of Providence would bear a greater portion of the cost and the City of East Providence would bear the greatest portion of the cost), and (4) National Grid has the right to recover all costs associated with the project.

EDC’s position is that the costs of the E-183 relocation can be substantially reduced by using the bridge route. EDC believed that the relocation costs would be less than the underwater river crossings. Therefore, while EDC recognized the design and

⁸¹ Id. at 159-60.

⁸² Id. at 165-168.

timing challenges, it believed they could be overcome and save the State of Rhode Island money. Mr. Dzykewicz indicated it is important to seek regionalized cost recovery. If the costs are not eligible for socialization, then it was EDC's position that a portion of the costs not covered should be shared by the Cities of Providence and East Providence through tax incremental financing. However, in order to validate its proposal, Mr. Dzykewicz told the Commission it is important to answer the following questions quickly and accurately: (1) what are the real costs for the overhead, underground/submarine and underground/bridge-crossing alternatives? (2) Has the Route 195 relocation schedule already been impacted such that a temporary relocation is already necessary? (3) Is a bridge crossing technically feasible?⁸³ *Additionally, Mr. Dzykewicz testified that if it were found that a fundamental premise within the proposal is violated, EDC would no longer support the proposal.*⁸⁴

Turning back to Mr. Beron's cross examination, the Division inquired about Mr. Dzykewicz's comments as well as earlier comments by Narragansett regarding temporary relocation. Mr. Beron explained that a temporary relocation would involve relocating the lines directly along the waterfront in Providence using wooden poles with a guy and anchor system. Narragansett would have to obtain easements for this type of relocation.⁸⁵

2. Mr. Campilli

Mr. Campilli revised his underground estimates for the river crossings underground route to be more accurate than plus or minus 25%. The current estimate for

⁸³ Tr. 1/13/04, pp. 105-138. Mr. Dzykewicz indicated that he had not reviewed the Pre-Filed Testimony or Discovery Responses in the Commission's docket prior to providing EDC's position. He stated that he had had conversations with Mr. Lacouture, Mr. Fred Mason (Narragansett), Mr. Michael Ryan (Narragansett), Mr. Roberti, Mr. Russo and Ms. Southgate, but with no one from the Division. *Id.* at 114-117.

⁸⁴ *Id.* at 116.

⁸⁵ *Id.* at 160-63.

the pipe-type cable is \$9.4 million and the current estimate for the solid dielectric cable is \$11.4 million. The range of these estimates is plus 20% minus 10%. He indicated that the higher level of uncertainty for underground estimates than for the overhead estimates because the underground transmission options are not as developed as the overhead option in terms of detailed engineering. Furthermore, he explained that the river crossings add an increased risk to the underground alternatives that is absent in the overhead configuration.⁸⁶ On direct examination, Mr. Campilii outlined the differences between his and Mr. Booth's design. He testified that either approach is valid.⁸⁷ In fact, after reviewing Mr. Booth's design, Mr. Campilii indicated that "[g]iven the fact that we're at a relatively low level of design on the overall cable system..." he added an extra manhole in order to shorten the length of pulls. However, as that more manholes are included, more splices are necessary and there are cost ramifications associated with that kind of design.⁸⁸ Finally, Mr. Campilii testified that in order to tighten the uncertainty of the estimates, Narragansett asked Haley and Aldrich, a geotechnical firm, which has assisted RIDOT with the I-195 relocation and Narragansett Bay Commission with its Combined Sewer Overflow project, to provide soil boring information for the bay. Their conclusion was a base estimate of approximately \$1.7 million plus a 30% contingency for just crossing the Providence and Seekonk Rivers with a pipe-type cable. The base estimate for the same path for the solid dielectric crossings is \$3.2 million plus a 30% contingency.⁸⁹ Mr. Campilii testified that the maintenance costs on an annual basis for an

⁸⁶ Id. at 197-99.

⁸⁷ Id. at 211.

⁸⁸ Id. at 213.

⁸⁹ Id. at 216-28.

overhead line are \$3,000 versus \$7,000 per year for a solid dielectric line and \$18,000 per year for the pipe-type cable.⁹⁰

Responding, on direct examination, to Mr. Dzykewicz's proposal that the Commission consider the bridge route, Mr. Campilii indicated that during discussions with RIDOT, it became clear that there would be scheduling issues that would need to be overcome. Furthermore, the contract for one of the bridges has been awarded and the design of the bridge does not accommodate hanging lines from it. Moreover, the hurricane barrier poses a construction challenge. Additionally, getting up to the bridge elevation and down from the bridge elevation poses challenges due to the severity of the bend in the line. Finally, the Phillipsdale Tap would have to be reconstructed to accommodate a higher load than it currently serves.⁹¹

Mr. Campilii noted that the portion of the E-183 line under consideration represents approximately 5% of the total E-183 line and regardless of whether it is moved under ground approximately 95% of the line will experience the same external exposures that currently exist.⁹² However, on cross examination, Mr. Campilii conceded that if a temporary relocation were to occur, the bridge route may become feasible.⁹³

Also on direct examination addressing the issue of easements, Mr. Campilii noted that if the line is put under ground, Narragansett will need to obtain easements and purchase land in order to construct a transition station in East Providence. He noted that Narragansett put the line from Manchester Street Station to Johnston under ground because it was too expensive to obtain a right of way and easements through that part of

⁹⁰ Id. at 203-04, referring to Narragansett's Response to Attorney General Data Request 1-36.

⁹¹ Id. at 230-34.

⁹² Id. at 243.

⁹³ Id. at 271,

the City of Providence. However, Mr. Campilii also stated, “we would have had to identify a suitable corridor through some sort of process of purchase or condemnation, clear about a 250-foot swath of residences, businesses, [and] other facilities in the area.” Narragansett had determined it was not practical.⁹⁴ He maintained on cross examination that, in a case like this, where RIDOT is triggering the relocation and creating the land rights, Narragansett would not necessarily factor those costs into the overhead estimate.⁹⁵

3. Mr. Booth

On January 14, 2004, the Commission reconvened and the Division presented Mr. Booth. On direct examination, Mr. Booth reviewed Mr. Campilii’s river crossing underwater route design and maintained that his was more reliable than Mr. Campilii’s.⁹⁶ However, he indicated that in order to provide a better comparison between the two designs and to account for the additional information contained in the Haley and Aldrich Report, Mr. Booth created a new estimate for the river crossings underground route at an upper limit of \$17,630,603. Despite his revisions, he noted that his design is still not exactly the same as Narragansett’s. However, his new estimate, when adjusted to match Narragansett’s design, has an upper range of \$15,657,703. He noted that when compared to Narragansett’s upper range of \$14,212,500, the two estimates are within 9% of each other.⁹⁷ However, on cross examination, he noted that he disagreed with Mr. Campilii’s use of the costs of an underground distribution duct bank as the basis for the duct bank construction estimates in the underground transmission alternatives.⁹⁸

⁹⁴ Id. at 245-47.

⁹⁵ Id. at 266.

⁹⁶ Tr. 1/14/04, p. 13.

⁹⁷ Id. at 17-19.

⁹⁸ Id. at 25.

On cross examination, Mr. Booth maintained that prior to filing his testimony, he had no conversations with the Administrator of the Division. When asked whether the Division had told him in advance that it was opposed to undergrounding, Mr. Booth responded, “I was asked to do a completely independent evaluation. I indicated to the Commission [sic] [Division], as I always have up here, all the opinions are going to be mine, not the opinions of anyone else. Regardless of what the parties believe, I’m giving my direct opinion based on the fact I was engaged recognizing this is an advisory role.”⁹⁹

In response to the question of whether it is incongruous for the ratepayer advocate to be taking the position that the Company’s cost estimate should be greater than that represented by the Company, Mr. Booth indicated that his role is to provide accurate estimates to the Commission in order to appropriately balance the needs of the Company and the ratepayers.¹⁰⁰ Furthermore, he stated, “obviously it would be bad for the Commission or anybody to rely on an old or low estimate that the project then turned out to cost, you know, substantially more, even twice as much, and that’s what winds up in the rate base. I mean, you want to have an estimate that’s as close or accurate or precise [as possible].”¹⁰¹

On cross examination, Mr. Booth agreed that relocating the line underground is technically feasible and if designed correctly, will not compromise reliability.¹⁰² He maintained that in the past five years, he has been involved in a least 100 projects involving solid dielectric technology.¹⁰³

⁹⁹ Id. at 21-22.

¹⁰⁰ Id. at 22-23.

¹⁰¹ Id. at 114.

¹⁰² Id. at 23-24.

¹⁰³ Id. at 36.

Addressing weather related effects on transmission lines, Mr. Booth acknowledged that a 2003 hurricane caused transmission poles and conductors to collapse in North Carolina, but noted that he is only aware that it occurred on the Outer Banks (islands in North Carolina), several thousands of feet of which washed away during the hurricane. Furthermore, attempts at constructing lines under the ground on the Outer Banks have proven unsuccessful.¹⁰⁴

Addressing safety issues, Mr. Booth conceded on cross examination that dig-ins on underground transmission lines are less likely than on distribution lines due to the fact that transmission lines are in a steel pipe or in a concrete encased duct bank. However, he maintained that they do still happen.¹⁰⁵ He also conceded that it is not recommended to fly kites under any power lines, but maintained that the risk of electrocution would be no more than has existed for the last ninety years.¹⁰⁶ He also agreed that airplanes could come into contact with overhead transmission lines, but noted that if a plane crashes into the ground it could hit an underground line.¹⁰⁷ Addressing the situation where a mylar balloon could come into contact with a transmission line, Mr. Booth indicated that either nothing would happen, as when a bird lands on a wire, or it would cause the line to open and reclose as the balloon floats away. He stated:

[m]y testimony would be if you had a phase-to-phase arc from mylar balloons or anything else and people were under the transmission lines, that the people under the transmission lines would be fine. I've been in a 230 volt station with significant arc that would occur due to errors on the part of individuals, I'd be standing right there, and it was a known [sic] event other than it was, certainly was frightful; but, no, I don't think there would be any hazard presented to the

¹⁰⁴ Id. at 39, 111.

¹⁰⁵ Id. at 41.

¹⁰⁶ Id. at 50-51.

¹⁰⁷ Id. at 53.

people on the ground of a line 60, 70, 80, or a hundred feet in the air from a phase-to-phase event.”¹⁰⁸

Responding to a similar question regarding kite-flying and parasailing, Mr. Booth indicated that he has never known anyone who has contacted a transmission line with a kite and furthermore, has never been involved in a personal injury accident involving parasailing or kite-flying.¹⁰⁹ He did not waiver from his contention that manhole covers present a risk to the public because they provide public access to electric facilities.¹¹⁰ He indicated that most of his clients have at least one or more transmission lines that pass through or over parks, including those in urban areas.¹¹¹ With regard to the possibility that the Seekonk River crossing may remain at its current height, Mr. Booth maintained that it is technically feasible to still utilize monopole technology to support the wires.¹¹²

Mr. Booth conceded that overhead lines cause more of a visual impact than manhole covers, but contended that, based on his years of experience and anecdotal evidence from other cases overhead lines tend to “disappear” from view after approximately six months because people just do not notice them. Mr. Booth maintained that if the existing overhead lines were a concern to the public before the proposed relocation was made public, there would have been public outcry before then.¹¹³ However, Mr. Booth conceded that he had not reviewed the City of East Providence’s Water District Plan to determine what the impact would be on the City’s plans.¹¹⁴ In response to the question of why undergrounding appears to be so desirable, Mr. Booth stated that it is aesthetics. He stated that after all of the discussion regarding the pros and

¹⁰⁸ Id. at 54.

¹⁰⁹ Id. at 57-58.

¹¹⁰ Id. at 50.

¹¹¹ Id. at 58.

¹¹² Id. at 86.

cons of overhead and underground for reliability, at the end of the day, the issue is visual.¹¹⁵

In response to the Attorney General's request that Mr. Booth speculate on the difference between his cost estimate for the river crossings underground route and the bridge route, Mr. Booth guessed that it may be \$1 million lower.¹¹⁶ With regard to the feasibility of the bridge route, Mr. Booth indicated that he did not provide an independent estimate because of the scheduling issue, not because it would not be possible to undertake.¹¹⁷ He further testified that it would not necessarily be more expensive to retrofit a bridge than to have a bridge originally designed to handle lines hanging from it.¹¹⁸

4. Messers. Lanzalotta and Schlissel

On direct examination, critiquing Mr. Booth's underground cost estimate, Mr. Lanzalotta indicated that Mr. Booth's design for the river crossings underground route exceeds the requirements ISO-NE would impose on an underground cable that takes up "such a small part" of the total E-183 circuit.¹¹⁹ On cross examination, Mr. Lanzalotta testified that he believes Mr. Booth's estimates to be "on the high side; but between listening to the company and Mr. Booth, I have an understanding of what those differences are arising from."¹²⁰

With regard to Narragansett's cost estimates, neither witness could remember who had come up with the characterization that "[t]he company's cost estimate for the

¹¹³ Id. at 64-67.

¹¹⁴ Id. at 90.

¹¹⁵ Id. at 124.

¹¹⁶ Id. at 77-80.

¹¹⁷ Id. at 100.

¹¹⁸ Id. at 102.

¹¹⁹ Id. at 157-58.

alternative seem to be contrived to minimize the estimated cost of the overhead alternative while maximizing the estimated cost of the overhead line.”¹²¹ However, both witnesses agreed that they did not use it to imply that Narragansett invented or fabricated its estimates, nor did they mean that Narragansett planned with evil intent or to scheme. Rather, they believed the word “contrived” was synonymous with the word “presented.”¹²² Both witnesses conceded that while they looked at the 1992 and 2002 estimates in detail, they did not conduct an independent analysis of the unit costs contained in each estimate, but continued to maintain that they should be able to take the 1992 study grade estimates, apply formulas contained in the Handy Whitman Index and come up with what the 2002 estimates should be.¹²³

Addressing the statement in their pre-filed testimony that Narragansett did not provide economic studies to support relocating the river crossings at this time, Mr. Schlissel testified that they did not look at the technical feasibility or economic implications of relocating only the portion of the E-183 line between the two rivers and putting that portion underground.¹²⁴ He conceded that the Company needs to make its determination not just on cost, but on engineering considerations as well.¹²⁵

During cross examination, a review of Mr. Lanzalotta’s work history indicated that he has never designed nor operated a transmission system for a utility.¹²⁶ Mr.

¹²⁰ Id. at 225.

¹²¹ Id. at 222-23.

¹²² Id. at 224-25.

¹²³ Id. at 227-35.

¹²⁴ Id. at 242-45.

¹²⁵ Id. at 247-48.

¹²⁶ Id. at 181-203. Furthermore, when he did design a transmission system for a client in an Illinois siting case, the Illinois Commerce Commission rejected Mr. Lanzalotta’s design, finding that his proposal was “not feasible, reliable, or least cost and consequently cannot be adopted.” Furthermore, the Illinois Commission indicated that “[t]he evidence demonstrated that Mr. Lanzalotta [sic] made numerous

Schlissel testified that he is not an electrical engineer and has no formal training in visual impact assessment.¹²⁷ Mr. Schlissel agreed that if someone is on India Street looking down the bay after the I-195 relocation, that person will see the highway in addition to transmission lines, if they are finally ordered to be constructed overhead.¹²⁸ With regard to the economic effects of the visual impact of overhead lines, Mr. Lanzalotta stated that he does not know if there would be more restaurants and businesses in the Fox Point area if the lines were not overhead.¹²⁹ Furthermore, Mr. Schlissel testified that they had not performed any surveys or seen any evidence to suggest whether or not the existence of the existing E-183 overhead line has hindered the development of businesses in the Fox Point area of Providence.¹³⁰

On cross examination, Mr. Lanzalotta stated that he had visited the sites in East Providence proposed to be impacted by the relocation and saw several abandoned buildings. However, when presented with the map depicting the relocation site, Mr. Lanzalotta could not show the Commission where the abandoned buildings were.¹³¹ Both witnesses indicated that they were familiar with transition stations and agreed that one would need to be built in East Providence if the line is constructed underground. However, they did not include their considerations of the impact of the transition stations on the City of East Providence in their pre-filed testimony because they did not consider

engineering and planning errors and omissions in designing FOPP's schemes." *Id.* at 217-20, Narragansett Exhibit 17, p. 22, Narragansett Exhibit 18, p. 15.

¹²⁷ *Id.* at 205.

¹²⁸ *Id.* at 251.

¹²⁹ *Id.* at 260-61.

¹³⁰ *Id.* at 261-62.

¹³¹ *Id.* at 168-71.

it to be a major impact on the community, noting that there are substations in many communities.¹³²

5. Mr. Parker

On direct examination, Mr. Parker explained that there are several reasons RIDOT did not choose the bridge route. Currently, the scheduling is a problem. However, he indicated that the Providence River Bridge was designed to be the signature bridge as part of the I-195 relocation. Furthermore, he testified that there are additional maintenance issues with bridges that have lines attached to them.¹³³

He stated that RIDOT “went through very extensive proactive public involvement in coming up with a design of that bridge, the details of the design were done by DOT, but the concept was picked by a Committee of Providence. So aesthetics was one of the main things we looked at for that bridge. Right now we have awarded the contract of construction of that bridge and it does not include any details for the connection to that bridge.”¹³⁴

Speaking directly to Mr. Dzykewicz’s comments on behalf of EDC, Mr. Parker indicated that there is not enough substance to the bridge route to be able to “dig your teeth into.”¹³⁵

On cross examination, Mr. Parker indicated that no investigation has occurred as to whether the lines could be attached to the bridges. Furthermore, Mr. Parker stated that he had just recently learned how heavy the lines would be and would need to determine whether the structural integrity of the bridge could be maintained with lines attached. However, Mr. Parker noted that if there is a commitment by January 30, 2004 that the

¹³² Id. at 235-39.

¹³³ Id. at 310-13.

¹³⁴ Id. at 311.

¹³⁵ Id. at 313.

lines will be temporarily relocated, RIDOT can look into the technical feasibility of the bridge route.¹³⁶

On cross examination, Mr. Parker stated that RIDOT will pay to temporarily relocate the lines. However, he also stated that RIDOT only pays to relocate the lines one time as part of the highway project. Therefore, he indicated that if the lines are temporarily relocated, they are no longer a part of the highway project and no costs associated with the permanent relocation will be borne by RIDOT. He went so far as stating that is possible the State would lose the \$800,000 grant towards undergrounding.¹³⁷

On cross examination, Mr. Parker explained that RIDOT has determined that it needs a decision regarding the E-183 line relocation no later than January 30, 2004 in order to ensure that there will be no delay in the schedule of the I-195 relocation.¹³⁸ On redirect examination, Mr. Parker indicated that the January 30, 2004 deadline represents RIDOT's "best estimate on how long it will take the utility to design, permit, acquire rights-of-way, order the materials, and actually do the construction for the underground utilities." Even that, he maintained would be a very ambitious schedule. He believed that RIDOT is in an awkward position because in order to progress with the I-195 relocation, the lines need to be moved and RIDOT needs that decision to protect its schedule. However, if the decision is made to put the lines overhead, he agreed that RIDOT's schedule concerns are alleviated.¹³⁹

¹³⁶ Id. at 315, 319.

¹³⁷ Id. at 319, 322-28

¹³⁸ Id. at 327-28. The Commission notes that the Advisory Opinions are not even due to be filed with the EFSB until January 30, 2004. The EFSB's process will recommence at that time.

¹³⁹ Id. at 330-31.

B. January 22, 2004 Hearing

When the Commission reconvened, the Attorney General presented Captains Austin Becker and Stephen Brown to discuss their concerns regarding the proposal to reduce the height of the overhead lines that cross the Seekonk River.¹⁴⁰

Narragansett presented Mr. Campilii for further cross examination. On cross examination, Mr. Campilii maintained that it is reasonable to use the costs associated with a distribution duct line when developing the cost estimates for a transmission duct line.¹⁴¹ Mr. Campilii also clarified that Narragansett does not prefer the HPFF technology for the underground alternatives, but believes that both HPFF and solid dielectric technology would be acceptable.¹⁴² Mr. Campilii indicated that there are several ways for a leak to occur in the pipe-type technology, such as dig-ins, corrosion, and through electrical faults.¹⁴³

With regard to the revised bridge route estimates, Mr. Campilii indicated that a portion of the increase from \$8.7 million to \$11.6 million is due to the added costs that would be associated with a temporary relocation of the transmission line. However, he maintained that there really is no design for the bridge route and the estimates are very preliminary.¹⁴⁴ With regard to the scheduling issues associated with the bridge route, Mr. Campilii maintained that his two to two and one half year estimate from design to completion contains overlap where Narragansett projects beginning phases of construction prior to finalized design.¹⁴⁵

¹⁴⁰ Tr. 1/22/04, pp. 18-56.

¹⁴¹ Id. at 66.

¹⁴² Id. at 70.

¹⁴³ Id. at 72.

¹⁴⁴ Id. at 81-85.

¹⁴⁵ Id. at 88-90.

The Attorney General presented Messers. Peterson and Schlissel to discuss the cost allocation issues. On cross examination, Mr. Peterson indicated that there is no guarantee that the costs of undergrounding the new transmission line in Connecticut, which were addressed by the Connecticut Siting Council in July 2003 would be regionalized.¹⁴⁶ However, with regard to the relocation of the E-183 line, Mr. Schlissel testified that he believed there is more than a 50 percent chance that incremental costs associated with undergrounding the line would be regionalized. Mr. Peterson further clarified that even the costs associated with an overhead relocation of the line would need to be reviewed by ISO-NE to determine if there are any “gold plating” features in that design and construction.¹⁴⁷ Additionally, Mr. Peterson indicated that while he believes the costs associated with undergrounding the E-183 line would be regionalized, his opinion is “all somewhat conjecture...”¹⁴⁸ However, Mr. Peterson testified, “I have never heard aesthetics argued as a reason for supporting regionalization.”¹⁴⁹

Mr. Peterson later testified that there are risks that the costs of undergrounding may not be socialized. However, he suggested that the Commission should not make its determination solely on the basis of cost allocation because if the Commission does not take the risk, then Rhode Island ratepayers will not have the opportunity to reap any benefits that may come if ISO-NE were to decide, after the underground construction is completed, that those costs are eligible for regional cost recovery.¹⁵⁰ However, Mr. Peterson also testified that “the ISO is stating that they are not prepared to act until state

¹⁴⁶ Id. at 106-07, 202.

¹⁴⁷ Id. at 112-13.

¹⁴⁸ Id. at 115. Mr. Peterson conceded that he had not read any of the pre-filed testimony or hearing transcripts from this proceeding other than that of the Attorney General’s witnesses prior to providing his opinions. Id. at 183-84.

¹⁴⁹ Id. at 154.

¹⁵⁰ Id. at 123-24.

agencies have acted...not only do they not want to prejudge, they are unable to apply their cost allocation formula...until after you've had state action.”¹⁵¹

Narragansett presented Mr. Zschokke to discuss cost allocation. Mr. Zschokke testified that it is important to make the distinction that the undergrounding issue in the E-183 relocation is not for purposes of increased reliability to the system, but rather, for the betterment of an area.¹⁵² He opined that ISO-NE will really be taking on the role of a regulator, deciding what costs are reasonable and he stated that “regulators cannot write blank checks.” He explained that that is why ISO will not pre-judge projects.¹⁵³

VIII. Commission Analysis

After recessing from the January 22, 2004 hearing, the Commission deliberated during a previously noticed open meeting and verbally rendered its recommendation. As indicated in the Introduction, the Commission will consider and analyze the following issues: need for the E-183 relocation, configuration of the E-183 relocation, safety of each alternative (reliability, recreational safety and attractive nuisance), cost of each alternative (verification, reasonableness and allocation). While this Advisory Opinion does not have the force and effect of an Order and is not considered a final order which may be appealed to the Supreme Court, the Commission’s analysis will nonetheless advise the EFSB of what evidence the Commission found most persuasive in providing its opinion. To do anything less would be to simply rehash the facts without providing

¹⁵¹ Id. at 186-87.

¹⁵² Id. at 213.

¹⁵³ Id. at 213-14.

any direction to the EFSB in order for it to determine the appropriate weight this opinion should be given in the remainder of the EFSB proceeding.¹⁵⁴

The Commission notes at the outset that this was a contentious case in a very compressed time frame that kept the parties busy during their holidays. However, despite the tension in this case, counsel to the parties and their witnesses maintained an orderly demeanor in the hearing room despite longer-than-normal hearings that continued for each day past 5:00 p.m. and totaled more than 23 hours, allowing for the process to be completed within the time frame allowed in the most efficient way possible while still affording each party, including the public, the opportunity to be heard. The Commission sincerely appreciates the cooperation of everyone involved in this proceeding.

A. Need

It is clear from the record and undisputed that the portion of the E-183 line extending from the east bank of the Providence River to the west bank of the Seekonk River must be relocated in order to accommodate the I-195 relocation. There was some question as to whether or not there is a need to reconstruct the river crossings at the same time. The Attorney General's position seems to be that if the line is to be relocated underground, the river crossings should be included but if the line is to be relocated overhead, then maybe the river crossings should not be rebuilt at this time. Both Narragansett's witnesses and the Division's witness maintained that it would be prudent to reconstruct the facilities extending across the rivers at the same time as the relocation

¹⁵⁴ The Commission is following its past practice as evidenced in Commission Order No. 14449 (issued April 19, 1994). Furthermore, the Commission notes that no party objected to the manner in which the questions were initially framed. Each calls for an analysis of the issues and not simply a regurgitation of what each person said. Such an exercise would be a waste of this Commission's time and resources as well as those of the Division which hired an expert solely as a result of this case to provide the Commission with an independent analysis.

of the facilities between the rivers. Narragansett's witnesses maintained that it would be prudent to take advantages of the theory of "economies of scale" as the river crossings will need to be reconstructed in the future. The Division's witness noted that although no economic study was undertaken to support the theory that rebuilding the river crossings now would take advantage of the economies of scale, there are other reasons to rebuild them now. For example, it would enhance reliability and safety if the entire segment of line, from the Franklin Square Station to the intersection with the Phillipsdale Tap, meets the most current NESC standards.

The Commission notes that the facilities across the Seekonk River are nearing the end of their useful life and even the conduit across the Providence River is showing signs of deterioration. The Attorney General's positions appears inconsistent. Either it is necessary to include reconstruction of the river crossings in this project or it is not. It should not matter whether the lines will be put underground or overhead. The Commission finds the consistency between Narragansett's witnesses and the Division's witness to be persuasive. Therefore, putting aside issues of cost and safety, the Commission finds that there is a need to relocate the E-183 line from the Franklin Square Station to the east bank of the Seekonk River up to the intersection with the Phillipsdale Tap Line in East Providence. The line cannot simply be removed because it is needed for reliability of electric service.

B. Routes and Configurations - Feasibility

1. Overhead Route

There are four “build” alternatives contained in Narragansett’s filing.¹⁵⁵ The first is the overhead route. The evidence has shown that this alternative is technically feasible and will provide at least the same level of service as the existing overhead line. This alternative removes twelve transmission towers of varying design and will replace them with seven transmission towers of the monopole davit arm design. Narragansett can reduce the number of towers because it is possible with newer technology to put greater tension on the conduit (the wire). This alternative would reduce the number of towers that are currently in India Point Park. According to Narragansett’s witness, the Company would need to acquire easements for 400-500 linear feet of the 6200 foot path. The witness maintained that the remainder of the relocation, using the overhead configuration, will either occur within existing easements or within the RIDOT project land. The design is finalized but for a final determination as to how low the wires across the Seekonk River may be constructed.¹⁵⁶ The Commission finds this to be a reasonable route and configuration that will provide transmission service of at least the quality currently being provided to the region.

2. River Crossings Underground Route

The second alternative is the river crossings underground route which would underground the line from Franklin Square (which would require modifications in order

¹⁵⁵ The “no-build” alternative is not feasible given the Commission’s finding that relocation of the E-183 line is needed. The only “no-build” that may have been considered was the river crossings, but the Commission is satisfied that it is prudent to rebuild those facilities in conjunction with this relocation.

¹⁵⁶ After the Army Corps of Engineers had issued a permit to Narragansett to lower the lines, the Attorney General’s office held a meeting with the Corps at the Attorney General’s office and the permit was rescinded.

to accept the underground line), under the Providence River under the city streets, through India Point Park and under the Seekonk River, ending through a transition station right near the water on the East Providence bank of the Seekonk River at Bold Point. This alternative appears to be the most technically feasible given constraints on the other two underground alternatives to be presented later. However, there is no actual design for this alternative, only a conceptual one.

Narragansett put forth a design in its witness' pre-filed testimony, the Division's witness proposed an alternative design that he believed was prudent along the same route, and Narragansett's witness made changes to his design, but not to be completely consistent with the Division's witness' design. The Attorney General's witnesses did not propose a design or support one party's design over the other's. This alternative has design, feasibility and timing concerns associated with it.

Furthermore, it appears from the Attorney General's witnesses, that the City of East Providence may not even understand where the line is proposed to be buried and as a result, it appears from Mr. Lanzalotta's testimony, that the City of East Providence officials did not even show the Attorney General's witnesses the right area to evaluate when they toured the East Providence side of the river. Therefore, the Commission is not persuaded by the Attorney General's witnesses comments regarding the benefits of this line on the City of East Providence.¹⁵⁷ Nor is the Commission convinced that the City of East Providence's arguments regarding this alternative should be considered.

¹⁵⁷ It appears that the Attorney General's witnesses were shown the river banks along the Phillipsdale Tap, which follows the Seekonk River toward Pawtucket. This is not the area that will be impacted by this project unless the Bridge Crossing were considered feasible. Even then, there is no evidence the Phillipsdale Tap would have been buried.

There is uncertainty surrounding this alternative, which would involve horizontal directional drilling under the two rivers. According to Narragansett's witness, it would take approximately two to two and one half years to complete underground construction, including design, licenses, permits and land acquisition for the transition station, whereas the line needs to be relocated in less than two years in order to accommodate RIDOT's schedule. The Commission is concerned with the outstanding questions regarding the design and the time constraints associated with this alternative.

3. Direct Underwater Route

The third alternative is the direct underwater route which would underground the line from Franklin Square Substation southeast and make an easterly turn under the Providence River across to a transition station near the water at Bold Point. The technical feasibility of this route is the most questionable. It would require underwater horizontal directional drilling for approximately 3,000 feet which is a very long pull of the cables. According to Narragansett's witness, it is an impractical length for a solid dielectric cable and a marginal pull for a pipe type cable. Furthermore, the evidence showed that as the length of an underwater drill increases, so does the risk associated with the drill. Additionally, crossing the Fox Point Hurricane Barrier poses another obstacle to this alternative. The Division's witness did not refute Narragansett's contentions regarding this alternative. Nor did the Attorney General's witnesses comment specifically on this alternative. As the record contains very little information on this alternative specifically, the Commission cannot recommend the EFSB find this to be a feasible route.

4. Bridge Route

The fourth route is the Bridge Route which would use underground technology in an above-ground configuration. This route would use the proposed Providence River Bridge to cross the Providence River and the New Washington Bridge to cross the Seekonk River and would underground the remainder. Again, it would be necessary to build a transition station in East Providence. Additionally, there are several ninety degree angles and the necessity of securing the line from the ground up onto the bridges that pose a challenge to the design. The evidence shows that, as with the River Crossings Underground Route, there is no actual design for this alternative, only a conceptual one.

The two most discussed obstacles to this alternative are time and design. There is no dispute that the bridges were not designed to support transmission lines hanging from them. Additionally, the line needs to be moved approximately two years prior to completion of the new bridges. Even if the bridges could be retrofitted to support the lines, this alternative would require a temporary relocation of the lines. Furthermore, Narragansett would have to rebuild the Phillipsdale Tap Line which extends from the E-183 line to where the Washington Bridge is located in order to accommodate the load currently being served by the E-183 line. Therefore, the Commission is very concerned with the numerous outstanding questions regarding the design and the time constraints associated with this alternative.

C. Safety - Reliability

In addressing the reliability associated with the alternatives, rather than assessing the reliability of each alternative, the parties focused on the difference between generic alternatives of underground versus overhead lines. In assessing reliability of transmission

lines, the Commission is looking at the frequency of outages versus the repair time associated with those outages.

The Attorney General's witnesses focused on the frequency of outages, ignoring the time to repair issue. They argued that the Commission should compare the number of transient outages on Narragansett's overhead transmission system in Rhode Island, including those that are less than fifteen minutes in nature to the number of outages on Narragansett's underground transmission system in Rhode Island. Because the number of faults on the overhead system exceeds those on the underground system, the Attorney General argued that the Commission should find that underground lines are inherently more reliable.

Narragansett's witnesses and the Division's witness, however, each contend that overhead transmission lines are not necessarily less reliable than underground transmission lines. Both concede that there are more transient outages on overhead lines, but that when underground transmission lines have a fault, it is rarely for a short period of time as it is more likely a larger problem than the circuit opening and closing on its own, something that will not necessarily cause a loss of power to end users. They both maintain that it is more difficult and takes more time to repair underground lines than it does the overhead lines. Narragansett's witness estimated an underground line will take at least 300 hours to repair, and the Division's witness estimated an underground transmission line takes approximately one week to repair. In comparison, Narragansett and the Division indicated that it takes 12 to 48 hours to repair an overhead line. Finally, the evidence shows that the proposed overhead configuration will be at least as reliable, if not more, than the current configuration.

Addressing weather, the Commission finds the testimony of the Division's witness to be more credible than that of the Attorney General's witnesses regarding lightning. The Attorney General's witnesses maintained that underground lines are completely protected from the effects of lightning strikes due to lightning arrestors. Mr. Booth, on the other hand, maintained that while overhead lines experience more lightning strikes than underground lines thereby causing more transient faults, underground lines are not completely protected from the effects of lightning. In fact, if an underground cable is affected by lightning, the damage is more extensive than to an overhead line, causing the insulators in the underground cable to deteriorate faster. Finally, no witness provided any testimony to indicate that weather has ever caused a sustained outage on this portion of the E-183 line.

In assessing public safety relative to outages on this segment of the transmission line, the Commission needs to balance public safety in terms of the number of transient outages against duration of outages. The Commission notes that undergrounding this small portion of the E-183 line would still leave approximately 93% of the E-183 line above ground. Additionally, whereas there may be transient faults on overhead lines more often than underground lines, the evidence shows that faults on underground lines are rarely temporary, and could take between one and two weeks to repair. Given the extended time to repair underground lines when compared to overhead lines, especially on a line that is mostly overhead, the Commission does not find that overall, putting this small portion of the overhead line underground would make the E-183 line more reliable than it is now.

D. Safety - Recreational and Attractive Nuisance

In addressing recreational safety and attractive nuisance, the Commission may not rely on speculation and argument, but must rely on the evidence presented in the record. What the record shows is a lack of evidence of injury on this portion of the E-183 line from kite-flying, mylar balloon use and transmission pole climbing. In fact, every submission by the Attorney General during discovery appears to relate almost solely to injuries from distribution lines which are lower to the ground than the relocated transmission line will be if reconstructed overhead. Furthermore, there was no evidence in the record that a transmission line relocated overhead through India Point Park, within forty feet of the current line, will pose any additional recreational safety concerns to users of the park. While the engineers conceded that there is a possibility of electrocution from a kite or mylar balloon string, they maintained that the string of the balloon or kite would have to be over seventy feet long and wet in order to pose any threat.

The base of the transmission poles would be four feet in diameter with the bottom step rung being twelve feet off of the ground. The Commission agrees with the witness from Narragansett that it would be impossible to climb the pole from the bottom and further finds that the only way for someone to climb a transmission pole would be to intentionally go there with a ladder or something tall and intentionally trespass on Narragansett's property. It is difficult to see how these poles could constitute an attractive nuisance, which is defined as a dangerous condition that may attract children onto land, thereby causing risk to their safety. Teenagers and college aged students are not normally covered by the doctrine of attractive nuisance. The transmission facilities will have written and pictorial warnings posted on them in accordance with the NESC.

Neither the Commission nor the Company can protect people from their own irresponsibility.

The only recreational safety issue that gives the Commission pause is that raised by Captain Becker, former captain of the Sloop Providence, a sailing vessel with a mast reaching 96 feet in the air. Mr. Becker was concerned that sailing vessels such as his would be precluded from traversing the 1000 feet of river between the transmission line and the bridge. However, the Commission also notes that Narragansett has indicated that it will work with Captain Becker and other interested entities, such as the Army Corps of Engineers to address this issue, including potentially keeping the lines at approximately the same height they currently stand. The EFSB will have the opportunity to follow the progression of these conversations.

There was also discussion of the potential for electrocution from climbing the fence into a transition facility, being injured in or around manholes and covers, and digging into the underground lines from above. However, again, there was no evidence presented to support the contentions.

After considering the record in this proceeding, the Commission finds that none of the alternatives pose more or less of a recreational safety risk to the public, as long as the height of the Seekonk River crossing is addressed.

E. Reasonableness of Cost

Contrary to the Attorney General's argument that the Commission has no real cost of the overhead alternative but does have a real cost for the underground alternatives, the Commission finds that the only reliable cost estimate before it is that for the proposed overhead alternative. The Commission notes at the outset that none of the cost estimates,

overhead or underground, include costs associated with easements associated with any of the alternatives, land use permits/licenses, land acquisition for transition stations (underground only), and Allowance for Funds Used During Construction (“AFUDC”).

1. Overhead Route

Narragansett’s witness estimates the cost of relocating the line overhead at between \$1.8 million and \$2.2 million before subtracting the contribution from RIDOT. The Division’s witness produced an independent cost estimate of the overhead alternative at \$1,775,760, with a fifteen percent contingency. The Attorney General’s witnesses did not produce any cost estimate, independent or not. Rather, the Attorney General’s witnesses questioned Narragansett’s updated cost estimates based on the fact that the current estimate is not as high as they would have expected when the number is adjusted by formulas contained in the Handy Whitman Index. However, the Commission finds Mr. Beron’s testimony that the 1992 study grade estimate is based on a conceptual understanding of the project and the current estimate is based on updated numbers and design to be reasonable.

The Commission finds that despite the arguments by the Attorney General and the City of East Providence, no evidence was presented regarding the potential cost for obtaining easements and Mr. Beron testified that Narragansett only needs approximately 400 to 500 feet in order to relocate the line. He maintained that the remainder of the line would either remain within Narragansett’s existing easement or would be obtained by and through RIDOT.¹⁵⁸

¹⁵⁸ The Commission notes that there are remedies within the Commission’s and Division’s statutory authority if the Cities attempt to impose unreasonable restrictions or refuse to grant the required easements to Narragansett. See R.I.G.L. §§ 39-1-30, 39-1-31, 39-17-7. The Commission assumes that either the

Given the consistency of the Division's independent estimate with Narragansett's cost estimate, the Commission believes the overhead cost estimates to be reliable and verifiable. Furthermore, the Commission finds that, after applying RIDOT's contribution (assuming \$1.4 million) to each cost estimate, the total cost of the overhead route to ratepayers is between \$375,760 and \$600,000.

2. River Crossings Underground Route

While there are cost estimates for the river crossings underground route from Narragansett's and the Division's witnesses, the witnesses did not agree on the most appropriate design. Furthermore, the Attorney General's witnesses again did not provide any independent cost analysis, but rather, maintained that the Handy Whitman Index indicates that Narragansett's current estimates may be what was expected.

Regardless of the disagreement on design, after live testimony was presented, Narragansett's and the Division's witnesses revised their estimates resulting in a differential of 9% in their respective estimates for the river crossings underground route using solid dielectric technology. Narragansett's estimate was \$11,370,000, with a contingency of plus 25% or minus 10% and the Division's base estimate was \$12,427,638, which rose to \$15,657,703 when all contingencies were added. The Division did not provide a cost estimate for HPFF because Mr. Booth deemed it too risky a technology for the environment. Narragansett's cost estimate for HPFF technology was \$9,415,000, with a contingency of plus 20% or minus 10%.

Without commenting on which design would be preferable, the Commission notes that the net cost, after subtracting the RIDOT contributions and the City of Providence

federal government or the State has provided RIDOT with any necessary authority it needs to avoid delays in the highway project as a result of local issues.

contributions, of the HPFF technology is approximately \$6.5 million and the solid dielectric technology is in the range of approximately \$8.5 million (Narragansett) to \$9.6 million (Division). However, given the questions of design, technology and time constraints as indicated previously, the Commission is not comfortable with the reliability of these estimates. For example, in the event a temporary relocation is required, RIDOT's witness indicated that RIDOT only pays to relocate the line once and then it is no longer part of the highway project. In fact, even the \$800,000 contribution toward an underground relocation may not be available once the lines are temporarily relocated overhead.

Finally, in response to the Attorney General's contention that it is incongruous for the ratepayer advocate to put forth an estimate that is higher than that of the Company, the Commission notes that it would be even more incongruous for the ratepayer advocate to artificially deflate the costs of an alternative. The Commission and the EFSB need to have reliable estimates in order to properly evaluate alternatives and protect Rhode Island's ratepayers. Unfortunately, this alternative leaves too many questions unanswered.

3. Direct Underwater Route

With regard to the direct underwater route, assuming the technical challenges associated with the long HDD and cable pull could be overcome, Narragansett provided a study grade estimate of \$8.4 million with a contingency plus/minus 25%. Neither the Division nor the Attorney General provided cost estimates. There is not sufficient evidence in the record for the Commission to deem this a reliable estimate.

4. Bridge Route

With regard to the bridge route, assuming the technical challenges associated with redesigning the bridges could be addressed, Narragansett had originally provided a study grade estimate of \$8.7 million, with a contingency plus or minus 25%. However, regardless of the design issues, the relocation of the line needs to occur prior to the construction of the bridges being completed. Therefore, during the proceedings, Narragansett revised its estimate to \$11.6 million to account for the increased costs associated with transition stations, temporary relocation of the line, removal of the relocated line and operation and maintenance costs. Because of the temporary relocation of the lines, the only guaranteed grant to reduce the project costs would be \$375,000 from the City of Providence. Given the preliminary design and the time constraints, the Commission is not convinced that this estimate is reliable and verifiable.

F. Cost Allocation

During the course of the first two days of evidentiary hearings, when looking at the cost of each alternative, the Commission was faced with arguments from the Attorney General and public comment from Mr. Dzykewicz from the Rhode Island Economic Development Corporation that the underground alternative may be more cost effective because it would be eligible for cost regionalization. The Commission held a separate hearing to address this issue in order to determine how much each alternative, assuming the cost estimates are reliable, would cost the Rhode Island ratepayers.

The one thing that became abundantly clear to the Commission through this exercise was that there is **absolutely no guarantee** that the incremental costs associated with undergrounding the portion of the E-183 line currently at issue will be spread across

the region. A determination of whether a project is eligible for regional cost recovery occurs after siting boards make their decisions. This is because ISO-NE refuses to predetermine whether or not certain costs will be regionalized in order to avoid prejudging the determinations of siting boards.¹⁵⁹ In fact, ISO-NE has already indicated that it has not determined whether incremental costs associated with undergrounding portions of the new transmission line in southwestern Connecticut will be regionalized.¹⁶⁰ In other words, ISO-NE wants the siting boards to make their decisions based on an assumption that its local ratepayers will be paying the entire cost. This is exactly what the Division advised the Commission to do when analyzing the reasonableness of the cost of each alternative.¹⁶¹

After reviewing FERC's Transmission Allocation Order, ISO-NE's Filing Letter accompanying the TCA Amendments and Schedules 12B and 12C, and evaluating the testimony, the Commission, like the Division, is of the opinion that in this case, it is more probable that incremental costs associated with undergrounding the portion of the E-183 line at issue would not be regionalized. In fact, the Commission believes that, unless the opinions of the Departments of Health, Environmental Management and Statewide Planning persuade the EFSB that there are reasons other than aesthetics for this portion of the line to be put underground, ISO-NE would find that these are Localized Costs, to be

¹⁵⁹ Transmission Allocation Order, ¶ 13.

¹⁶⁰ *Id.* at ¶ 13.

¹⁶¹ This position is consistent with the position the Commission has taken before FERC. The Commission recognizes that FERC has approved the TCA Amendments, but has requested a re-hearing. The Commission's concern is that Rhode Island will be liable for multi-million dollar upgrades in transmission constrained areas of New England whereas Rhode Island does not have the same problems. Furthermore, Rhode Island's SOS rates have increased as a direct result of the locational marginal pricing ("LMP") rules, despite the fact that there is sufficient generation in Rhode Island to service the state and now, Rhode Island's ratepayers are also going to have to pay for the same kinds of upgrades that LMP was supposed to encourage. The Commission hopes that ISO-NE takes a hard look at the reasons for which any project is undergrounded and holds state siting boards to a high standard of review when making a determination of

borne by Rhode Island rather than spread across the region. Such costs include “incremental costs of ‘gold plating’ or the construction of transmission lines underground when such construction is not justified.”¹⁶²

The reason aesthetics should not be the justification of undergrounding when there is no evidence that undergrounding is necessary for continued reliability of the line is that the only beneficiaries are those living or working directly in the area of the line, in this case, downtown Providence and East Providence. The Commission notes that in response to the Connecticut Attorney General’s argument that once the local siting board determines that a particular method of constructing facilities is based on reasonableness of costs, ISO should not be able to “second guess” the local boards and substitute its own judgment regarding reasonableness of project costs. FERC found it reasonable for the ISO to determine local costs, stating, “This provision does not second guess the decisions of local siting authorities. Rather, it determines whether certain costs should be included in the transmission rate charged to all customers within the region or only to customers within a portion of the region.”¹⁶³ In other words, local siting boards are free to make any determination regarding the siting of the Transmission facilities, including whether they are necessary and whether they should be overhead or underground. However, that determination does not guarantee cost recovery from the region. ISO-NE will still make an independent determination regarding the cost recovery.¹⁶⁴

whether the incremental costs associated with undergrounding are eligible for Regional Cost Recovery or constitute Local Benefit Upgrades.

¹⁶² Transmission Allocation Order, ¶ 2, n.3, quoting ISO-NE Transmittal Letter and Amendments to the NEPOOL Tariff and the Restated NEPOOL Agreement to implement comprehensive provisions for transmission cost allocation for New England, p. 10.

¹⁶³ Transmission Allocation Order, ¶¶ 40-41.

¹⁶⁴ Id.

The Attorney General would have the Commission believe that a property owner may create the obstacle to feasibility by refusing to grant an easement with reasonable terms.¹⁶⁵ In doing so, the Attorney General referred to projects in other states and to the Manchester Street Station/Johnston 345kV transmission line that runs underground. What the Attorney General has failed to acknowledge is that, at least with the Manchester Street Station/Johnston line, there was no open space/direct line from point A to point B. Mr. Campilii testified that Narragansett would have had to condemn buildings where people lived and worked in order to put the line overhead. Not only is this an expensive prospect, but it made the overhead option technically infeasible when compared to the underground option.

In this case, there are no homes or businesses in the way of the E-183 relocation path. The Commission has already determined that the overhead alternative is technically feasible, less expensive than undergrounding, as reliable as the current system, can be performed within RIDOT's schedule and, unlike undergrounding, will not further increase costs by requiring a temporary relocation of the line.¹⁶⁶ Finally, this line is not being upgraded to increase the reliability to the system, but rather, is being relocated and brought up to the current NESC standards because of RIDOT's relocation of I-195. Therefore, there is no basis for undergrounding or spreading the costs across the region but for the argument of aesthetics.

¹⁶⁵ Again, the Commission believes there are safeguards against purely local concerns impeding a statewide and/or regional benefit.

¹⁶⁶ See One Hundredth Agreement Amending New England Power Pool Agreement (Transmission Cost Allocation Agreement), Schedule 12C, p. 2. Page 2 of the Schedule sets forth the four standards for determining the reasonableness of the proposed design and construction method. Specifically, the ISO will consider the reasonableness of the proposed design and construction method with respect to (1) Good Utility Practice, (2) the **current engineering design** and construction practices in the area in which the Transmission Upgrade is built, (3) **alternate feasible and practical** Transmission Upgrades and (4) **the**

Finally, the Commission finds the Attorney General’s argument that it is likely the costs will be regionalized to be inherently flawed. The argument is that it would be in the best interest of ratepayers to gamble with ratepayer funds on a premise that any incremental costs of undergrounding this project will be regionalized because ISO-NE will be assessing other “similar” transmission projects at the same time it would be reviewing this one. First, the evidence did not show how this project is sufficiently similar to the other projects to guarantee like treatment. Second, and even more important, the evidence showed that ISO-NE could just as easily decide that some or all of those “similar” projects could be denied regional rate recovery. Therefore, the Attorney General truly is arguing that it is in the best interest of ratepayers to gamble with their money in much the same way one would put their money down on a roulette wheel and hope that “red 5” comes up. That is something this Commission is unwilling to risk.

IX. Conclusion

In conclusion, we turn back to EDC’s fundamental premises supporting the bridge route: (1) the solution should not delay the I-195 relocation project, (2) the State of Rhode Island should not pay more than has already been committed by RIDOT, (3) all beneficiaries of the project should contribute some funds in proportion to the benefits they receive, (i.e., Rhode Island ratepayers would bear a small portion of the cost through socialization of the costs across the region, the City of Providence would bear a greater portion of the cost and the City of East Providence would bear the greatest portion of the cost), and (4) National Grid has the right to recover all costs associated with the project.

relative costs, operation, timing of implementation, efficiency and reliability of the proposed Transmission Upgrades. (emphasis added).

We remember that Mr. Dzykewicz testified that if it were found that a fundamental premise within the proposal is violated, EDC would no longer support the proposal.¹⁶⁷ In the Commission's opinion, several of EDC's fundamental principles have been violated.

Mr. Dzykewicz was seeking quick and accurate answers to three questions.¹⁶⁸ Here is what we believe the evidence showed:

- (1) What are the real costs for the overhead, underground/submarine and underground/bridge-crossing alternatives?

Commission's Response: At the outset, the Commission notes that it was undisputed that there is *no guarantee* that the incremental costs associated with putting the lines underground will be regionalized. Therefore, everyone needs to assume the costs will be covered by Rhode Island when making this decision. Second, there were no studies, even by the Attorney General's witnesses, to prove that undergrounding the lines will promote economic development in an area that already has homes, businesses, a park and a highway that will still be there, despite where the lines go.

Because there is a finalized design in place and the Division's independent analysis was consistent with Narragansett's, the Commission is comfortable that the costs for the overhead alternative is between \$1.775 million and \$2.2 million, plus the cost of obtaining 400-500 feet of easement. Due to the importance and cost of keeping the highway project on schedule, the Commission is not convinced obtaining such a small easement will significantly raise the cost of this alternative in the manner argued by the Attorney General. The Commission notes that despite the fact the Attorney General raised the argument, the portion of the line across India Point Park requiring the easement

¹⁶⁷ *Id.* at 116.

¹⁶⁸ Tr. 1/13/04, pp. 105-138.

is a portion of the line that RIDOT is paying to relocate. Therefore, after applying RIDOT's contributions to the costs of the overhead relocation, the cost to ratepayers is between \$375,000 and \$600,000.

With regard to the costs of relocating the lines overhead, the Commission has found that for each alternative, the river crossings underground route, the direct underwater crossing and the bridge route, there is no real design. Each one is conceptual in nature. The most developed underground route design is the river crossings route and even the best design for that alternative is disputed by the Division's independent witness and the Company's witness. However, the cost for this alternative ranges from a low of \$9.4 million +20%/-10% for one technology and a high of \$15.7 million for another technology. *Assuming the RIDOT project is not delayed and there is no temporary relocation of the lines*, after subtracting RIDOT's contributions, the cost to ratepayers will range from \$6.5 million to \$9.6 million.

The direct underwater route does not appear technically feasible and the Commission finds that the Company's estimate of \$8.4 million $\pm 25\%$ is a very conceptual one. With regard to the Bridge Route, again, there is only a preliminary and conceptual design for this route. Narragansett's revised estimate, to take into account the fact that *this route requires temporary relocation of the lines*, is approximately \$11.6 million. However, Narragansett qualified this estimate, stating that there are significant constructability issues with the bridges. Therefore, this estimate is based on a design that may not be technically feasible.

- (2) Has the Route 195 relocation schedule already been impacted such that a temporary relocation is already necessary?

Commission Response: The answer is an emphatic no if the EFSB orders the line to be relocated overhead. However, if the EFSB orders the river crossings underground route, it appears that unless RIDOT extends the deadline for Narragansett to relocate the lines, temporary relocation may be necessary. Mr. Parker seemed set on the November 2005 deadline during the hearing. Furthermore, if the EFSB orders the bridge route to be constructed, a temporary relocation of the lines will be necessary and in fact, the parties may find that it is not a technically feasible alternative and therefore, will need to use a different route to relocate the lines, meaning that the temporary relocation may become more permanent than the City of Providence would desire (Narragansett maintained that the only place to put temporary lines and poles is right along the waterfront).

(3) Is a bridge crossing technically feasible?

Commission Response: It is not clear whether the bridge crossing route is technically feasible. First, the Commission notes that the arguments made in this case appear to be about aesthetics. Mr. Parker testified that RIDOT undertook a public process in designing the Providence River Bridge. In fact, it appears from his testimony, the design was picked by a “Providence Committee” to ensure the aesthetics were appropriate for the “signature bridge” on the I-195 relocation. The Commission believes that if RIDOT is required to allow lines to be hung from its bridges, those same individuals should be involved in the redesign process. Second, Mr. Parker testified that he had only recently learned of the weight of the cables that would be attached to the bridge. He maintained that he does not know if the cables could be hung from the bridge and still maintain the bridge’s structural integrity. Third, Narragansett maintained that there are several engineering challenges associated with this alternative, due to turns in

the pipe type cable. Fourth, this alternative will require a transition station in East Providence, for which land rights will need to be obtained and will require the reconstruction of the Phillipsdale Tap and there is no guarantee that that line would be put underground. Finally, this alternative would absolutely require temporary relocation of the lines. Therefore, the Commission shares the concerns of Narragansett and the RIDOT with regard to the feasibility of this alternative.

Accordingly, it is hereby

(17690) RECOMMENDED:

1. That the Energy Facility Siting Board find that there is a need to relocate the E-183 line from the Manchester Street Station to the intersection with the Phillipsdale Tap Line in East Providence in order to accommodate RIDOT's relocation of I-195 and maintain the reliability of the transmission system.
2. That the Energy Facility Siting Board find that Narragansett's proposed overhead configuration represents the most reasonable cost alternative to provide adequate, safe and reliable service to the region.

EFFECTIVE AT WARWICK, RHODE ISLAND PURSUANT TO AN OPEN MEETING DECISION ON JANUARY 22, 2004. WRITTEN ADVISORY OPINION ISSUED JANUARY 27, 2004.

*Elia Germani, Chairman

Kate F. Racine, Commissioner

Robert B. Holbrook, Commissioner

*Chairman Germani recused himself from this proceeding due to his involvement in the EFSB Proceeding as Chairman of the EFSB.