BEFORE THE
STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
ENERGY FACILITY SITING BOARD

Re: Docket No. SB-2016-01
The Narragansett Electric Company d/b/a National Grid Application to Construct the Aquidneck Island Reliability Project in Portsmouth and Middletown Rhode Island

DIRECT TESTIMONY
OF
STEVEN M. CABRAL

SUBMITTED ON BEHALF OF
THE TOWN OF MIDDLETOWN

MARCH 13, 2017

INTRODUCTION

The Narragansett Electric Company, d/b/a National Grid, filed an application to construct and alter certain of its transmission components in Portsmouth and Middletown, RI, with the Rhode Island Energy Facility Siting Board ("EFSB") on December 29, 2015.The Town of Middletown subsequently filed its Motion to Intervene in the subject docket, which was granted by the EFSB. The Town of Middletown hereby provides direct testimony in support of its position in this docket.

QUALIFICATIONS

Q. Please state your name and business address.

A. Steven M. Cabral, 151 Centerville Road, Warwick, RI 02886.

Q. On whose behalf are you providing this testimony?

A. The Town of Middletown, RI.

Q. By whom are you employed and what is your position?

A. I am employed by Crossman Engineering; I serve as its President.

Q. What are your responsibilities as Crossman Engineering's President?

A. I provide quality control for all projects in the office. I also act as project manager on various transportation and environmental engineering projects, as well as residential, commercial, and municipal projects.

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

A. I have a Bachelor of Science, Master of Science, and PhD in Civil and Environmental Engineering from the University of Rhode Island.I am a Registered Professional Engineer in the states of Rhode Island, Massachusetts, Connecticut, and New Hampshire. I am also a Rhode Island Department of Environmental Management ("RIDEM") Licensed Class III Designer for On-Site Wastewater Treatment Systems.

I am a member of the American Society of Civil Engineers, the National Society of Professional Engineers, the Rhode Island Society of Environmental Professionals, and on the Board of Directors of the American Council of Engineering Companies, Rhode Island Chapter. I am also a Commissioner on the Board of Electric Commission that oversees the management and operation of the North Attleboro Electric Company, an independent, municipally owned electric company.

I have thirty-five years of diversified experience in civil, transportation and environmental engineering. Among the many projects I participated in, I have served as a Consultant on an "on-call" basis, and performed independent Development Plan Review services for

numerous communities and entities, including Richmond, Exeter, Coventry, Hopkinton, and Barrington, various housing authorities and the RI Department of Transportation.

My past experiences have included engineering design and evaluations on the Civic Center Interchange Project, the Capital Center Project, the Route 6/10 Interchange Project, Ponaganset Middle School Project, Highland Corporate Park, Burrillville Industrial Park and over 1000 infrastructure projects, including utility, roadway and drainage systems. I was also previously employed by the Rhode Island Department of Environmental Management in the Freshwater Wetland Section and was responsible to evaluate projects' impacts on freshwater wetland systems.

My resume is attached to this testimony.

Q. Have you provided expert testimony previously?

A. Yes, in my capacity as a civil and environmental engineer on behalf of the State of Rhode Island, municipalities and private parties in various courts in Rhode Island.

Q. Have you provided expert testimony on this project in any other venue?

A. Yes, I testified in my expert capacity before the Rhode Island Public Utilities Commission ("PUC"), and before the Middletown Planning Board and the Zoning Board of Review.

UNDERSTANDING OF THE PROJECT AND PURPOSE OF TESTIMONY

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

A. Yes.

Q. What is your understanding of the Project?

A. The documents filed with the PUC and with the EFSB in this docket address the proposed relocation of the existing Jepson Substation from the easterly side to the westerly side of Jepson Lane. The new site is an 18.77 acre parcel which currently contains part of the existing overhead electric transmission line. A significant portion of the parcel is regulated wetlands and woodlands. The proposed Jepson Substation will be built on the easternmost five (5) acre portion of the parcel, immediately adjacent to Jepson Lane and three (3) residential dwellings.

Within this five (5) acre area substation site, significant topographic and landscape changes are planned. Greater than 90% of all wooded areas will be removed and portions of the site will be raised by up to fifteen (15) feet to create a level plateau for the substation construction. The proposed grade changes and fill result in the need for a 440 foot long retaining wall along the western edge of the planned substation. Portions of the wall are within a RIDEM regulated perimeter wetland. The Project plans also depict a twenty (20)

foot tall Sound Wall to extend above the fill along the site's southern border. No details of the twenty (20) foot tall Sound Wall were contained in the Project documents.

Q. What is the purpose of your testimony?

A. To outline my civil engineering assessment and to present my conclusions regarding the application and supporting materials filed with the EFSB and pre-filed testimony of National Grid in Docket No. SB-2016-01, on behalf of the Town of Middletown. The primary issues of concern are whether the proposal conforms with all legal requirements, such as the Rhode Island Freshwater Wetlands Act, whether a waiver from certain laws are justified, and whether the proposed facility will cause unacceptable harm to the environment.

Q. What conclusions did you reach?

A. That National Grid failed to demonstrate the need for relocating the Jepson Street Substation, that National Grid failed to adequately consider alternatives to its proposal, and that the application is technically deficient in several areas. Also, the proposal does not conform with the requirements of the Rhode Island Freshwater Wetlands Act, does not provide justification for waivers from environmental standards, and creates the potential to cause unacceptable harm to the environment. As such, the proposed project does not meet the requirements of the State Guide Plan.

Q. What are your conclusions with respect to the need for the Project?

A. My conclusion is that National Grid has not demonstrated why relocating the Jepson Street Substation onto a new parcel is necessary.

The EFSB's Environmental Report, Aquidneck Island Reliability Project, dated December 2015, Revised March 17, 2016, states that National Grid has reviewed the physical condition of the Jepson Street Substation three (3) times within the past decade and each study recommended upgrading and/or replacing specific equipment and components.

The three studies also conclude, and the EFSB's Environmental Report states, that it is possible to operate and maintain the existing substation in its current location (Section 3.3.2, page 3-7). In contrast, testimony by Mr. Endrit Fiku does not address the justification for the selected alternative of relocating the Jepson Street Substation. In contrast, presentations to the PUC by National Grid representatives revealed that it is possible to utilize the existing substation parcel, but that it would be more difficult and the potential additional costs are undefined due to the need for more detailed studies and design.

The testimony of Mr. Endrit Fiku (page 9, lines 1-7) provides a summary of the process for construction of the new Jepson Street Substation. The provided description provides no environmental protection measures for creating this 2.5 acre substation, which requires up to sixteen (16) feet of gravel fill within a RIDEM-regulated perimeter wetland. In regards to the Town of Middletown conclusion that the proposed stormwater system does not meet

Town and RIDEM requirements, Mr. Endrit Fiku states (page 16, lines 11-15) generally that National Grid disagrees that the proposal will create a hazardous condition and is relying upon RIDEM review as confirmation that the proposed project meets the intent of the Rhode Island Stormwater Manual ("RISDM").

In contrast to Mr. Endrit Fiku's reliance on RIDEM reviews, I offer the following comments related to the proposed project's conformance with "Standards" created within the RISDM:

Minimum Standard 1 - LID (Low Impact Development): Extensive clearing activities within the 5.6 acre site, including wetlands, 50 foot perimeter wetlands, and the Town's regulated 100 foot wetland buffer. Design Standards state that impacts to undeveloped lands are to be avoided to the maximum extent practicable. The impacts could be avoided if the existing substation land on the opposite side of Jepson Lane was utilized. National Grid has indicated that it is feasible to construct the substation on the existing parcel, but cost and complexity of construction phasing were their deciding factors to relocate the substation. In the recent filing with RIDEM, the National Grid Alternatives Discussion solely states that use of the existing substation parcel is "nearly impossible." This statement of impossibility may be accepted at face value by RIDEM staff, but it does not truly satisfy the Impact Avoidance and Minimization requirements of RIDEM's Rules and Regulations Governing Enforcement of the Freshwater Wetland Act and the relevant Town of Middletown Ordinances. The aforementioned RIDEM regulations require the applicant to disclose if any areas on other properties could be used to achieve the same purpose without altering the natural character of any freshwater wetlands. Past presentations by National Grid confirm that options do, in fact, exist.

Minimum Standard 2 - Groundwater Recharge: This Standard is based on the need to protect water table levels, stream base flow, wetlands, soil moisture and overall hydrologic balance of a wetland system. The application documents to RIDEM state that this standard is being met, but the proposal will result in a net loss in recharge. Therefore, the project incorrectly tells RIDEM that it conforms. RIDEM regulations state that "The stormwater requirement may be waived if an applicant can demonstrate a physical limitation that would make implementation impracticable or where unusual geological or soil features may exist such as clay deposits, ledge, fill or areas of documented slope failure." The subject site allows opportunities to meet the requirements, therefore, full conformance should be achieved.

The design also incorporates an underdrain system beneath a crushed stone substation yard which will underdrain an additional 2 acres of land. The net result is that existing recharge that occurs within approximately 2 acres of land will no longer occur. Also, some underdrains are below the seasonal high water table, which will provide isolated groundwater lowering and result in further loss of groundwater base flow, which is necessary to support wetlands during seasonal changes.

The analysis is also based on the assumption that the substation yard, with up to 16 feet of 95% compacted gravel fill with a crushed stone surface, will be classified by RIDEM as a pervious surface and would not require recharge mitigation. The RISDM

"Definitions" section identifies compacted gravel as an impervious surface. A 16 foot layer of compacted gravel with a crushed stone surface meets the RIDEM definition of an impervious surface and the design should be treated as one. A waiver by RIDEM because a stone layer will be on top would not be technically valid.

RISDM Section 3.2.2 states that stormwater is to be recharged at predevelopment recharge levels to the maximum extent practicable, and Section 3.3.2 of the RISDM provides a formula for computing the required recharge from impervious areas. The "impervious area" calculation provided is accurate for the paved surfaces, but the manner of recharge and under-draining will result in a net loss of recharge. Therefore, based on the data provided to date, National Grid has failed to satisfy Minimum Standard 2.

Minimum Standard 3 - Water Quality: The Water Quality Standard requires that the volume of water generated from 1 inch of runoff from impervious surfaces be treated prior to discharge. A sand filter system is provided for the Control House. The 1 acre of paved surfaces drains onto the proposed crushed stone substation yard and then filters through the fill material prior to reaching the underdrain system. The concern is that the filtering materials do not conform with the RIDEM Standards.

It must be recognized that the addition of impervious surfaces, which by definition encompasses gravel fill areas, impacts water quality, independent of the land use. Impervious surfaces act as a collector of airborne pollutants and requires proper treatment.

Minimum Standard 5 - Overbank Protection: The general purpose of this standard is to protect downstream areas from larger, less frequent storm events, such as the 10 Year - 100 Year Storms. The primary concern with the stormwater analysis provided relates to the 2.5 acre substation yard; there is no conventional stormwater treatment system. Proof of conformance depends upon the highly compacted gravel sub-base material and the gravel layer below the stone surface having adequate infiltration capacity to allow the substation to prevent downstream increase in flow. The analysis assumes that sufficient infiltration rates will be provided, but this assumption is not technically justified in the documents submitted. An approval by RIDEM of the proposal, as presented, would suggest that RIDEM accepts the assumption without verification.

The above waiver from State Standards for design creates the potential to cause unacceptable harm to the environment. The above design issues also violate the intent of the State Guide Plan Element Report # 121, Water Quality 2035, which clearly identifies stormwater as a widespread source of water quality degradation. The Report also expresses concern for increased storm intensities and the resulting increases in flooding. The proposal offers no mechanism to address these concerns and seeks unjustified waivers to basic design standards.

The proposal also violates the policies and plans of State Guide Plan Element 121, Report Number 109, Rhode Island State Land Use Policies and Plan. This document recognizes that water resources are critical for people as well as other forms of life in ecological

communities. Water quality planning must be integrated with land use planning in a manner to protect wetlands and water resources. However, the proposal offers a stormwater management plan that seeks waivers from basic Rhode Island Stormwater Standards. Alternatives are available to fully conform to these standards.

Q. What are your conclusions with respect to whether National Grid considered alternatives to the Project?

A. National Grid did not adequately consider other alternatives, as the documents provided do not appear to provide a true alternative construction scheme for using the existing Substation site, impacts and its cost.

Construction of the proposed relocated Jepson Street Substation will impact natural woodlands, alter stormwater flow, result in wetland filling and create significant visual impacts to adjacent homes and the public way. The relocated substation also requires the relocation of an existing transmission line which will require removal of approximately 13,500 square feet of woodland immediately adjacent to a single family home on the north side of the facility's site.

Q. Do there appear to be alternate sites that will have less impact on the environment and residential homes on Jepson Lane in Middletown?

A. Yes. The stormwater, wetland, environmental, woodland clearing and visual impacts can be significantly reduced or avoided with reconstruction of the facility at the existing substation location and immediately north or west of the substation. These areas contain no natural woodland or wetlands and would not result in alteration of wetlands. The project can be designed on the existing parcel to fully protect the water supply watershed.

Q. Do you know why that alternative was not considered?

A. Again, the documents provided by National Grid do not appear to provide a true alternative construction scheme for using the existing substation site, impacts and its cost.

The conclusion of past studies that state that the substation can by operated and maintained in the existing location contradicts the brief narrative that states that rebuilding the substation at the existing substation site is not a viable option. I recognize that the efforts to operate and maintain an existing station at the existing site differ from rebuilding the new substation, but previous testimony has confirmed that it is viable to construct a new station on the existing site.

The Needs Assessment Results Summary of the Newport Area (Aquidneck Island) Transmission Study Report, Section 2.1, incorrectly states that the existing Jepson Street Substation (east side of Jepson Lane) is within the 100-year flood plain and that the flood plain creates reliability concerns. In contrast, the most recent FEMA Flood Maps do not depict the existing Jepson Substation within the 100-year flood plain. The existing site does border a 100 year flood plain and Sisson Pond and is within a Watershed Protection Zone,

but common constructionand stormwater control measures can mitigate potential impacts, which are mainly associated with stormwater runoff and spill prevention.

Q. Are there wetlands concerns associated with the Jepson Substation Project?

A. Yes. A significant portion of the parcel is regulated wetlands and woodlands.

Q. How will the Project affect those areas?

A. The eastern portion of new Jepson Substation is bordered by a RIDEM regulated freshwater wetland and a regulatory 50-foot perimeter wetland. The Energy Siting Board Environmental Report, page 8-8, states that the Jepson Substation will require 102 square feet of wetland filling, and 10,745 square feet of filling within the RIDEM regulated 50-foot Perimeter Wetland. The Site Plans also indicate that approximately 4,900 square feet of wetland will be cleared of tree cover to allow for the temporary line relocation around the new substation site. All direct wetland impacts can be avoided if the new substation was built on the easterly side of Jepson Lane.

Q. What are your conclusions with respect to the technical information contained in the application?

A. National Grid's application and supporting materials contain many deficiencies that should be addressed.

Q. Does the wetlands filling conform to local regulations?

A. No. Section 518.E states that the Planning Board shall ensure to the maximum extent practicable that naturally vegetated wetland buffers, in general, shall be no less than 100 feet. The proposed relocation of theSubstation to the west side of Jepson Lane will result in the complete removal of an existing 100 foot wooded buffer and the removal of wooded areas within a regulated wetland. Based upon the extent of land clearing and visual impacts, the proposed option does not conform to the requirements and intent of Section 518. The use of land on the east side of Jepson Lane would not require extensive woodland clearing.

Q. Does the Jepson Street Station conform to local stormwater ordinances?

A. No. Section 516 of the Subdivision Regulations require conformance to Section 153 of the Middletown Code of Ordinances, Stormwater Management. In general, Section 153 Stormwater Ordinance of the Town was developed to protect water quality, flooding, hydrologic balance, wildlife habitat, and public health, safety and welfare. Variances are allowed when strict implementation of the requirements create an unnecessary hardship or are not feasible or to allow use of an innovative management practice where strict adherence to existing criteria would be costly or of negligible environmental benefit.

Conformance to the RISDM and Town Standards will not create an unnecessary hardship or create costly improvements with negligible benefit and will provide protection of the

health, safety and welfare of the community. Therefore, as presented, the project should not be allowed to proceed.

Q. Did you review the pre-filed testimony of Susan Moberg, PWS, CFM, dated March 3, 2017?

A. Yes.

Q. Do you have any comments on the testimony?

A. Yes. My primary concerns involve the impact on the wetlands during construction and post-construction. The testimony states that the project has a robust construction access plan and soil erosion control plan. In contrast, the Soil Erosion Control Plan is lacking basic requirements, such as designed temporary sediment control basins, during the construction phase of the Jepson Street Substation. Importing, placing and compacting over 16 feet of gravel fill immediately adjacent to a wetland and within a perimeter wetland creates a severe potential for erosion. In regards to post-construction concerns, my previous comments on the lack of conformance to Town and RIDEM requirements apply.

The testimony also provides general statements about the avoidance and mitigation of environmental issues, such as water quality, hydrology and groundwater, yet a net loss of recharge will result from the project and the use of 16 feet of highly compacted gravel as a primary component of a stormwater mitigation measure is not technically justified.

In regard to Ms. Moberg's response to a question on the Advisory Opinion from the Town of Middletown Building Inspector, her response avoids the concerns, technical justification, and denial by the Town and offers no technical or qualitative reply.

As previously stated, the proposal also violates the intent of the State Guide Plan Element Report # 121, Water Quality 2035, which clearly identifies stormwater as a widespread source of water quality degradation and violates the policies and plans of State Guide Plan Element 121, Report Number 109, Rhode Island State Land Use Policies and Plan, which also recognizes the importance of surface waters and groundwater.

Q. Did you review the testimony of Mr. Daniel McIntyre, P.E., dated March 3, 2017??

A. Yes.

Q. Do you have any comments on the testimony?

A. Portions of the new testimony, which describes the option of using the western portion of the existing Jepson Street Substation land, contradicts previous testimony which clearly stated that it was feasible to install a new substation on this land. A review of the testimony indicates that this alternative has not yet been fully vetted due to the preference to build on the proposed Middletown site that National Grid considers to be easier and less costly to build upon.

CONCLUSION

Q. Do you have a conclusion regarding the overall impact of the Project?

A. Yes. The project presents a significant visual and environmental impact to areas in and adjacent to the relocated Jepson Street Substation. The National Grid images clearly depict a drastic visual alteration which will impact the roadside character and abutting properties. The Town of Middletown Building Department has concluded that the new substation does not meet the Stormwater Ordinance, and the Town Planning Board and Zoning Board of Review both concluded that the new substation is not consistent with the Town's Comprehensive Plan.

The proposal also permanently alters natural wetland and wetland buffer areas when alternatives (reconstructing the substation on east side of Jepson Lane) may be viable and, at the least, the project should be required to conform to all Stormwater and Soil Erosion Standards, without waivers or variance.

Based on these facts, National Grid should be required to prove the need for the Jepson Street Substation relocation, as well as demonstrate an adequate analysis of alternatives.

Q. Does this conclude your testimony?

A. Yes, it does.