



**COMPANY EVALUATION AND CONSTRUCTABILITY INFORMATION  
FOR NEET3A\_2016  
MADDOX EAST SERIES REACTOR PROJECT**

**Submitted to:**



**November 15, 2016**

**2016 RTEP Proposal Window #3**

**Prepared by:**



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## ACRONYMS AND DEFINITIONS

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| Abbreviation | Definition  |
|--------------|---|
| AEP          | American Electric Power                           |
| ANSI         | American National Standard Institute              |
| ASCE         | American Society of Civil Engineers               |
| CEII         | Critical Energy Infrastructure Information        |
| CEMP         | Corporate Emergency Management Plan               |
| CRO          | Compliance and Responsibility Organization        |
| EHV          | Extra High-Voltage                                |
| EMS          | Energy Management System                          |
| ERCOT        | Electric Reliability Council of Texas             |
| FEMA         | Federal Emergency Management Agency               |
| FERC         | Federal Energy Regulatory Commission              |
| FPL          | Florida Power & Light Company                     |
| GIS          | Geographic Information System                     |
| ICP          | Internal Compliance Program                       |
| ICS          | Incident Command System                           |
| IEEE         | Institute of Electrical and Electronics Engineers |
| IPaC         | Information for Planning and Conservation         |
| kV           | Kilovolt  |
| Lone Star    | Lone Star Transmission, LLC                       |

| Abbreviation   | Definition   |
|--|--|
| MVA  | Megavolt-Ampere  |
| MVAR   | Megavolt-Ampere Reactive   |
| MW   | Megawatt   |
| NEECH  | NextEra Energy Capital Holdings, Inc.  |
| NEER   | NextEra Energy Resources, LLC  |
| NEET   | NextEra Energy Transmission, LLC   |
| NEET MidAtlantic   | NextEra Energy Transmission MidAtlantic, LLC   |
| NERC   | North American Electric Reliability Corporation  |
| NESC   | National Electrical Safety Code  |
| NextEra  | NextEra Energy, Inc.   |
| NHD  | National Hydrography Dataset   |
| NWI  | National Wetland Inventory   |
| O&E  | Outreach and Education   |
| O&M  | Operations and Maintenance   |
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| OSHA   | U.S. Occupational Safety and Health Administration   |
| PDDC   | Power Delivery Diagnostic Center   |
| PJM  | PJM Interconnection, LLC   |
| Project  | The Maddox East Series Reactor Project   |
| PSS/E  | Power Transmission System Planning Software (Siemens)  |
| ROW  | Right of Way   |

| Abbreviation | Definition                           |
|--------------|--------------------------------------|
| RTEP         | Regional Transmission Expansion Plan |
| SMEs         | Subject Matter Experts               |
| USACE        | U.S. Army Corps of Engineers         |
| USDA         | U.S. Department of Agriculture       |
| USFWS        | U.S. Fish and Wildlife Service       |

**SIGNATURE PAGE**

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Approvals:



11/15/2016

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**David Davis**  
Executive Director, Development

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Date



11/15/2016

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**Michael Sheehan**  
Vice President, Development

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Date





## A. EXECUTIVE SUMMARY

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### Name of Proposing Entity

NextEra Energy Transmission, LLC (NEET) and NextEra Energy Transmission MidAtlantic, LLC (NEET MidAtlantic) are pleased to submit the Maddox East Series Reactor Project (the Project) for consideration by PJM Interconnection LLC (PJM) in the 2016 Regional Transmission Expansion Plan (RTEP) Proposal Window #3.

NextEra Energy, Inc. (NextEra), the ultimate parent company of NEET MidAtlantic, is a leading clean energy company with consolidated revenues of approximately \$17 billion, approximately 46,400 megawatts of generating capacity, and approximately 14,300 employees in 27 states and 4 Canadian provinces as of year-end 2015. Headquartered in Juno Beach, Florida, NextEra's principal subsidiaries are:

- Florida Power & Light Company (FPL), which serves more than 4.8 million customer accounts in Florida and is one of the largest rate-regulated electric utilities in the United States,
- NextEra Energy Resources, LLC (NEER), which, together with its affiliated entities, is the world's largest generator of renewable energy from the wind and sun, and
- NEET, which owns, operates, and is building transmission assets in several US states and Canada.

Through its subsidiaries, NextEra has been recognized by third parties for its efforts in sustainability, corporate responsibility, ethics and compliance, and diversity. In March of 2016, NextEra was ranked No. 1 in the electric and gas utilities industry in Fortune's 2016 list of "World's Most Admired Companies" and has been named a World's Most Ethical Company® for the 9<sup>th</sup> time by the Ethisphere Institute, the global leader in defining and advancing the standards of ethical business practices.

### Name and Address of the Proposing Entity

#### **NextEra Energy Transmission MidAtlantic, LLC**

700 Universe Blvd  
UST/JB  
Juno Beach, FL 33408

### Proposal Window and Associated Violation/issue Being Addressed

- 2016 RTEP Proposal Window #3
- Generator Deliverability Overload – Flowgate 123 – Maddox Creek – East Lima 345 kV

### Violations Caused by Proposal/Nearby Violations Not Addressed by Proposal

Powerflow analysis results show that when the Project is studied there are no new violations based on the data supplied by PJM.



## Identify Projects That Span Zones

### Intent to Construct/Own/Operate/Maintain

NEET MidAtlantic is seeking to be designated to construct, own, and maintain the proposed project. Based on PJM's approval in the prequalification process, NEET MidAtlantic requests Designated Entity status for this Project.

### Proposed Solution and Corresponding Violation(s) Resolves

### Project Consideration

This Project should be considered as a whole.

### High Level Cost Overview and Commitment

NEET MidAtlantic estimates that the total project will cost \$5.95 million (current year), with \$0.39 million in work to be performed by the incumbent Transmission Owner. A more detailed cost breakdown is included in Appendix 6 of this Proposal. As described in this Proposal, NEET MidAtlantic has invested substantial resources in developing its project cost estimate.

## B. COMPANY EVALUATION INFORMATION

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### Name and Address of Entity

The name and address of the proposing entity is:

|                  |   |        |         |      |       |
|------------------|---|--------|---------|------|-------|
| Name of company: | <b>NextEra Energy Transmission MidAtlantic, LLC</b> |        |         |      |       |
| Mailing Address: | 700 Universe Boulevard, UST/JB                      |        |         |      |       |
| City:            | Juno Beach  | State: | Florida | Zip: | 33408 |

The points of contact are:

|               | Primary Contact   | Secondary Contact  |
|---------------|---|--|
| Contact Name: | <b>David Davis</b><br>Executive Director, Development<br>NextEra Energy Transmission, LLC | <b>Stephen Gibelli</b><br>Director of Regulatory Affairs<br>NextEra Energy Transmission, LLC |
| Address:      | 700 Universe Boulevard, UST/JB<br>Juno Beach, Florida 33408                               | 700 Universe Boulevard, UST/JB<br>Juno Beach, FL 33408                                       |
| Telephone:    | (561) 691-7941  | (561) 694-3583   |
| Email:        | <a href="mailto:david.davis@nexteraenergy.com">david.davis@nexteraenergy.com</a>          | <a href="mailto:neet.development@nexteraenergy.com">neet.development@nexteraenergy.com</a>   |

Please send all correspondence regarding this Proposal to both the primary and secondary contact personnel.

### Pre-Qualification Number

NEET's and NEET MidAtlantic's PJM pre-qualification ID Number is Q13-18.



## Additional Company Information

### NextEra's Transmission Experience

The NextEra family of companies has a wealth of experience in transmission line and substation siting, design, construction, operation and maintenance (O&M), and financing – including a substantial amount of experience for extra high-voltage (EHV) transmission line and substation projects. For more information on our transmission experience, please refer to our previously submitted pre-qualification application.

To prepare its response to PJM's 2016 RTEP Proposal Window #3, NEET MidAtlantic engaged a number of legal, environmental, permitting, engineering, land acquisition, and other specialty groups in the NextEra family of companies. With respect to the facility design, a permitting study effort was completed prior to the anticipated site being provided to the engineering team (consisting of both in-house and external Subject Matter Experts (SMEs)) for the facility design effort.

### NextEra's Development Experience

NEET is a wholly-owned, indirect subsidiary of NextEra. NEET MidAtlantic, through NEET, will draw upon the resources of the NextEra family of companies to ensure successful project execution. NextEra companies have a long-standing presence in PJM as developers, owners, and operators of clean energy generation and transmission voltage level facilities. NEET MidAtlantic can draw on these resources and this experience to operate effectively and efficiently in the region.

### NextEra

NextEra has over 50 years of technical expertise in engineering, constructing, and operating large infrastructure projects, including transmission systems. NextEra's family of companies constructed, owns, operates, and maintains more than 68,000 miles of distribution lines, approximately 8,500 circuit miles of transmission lines between 69 kV and 500 kV, and 800 substations across North America. Additionally, NextEra is a nationally recognized company, which has a demonstrated capability for completing large transmission projects in a timely and cost-effective manner.

### FPL

A principal subsidiary of NextEra and affiliate of NEET, FPL is the largest rate-regulated electric utility in Florida, and one of the largest in the United States. As of December 31, 2015, FPL's assets totaled approximately \$42.5 billion, and FPL's generating resources for serving load consisted of 26,073 megawatts (MW), of which 25,254 MW were served from FPL-owned facilities. FPL serves more than 9.5 million people through approximately 4.8 million customer accounts in Florida. Due to FPL's ongoing investment in smart, cost-effective, and efficient technologies, FPL is able to provide the most affordable electric service in Florida. For example, FPL's typical residential customer bill continues to be



the lowest of the state's 55 electric utilities (based on a 1,000 kilowatt-hour typical bill) and 30% lower than the national average in 2015.

## **NEER**

A principal subsidiary of NextEra and affiliate of NEET, NEER is the largest producer of energy from the wind and sun in the world. As of December 31, 2015, NEER had approximately 12,414 MW of wind generating capacity and approximately 1,026 MW of solar generation in its portfolio. Electric output from NEER's generating assets is sold to companies and businesses with an interest in clean energy, including utilities, retail electricity providers, power cooperatives, municipal electric providers, and large industrial customers. NEER has earned a strong reputation in power plant development, construction, and operations including numerous transmission voltage level gen-ties and generation switchyards, using standardized processes, best practices, and superior execution.

## **NEET**

NEET currently owns, operates, and maintains transmission utilities in New Hampshire and Texas, and is developing transmission projects throughout North America and Canada. For more information on our existing facilities and development projects, please refer to our previously submitted pre-qualification application.

## **NextEra's Engineering Expertise**

The NextEra family of companies has a highly qualified engineering organization that will lead the execution of the Project. NextEra affiliates' design and engineering capabilities include:

- In-house engineering expertise in transmission line and substation engineering and design; civil and structural engineering; protection, control, and communications systems expertise;
- Experienced transmission line designers and SMEs who will develop the scope of work documents for the construction plan, including all drawings and specifications;
- Long-standing, collaborative relationships with many of the most experienced engineering firms in the power industry, which are already being used to support wind, solar, fossil, and transmission projects in development – bringing cost certainty and execution confidence;
- Experienced in-house material and equipment procurement staff;
- Long-standing relationships with vendors and significant buying power that allows NEET to access better pricing from reputable suppliers, as well as expedite purchase and delivery during critical times;
- Established procurement processes that incorporate quality, cost, reliability, financial stability, delivery, field support, safety track record, commitment to continuous improvement, and innovation when selecting suppliers; and
- Advance procurement of major and critical equipment, mitigating risks such as delivery delays or material cost escalation.



The NextEra family of companies has a long history and significant experience in the construction of transmission lines, substation facilities, and related infrastructure. The NextEra team has proven capabilities in constructing and managing high voltage transmission line projects in compliance with the design, reliability, and operational standards set forth by a variety of authorities in North America. Since 2007, NEET and its affiliates completed over 1,476 miles of new transmission voltage level line construction at voltages ranging from 69 kV to 500 kV. NextEra's experience includes the full range of activities needed to support successful project development. We have extensive experience with licensing and permitting processes in PJM, as well as other jurisdictions. We have over 35 staff members who are specifically focused on permitting and licensing activities, and have the following capabilities:

- Experience developing strategy and planning for emerging federal and state legislative and regulatory developments that have the potential to impact ongoing activities;
- Ability to evaluate and ensure compliance with and the appropriate adherence to federal, state and local environmental requirements including environmental audits;
- Expertise identifying and obtaining required licenses and regulatory agency approvals to construct new non-utility fossil and renewable energy generating facilities, gas infrastructure and transmission facilities;
- Experience performing environmental due diligence for potential acquisitions, divestitures, and financings; and
- Experience promoting environmental relationships with external environmental groups, and integrating and communicating sustainability.

Affiliates of NEET MidAtlantic have numerous environmental professionals who work solely on new project development activities. They are involved in projects from the concept stage through the first year of operation and bring the following capabilities:

- An emphasis on environmental sustainability and responsibility for assessing environmental issues and developing mitigation strategies; ensuring the timely receipt of environmental approvals; assisting project teams in understanding environmental regulatory requirements and ensuring environmental compliance during construction; and liaising with regulators;
- In-house aquatic environment experts, soils experts, wildlife biologists, geotechnical engineers, and environmental engineers;
- Established environmental compliance monitoring program via a permit condition compliance matrix, regular compliance team meetings, and formal environmental audits; and
- Relationships with qualified and trained environmental inspectors to monitor work being completed on rights-of-way (ROW), and specifically to identify any additional mitigation to ensure compliance with regulations.

### NextEra Project Operation Experience

The NextEra companies have a substantial O&M organization that delivers operational excellence. Its capabilities include:



- Supporting NEET's operations with in-house and external specialists that have industry experience operating and maintaining a variety of transmission equipment, including switched capacitors, series reactors, series compensators, substations, and transmission lines up to 500 kV. NextEra's transmission specialists currently support NEER's existing transmission-voltage level facilities in the PJM region. In addition to receiving support from the existing staff supporting assets in the PJM region, the project would be monitored and controlled by NEET's in-house Transmission Operations team, located in Austin, Texas;
- O&M of more than 8,500 circuit miles of transmission voltage level lines and 800 substations across North America, including more than 3,200 miles of 230 kV lines, more than 1,000 miles at 345 kV lines and over 1,100 miles of 500 kV lines; and
- Owning, operating, and maintaining reactive power support equipment, including 365 Megavolt-Ampere Reactive (MVAR) of synchronous condensers, 8,115 MVAR of transmission level switched capacitors, and 3,000 MVAR of series compensation equipment. These assets include 345 kV reactive power compensation equipment. The total power transformer capability operated and maintained by NextEra affiliates is approximately 160,000 Megavolt-Ampere (MVA), of which over 139,000 MVA is subject to North American Electric Reliability Corporation (NERC) Reliability Standards.

Below are some highlights of our O&M capabilities:

- NextEra companies own NERC registered assets in all eight NERC regions, including being a NERC registered Transmission Owner in five regions and a Transmission Operator in two regions. NextEra has processes and procedures in place to comply with all applicable reliability criteria, including compliance with all NERC operation and maintenance Reliability Standards.
- NextEra companies have access to over 750 power system professionals including technicians and other staff with expertise in all aspects of transmission and substation equipment installation, maintenance, and repair. The Power Delivery Performance & Diagnostics Center (PDDC) in South Florida serves as a hub for technical knowledge, as well as remote condition assessment in support of operations; the PDDC (pictured below) uses advanced technology to monitor and manage equipment, and detect and prevent issues before they happen.

- NextEra affiliates oversee a large number of transmission projects annually, including major system upgrades and maintenance initiatives, and support O&M services in 27 U.S. states and in 4 Canadian provinces at transmission level facilities and for regulated transmission assets in Florida, ISO New England, and ERCOT.
- NEET affiliate FPL exhibited top-decile transmission reliability performance in a recent benchmarking study (2015 Southeast Electric Exchange Reliability Survey, SAIDI performance).
- NextEra affiliates implement O&M transmission solutions that include new designs, new condition assessment processes, and/or new products. Our staff often works directly with equipment manufacturers to develop these solutions in order to continually improve the reliability of our transmission systems. This background prepares us well to manage geographic and climate conditions that we are likely to face in future projects.
- NEET MidAtlantic will rely on affiliate transmission operations personnel both in the project area and in support functions to ensure a rapid response to emergency operating conditions. NextEra field operations personnel, directly and through applicable contracts with third-party vendors in the project area, will respond to all operating events during normal and emergency conditions. NextEra companies are experienced at devising recovery plans, specifically for storms, to help respond to system emergencies.

The NextEra companies have extensive experience adhering to standardized construction, maintenance, and operating practices, including the following:

- NERC Reliability Standards;
- American National Standard Institute (ANSI) C2-2012 National Electrical Safety Code (NESC);
- American Society of Civil Engineers (ASCE) 74 Guidelines for Electrical Transmission Line Structure, 3rd Edition, 2010;
- ASCE 10-97 Design of Latticed Steel Transmission Structures;
- CIGRE 299 Guide for Selection of Weather Parameters for Bare Overhead Conductor Ratings;

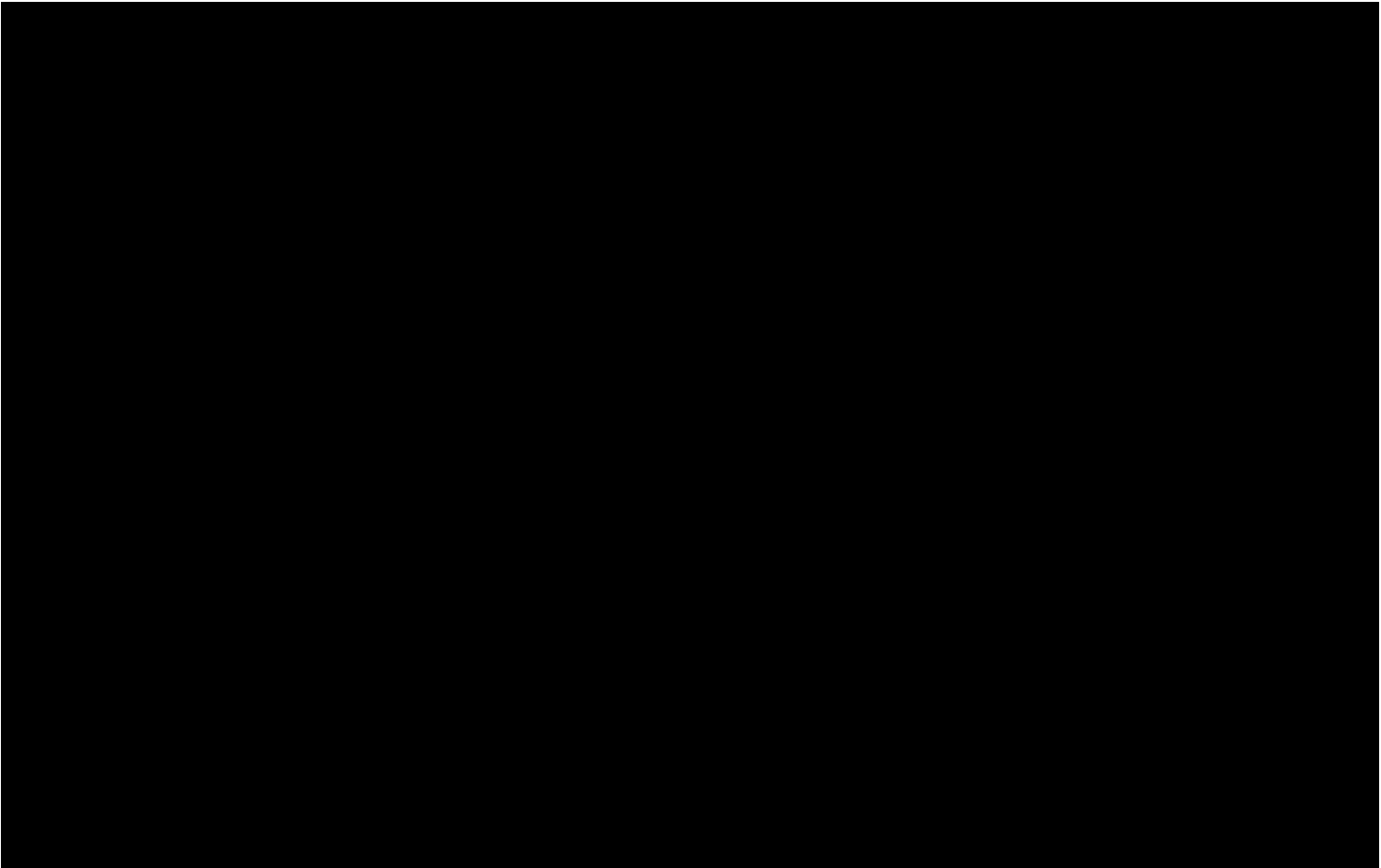




- Institute of Electrical and Electronics Engineers (IEEE) 738-2006 Standard for Calculating the Current-Temperature of Bare Overhead Conductors;
- IEEE 1243 Guide for Improving the Lightning Performance of Transmission Lines; and
- IEEE 1313.2 Guide for the Application of Insulation Coordination.

### NextEra's Experience in PJM

The following table describes NEER's experience working in the geographical region of PJM on transmission voltage level projects.



## NextEra's Project Execution Track Record

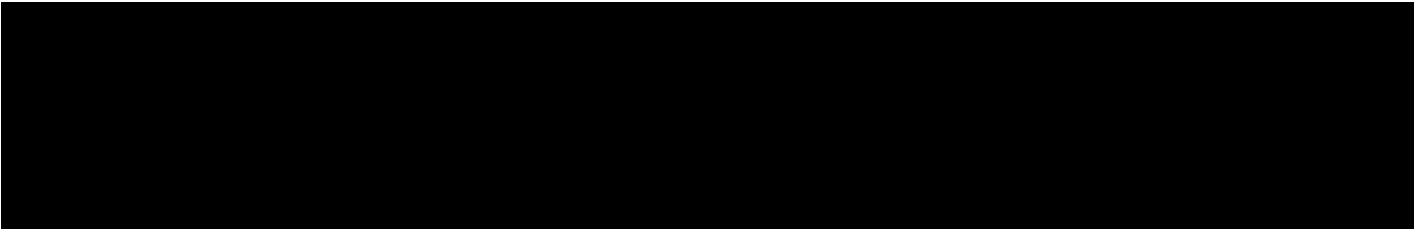
## NextEra's Record of Standardized Construction, Maintenance, and Operating Practices

### Construction Practices

The construction of large-scale infrastructure projects is a core competency of NEET MidAtlantic. Through its team and affiliates, NEET MidAtlantic brings depth of experience in construction management of transmission and substation facilities. NextEra affiliates' have proven capabilities in constructing and managing substation projects of similar size, type, and technology as the Maddox East Series Reactor Project. NextEra affiliates' completed projects comply with the design, reliability, and operational standards of applicable authorities across North America.

NEET MidAtlantic will staff the Project with a project manager, construction lead, project engineer, safety manager, environmental compliance manager, commissioning manager, and administrative support. In addition, NEET MidAtlantic will hire a design engineer (Engineer of Record) and construction contractor.





The NEET MidAtlantic construction management and inspection team will be active through all phases of construction including mobilization, receiving, offloading and storage of equipment/materials, installation and commissioning. Based on NextEra's established practice, NEET MidAtlantic will use a three-part approach in addressing inspection and quality assurance and control during the execution of this Project.

1. NEET MidAtlantic construction leads and managers are required to perform construction inspections prior to critical milestones and energization using a Verification and Validations (V&V) matrix developed for the Project;
2. NEET MidAtlantic requires each contractor to develop and use a Quality Assurance and Control plan; and
3. NEET MidAtlantic requires the Engineer(s) of Record to perform site visits, inspections, walkdowns and witnessing of tests prior to energization.

Each element of this approach is discussed below.

### **Construction Inspections**

During construction, NEET MidAtlantic construction lead and managers are required to perform construction inspections using the V&V matrix developed for the Project. Developed before construction commences, the V&V matrix is project-specific, addressing necessary inspections, witness points, confirmations, and verification of documentation and drawings. The V&V process verifies that the facilities are constructed as designed and that all compliance documentation is provided by the appropriate construction or engineering contractor. This allows NEET MidAtlantic to document all of the required compliance activities, manage the commissioning process, and ensure that the facilities perform as designed prior to energization.

The team developing the V&V Matrix will consist of the Project Director, engineering and environmental leads, construction lead, and director of commissioning, as well as SMEs from NextEra affiliates' Engineering and Construction, and Substation Divisions. The V&Vs are categorized and can be sorted for the specific phase of the Project. For example, all design drawing and document checks can be filtered for completeness prior to site mobilization or start of construction. Another critical checkpoint in the project schedule is just prior to energization, when all required verifications can be sorted and confirmed prior to energization of any equipment. During the construction phase of the Project the NEET MidAtlantic construction lead and team will witness and inspect the work and as required using the V&V matrix. Additionally, the NEET MidAtlantic commissioning manager and team will witness and

verify the electrical/mechanical operation and functionality of all equipment, protection, and control systems and communication systems prior to energization. The V&Vs are confirmed and signed off by qualified NEET MidAtlantic construction managers and engineers.

### **Contractor Quality Assurance and Control Plans**

NEET MidAtlantic's quality control process applies to all work products, including reports, planning studies, calculations, material/equipment specifications, construction drawings and every other exhibit, drawing or document associated with the design and construction of the facility. NEET MidAtlantic will require the contractor to develop and provide QA/QC plans. The contractor must, prior to site mobilization, produce a site-specific plan for the scope of work, including applicable procedures, and proper verification forms and checklists with adequate supervisory sign-off. NEET MidAtlantic project management, with support of SMEs, Engineer of Record and managers responsible for quality, will review each contractor's QA/QC plan for completeness, and require the contractor to make any necessary changes.

The substation contractor, along with on-site NEET MidAtlantic construction management, will be responsible for daily and weekly inspection and construction quality control. The contractor will supply personnel experienced in both substation and transmission construction who will perform the construction inspections. Daily and weekly inspections will be documented using forms approved by NEET MidAtlantic. Project specific inspection forms will be developed early in the Project. When completed, inspectors will scan the inspection forms and place them on the Project's electronic site for review by contractor, engineering, and project management staff. This inspection process is ongoing and continues until project completion.

The contractor will also retain independent local firms (approved by NEET MidAtlantic) to perform laboratory testing services associated with concrete placement and strength. Independent compaction testing will be conducted on grading levels to confirm the grading contractor's work. Compaction testing will also be performed on the backfilling of trenches for duct banks, conduit, and grounding by the independent testing firm. Compaction rates (frequency of compaction tests) will be identified in the project specifications.

The selected independent testing firm will perform material testing on concrete for slump, air entrainment, temperature, and concrete compressive strength. The rate of material testing (every 10 yards, etc.) will be identified in the project specifications. Nondestructive testing techniques will be considered on large diameter drilled piers, such as sonic echo tests (pile integrity tests; pits), crosshole sonic logging (CSL), or thermal integrity profiling (TIP). However, dry hole construction is anticipated, so NDTs most likely will not be required.

Additional inspection activities to be performed by NEET MidAtlantic and its contractor for the facility includes visual inspection, monitoring and reporting of the installation for fencing, duct banks, below/above grade conduit, below/above grade grounding, structural steel, electrical bussing, insulators, group-operated switches, power circuit breakers, series reactors, instrument transformers,

control building and associated accessories, relay panels, station batteries, station lighting, station service power and yard cable.

Throughout the course of the work, NEET MidAtlantic's construction management and inspection team will conduct preparatory meetings with the construction contractor prior to initiation of major work scopes. The preparatory meetings will help ensure that the engineers, managers, and inspectors are fully knowledgeable and capable of approving the work processes, materials, safety processes, and plans that the construction contractor will apply to a specific component of work. For example, a specific preparatory meeting will be scheduled for drilled pier foundations, spread footing, and direct embedded foundations. The construction contractor will be required to submit written plans prior to each preparatory meeting.

### **Engineers of Record to perform site visits, inspections, walkdowns, and witnessing of tests prior to energization**

The third approach to quality includes the requirement that the substation Engineer of Record perform site visits, inspections, walkdowns and witnessing of tests prior to energization to ensure all specified equipment is actually installed and that the equipment installation meets the construction specifications. The final site walkdowns are the critical final step in verifying that the Project is ready to be energized.

### **Operations and Maintenance Practices**

NextEra transmission has well-established practices and procedures for the operations and maintenance of its facilities, which are derived from FPL's practices for its transmission line and substation facilities. NextEra's safety culture, organizational structure, and internal auditing processes ensure compliance with maintenance standards. This is evidenced by:

- The annual reporting obligations to various Public Service Commissions. These include the actual transmission inspection and maintenance tasks completed each year compared to the previously reported annual maintenance plan.
- For protection schemes, as applicable, NextEra facilities provide quarterly protection status information to their respective NERC Regional Entities.
- SMEs within the NextEra Technical Services team continuously monitor all aspects of transmission and substation equipment to ensure adequate levels of reliability are maintained. Equipment SMEs work closely with the NextEra Energy's 24/7 Transmission PDDC. This center serves as a hub for asset health data continuously gathered by remote condition assessment technologies and assessed by the center's smart-analytic tools. The PDDC provides oversight of NextEra transmission facilities and the Technical Services team continuously audits the information collected.

To ensure the safety and reliability of NEET MidAtlantic facilities, its maintenance practices will be based on those of the NextEra transmission O&M organization, responsible for approximately 8,500 miles of transmission lines up to 500 kV across the United States. These facilities are operated and maintained in

compliance with NERC TO and TOP Standard requirements. The existing transmission O&M organization has a program of maintenance standards providing the capability to manage compliance to the provisions of the PJM operating agreement and standards and procedures. The NEET MidAtlantic O&M team is supported by NextEra transmission O&M SMEs with experience in complying with ISO operating agreements and NERC Reliability Standards across a significant number of jurisdictions in North America.

The existing maintenance plan for NextEra companies covers all elements of the proposed project. NextEra companies' practices include a formalized program of procedures and processes and is reinforced by continuous monitoring and condition assessment practices.

### Operations and Maintenance Capabilities

NEET MidAtlantic will leverage in-house and third-party resources for the safe, reliable and efficient maintenance of the Project. NEET MidAtlantic, in conjunction with the NextEra transmission O&M organization, brings significant O&M capabilities as outlined below:

- Well-established O&M practices and standardized processes, which are already being used at NextEra's operating EHV transmission facilities.
- Access to over 766 power system professionals, including technicians and other staff, with expertise in all aspects of transmission and substation equipment installation, maintenance and repair.
- Experience from operating and maintaining power delivery assets in all NERC jurisdictions at voltages up to 500 kV, and in several jurisdictions that have transmission operation agreement terms and conditions similar to the PJM operating agreement.
- An excellent record of transmission and substation reliability, built on robust design and O&M programs that incorporate condition assessment, diagnostics, and asset management for effective and efficient investment of resources and capital.
- Inspection and maintenance practices cover all elements of transmission line circuit maintenance and station maintenance for operating voltages between 69-500 kV.
- Central equipment SMEs based in Florida are responsible for NERC compliance and the health of facility asset groups such as transformers and protection equipment. The centralized groups of SMEs provide technical support for field staff and manage specialized support vendors who provide resources for vegetation management and equipment failure recovery at facilities.
- Reliability SMEs are responsible for transmission and substation availability/reliability reporting for facilities across all NERC regions. These SMEs will support the proposed projects compliance with PJM procedures addressing maintenance; outage data formatting; maintenance reporting for the past and future periods; and classifying forced outages.

- Equipment SMEs in the Technical Services team are responsible for assessing maintenance practice effectiveness and introducing innovative new maintenance techniques. This capability will be leveraged for the Project to ensure compliance with PJM procedures and reviews. The team will support the preparation of the Project maintenance practices to ensure PJM grants its approval before the start of commercial operations. The team will also support any amendments to the agreed maintenance practices to ensure compliance with PJM maintenance change protocols.

Transmission operating procedures describe the processes for scheduling and reporting planned and unplanned outages. NextEra is familiar with major system disturbances and has the procedures in place to cope with events and restore the integrity of the system to a normal state as quickly as possible.

NextEra's Compliance and Responsibility Organization (CRO) is comprised of a centralized group of compliance SMEs who manage, report, and audit the NextEra affiliates Registered Entities NERC compliance programs. CRO will work with NEET MidAtlantic to establish the required agreements, processes, and procedures for assuring compliance.

NEET MidAtlantic will follow the NextEra Internal Compliance Program (ICP) to address the NERC requirements. NextEra's CRO oversees the implementation of the ICP. Compliance monitoring is accomplished by internal reviews, spot checks, investigations, along with letters of certification, and data submittals. Internal audits are conducted to ensure NextEra affiliates are compliant in accordance with the applicable NERC Reliability Standards. NEET's existing projects have had no NERC standards violations to date. NEET MidAtlantic support personnel have recent project experience in establishing and executing TOP Reliability Standards compliance programs in ERCOT.

## NextEra's Financial Strength

NEET MidAtlantic benefits from the extensive, enterprise-wide financial resources of NextEra's affiliates. A Fortune 100 company, NextEra's year-end 2015 balance sheet included over \$82 billion of assets and \$22 billion of shareholder equity, with more than 67% of NextEra's \$17 billion in 2015 revenues derived from regulated utility sources. Consequently, NEET MidAtlantic, through its parent company, has the financial capacity to finance, develop, construct, operate, and maintain projects over the long-term.

For current and historical financial information related to NextEra, including Annual Reports and financial statements filed with the Securities and Exchange Commission please visit NextEra Energy Investor Relations website at [www.investor.nexteraenergy.com](http://www.investor.nexteraenergy.com).

## NextEra Energy Capital Holdings (NEECH)

NextEra Energy Capital Holdings, Inc. (NEECH) is a wholly-owned subsidiary of NextEra, which holds ownership interests in and provides funding for NextEra's operating subsidiaries, other than FPL. NEET MidAtlantic plans to finance the project from development through operations with corporate parent funding, both equity and debt, received from NEECH. NEECH maintains a strong investment grade credit rating and has access to and regularly secures financing in public debt and equity markets on behalf of NextEra and affiliates, including NEET MidAtlantic. At some point in the future, after construction and during operation, the project could benefit from a portfolio financing of multiple assets that could be undertaken by NEET, or another NextEra affiliate. NEET MidAtlantic's project will be supported by NEECH's approximately \$4.6 billion of net available liquidity, primarily consisting of bank revolving line of credit facilities and cash equivalents, less letters of credit issued under the credit facilities, and commercial paper outstanding and notes payable. Consequently, NEET MidAtlantic, through NextEra and its affiliate NEECH, has the financial capacity to finance, develop, construct, operate, and maintain projects over the long-term.

NEECH's current credit ratings are as follows:

Table 2: **NEECH's Credit Ratings as of 31<sup>st</sup> December 2015**

| Company | Moody's | S&P | Fitch |
|---------|---------|-----|-------|
| NEECH   | Baa1    | A-  | A-    |

As discussed previously, during development, permitting and construction, and operation, the project will be supported 100% through corporate parent funding, which will consist of both equity and debt. Therefore, ratepayers will receive the benefit of a project constructed with strong equity support, without any risk of project-level leverage. Further, corporate parent funding benefits ratepayers by avoiding unnecessary and costly third-party transaction costs and providing the flexibility to complete the Project under a range of possible scenarios (e.g., construction delays, regulatory interventions, etc.).



On or around the date of commercial operation, NEET MidAtlantic will seek to convert its short-term variable rate debt into long-term fixed rate financing.

The Project may further benefit from a portfolio financing post-construction that could include a series of multiple fixed rate debt issuances that align with the forecasted depreciable net book value of the project assets, when viewed as a diversified portfolio. Such a structure allows ratepayers to benefit from a portfolio of debt terms and rates, which minimize the overall financing cost.

In addition to the capital markets, NextEra often looks to the bank market for attractive financing opportunities. Banks can sometimes provide greater flexibility with respect to our financing needs, but generally speaking, bank loans are considered an equivalent source of financing and the two are used interchangeably to support the company's development pipeline. Strong demand exists from banks to lend to good quality credits with stable cash flow at attractive rates. Through NEECH, NEET has access to a balanced and well-diversified lending group that can support bank financing.

### **Commitment to Execute the Consolidated Transmission Owners Agreement**

If it is selected to be the Designated Entity, NEET MidAtlantic is prepared to execute the Consolidated Transmission Owners Agreement.

### **NextEra's Experience Responding to Contingencies**

The NextEra Corporate Emergency Management Plan (CEMP) describes the processes and procedures that guide how NextEra plans for and responds to incidents. CEMP applies to all threats or incident responses including, but not limited to: severe weather; cybersecurity; grid or supply disruptions; physical security; floods; fires; chemical spills; pandemics; civil unrest; or any other hazards that threaten NextEra systems, reputation, employees, or contractors. NEET MidAtlantic will rely upon the CEMP to respond effectively. The objectives of the CEMP are to ensure that:

- All employees have been accounted for;
- Resources will be effectively deployed from across the enterprise to respond to the incident;
- Response personnel understand the common emergency response organization and incident management practices used by NextEra;
- Response team members understand their roles and responsibilities and key processes applicable during any incident;
- There is clear, effective communication regarding the incident to both employees and the public;
- NextEra uses a "one voice" approach to communicating with all internal and external stakeholders;

- The principles of the Incident Command System (ICS) are employed, including the activation of an emergency response organization; and
- Assistance is provided to impacted employees and their families.

NEET MidAtlantic will develop an event response plan supported by a comprehensive spare part strategy and emergency plans, to ensure an appropriate response to catastrophic events. NEET MidAtlantic will augment the process and strategies in the emergency plan to account for the effects of a project's unique environmental, weather and topography conditions. In particular, NEET MidAtlantic will incorporate specific weather operating plans and experiences from NextEra's operation of assets throughout North America. NEET MidAtlantic will leverage the extensive experience of NextEra affiliates, to develop NEET MidAtlantic specific plans to respond to large-scale emergencies involving project facilities. For instance, FPL's service area is uniquely susceptible to impacts of severe weather systems such as tropical storms and hurricanes, and the organization has a comprehensive plan to respond safely and as quickly as possible when the electric infrastructure is damaged by a hurricane, tropical storm, or any other severe weather event. NextEra recognizes that the severity and nature of storm damage can vary widely and accounts for the fact that power restoration will be affected by the path and intensity of the storm, the storm's impact on other utilities and how quickly additional restoration workers and supplies can reach Florida. FPL updates its storm plan every year based on lessons learned from the previous year's storms across North America. Although each project can be in a much different operating climate and geography, NextEra uses equivalent processes for organization and response to severe weather and system events in the project area. These plans are adjusted as necessary to apply to the facilities and coordinate with applicable regional emergency processes.

NextEra affiliates operate transmission facilities all over the U.S., with many in harsh environments. NextEra has amassed a vast skill-set from operating and maintaining these assets including: component end-of-life estimating and responding to the impact from severe weather events such as tropical storms, hurricanes, tornados, conductor icing, and fires. NextEra continuously works to improve its response plans to catastrophic events, by bolstering guidelines and regularly training staff with storm drills.

In October 2016, Hurricane Matthew caused tree and system impacts over much of the FPL service area. FPL restored more than 1 million customer interruptions less than 48 hours after the storm exited its service territory.

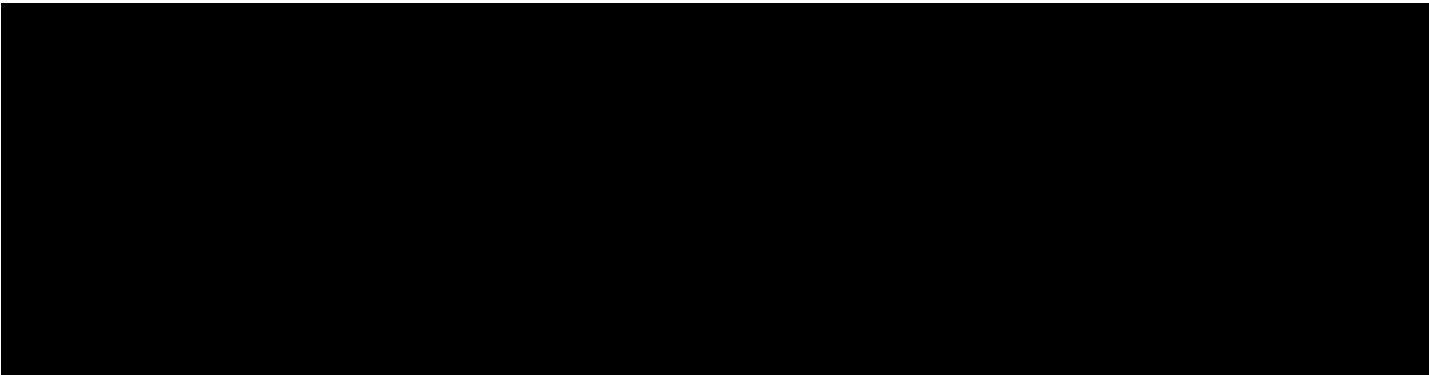
FPL worked around the clock not just to restore service, but rebuild electric infrastructure from the ground up. At the height of restoration, FPL's workforce numbered 15,000, including its own employees along with workers from contracting companies and partner utilities across the country.

By the end of the second full day after Matthew left the area, FPL was able to restore power to 98.7% of its customers. Initial analysis indicates that FPL's system performed well during Matthew, as was the case during Hurricane Hermine a few weeks prior. Automated switches on poles and wires prevented approximately 80,000 outages. Also, hardened feeders, which are designed to withstand more severe weather conditions, performed approximately 1.5 times better than non-hardened feeders. No poles

along FPL's transmission or distribution network failed due to wind from Matthew. Any damage to FPL electrical equipment was due largely to debris and fallen trees and limbs.

### NextEra's Experience Acquiring Parcels and Rights of Way

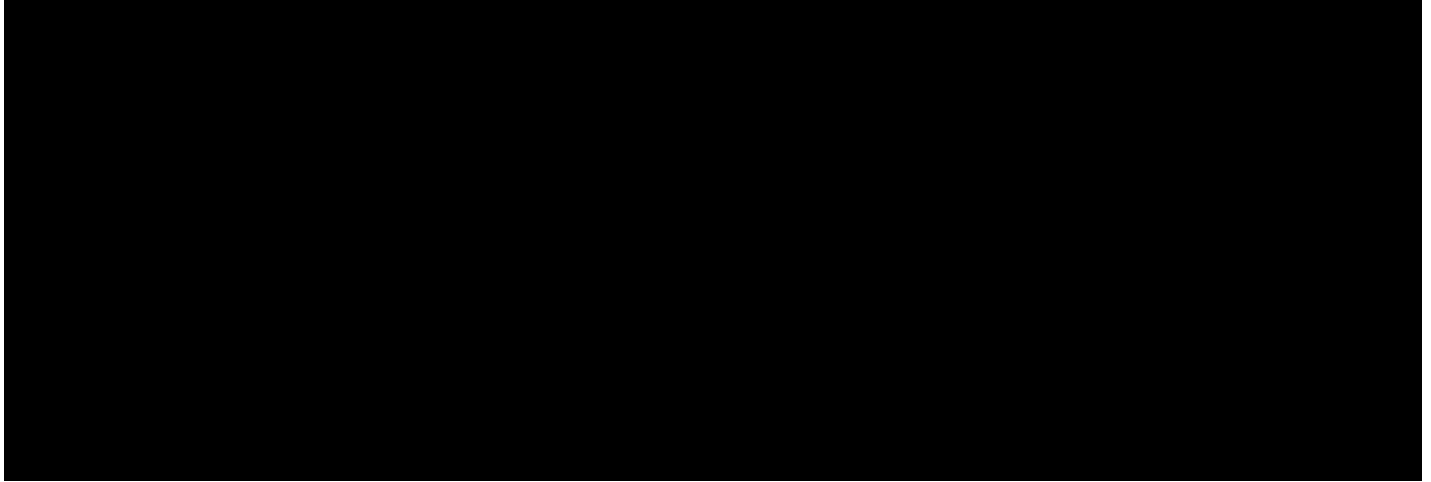
NextEra and its subsidiaries, including NEET, have significant and geographically diverse experience in acquiring ROW for energy infrastructure across North America. In constructing a transmission project, many of NextEra's business organizations, such as Development, Land Services, Law, and Environmental Services, are responsible for negotiating and acquiring the necessary land interests for a project. These professionals are active through the site selection process, and the environmental assessment phase in support of regulatory applications.



## C. PROPOSED PROJECT CONSTRUCTABILITY INFORMATION

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### Scope of Project



### Solution to Cross-Border Issues

This Project is not being proposed as a solution to a cross-border issue(s).

### Interregional Cost Allocation

Evaluation for Interregional Cost Allocation is not desired.

### Coordinated Interregional Analysis

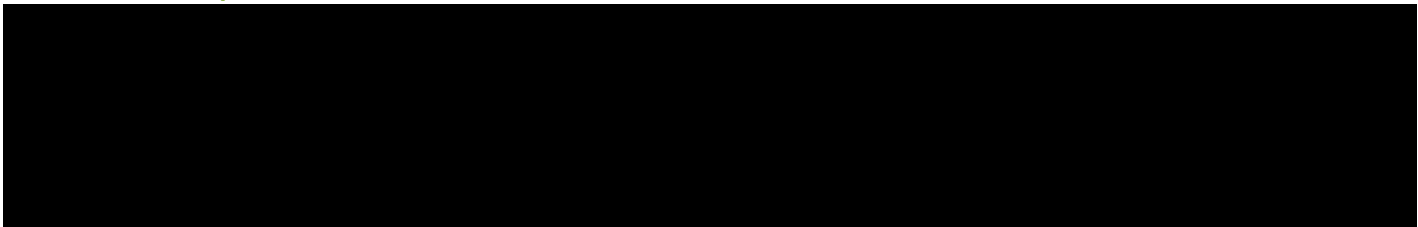
Not Applicable

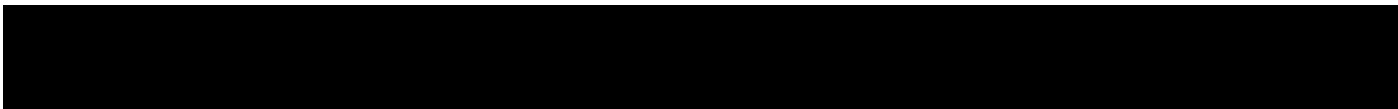
### Regional and Interregional Violations and Issues

- 2016 RTEP Proposal Window #3
- Generator Deliverability Overloads – Flowgate 123 – Maddox Creek – East Lima 345 kV

### Detailed Breakdown of All Proposal Elements

### General Description

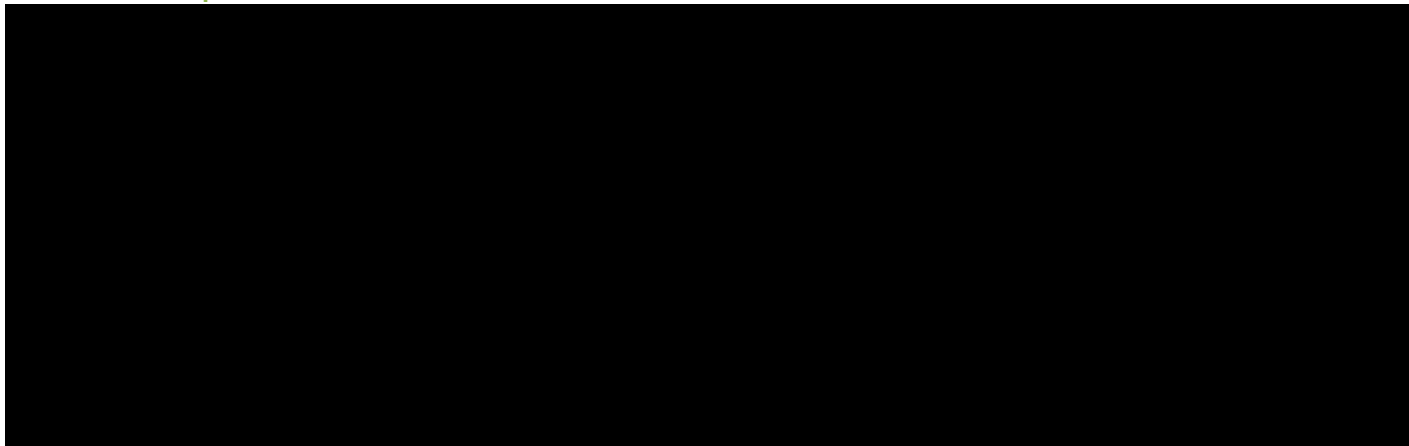




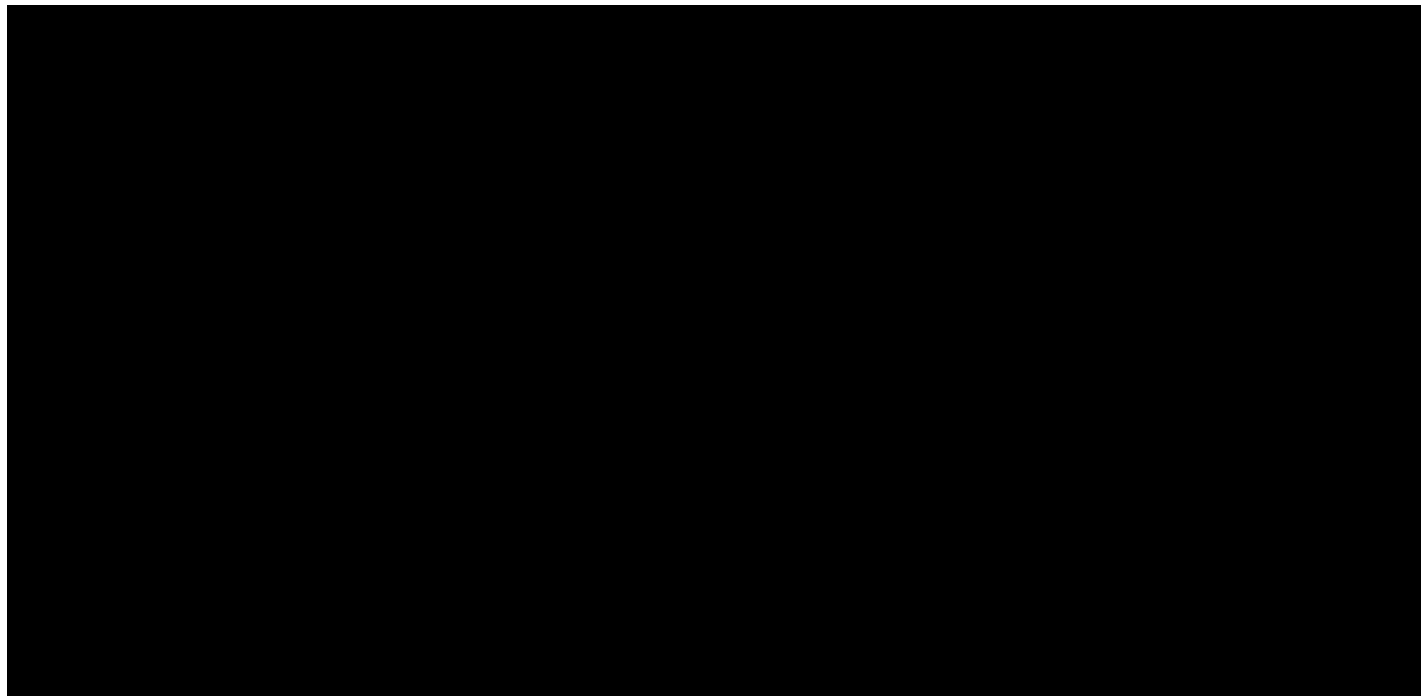
### Geographic Description

The terrain of the site is typical of the region and the surrounding area is comprised of gently rolling hills and valleys. Slopes range from 0 to 1 percent according to the U.S. Department of Agriculture (USDA) Soil Survey.

### Parcel Description

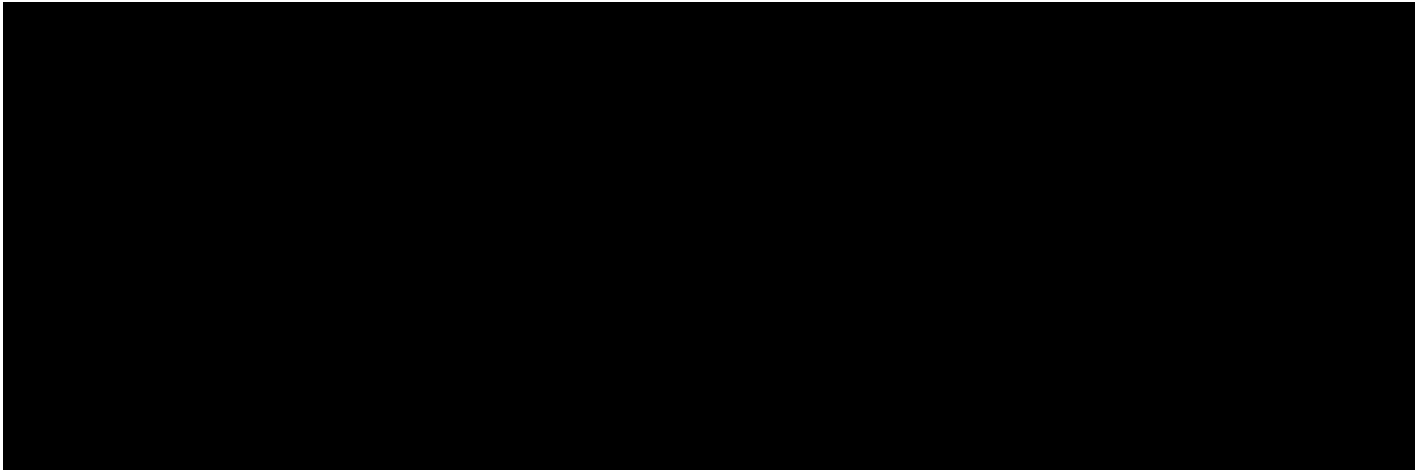


### Summary of Methods



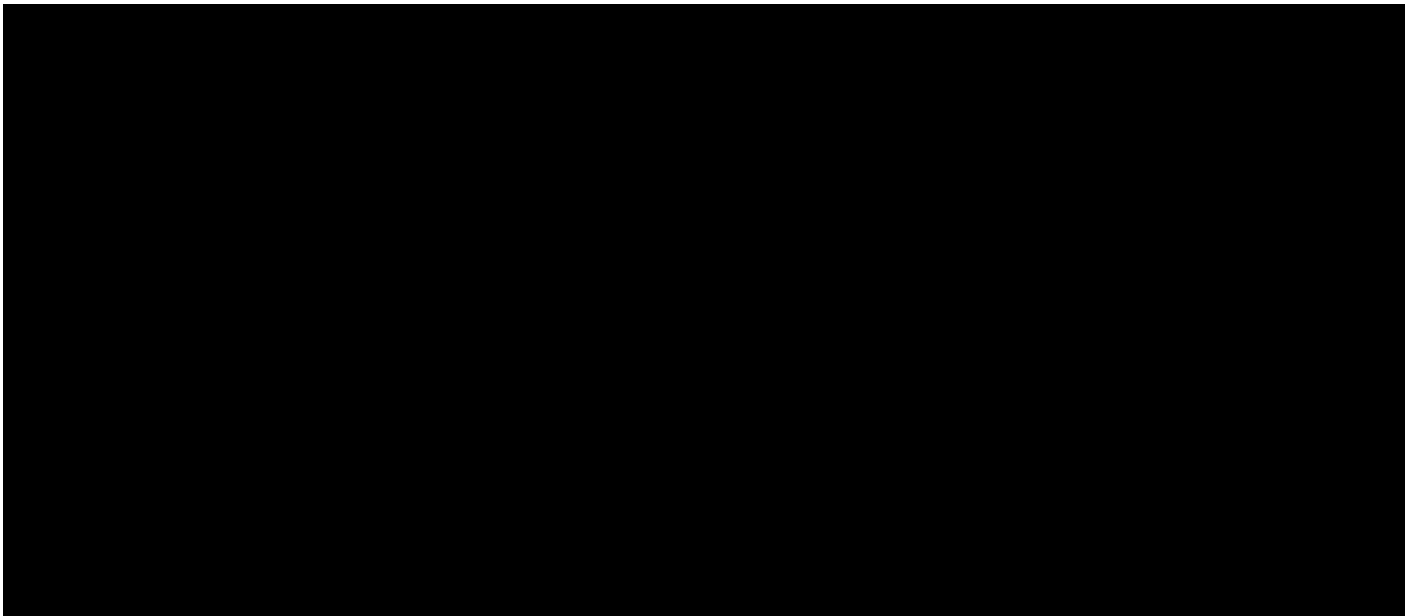


### Potential Siting Issues Related to Environmental and Cultural Impacts

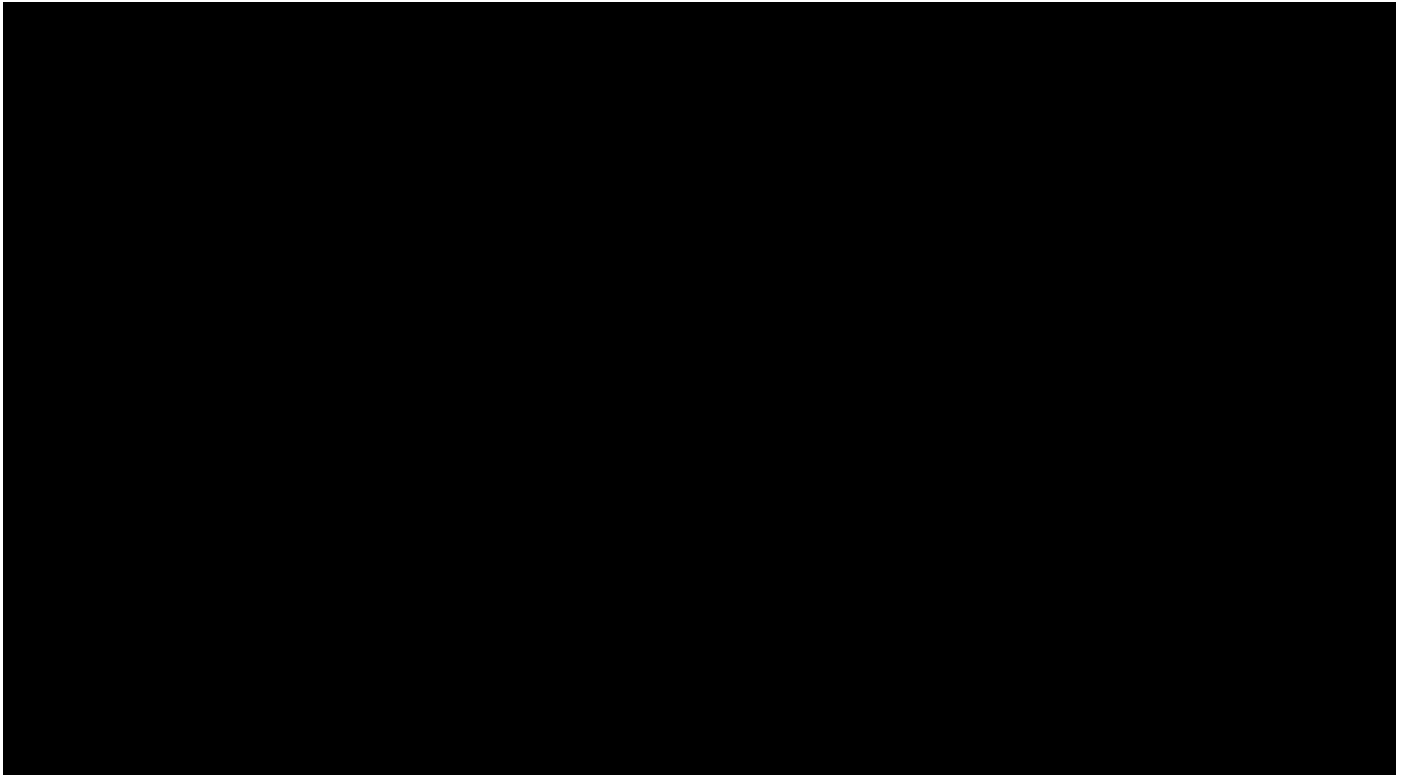


A summary of potential environmental and cultural resources that may be impacted by the proposed substation location and associated connecting transmission line is provided below. However, verification of actual potential impacts can only be completed through future field studies.

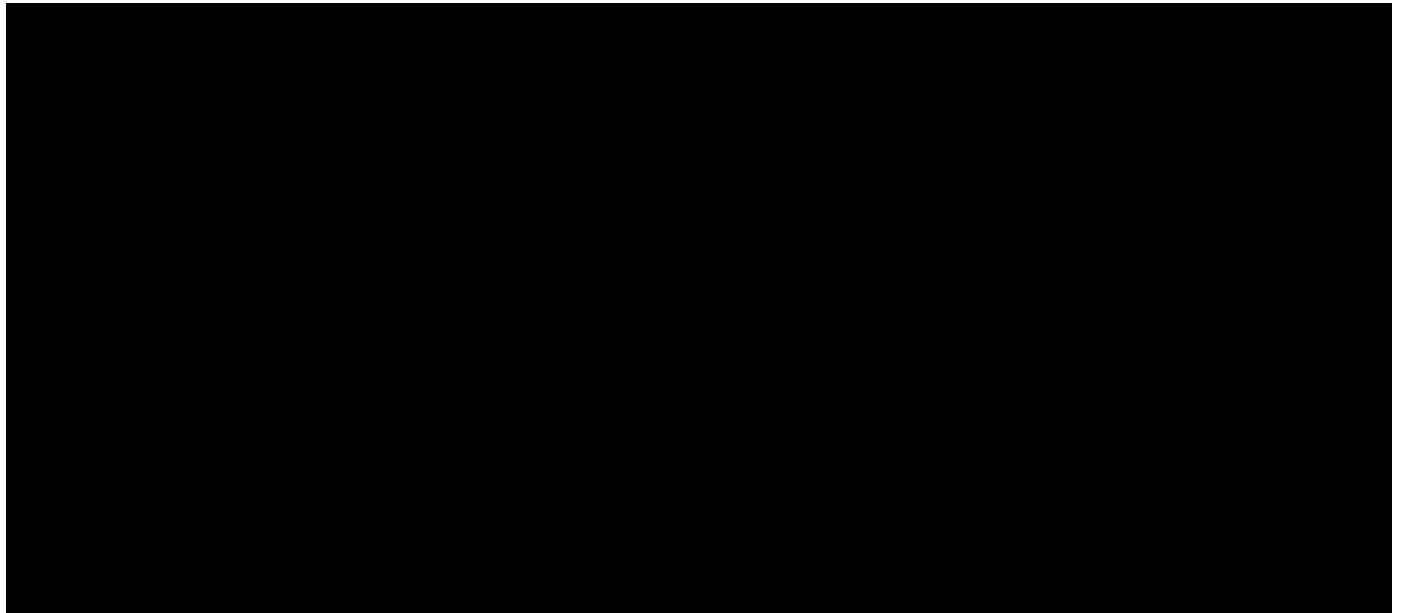
### Maddox East Series Reactor Site – Potential Impacts

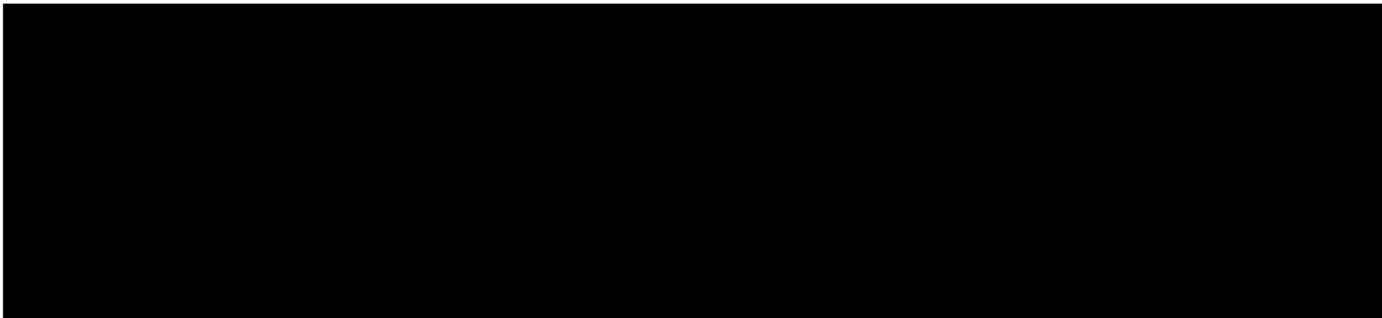


## ROW and Land Acquisition Plan

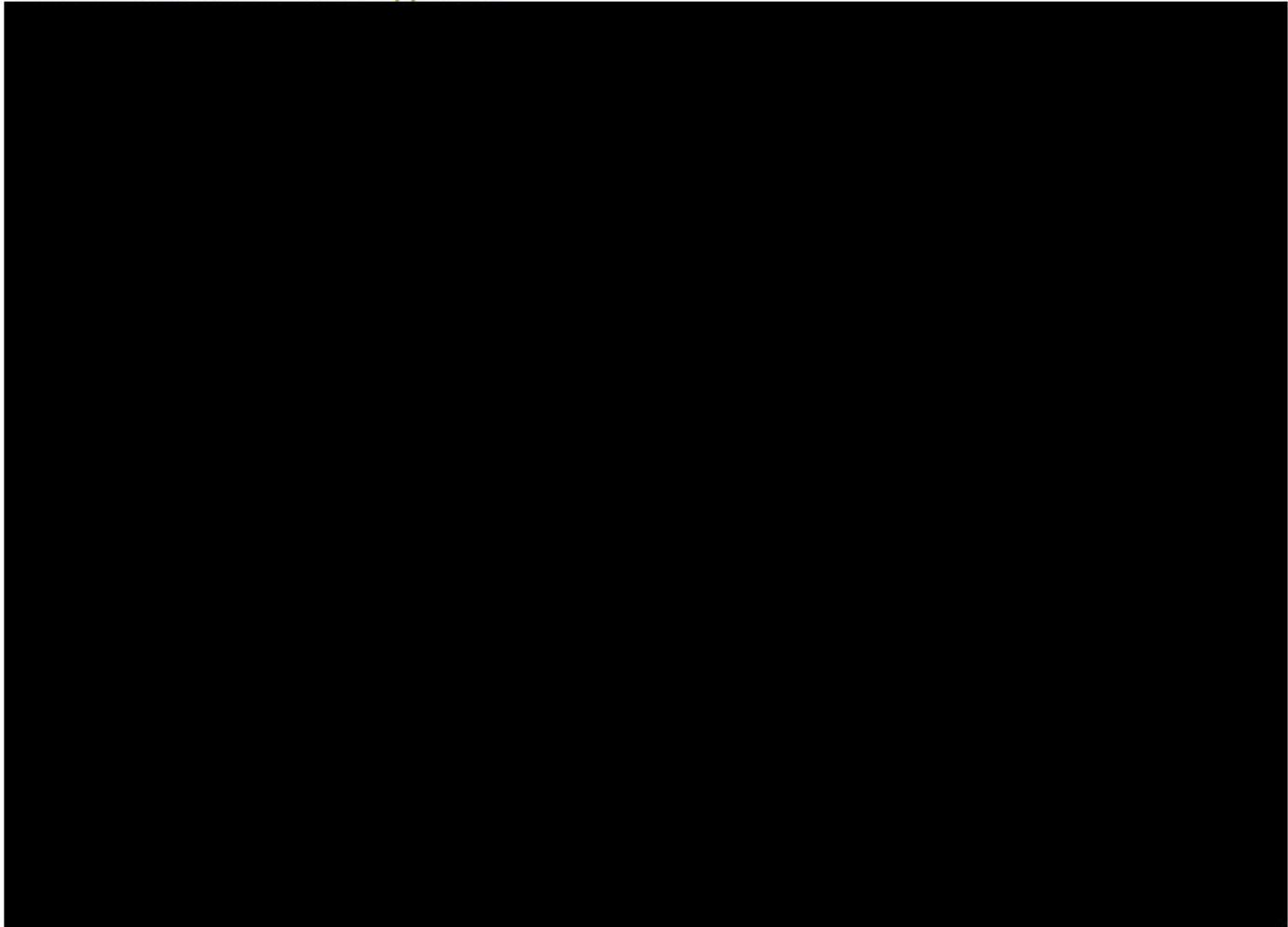


## Permitting Plan and Approach





### Discussion of Potential Public Opposition



### Physical Characteristics

[REDACTED] All equipment will be properly grounded and mounted on cast in place concrete foundations (either pedestal or mat slabs). The station will also



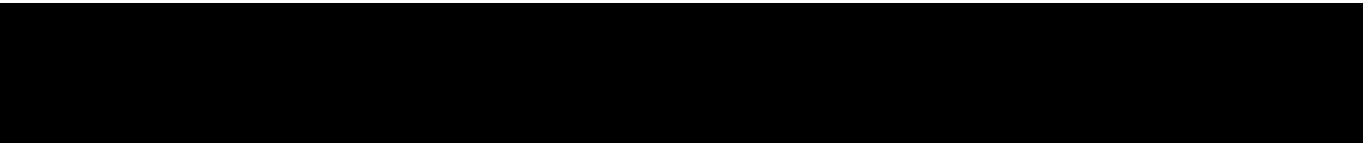


include a control house with associated relay and protection equipment. See Appendix 8 for a preliminary General Arrangement and Appendix 2A for One-Line Drawings that further describe the physical characteristics.

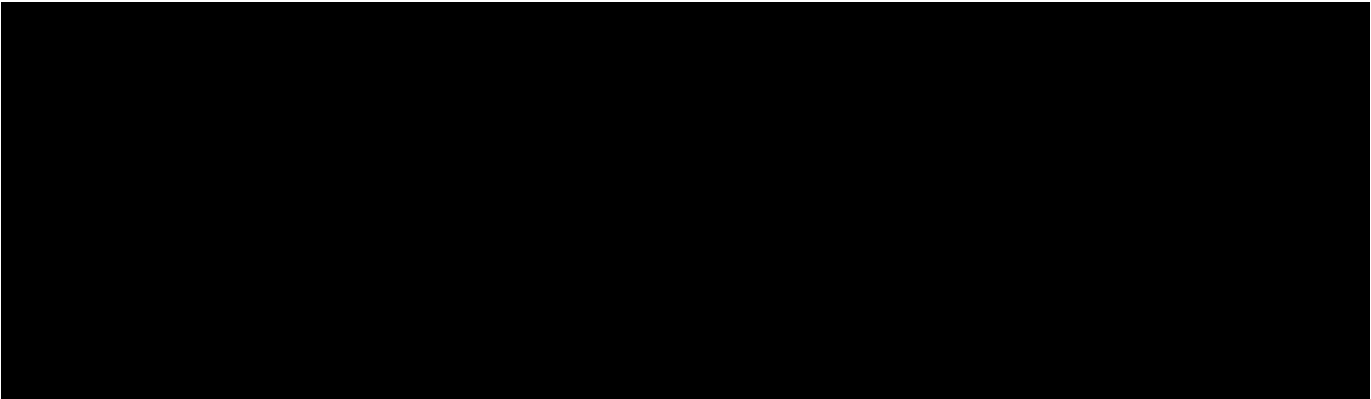
### Maps and Supporting Diagrams

Appendix 3 previously submitted shows the aerial map of the Project, Appendix 3A contains more detailed information on the site location. Previously submitted Appendix 2 contains a one-line diagram of the proposed reactor, and Appendix 2A contains a detailed one-line diagram. Appendix 8 contains the preliminary General Arrangement drawing.

### Specific Location of Interconnection with Incumbent TO Facilities



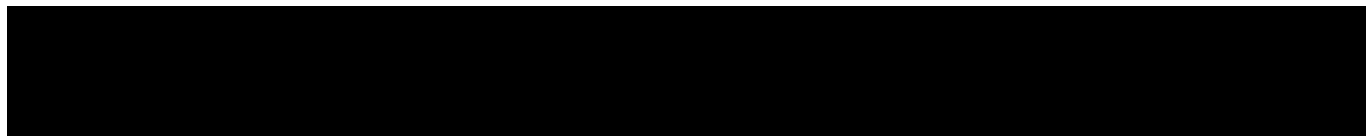
### Generation/Transmission Outages Required for Construction



### Total Cost of Project and Total Cost for Each Major Component

Please see Appendix 6 for the Total Project Implementation Cost.

### Identification of Construction Responsibility



## D. ANALYTICAL ASSESSMENT

NEET MidAtlantic studied the project according to various PJM RTEP analyses including:

- N-1 Contingency Analysis (Thermal and Voltage)
- N-1-1 Contingency Analysis (Thermal and Voltage)
- Generator Deliverability Analysis
- Common Mode Outage
- Load Deliverability
- Short Circuit

The complete details of NEET MidAtlantic's analytical assessment can be found in the zip file uploaded to PJM's website. As verified by emails received from PJM, the following files were submitted to PJM at approximately 4:28pm on October 28, 2016: NEET3A\_2016 RTEP Window 3 (20161028) Final.zip.

The zip file contained a number of documents as follows:

| Name   | Type                      | Compressed size | Password p... | Size   | Ratio | Date modified      |
|--|---------------------------|-----------------|---------------|--------|-------|--------------------|
| Appendix 1 - Powerflow Results - NEET3A_2016.pdf | Adobe Acrobat Document    | 103 KB          | No            | 112 KB | 8%    | 10/28/2016 2:11 PM |
| Appendix 2 - SLG - NEET3A_2016.pdf               | Adobe Acrobat Document    | 215 KB          | No            | 248 KB | 14%   | 10/28/2016 2:25 PM |
| Appendix 3 - Aerial Map -NEET3A_2016.pdf         | Adobe Acrobat Document    | 576 KB          | No            | 732 KB | 22%   | 10/28/2016 1:13 PM |
| Appendix 4 - Contingencies - NEET3A_2016.con     | CON File                  | 1 KB            | No            | 1 KB   | 29%   | 10/12/2016 3:14 PM |
| Appendix 5 - NEET3A_2016.idv                     | IDV File                  | 1 KB            | No            | 1 KB   | 29%   | 10/27/2016 2:58 PM |
| NEET3A_2016-RTEP_Proposal_Template_2016.xlsx     | Microsoft Excel Worksheet | 26 KB           | No            | 51 KB  | 50%   | 10/28/2016 2:40 PM |

NEET MidAtlantic has, through the October 28, 2016 proposal submittal, provided PJM with the following:

- Detailed analysis report on proposed solutions,
- Equipment parameters and assumptions,
- All necessary PSS/E idev files as appropriate data to model upgrade,
- Proposal Template spreadsheet (in excel format) including Flowgates the project is addressing, general scope, detailed solution components, and total cost,
- All supporting documentation required by PJM to perform verification review, including:
  - Modifications to existing contingencies and new contingencies necessary to properly model the proposed project

As requested by PJM, an updated RTEP Proposal Template (in excel format) which includes both an overall project cost and detailed cost of each component is being submitted with this Greenfield RTEP Proposal document (Redacted and Un-redacted).

## E. COST

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NEET MidAtlantic estimates that the total project will cost approximately \$5.95 million (in 2016 dollars), of which approximately \$5.56 million is estimated to be designated to NEET MidAtlantic, and approximately \$0.39 million is estimated to be performed by the incumbent transmission owner. NEET MidAtlantic further estimates that the total project will cost approximately \$6.17 million (In-Service Year dollars), of which approximately \$5.77 million is estimated to be designated to NEET MidAtlantic, and approximately \$0.4 million is estimated to be performed by the incumbent transmission owner.

A more detailed cost estimate breakdown and explanation of NEET MidAtlantic's cost cap is included in Appendix 6 of this application, including the details of the cost commitment being offered by NEET MidAtlantic.

## F. SCHEDULE

### Detailed Conceptual Schedule

NEET MidAtlantic conducted scheduling meetings with the project development team, including NextEra internal support teams (environmental and permitting, finance, engineering and construction, legal, and regulatory), as well as external consultants to develop a preliminary schedule to support this Proposal. Input from multiple sources was integrated with logic ties to ensure proper sequencing and duration of activities. This preliminary schedule has been developed using Primavera 6 software, NEET MidAtlantic's primary scheduling software.

NEET MidAtlantic will coordinate and conduct focused workshops to detail all permitting, pre-construction compliance tasks, environmental restrictions, construction clearance limitations, engineering, procurement, and construction activities. Full development of the schedule will require NEET MidAtlantic to conduct several schedule meetings and reviews early in the Project. NEET MidAtlantic will integrate schedules from all contractors and participating entities into the master schedule. As part of schedule development, NEET MidAtlantic will conduct several reviews to verify and confirm schedule tasks and logic.

NEET MidAtlantic will hold weekly schedule meetings with all participants throughout the development of the Project to update the schedule, review the three-week look ahead, and address critical path items. Any slip in the schedule will require the participating engineer, consultant, or contractor to develop a mitigation plan to recover the schedule. Please see Appendix 7 for detailed project schedule.

Table 3: **Project Milestones**

| Schedule Milestones                                 | Date       |
|---|------------|
| Project Award (Designated Entity Agreement)         | [REDACTED] |
| Permitting Complete (including federal/state/local) | [REDACTED] |
| Obtain Site Control                                 | [REDACTED] |
| Engineering and Design Complete                     | [REDACTED] |
| Material Procurement Complete                       | [REDACTED] |
| Start Construction/Activities                       | [REDACTED] |
| Start Testing and Commissioning                     | [REDACTED] |
| Project COD   | [REDACTED] |

## G. OPERATIONS/MAINTENANCE

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### Overview Plan for Operating and Maintaining the Transmission Facilities

