

**NextEra Energy Transmission, LLC**  
**Company Evaluation and Constructability Information**  
**For**  
**Montour to Sunbury Route**

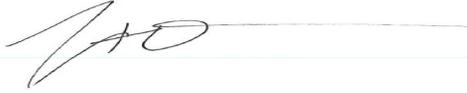
**Submitted to:**

**PJM,**

**July 28, 2014**

**Signature Page**

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## **A. Executive Summary**

### **Name and Address of the Proposing Entity**

NextEra Energy Transmission, LLC  
700 Universe Blvd, UST/JB  
Juno Beach, FL 33408

### **A general description of the proposed project**

NextEra Energy Transmission, LLC (“NEET”) proposes a new 22 mile, 230 kV transmission line within PPL’s service territory from the Montour substation to the Sunbury substation. (“the Project”) The new line will parallel the existing 230 kV line minimizing environmental and land concerns while providing greater efficiencies for future growth in this market.

### **The reliability problem(s) that the project is proposed to resolve**

The 2019 PJM Generator Deliverability analysis identified that the 230 kV lines from Montour to Milton and Milton to Sunbury have thermal overloads beyond their emergency rating. These two elements both overload for the tower contingency that results in an outage of two 230kV lines from Montour to Susquehanna. These limiting elements and the corresponding contingencies are identified as PJM flowgates 797 and 801, respectively. NEET, working with [REDACTED], evaluated a number of solutions to identify the most cost-effective solution that would also maximize the long-term reliability benefit.

Utilizing MUST, the team replicated the overloads identified in the 2019 PJM Generator Deliverability analysis results. For flowgate 797 and 801, MUST files were created that included the corresponding PJM flowgate definitions. Subsystems were then created that corresponded to each PJM flowgate dispatch. The Generator Deliverability flowgate dispatch used for analysis with the mitigating element included was assumed to be the same as the dispatch employed without the mitigating element.

Various solutions were proposed and studied; however, NEET decided that a second transmission line parallel to the overloaded elements would provide the most cost-effective solution while offering the greatest amount of reliability for both the short-term need and for the longer term as well.

Details of NextEra’s exact proposed transmission line can be found in Table 1.

Table 1 : Characteristics of the proposed new line

Electrical and Physical Characteristics	
Project Description	New 230 kV line from Montour to Sunbury
From Substation	Montour
To Substation	Sunbury
Nominal Voltage	230 kV
Technology	AC
Line Length (mi)	22
Transmission Line Conductor	[REDACTED]
Shield Wire	[REDACTED]
Normal Rating (MVA)	[REDACTED]
Emergency Rating (MVA)	[REDACTED]
Tower Type	[REDACTED]

The team modeled the solution in MUST and verified that it solved the need as demonstrated in the IDEVs and power flow cases which are included as external attachments and are outlined below:

- Identified potential substation configurations to accommodate the new proposed transmission line. Substation one-lines can be found in Appendix 1.
- Identified new contingencies as a result of the new proposed interconnections. The revised list of contingencies associated with breaker failures at the interconnecting substations can be found in Appendix 2.
- New transmission line was studied to determine if it solved the generator deliverability issues identified. These results are found in Appendix 3.
- New transmission line was studied to determine if there were any N-1 adverse impacts to the transmission system. These results are found in Appendix 4. In summary, no new contingency violations were found.

NEET and [REDACTED] contend that while it may be possible to re-conductor the overloaded element to resolve the thermal overload, it is not necessarily a viable long-term

solution. A second line will provide far more transmission capacity at a comparable cost while providing redundancy to the transmission system.

### **Total proposed project cost**

The total proposed project cost for the Montour to Sunbury line using steel monopoles is estimated around \$55.36 million. A more detailed breakdown is included in Table 4 further in this application. Given the 30-day window, this is an indicative cost estimate. As the process continues, NEET will be able to firm up the projected costs.

### **Overall schedule duration**

NEET identified several environmental permits that may be required to construct a new 230 kV line. These permits are further detailed in Appendix 5 of this proposal. Estimating 18-24 months for such environmental permits, construction should take an additional 6 – 9 months. Total estimated duration is 33 months. Constrained by the 30 day window, only a high level, indicative schedule has been prepared for this project

The thermal overloads identified are based on 2019 generation delivery data. Assuming a January 2015 award by PJM, meeting an in-service date of 2019 should not be an issue. A more detailed schedule is provided is provided in Table 5 further in this application.

**Entities that will be requesting Designated Entity status are required to submit a statement affirming that the company pre-qualification information on record with PJM and as posted on PJM’s website reflects the company’s current qualifications to be eligible for Designated Entity status as defined in the PJM Amended and Restated Operating Agreement (“PJM OA”) in Section 1.5.8(a). The entity’s PJM pre-qualification ID must also be referenced.**

NEET affirms that it’s pre-qualification information on record with PJM and as posted on PJM’s website reflects the company’s current qualifications to be eligible for Designated Entity status as defined in the PJM Amended and Restated Operating Agreement (“PJM OA”) in Section 1.5.8(a). NEET’s PJM pre-qualification ID is Q13-18.

**If the proposing entity seeks to be designated to construct, own, operate, maintain and finance the proposed project or some portion of the project, the proposing entity must provide a statement within the project proposal package stating the intent to be considered the Designated Entity for the proposed project.**

NEET is seeking to be designated to construct, own, maintain and finance the proposed 230 kV line in PPL’s service territory from the Montour substation to the Sunbury substation. Based on NEET’s approval from PJM in the prequalification process, we request Designated Entity status

for this project. As the proposed transmission line will terminate at existing substations, NEET will not operate the new line.

## **B. Company Evaluation Information**

### **Description of proposing entity's (or its affiliate, partner or parent company) technical and engineering qualifications relevant to construction, operation and maintenance of the proposed project**

NextEra has over 50 years of technical expertise in engineering, constructing and operating large infrastructure projects, including transmission systems. NextEra owns and maintains more than 66,000 miles of distribution lines, approximately 8,200 circuit miles of transmission lines between 69 kV and 500 kV, and 750 substations across North America. Additionally, NextEra is a nationally-recognized company which has a reputation for completing large transmission projects in a timely and cost-effective manner.

#### ***Florida Power & Light Company***

FPL is the largest rate-regulated electric utility in Florida, and one of the largest in the United States. At December 31, 2013, FPL's assets totaled approximately \$36.49 billion, and FPL's generating resources for serving load consisted of 26,060 MW, of which 24,057 MWs were from FPL-owned facilities. FPL serves approximately 4.6 million customer accounts in Florida and is a leading employer in the state with approximately 10,000 employees. FPL operates and maintains approximately 1,106 miles of 500 kV transmission lines, including 4,624 structures and ten 500 kV substations.

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 bills continue to be lowest of the state's 55 electric utilities (based on a 1,000 KWh typical bill) and 26% lower than national average in 2012.

In addition, FPL's reliability was the best among Florida's investor-owned utilities during the last five years. In 2012, FPL achieved its best-ever overall reliability performance as measured by the System Average Interruption Duration Index ("SAIDI"), which measures the average time a customer is without power.

#### ***NextEra Energy Resources***

NEER is primarily a competitive wholesale power generator, which operates a portfolio of facilities, totaling over 18,000 megawatts, from power plants in 24 states and Canada. Its electric output 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. It has earned a strong reputation in power plant development, construction, and operations based on standardized processes, best practices and superior execution.

Additionally, NEER leads the power industry through its focus on clean and renewable energy. For example:

- Approximately 96 percent of its electricity comes from clean or renewable sources, including wind, solar, nuclear, gas and hydro.
- NEER is the No. 1 generator of solar and wind power in North America. (*Source: American Wind Energy Association and National Renewable Energy Laboratory*)
- NEER uses clean-burning fossil fuel with natural gas facilities in five states.
- NEER has the third largest nuclear fleet in the country, which produces no greenhouse gases.

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

NEET currently owns and operates transmission utilities in New Hampshire and Texas, and is developing transmission projects throughout North America. Most recently, in August 2013, the Ontario Energy Board selected Upper Canada Transmission Inc. (UCT), a partnership of NextEra Energy Canada ULC, Enbridge Transmission Holdings Inc., and Borealis EWT Inc. as the designated developer for the East-West Tie, which involves construction of a new, approximately 250-mile long double circuit high-voltage electrical transmission line adjacent to an existing transmission line running between Thunder Bay and Wawa, Ontario which, in conjunction with the existing line, will increase capacity and reliability of electrical transmission between northeast and northwest Ontario. UCT prevailed in a competitive proceeding involving six applicants who submitted detailed proposals for the project.

In addition, Lone Star, a wholly-owned subsidiary of NEET, includes 293 miles of double circuit and 35 miles of single circuit 345 kV transmission line, using spun concrete and tubular steel monopoles with braced post insulators. The project traverses various terrains and geological conditions requiring multiple specialized foundation types. Each phase consisted of horizontal double bundled 1590 ACSS TW Falcon conductor. The project also required the construction of three large greenfield switching stations and two series compensation stations.

Lone Star's primary and backup energy management system ("EMS") is in Florida, and primary and back-up control centers are located in Austin, Texas for system operations. In addition to its Texas operations team, Lone Star relies on shared NextEra transmission and substation personnel, processes and procedures, and benefits from the operational efficiencies of a well-established shared services organization.

NextEra Energy Transmission will draw upon the resources of its affiliates to ensure successful project execution: *Florida Power & Light*, one of the leading utilities in the United States and *NextEra Energy Resources*, which is the largest developer of wind and solar energy generating facilities in the U.S.

NextEra companies have a long-standing presence in PJM as developers, owners, and operators of clean energy generating and transmission facilities that demonstrate that NEET can draw on these resources and experience to operate effectively and efficiently in the region.

**Detailed description of proposing entity’s (or its affiliate, partner or parent company) experience in developing, constructing, operating and maintaining the types of transmission facilities included in the project proposal**

NextEra has a substantial engineering organization that will lead the execution of the Project. NextEra’s design and engineering capabilities include:

- In-house engineering expertise in transmission line and substation engineering and design; civil and structure engineering; protection and control and communications systems expertise.
- Experienced transmission line designers and subject-matter experts that will develop the scope of work documents for the construction plan, including structure drawings, plan and profile drawings and construction 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.
- Strength in material and equipment procurement:
  - Experienced in-house procurement staff with the ability to work through vendor selection;
  - Long-standing relationships with vendors and significant buying power that allows us 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
  - Practice of often buying major and critical equipment in advance, mitigating risks such as delivery delays or material cost escalation.

We have a depth of experience in the construction of transmission lines, substation facilities and related infrastructure. Our team has proven capabilities in constructing and managing high voltage transmission line projects in compliance with the design, reliability, and operation standards set forth by a variety of authorities in North America. Between 2007 and 2013, we completed over 1,100 miles of new transmission line construction at voltages ranging from 69kV to 500 kV and up to 500 miles in length, in locations such as Pennsylvania. Our experience includes the full range of activities needed to support successful project development, including:

- **Licensing and Permitting:** 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 the appropriate adherence to Federal, State and local environmental requirements including environmental audits;
  - Expertise in 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 in performing environmental due diligence for potential acquisitions, divestitures and financings; and
  - Experience promoting environmental relationships with external environmental groups, and integrating and communicating sustainability.
  
- **Environmental and other regulatory approvals:** We have numerous environmental professionals who work solely on new project development activities. They are involved in projects from the project 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 the ROW, and specifically to identify any additional mitigation to ensure compliance.

**Detailed description of proposing entity’s (or its affiliate, partner or parent company) experience in adhering to standardized construction, maintenance, and operating practices, including the capability for emergency response and restoration of damaged equipment;**

We have an extensive operations and maintenance team at NextEra, and NEET will leverage both internal and contractor resources for the safe, reliable and efficient operations and maintenance of the Project. Below are highlights of our O&M capabilities:

- We 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 Transmission Performance & Diagnostics Center (TPDC) in South Florida will serve as a hub for technical knowledge, as well as remote condition assessment and field asset health information in support of operations.
- We have experience with owning, operating and maintaining reactive power support and their associated control systems with 365 MVAr of synchronous condensers, 8,115 MVAr of transmission level manually switched capacitors, and 3000 MVAr of series compensation. Our assets include 345kV Reactive Power Compensation equipment. The total power transformer capability operated and maintained by NextEra affiliates is 160,002 MVA, of which 139,363 MVA is subject to NERC jurisdiction.
- Our staff oversees a large number of projects annually, including major system upgrades and maintenance initiatives at operating facilities, and supports O&M services to FPL, affiliates in 24 U.S. states and in 4 Canadian provinces and regulated transmission utilities in Florida, the ISO - New England and ERCOT (Texas) systems.
- As part of our experience in the Florida peninsula, we have faced and overcome a wide variety of operating challenges ranging from hurricanes, tornados, and other high wind conditions, to salt spray contamination, avian interaction, lightning, and managing a peninsular system at the edge of the Eastern Interconnection. Every outage in the FPL transmission system is followed up by an Event Response Process in which we use diagnostic techniques to identify the root cause of a problem in order to prevent reoccurrence
- Our staff’s capabilities are confirmed by the low transmission outage rate. FPL exhibited top - decile transmission reliability performance in a recent benchmarking

study (2011 SGS Transmission Reliability Benchmarking Study, by SGS Statistical Services), which assessed utilities from across the United States

- Solutions to transmission O&M problems include new designs, new conditions 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 extreme geographic and climate conditions that we are likely to face in this Project.

**Detailed description of proposing entity’s (or its affiliate, partner or parent company) experience in working in the geographical region in which the project has been proposed**

Below is a table that highlights Nextera’s transmission projects in the PJM region.

Table 2: PJM Territory Transmission projects (continued on next page)

(1) Description	(2) Location	(3) Voltage Level(s)	(4) Length (miles)	(5) Nominal Rating	(6) Capital Cost (US\$ millions) <sup>1</sup>	(7) In Service Year	(8) Project Sponsor Responsibility <sup>2</sup>
<u>MARCUS HOOK (MH 50 Substation)</u> Number of Breakers: 1 Bus Configuration: Single	USA, PA	████	████	██	██████████	██	████
<u>MARCUS HOOK (MH 750 Substation)</u> Number of Breakers: 1 Bus Configuration: Ring	USA, PA	████	████	██	██████████	██	██████

1 NEET requests that this NextEra capital cost information be treated as confidential. NextEra does not make public the capital costs for its independent power projects, as the costs of these projects contain sensitive information about NextEra's costs and business practices. Any of our competitors who obtain this information would gain a better understanding of NextEra's business, and potentially gain a competitive advantage against NextEra subsidiaries in competitive proceedings. The damage to the competitive position of NextEra and its subsidiaries in the industry would be significant. Accordingly, NEET requests that PJM take all steps to the fullest extent allowed by law to help safeguard non-disclosure of this confidential information. Note also that capital costs have been provided on a best efforts basis as not all projects have detailed records for individual project components.

2 Project Sponsor Reliability refers to whether NextEra was responsible for each of the following for the projects listed - financing (F), designing (D), siting (S), constructing (C), operating (O) and maintaining (M) the line or substation. For example if NextEra had responsibility for only Construction, Operation and Maintenance on a project, then a C, O, M would be entered in that cell in the table

<u>MEYERSDALE WIND (Meyersdale North)</u> Number of Breakers: 1 Bus Configuration: Single	USA, PA	████	████	██	████	████	██████
<u>MOUNTAINEER WIND ENE</u> Construction: Overhead Pole Material: Wood Pole Configuration: Monopole # of Circuits: 1	USA, WV	████	██	████	██	████	██████
<u>SAYREVILLE (Sayreville Substation)</u> Number of Breakers: 7 Bus Configuration: Double	USA, NJ	████	██	██	██████	████	██████
<u>WAYMART WINDFARM (Brownell)</u> Number of Breakers: 1 Bus Configuration: Single	USA, PA	████	██	██	██	████	██████
<u>WAYMART WINDFARM</u> Construction: Overhead Pole Material: Wood Pole Configuration: Monopole # of Circuits: 1	USA, PA	████	██	████	██	████	██████

**Detailed description of proposing entity’s (or its affiliate, partner or parent company) experience in acquiring rights of way with specific emphasis on the geographical region in which the project has been proposed**

NextEra and its subsidiaries, including NEET, have decades of experience in acquiring ROW for energy infrastructure across North America. In constructing a transmission project, many of NextEra’s business organizations, such as Land Services, Law, and Environmental Services, are involved and responsible for negotiating and acquiring the necessary land interests for a project,

as well as providing an active field presence through the corridor and route selection process and the environmental assessment phase in support of regulatory applications.

This effort includes active involvement in various open houses, informal meetings, and individual consultation with stakeholders that are directly impacted, directly adjacent, and within a prescribed radius of a project. Following the routing process, the responsible NextEra business organization engages in discussions with directly impacted landowners to negotiate and acquire the necessary land interests to support project execution and completion. The schedule to complete acquisition of required land for projects is typically 8-12 months, with potential right of entry processes following receipt of primary permit. Right-of-entry processes typically take 18-20 weeks.

### ***Eminent Domain***

To the extent that easements over private property are required for the construction of transmission facilities, NEET is committed to contacting each landowner in an effort to negotiate the voluntary purchase and sale of an easement based on an analysis of all relevant factors so that the landowner is offered the fair market value for the easement.

Only after negotiations have failed, and as a last resort, will NEET seek to acquire an easement through the exercise of eminent domain power as a public utility. Although the eminent domain processes vary by state, as a general matter, NEET would be required to pay just compensation to the owner based on the market value of the easement rights acquired.

Appendix 6 also details NEET's wide range of experience in acquiring rights of way in multiple regions. NEET can also call on the experience of its affiliate, FPL, and its experience in gaining rights of way in traditionally regulated environments like Florida.

### **Proposed financing plan for the project including discussion of any cost advantages available to the proposing entity as a result of their financing plan and structure**

NEET benefits from the extensive, enterprise-wide financial resources of NextEra. A Fortune 200 company, NextEra's year-end 2013 balance sheet included over \$69 billion of assets and \$16 billion of shareholder equity, with more than 70% of NextEra's \$15 billion in 2013 revenues derived from regulated utility sources. Consequently, NEET, through its parent company, has the financial capacity to finance, develop, construct, operate and maintain projects over the long-term. NextEra has access to and regularly secures financing in public debt and equity markets, and it is committed to supporting NEET at the outset with plans to subsequently access the capital markets to raise long-term project financing as a stand-alone entity once projects pass major milestones. Further, NEET has access to substantial credit lines, which can be readily accessed.

Current and historical financial information related to NextEra, including Annual Reports and financial statements filed with the Securities and Exchange Commission can be obtained from the following links:

[NextEra- Annual Reports](#)<sup>3</sup>

[NextEra- Financial Statements](#)<sup>4</sup>

### *NextEra Energy Capital Holdings*

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. As of September 30, 2013, NEECH had over \$4.4 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.

NEECH relies on access to credit and capital markets as significant sources of liquidity for capital requirements, and other operations that are not satisfied by operating cash flows. NEECH’s current credit ratings are as follows:

Company	Moody’s	S&P	Fitch
NEECH	Baa1	A-	A-

### **Description of proposing entity’s (or its affiliate, partner or parent company) managerial ability to contain costs and adhere to construction schedules for the proposed project, including a description of verifiable past achievement of these goals;**

NEET is aware that a well-intentioned project schedule can be rendered meaningless unless the entity preparing such schedule has the experience, team, resources and track record to stand behind and deliver on the proposed schedule. Since 2003, NextEra has constructed 91 new, stand-alone infrastructure projects of which 89% were completed on time or early, and an overall average of 18 days early. Note that every one of these projects included a transmission component. All stand-alone transmission projects in this timeframe have been delivered on time. In the aggregate, these projects represent over \$23.2 billion of capital expenditures. Table 3

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<sup>3</sup> Link references [www.investor.nexterenergy.com](http://www.investor.nexterenergy.com)

<sup>4</sup> Link references [www.investor.nexterenergy.com](http://www.investor.nexterenergy.com)

provides a summary of our ability to meet project schedules across various projects, including transmission solutions.

**Table 3: NEET’s ability to meet project schedules**

	Number of Projects	% On Time or Early	Avg. Days Ahead of Schedule
Transmission	3	100%	22
Solar	8	100%	35
Wind	71	87%	18
Gas	9	89%	27
<b>Total</b>	<b>91</b>	<b>89%</b>	<b>18</b>

NEET, by being able to draw from the expertise across NextEra, supplemented with key consultant expertise, has the capacity to successfully execute all aspects of the Project, on-time and within budget. NextEra’s project management experience in managing and adhering to scope and schedule for transmission projects is highlighted by summaries of the two following projects:

**Blythe Energy Project:** This 230 kV transmission interconnection line - located approximately seven miles west of the California and Arizona border – is an excellent example of a challenging project that was delivered ahead of schedule and under budget. The 67 mile, single and double circuit 230 kV transmission line was built to interconnect NextEra Energy’s 520 MW natural gas-fired Blythe Energy Plant with the Southern California Edison (SCE) 230 kV transmission grid at the Julian Hines Substation. The line paralleled existing 161 kV and 500 kV lines for 30% of the route and was constructed within a 100-foot right of way. The Blythe Plant was awarded a Power Purchase Agreement with SCE, which included daily penalties of \$250,000 for failure to deliver plant energy by an agreed upon date using the transmission line. Additionally, the project was built in environmentally sensitive Desert Tortoise and Mojave Fringe-Toed Lizard habitat in the Mojave Desert in Southeastern California. The project required cultural, archaeological, biological, paleontological and Native American inspectors on site during all periods of construction. In addition, the new line crossed numerous existing transmission lines and paralleled a major gas infrastructure line into Southern California, creating various design and execution challenges. NextEra Energy, in conjunction with Southern California Gas (SCG), initiated pipeline mitigation studies and identified mitigation improvements, and SCG constructed the improvements. Despite these challenges, the project was completed approximately 25% below its original budget of \$100 million and 51 days ahead of schedule.

**Lone Star Transmission’s CREZ Project:** This project is another example of superior management of project scope and schedule. Lone Star’s transmission system consists of 300 miles of double circuit and 30 miles of single circuit 345 kV transmission lines, broken into three segments, with five 345 kV substations. Managing a project which traverses a long distance and

diverse terrains presents scope and schedule challenges. The Lone Star project team used geographic information system (GIS) based project management software to coordinate land acquisition and construction activities, as well as to track progress, report to management and document quality assurance and quality control processes. Using Primavera software, the project team conducted weekly project schedule reviews, including validation sessions with management and monthly executive dashboard reviews on all work streams. The project team also participated in regular engineering design reviews; assisted in managing the coordination of design criteria, system studies, equipment and material specifications, procurement and relay protection settings with all interconnecting utilities in Texas; and ensured that all required changes were executed according to NextEra's change management processes. The Lone Star Team was able to effectively manage design and construction of this larger complex project and complete it on time and more than \$50 million under budget.

As with the other comparable projects described above and throughout this application, NEET will employ best practices in project management, including rigorous adherence to schedule and effective oversight, to complete the Project. These proven project management techniques, as well as our transmission and substation experience, will be used to ensure timely project delivery and cost control.

**Details of any construction cost caps or commitment the proposing entity wishes PJM to consider in its analysis, including the conditions and exceptions to such construction cost caps or commitments (Note: As per the Tariff, submittal of such proffered cost caps are at the discretion of the proposing entity but will be considered by PJM in its analysis of the costs of various proposals)**

With only 30 days for the Short-Term Reliability proposal window, NEET has not provided firm, binding cost estimates. However as the proposal progresses, NEET reserves the right to submit a firm, binding cost with a cap. With a record of completing transmission projects ahead of schedule and under-budget, a cost cap may best allow PJM and the rate payers to benefit from the experience and efficiencies NEET is able to offer.

## **C. Proposed Project Constructability Information**

*Provide a general description which identifies the elements that comprise the component*

### **1. Greenfield Transmission Line Element Detail**

**A general description of routing study area**



[REDACTED]

**Geographic description of any terrain traversed by the proposed new line or the study area**

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [Redacted]
- [Redacted]
- [Redacted]

[Redacted]

[Redacted]

[Redacted]

**Route description by segment that includes lengths and widths and that classifies by:**

[Redacted]

**Geographic map with proposed transmission line study area superimposed**

See Appendix 9 for an overall view of the line with USGS Topographic background.

See Appendix 10 for a 5 page map book at a 1" = 2,000 ft scale with USGS Topographic background.

**Optional supporting information:**

Drawings for typical structure types – See Appendix 11

**Transmission facilities to be constructed by others**

[REDACTED]

Montour 230 kV interconnection work including (see Appendix 1)

- [REDACTED]

Sunbury 230 kV interconnection work including (see Appendix 1)

- [REDACTED]

## 2. Environmental, Permitting and Land Acquisition

*The proposing entity shall include:*

**Assessment of environmental impacts related to all facilities (i.e. environmental impact study requirements, environmental permitting, sediment, and erosion control issues)**

NEET understands that with any land development or utility line construction project, sufficient due diligence and agency coordination will be required to ensure full compliance with all federal, state, and local laws and ordinances. NextEra has the experience and local knowledge to successfully navigate complex permitting paths to successfully obtain all necessary permits to bring this project to fruition. Given the early stage of this process, this permitting summary is

based on a high level review for purposes of the bid package and is based on what NextEra currently knows about the sites assuming a typical permitting process on private land for a transmission project in Pennsylvania.

NextEra will first identify and delineate regulated natural resources such as wetlands, high quality and/or natural reproduction trout streams, threatened and endangered species (T&E), other unique habitats and cultural resources (such as historical structures and archaeological artifacts). All of these resources will be identified by experienced biologists and cultural resource specialists to make sure appropriate permits are in place sufficiently prior to construction. Close coordination with NextEra's engineering and construction team will ensure they take into account during the siting process as to what areas are off limits or have severe limitations or restrictions that could make the permitting more complicated than necessary. Issues that commonly hamper a project's progress may include wetland issues or impacts, the presence or potential presence of T&E species or the presence of cultural resources. To minimize complexity and timing of permitting, NextEra recommends that the following features be avoided by proposed Project facilities:

- Jurisdictional waters (define locations of NHD and NWI water bodies),
- Areas with T&E plant and wildlife species or habitat, and
- Archaeological resources.

NextEra acknowledges that Pennsylvania is very unique and diverse in its habitats, wildlife and history. The following is a summary of methods used in the desktop routing exercise for the Montour to Sunbury 230 kV transmission line project scenarios; and, the potential environmental impacts, issues and permitting needs and agency consultation that will likely be encountered.

### **Summary of Methods**

For purposes of this bid, NextEra hired [REDACTED] to complete a high level desktop routing analysis utilizing ArcGIS and produced draft GIS maps the Montour to Sunbury 230 kV transmission line corridors. After taking into account any anthropogenic areas of constraints, the routes were further modified for obvious potential environmental constraints that were determined through utilizing public GIS data layers available from the Pennsylvania Spatial Data Access (PASDA) website. PASDA is an official public access geospatial information clearinghouse website for the Commonwealth of Pennsylvania that was developed and maintained by the Pennsylvania State University (PSU). Available GIS database layers that were utilized for the environmental desktop analysis included PASDA aerial photos, National Hydrography Dataset (NHD) Streams, Federal Emergency Management Agency (FEMA) 100-year floodplain boundaries, U.S. Fish and Wildlife (USFWS) National Wetland Inventory (NWI) wetland polygons, and U.S. Department of Agriculture (USDA) hydric and partially hydric soils. Steep slopes (greater than 50%) were also determined from USDA soil map unit data.

With stream crossings, previously mapped NWI wetlands, potential wetland areas (hydric and partially hydric soils) and recreational or state park boundary features kept in mind, [REDACTED] strategically revised transmission line route corridors to further avoid or minimize impacts to existing or potential environmental features to the extent possible, while still trying to parallel existing electric transmission line corridors located in each area. It should be noted that this preliminary desktop routing assessment is a speculative and by no means is a substitute for actual field surveys that need to be completed to determine impacts to environmentally sensitive habitats, rare species or other cultural resources that are site specific.

Potential impacts to federal and state protected T&E species and sensitive communities near each proposed utility corridor and information on public opposition to new transmission and utility lines in Pennsylvania were solely determined through research completed on the internet. Agency consultation will be a key component to laying out a more refined permitting matrix and schedule. The potential for T&E species to exist in the vicinity of each project area was determined through an informal search on the Pennsylvania Natural Heritage Program's website utilizing the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Tool. Information on any public opposition on the siting of new utility lines in Pennsylvania was determined using [REDACTED] recent knowledge of other projects and by completing searches on Google.

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



[REDACTED]

## Potential Environmental Impacts

- [REDACTED]
6. [REDACTED]

Refer to Appendix 5 for the preliminary Permit and Approval Matrix.

### **Right of way and land acquisition plan and approach for both public and private lands**

Key elements in NEET's approach to the landowner negotiation process for this project, and other projects in PJM, include:

- Proactively conducting a market analysis of land values in the project area;
- Producing a fair and comprehensive land acquisition plan and schedule for securing necessary land rights and site control;
- Utilizing local land acquisition teams knowledgeable of the project area; and
- Taking a transparent approach in discussing the project and NEET development interests in the subject property.

While NEET will negotiate an agreement with the landowners of the proposed project route, NEET's landowner engagement process does not stop here. NEET's philosophy for landowner relations is to work with residents during all phases of a project to address issues as they arise, before and after land rights acquisition. NEET is committed to serving as the point of contact for residents, whether directly or indirectly affected by the project, for the duration. We use a collaborative and consultative approach to working with landowners, focusing on regular communication, to understand and address issues on an ongoing basis. NEET is also committed to using design and construction techniques that minimize impacts on private lands, and to restoring the construction sites of our projects to be both good stewards of the environment and good neighbors in the communities in which we live and work.

### **Permitting plan and approach**

NextEra has assembled an excellent team of legislative and regulatory liaisons as well as local and national experts with experience in all aspects of development, permitting, construction and operations. NextEra has successfully completed the Project site screening and believe we have what it takes to get the Project done in a cost efficient and timely manner. NextEra proposes additional environmental due diligence activities to further refine the future plans to provide a successful project with PJM.

1. NEET will contract with a firm with extensive Pennsylvania regulatory experience to assist with regulatory strategy, environmental documentation, permit acquisition, environmental plan preparation, resource surveys, monitoring and environmental compliance.
2. NEET plans to conduct as much up-front environmental analysis as possible. This includes conducting habitat assessments and protocol-level special-status species surveys.
3. NEET has conducted preliminary desktop environmental and permitting analysis of the project route which provides an initial understanding of the regulatory requirements to ensure on time execution of the project.
4. NEET will develop and execute a detailed project implementation plan following project award. This implementation plan will be a living document that will include the approach for scheduling and conducting agency meetings, detailed site surveys during proper survey windows, obtaining discretionary environmental permits, and developing an environmental compliance program to carry out agency commitments.

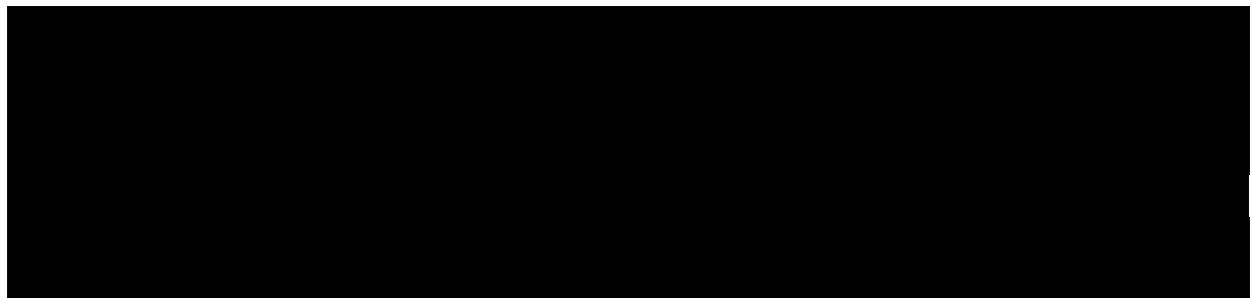
5. NEET has developed a preliminary schedule which includes the permitting tasks. This schedule shows the longest and more conservative permitting time line which is part of the project critical path. This sequence and timeline is used in developing the cost estimate for permitting activities.
6. Permitting is estimated to take between 18-24 months. Refer to Appendix 5 for the preliminary Permit and Approval Matrix.

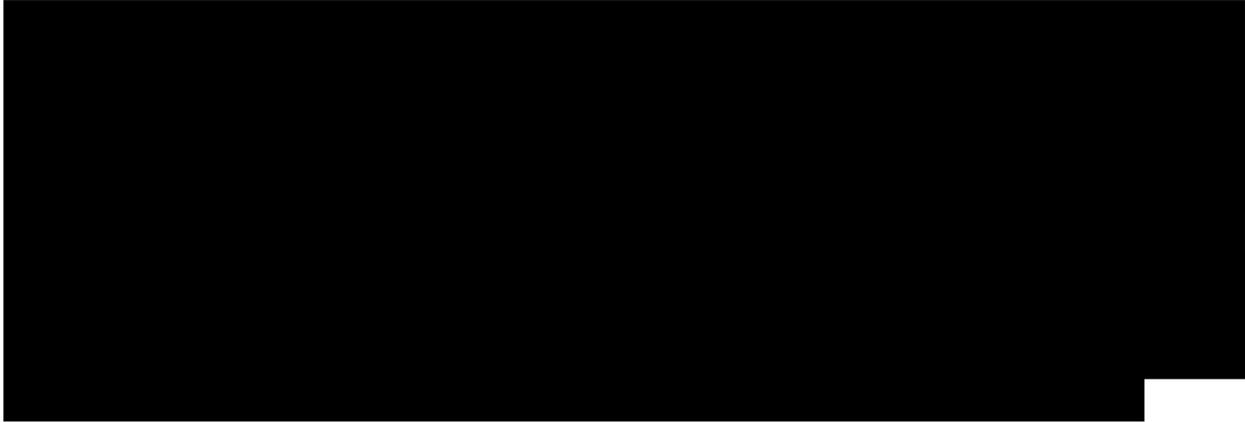
### **Discussion of potential public opposition**

In general, the purpose of the community outreach plan is to ensure that the proposed project is supported by the community, in particular the affected community(ies), to enable NEET to expeditiously comply with all relevant regulatory requirements that would permit timely construction and operation of the proposed renewable energy project. All community outreach will be coordinated with PJM. The specific high level goals of the community outreach plan are the following:

- Identify potential issues before they become a problem by early engagement with key community stakeholders;
- Broaden the community engagement process to identify potential and relevant community benefits that can facilitate community support for the proposed project;
- Call to action – develop a broad base of community support for the proposed project before the regulatory agencies; and
- Develop a comprehensive administrative record documenting the community outreach process that can be presented to the regulatory agency or, in the event of a legal challenge, to the appropriate court.

The “Not in My Backyard” (NIMBY) Syndrome is very present in rural and suburban sections of northern Pennsylvania. However, to that end, Pennsylvania does offer a lot of unique natural resources to enjoy. The natural resource agencies, non-profit environmental groups and the plethora of outdoorsmen act as watchdogs for the natural resources. The existing aging electric transmission line infrastructure in rural parts of Pennsylvania probably was constructed without much opposition, but as communities grew and expanded since the 1960s and 1970s, there has been an increase in interest from the general public.





In summary, the plan proposes to dedicate considerable time and resources in engaging the community, and specifically the affected community during the planning process to identify highly sensitive areas that have the least amount of cultural, environmental and social impacts on the community. The plans will reflect avoidance of impacts rather than mitigation. However, in some cases, if avoidance is not possible, then we need to involve the community in providing appropriate and practical mitigation measures.

### 3. Project Component Cost Estimates

*A table listing construction cost estimates for each proposed component shall be provided.*

*At a minimum, cost estimates shall be included with the following level of detail, along with the total.*

Table 4: NextEra’s Construction cost estimates

Category	(SMM)
[REDACTED]	[REDACTED]
<b>SUBTOTAL</b>	<b>\$55.36</b>

Please Note: Overhead is included in the construction cost, however maintenance is estimated at \$93,000 per year.

#### 4. Schedule

Table 5: A milestone schedule, including the following major milestones, shall be provided for each proposed component

<u>Schedule Milestones</u>	<u>Date</u>
Project Award	TBD
Permitting Complete	~2 yrs after project is awarded
Detailed Engineering Start	5/20/2017
Long Lead Material Order	10/17/2017
Land Control	1/1/2018
EPC Award	1/15/2018
Unrestricted Construction Access	5/15/2018
Start Construction	5/15/2018
Project COD	12/1/2018

#### 5. On-going Transmission Facility Items

##### Operations Plan

*The package shall contain the proposing entity's plan for operating the new transmission facilities for the proposed project. At a minimum, the plan should discuss the proposing entity's plan for securing a control center facility and provide required telemetry to PJM.*

NEET will own and maintain the line; however, the incumbent utility will remain the responsible party for the operation of the line.

##### Maintenance Plan

*The package shall contain the proposing entity's plan for maintaining the new transmission facilities for the proposed project including equipment spares.*

NEET has well-established, reasonable practices and procedures for maintenance of its transmission and substation facilities. Its individual transmission projects have maintenance practices and programs built on industry best practices at NextEra, and proven processes and standardized procedures honed through years of experience, to enable cost-effective, safe and reliable operation. NEET will leverage this experience to create a plan that will comply with all applicable PJM maintenance requirements.

NextEra companies are responsible for line maintenance on approximately 7,900 miles of the bulk electric system and the operation maintenance of over 700 substations across all the NERC jurisdictions in North America. The total power transformer capability of NextEra companies is 160,002 MVA, of which 139,363 MVA is subject to NERC jurisdiction.

NEET will leverage in-house and third-party resources for the safe, reliable and efficient maintenance of the project. In particular, NEET will bring 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. Many of these personnel will provide support to NEET through our Power Delivery Performance & Diagnostic Center (PDDC) located in south Florida. This center serves as a hub for technical knowledge, as well as remote condition assessment and field asset health information, in support of operations.
- Experiences from operating and maintaining power delivery assets in all NERC jurisdictions at voltages up to 500kV
- 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.
- Experience addressing a wide variety of operating challenges ranging from hurricanes, tornadoes, and other high wind conditions, dust contamination, avian interaction, and lightning. For example, every outage in the FPL transmission system, as well as the Lone Star system, is followed up by an Event Response Process in which NextEra uses diagnostic techniques to identify the root cause of a problem to prevent reoccurrence. Solutions to transmission O&M problems include new designs, new conditions assessment processes, and/or new products. NextEra often works directly with equipment manufacturers to develop these solutions in order to continually improve the reliability of its transmission systems. This has prepared us well to manage extreme geographic and climate conditions that NEET is likely to face in future projects.

The NextEra framework that provides control, audit and oversight of maintenance for its transmission and substation assets is called the Op Model. NextEra's Op Model is a centralized database of its transmission and substation processes. For each process the Op Model provides, where applicable: overview, flowcharts, procedures, forms, standards, training and support application tools. For all of NextEra's transmission and substation facility needs the Op Model provides key processes and procedures to support standards of equipment maintenance, including:

- Safety
- Risk
- Training
- Contingency Planning
- Restoration
- Right of Way
- Switching
- Maintenance
- Testing
- Work Management
- Protection
- Reliability Metrics
- Troubleshooting
- Event Response

The NextEra maintenance plan covers all of the following transmission line, substation, protection and control elements listed below. NextEra practices are controlled by a formalized program of procedures and processes and reinforced by continuous monitoring and condition assessment practices.

NextEra transmission line patrols, inspections and maintenance practices include:

- Conductor, (overhead ground wire and optical fiber ground wire)
- Bonding and grounding
- Guys and anchors
- Hardware
- Insulators
- Rights-of-way
- Structures and foundations
- Thermography inspection
- Corona inspection
- Vegetation Management

NextEra Substation inspections include:

- Condition assessments
- Thermography
  - Substation equipment
- Battery systems
- Circuit breakers and SF-6 diagnostics
- Disconnect and motor operated switches
- Transformer Maintenance and oil diagnostics
- Series capacitors
- Throwover, generator and station service

Protective relay systems maintenance includes:

- Protection system station DC supply
- Protective relays (monitored microprocessor based relays)
- Protective relays (all other relays)
- Special Protection System
- DC Control Circuits associated with protective functions (DC Functional Test)
- Trip Coils or actuators of circuit breakers, interrupting devices
- Monitored Communications systems
- Unmonitored Communications systems
- Voltage and current sensing devices
- Disturbance Monitoring Equipment
- SCADA

### Spare Parts

NextEra has inventory and spare strategies for routine maintenance requirements and breakdown events for all its facilities. NextEra’s practices include spare parts management, storage plans for spares, spare parts identification and records, periodic inventory of spare parts, usage of spare parts and replenishment of inventory. NEET will develop Service Level Agreements with experienced vendors for its facilities in the PJM region. These agreements will provide necessary consumable spares for all types of line, substation, protection & control, vegetation management, and environmental needs.

## 6. Assumptions

*A list of assumptions, uncertainties and / or qualifiers that may impact the estimated costs and schedules must be identified.*

## Engineering and construction assumptions

- Pending final geotech analysis, subsurface risk could drive the cost for foundation and pole structures.
- Pending land acquisitions could impact route length and design increasing cost and possibly impacting schedule.
- Did not include cost of substation work at Montour 230 kV
- Did not include cost to terminate the line into the Montour 230 kV substation
- Did not include cost of substation work at Sunbury 230 kV
- Did not include cost to double circuit approximately 1 mile of 230kV lines and terminating at Sunbury 230 kV

## Environmental assumptions

- Transmission lengths assumed: 21.97 miles Montour to Sunbury 230 kV transmission lines
- Assumes no federal nexus.
- Costs are indicative pricing based on the desktop assessment information gathered by Stantec based on a short timeframe in July 2014.
- Neither corridor currently passes through any Pennsylvania State Gamelands nor DCNR State Forest Lands;
- Costs for threatened and endangered species surveys and archaeological surveys are a significant unknown, given we have not consulted with the respective jurisdictional agencies.

The Northern Long-eared Bat (*Myotis septentrionalis*) is assumed to be listed by the FWS in spring 2015, however it is assumed that any construction activities that involve necessary tree clearing would be completed during specified seasonal windows that would not affect any roosting bats or significantly alter their habitat. Any known bat hibernacula that potentially exist in or near the either corridor would be sufficiently avoided, as necessary.

