

NextEra Energy Transmission, LLC
Company Evaluation and Constructability Information
For
NEET 1A-2015 – Flowgate 52 Solution
Segment 1: Rogers Road to Pleasant Shade
Segment 2: Carson to Rawlings

Submitted to:

PJM Interconnection, LLC,

August 4, 2015

For the 2015 RTEP Proposal Window #1



Signature Page

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A. Executive Summary

NextEra Energy Transmission, LLC (NEET) is pleased to submit for consideration in the 2015 Regional Transmission Expansion Plan Proposal Window #1 the Rogers Road to Pleasant Shade and Carson to Rawlings Transmission project. As requested by PJM Interconnection, LLC (PJM), NEET has organized this proposal in conformance with PJM's Greenfield Project Proposal Template.

Name and Address of the Proposing Entity

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

Proposal Window and associated violation/issue being addressed

- 2015 RTEP Proposal Window #1
- Generator Deliverability Violation – Flowgate 52
- Rogers Road – Carson 500 kV Thermal Overload

Violations caused by proposal/nearby violations not addressed by your proposal

The proposed project consists of two unique and separated segments to be studied together as a single project.

Segment 1 consists of a 500/230 kilovolt (kV) substation and an approximately [REDACTED] long 500 kV transmission line, while Segment 2 consists of an approximately [REDACTED] 500 kV transmission line. Powerflow analysis results show that [REDACTED]

[REDACTED]

[REDACTED]

Identify projects that span (e.g. ties between or taps) between two PJM Transmission owner zones or between PJM and a neighboring Balancing Authority. This group includes transmission that spans two or more affiliated companies.

Both Segment 1 and Segment 2 are [REDACTED]

Indication of intentions to construct/own/operate/maintain

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

Commitment by the entity to execute the Consolidated Transmission Owners Agreement, if the entity becomes a Designated Entity

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

Description of the proposed solution and corresponding violation that it solves

The proposed project consists of two unique and separated segments to be studied together as a single project.

Segment 1

[REDACTED]

Segment 2

[REDACTED]

[REDACTED]

Further details for NEET’s proposed project can be found in Table 1:

Table 1: Project Details

Segment 1: Pleasant Shade 500/230 kV Substation Details	
Substation	Pleasant Shade
Nominal Voltage	500/230 kV
Location	[REDACTED]
Configuration	500 kV: Single Breaker 230 kV: Four Breaker Ring Bus
Transformer	Three Single Phase 500/230 kV Individual Rating: 200/250 MVA (Normal/Emergency) Combined Rating: 600/750 MVA (Normal/Emergency) Fourth Single Phase included as a spare

**Segment 1:
Rogers Road –Pleasant Shade 500 kV Transmission Line**

From Substation	Rogers Road 500 kV Switchyard
To Substation	Pleasant Shade 500/230 kV Substation
Length	[REDACTED]
Nominal Voltage	500 kV
Conductor	[REDACTED]
Rating (Normal/Emergency)	3424/3424 MVA
Shield Wire	[REDACTED]
Structure Type	Lattice

**Segment 1:
Pleasant Shade – Clubhouse 230 kV Transmission Line**

From Substation	Pleasant Shade 230 kV Substation
To Substation	Clubhouse 230/115 kV Substation
Length	[REDACTED]
Nominal Voltage	230 kV
Conductor	[REDACTED]
Rating (Normal/Emergency)	600/750 MVA
Shield Wire	[REDACTED]
Structure Type	Lattice



Segment 2: Carson - Rawlings 500 kV Transmission Line	
From Substation	Carson 500/230 kV Substation
To Substation	Rawlings 500 kV Switchyard
Length	[REDACTED]
Nominal Voltage	500 kV
Conductor	[REDACTED]
Rating (Normal/Emergency)	3424/3424 MVA
Shield Wire	[REDACTED]
Structure Type	Lattice

NEET, working with its consultant [REDACTED] modeled the project using the latest powerflow data available from PJM. Through this modeling, NEET verified that its proposed project eliminates the identified Generator Deliverability overload on Flowgate 52. Additional details concerning the proposed project can be found in the appendices as outlined below:

- Appendix 1: Powerflow analysis showing that the project has no adverse impact to the system (N-1, N-1-1, and Generator Deliverability);
- Appendix 2: Single-Line Diagram of the proposed project;
- Appendix 3: Aerial Maps of the proposed project;
- Appendix 4: Powerflow Modeling of the proposed project;
- Appendix 5: Contingency files associated with the proposed project;

In sum, NEET's proposed project provides a cost-effective solution to [REDACTED].



Description of how the project should be considered; only as a whole or if portions of the project should be considered as well

The proposed project consists of two unique and separated segments to be studied together as a single project. Segment 1 consists of a 500/230 kilovolt (kV) substation and an approximately [REDACTED] 500 kV transmission line, while Segment 2 consists of an [REDACTED] 500 kV transmission line.

The reliability problem(s) or market efficiencies that the project is proposed to resolve

Flowgate 52: Rogers Road – Carson has been identified by PJM as being overloaded for the Generator Deliverability test. NEET’s proposed project [REDACTED]. NEET has also performed N-1 and N-1-1 analysis and found that the proposed project will not have a negative impact on other transmission elements in the area.

High Level overview of cost and cost commitment

NEET estimates that the total project will cost approximately \$105.1 million (in 2015 dollars), of which approximately \$91.8 million is estimated to be designated to NEET. NEET further estimates that the total project will cost approximately \$116.2 million (In-Service Year dollars), of which approximately \$101.2 million is estimated to be designated to NEET.

Both the \$91.8 million (2015 dollars) and the \$101.2 million (In-Service Year dollars) are binding estimates (Binding Construction Cost Estimates), subject to adjustment to reflect any scope changes that are directed by a governmental body or are due to events outside of NEET’s control as further described in Appendix 6. A more detailed cost breakdown and explanation of NEET’s cost cap estimate is included in Appendix 6 of this application, including the details of the cost commitment being offered by NEET.

Additional benefits of your proposal above solving the identified violation/constraints

The proposed project resolves the Generator Deliverability overload issue identified by PJM. Further, it enhances the 500 kV transmission system allowing for more efficient delivery of power to key load pockets. There are also potential market efficiency improvements that could be associated with the project.



B. Company Evaluation Information

Name and address of the entity including a primary and secondary point of contact:

The name and address of the proposing entity is:

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

The primary point of contact is:

David Davis
Executive Director, Development
NextEra Energy Transmission, LLC
700 Universe Boulevard, UST/JB
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Email: david.davis@nexteraenergy.com

The secondary point of contact is:

Matt Valle
Vice President, Development
NextEra Energy Transmission, LLC
700 Universe Boulevard, UST/JB
Juno Beach, FL 33408
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Pre-Qualification submittal identification number

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

Additional company information, not already included in the pre-qualification, relevant to the specific proposal project:



NextEra's Transmission Experience

NextEra Energy, Inc. (NextEra) 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. NextEra companies operate over 8,500 circuit miles of high-voltage transmission lines and approximately 770 substations. NextEra owns and operates over 1,100 miles of 500 kV transmission lines.

We have highlighted below projects that illustrate NextEra's experience developing, constructing and operating 500 kV facilities, most notably in Florida Power & Light Company's (FPL's) 500 kV System, as well as NextEra's ability to apply resources across the United States (Lone Star Transmission, LLC (Lone Star)) and ability to meet aggressive construction schedules (Texas Clean Energy Express).

FPL's 500 kV System

FPL designed, constructed, and currently operates and maintains over 1,100 miles of 500 kV transmission lines. This system includes 4,636 structures and twelve 500 kV substations. Initial design and construction of the FPL 500 kV network began in the 1970s and continued through the 1990s. FPL regularly makes capital improvements and performs maintenance activities to ensure reliable, long-term operation of the system.

The network traverses the state of Florida, from the Florida/Georgia border to the Miami area – a distance of over 370 miles. As such, the system is of vital importance to the state, providing bulk power transfers and ensuring reliability. Due to the vast geographical distance that the network spans, the terrain and soil conditions are diverse across the system. This required different structure and foundation design solutions depending on the specific conditions.

A significant portion of the network was constructed on undrained surfaces with poor soil conditions. One of the specific 500 kV projects built on undrained land was the Corbett – Conservation transmission project. The project entailed development of a new 60-mile, 500 kV line, constructed partially through the wetlands of Florida. As such, the project required a redesign of traditional 500 kV structures and the use of road-less construction methods, including using helicopters for erection.



In addition to the initial design and construction, a comprehensive condition assessment and proactive maintenance program was put in place for all of the 500 kV facilities to ensure their continued reliability.

Lone Star

NEET's subsidiary, Lone Star, was awarded a Certificate of Convenience and Necessity from the Public Utility Commission of Texas to become a new-entrant regulated public utility to develop, construct and operate approximately 300 miles of double circuit and 30 miles of single circuit 345 kV lines, five 345 kV substations, and associated facilities. In early 2013, Lone Star completed construction and energized the project on-time and for tens of millions of dollars less than its initial cost estimate for the \$700+ million project. This project is part of the Electric Reliability Council of Texas (ERCOT) Competitive Renewable Energy Zone transmission grid improvement program, mandated by the Texas Legislature. The Lone Star team, including support from NEET and NextEra, managed all aspects of this project including development, permitting, land acquisition, regulatory filings, design, construction and operations to establish a new transmission utility in Texas.

NEET established the Lone Star operations team and ensured that necessary arrangements were in place to allow for targeted support from FPL personnel, as needed. This work included assisting Lone Star obtain the necessary certifications from North American Electric Reliability Corporation (NERC) and the Texas Reliability Entity, as a NERC registered Transmission Operator, and a Transmission Service Provider from ERCOT, before commencing operations. Lone Star relies on shared NextEra Transmission and Substation personnel processes and procedures, and Lone Star also benefits from the operational efficiencies of a well-established, shared, support organization under the NextEra family of companies. This example demonstrates well how NextEra can apply its resources to projects that may be located anywhere in the U.S.

Texas Clean Energy Express

The Texas Clean Energy Express project is an example of an EHV transmission project completed by NextEra on a very aggressive schedule. A NextEra subsidiary launched this transmission project to interconnect a large wind generation site to an additional new host utility. The project includes a 213-mile, 345 kV transmission line with two 345 kV substations. From conception to commercial operation, this project was completed in only 16 months. It



demonstrates NextEra's ability to design, develop, and construct transmission lines on extremely short timeframes, while completing appropriate processes for engineering, land acquisition, material and equipment procurement, geotechnical and ground-based surveying, environmental permitting, mitigation measures for existing utility crossings, and pre-operational testing.

NextEra's Experience Acquiring Rights of Way

NextEra and its subsidiaries, including NEET, have significant and geographically diverse experience in acquiring rights of way (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 responsible for negotiating and acquiring the necessary land interests for a project. These professionals are active through the corridor and route selection process, and the environmental assessment phase in support of regulatory applications.

In addition to its in-house expertise, NextEra has engaged consultants with local experience acquiring rights of way in the vicinity of the project. NextEra's consultants have vast experience acquiring ROWs in Virginia, working on 11 transmission projects in the state in the last 10 years, including acquiring ROW and easements for a 65-mile 500 kV line that included approximately 44 miles of ROW. That project consisted of approximately 203 parcels and traveled through three counties in northwest Virginia.

To support its ROW acquisition effort, NEET will build a detailed schedule for the acquisition of parcels to include titles, appraisals, negotiations, relocations, and closings. The schedules will include a work breakdown structure (WBS) that details every deliverable associated with acquiring ROW to include route inspection authorizations or survey permission letters, appraisal inspection letters, scheduling appraisals, scheduling appraisal reviews, initial offers, negotiations and closing. NextEra's consultant has ROW staff located in Richmond, Virginia, approximately one hour from the proposed project.

As part of the routing and ROW acquisition process, extensive outreach to impacted stakeholders is undertaken. This effort includes active involvement in various open houses, informal meetings, and individual consultations 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 the primary permit. Right-of-entry processes typically take 18-20 weeks.

With respect to the PJM region, NEER's generating assets required the acquisition of property and ROWs in multiple states. While the individual manner of acquiring property and ROWs varies slightly from project to project, most projects generally follow the processes described above.

NextEra's Development Experience

NEET is a wholly-owned, indirect subsidiary of NextEra. 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 can draw on these resources and this experience to operate effectively and efficiently in the region.

NextEra

NextEra, headquartered in Juno Beach, Florida, is a leading clean-energy company with revenues of over \$17 billion, more than 44,900 megawatts of generating capacity, and 13,800 employees in 27 states and 4 Canadian provinces as of year-end 2014. 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 66,000 miles of distribution lines, approximately 8,500 circuit miles of transmission lines between 69 kV and 500 kV, and 770 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.

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. At December 31, 2014, FPL's



assets totaled approximately \$39.31 billion, and FPL’s generating resources for serving load consisted of 26,060 megawatt (MW), of which 24,057 MWs were from FPL-owned facilities. FPL serves approximately 9 million people through 4.7 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 26% lower than the national average in 2012.

As shown in the chart below, FPL’s reliability was better than any other investor-owned utility in Florida in 2014.

Table 2: FPL Transmission Reliability Comparison

FPL 2014 IOU Transmission/Substation Reliability (Adjusted) Comparison					
	FPL	DEF	TECO	Gulf	FPUC
SAIDI	2.8	8.4	15.5	14.8	16.8

Note: DEF: Duke Energy Florida, TECO: Tampa Electric Company, Gulf: Gulf Power Company, FPUC: Florida Public Utility Company

NextEra Energy Resources (NEER)

A principal subsidiary of NextEra and affiliate of NEET, NextEra Energy Resources, LLC (NEER) is the largest producer of energy from the wind and sun in the world. As of December 31, 2014, NEER had nearly 11,300 megawatts of wind generating capacity and nearly 800 megawatts 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 based on 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. In January of 2015, the California Independent System Operator (CAISO) selected NEET West, a subsidiary of NEET,



as the developer for the Suncrest 230-kV 300 MVAR dynamic reactive power support project under its 2013-2014 transmission plan. CAISO specifically cited NEET West's operational experience, which it draws from the NextEra family of companies, as one of the factors in its selection. NEET West was the first non-incumbent to win a CAISO competitive solicitation transmission project. In March of the same year, CAISO again selected NEET West as the developer for the Estrella 230/70 kV substation located in Pacific Gas & Electric (PG&E) service territory, in San Luis Obispo County, California.

In August 2013, the Ontario Energy Board selected Upper Canada Transmission Inc. (UCT), a partnership of NextEra Energy Canada ULC (a NEET affiliate), Enbridge Transmission Holdings Inc., and Borealis EWT Inc. as the developer for the East-West Tie, which involves construction of a new, approximately 250-mile long double circuit high-voltage electrical transmission line running between Thunder Bay and Wawa, Ontario. The East-West Tie, in conjunction with an existing transmission line, will increase capacity and reliability of the Bulk Electric System 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, constructed, operates, and maintains 300 miles of double-circuit and 30 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, which required multiple specialized foundation types. The project also required the construction of three large greenfield substations 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 FPL affiliate transmission and substation personnel, processes and procedures, and benefits from the operational efficiencies of a well-established shared services organization.

NextEra's Engineering Expertise

The NextEra family of companies has a highly qualified 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, 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; and
- 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 other 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 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
 - Practice of often buying major and critical equipment in advance, mitigating risks such as delivery delays or material cost escalation.

The NextEra family of companies also have 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. Between 2007 and 2013, NEET and its affiliates completed over 1,100 miles of new transmission line construction at voltages ranging from



69kV to 500 kV. NextEra's 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 and 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:** NEET has 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 ROW, and specifically to identify any additional mitigation to ensure compliance with regulations.
- Operations and maintenance: NextEra has a substantial O&M organization that delivers operational excellence. These capabilities include:
 - NEET’s operations are supported by in-house and external specialists that have industry experience operating and maintaining a variety of transmission equipment, including switched capacitors, SVCs, substations, and transmission lines up to 500kV. NextEra’s transmission specialists currently support NEET’s existing transmission-voltage level facilities in the PJM region, listed below in Table 3. 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;
 - NextEra’s O&M of more than 8,500 circuit miles of transmission lines and 770 substations across North America, including more than 3200 miles of 230kV lines and over 1100 miles of 500kV lines; and
 - NextEra’s experience owning, operating, and maintaining reactive power support equipment, including 365 MVARs of synchronous condensers, 8,115 MVARs of transmission level manually switched capacitors, and 3,000 MVARs 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 MVA, of which over 139,000 MVA is subject to NERC jurisdiction.

NextEra's Project Operation Experience

As explained above, NextEra has a well-qualified O&M team, and NEET will leverage both internal and contractor resources for the safe, reliable, and efficient operation and maintenance of the project. Below are 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 NERC Reliability Standards in all regions in which it operates;
- 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 will serve as a hub for technical knowledge, as well as remote condition assessment in support of operations;
- NextEra staff oversees a large number of transmission projects annually, including major system upgrades and maintenance initiatives, and also supports O&M services in 27 U.S. states and in 4 Canadian provinces at transmission level facilities and for regulated transmission assets in the Florida, ISO New England, and ERCOT systems;
- As part of FPL's experience in the Florida peninsula, FPL has 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 FPL uses diagnostic techniques to identify the root cause in an effort to prevent a reoccurrence;
- NextEra staff's capabilities are confirmed by the low transmission outage rate. NEET affiliate FPL exhibited top-decile transmission reliability performance in a recent



benchmarking study (2014 Southeast Electric Exchange Reliability Survey, SAIDI performance);

- NextEra staff implements 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; and
- NEET 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 any and 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
- ANSI C2-2012 National Electrical Safety Code
- 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
- IEEE 738-2006 Standard for Calculating the Current-Temperature of Bare Overhead Conductors
- IEEE 1243 Guide for Improving the Lightning Performance of Transmission Lines
- IEEE 1313.2 Guide for the Application of Insulation Coordination



NextEra's Experience in PJM

Below is a table that provides a detailed description of NEER's experience working in the geographical region of PJM including, where relevant, on transmission voltage level projects.

NEER's PJM Territory Transmission Voltage Level Substations and Transmission Lines

Substation Description	Location	Voltage Level	Length (miles)	Total MVA	Service Year
<u>MARCUS HOOK (MH 50 Substation)</u> Number of Breakers: 1 Bus Configuration: Single	PA	69kV	N/A	72 MVA	1987
<u>MARCUS HOOK (MH 750 Substation)</u> Number of Breakers: 1 Bus Configuration: Ring	PA	230kV	N/A	990 MVA	2004
<u>SAYREVILLE (Sayreville Substation)</u> Number of Breakers: 7 Bus Configuration: Double	NJ	230kV	N/A	399 MVA	1991
<u>WAYMART WINDFARM (Brownell)</u> Number of Breakers: 1 Bus Configuration: Single	PA	69kV	N/A	80 MVA	2005
<u>MEYERSDALE WIND (Meyersdale North)</u> Number of Breakers: 1 Bus Configuration: Single	PA	115kV	N/A	33 MVA	2003
Transmission Voltage Level Line Description	Location	Voltage Level	Length (miles)	Nominal Rating	Service Year
<u>MOUNTAINEER WIND ENE</u> Construction: Overhead Pole Material: Wood Pole Configuration: Monopole # of Circuits: 1	WV	138kV	3.0	138kV	2002



WAYMART WINDFARM Construction: Overhead Pole Material: Wood Pole Configuration: Monopole # of Circuits: 1	PA	69kV	2.5	69kV	2005
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NextEra’s Financial Strength

NEET benefits from the extensive, enterprise-wide financial resources of NextEra. A Fortune 200 company, NextEra’s year-end 2014 balance sheet included over \$69 billion of assets and \$16 billion of shareholder equity, with more than 70% of NextEra’s \$15 billion in 2014 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.

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](#)¹

[NextEra- Financial Statements](#)²

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 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. At some point in the future, after construction and during operation, the project could benefit from a portfolio

¹ Link references www.investor.nexterenergy.com

² Link references www.investor.nexterenergy.com



financing of multiple assets that could be undertaken by NEET, or another NextEra affiliate. NEET’s project will be supported by NEECH’s over \$3.6 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. Consequently NEET, through NextEra and its financial 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:

NEECH’s Credit Ratings

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 will seek to convert its short-term debt into long-term permanent financing, provided by NEECH, which could include a series of multiple long-term debt issuances that align with the forecasted declining net investment of the company’s assets.

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.

NEET’s affiliate, Lone Star, recently utilized a similar permanent financing structure for its recently energized transmission assets. Lone Star was able to issue its debt, excluding issuance



costs, at a blended weighted average long-term cost of 3.46%, which was lower than the 3.59% weighted average cost of debt for A-rated utility debt of the same weighted average life as Lone Star debt. Additionally, comparable transaction analysis indicated that such financing carries the lowest credit spreads of any private placement, and the lowest coupon rate for a 30-year debt issuance in recent history for a regulated utility in Texas. As a result of this financing, Lone Star has the lowest cost of debt and the lowest cost of capital of any investor-owned utility in Texas.

Another NEET affiliate, New Hampshire Transmission, LLC, owner and operator of the Seabrook Substation in New Hampshire, recently refinanced its long-term debt with NEECH. The flexible financing, approved by both state and federal regulators, provides access to commercially attractive cost debt, when needed, without incurring unnecessary or costly transaction fees.

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.

NextEra's Project Execution Track Record

NEET has the experience, team, resources, and track record to stand behind and deliver on the proposed schedule. Since 2003, NextEra has constructed 95 new, stand-alone infrastructure projects, of which 86% 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. NextEra delivered all of its stand-alone transmission projects during this timeframe on time. In the aggregate, these projects represent over \$24.8 billion of capital expenditures. The following table provides a summary of our ability to meet project schedules across various projects, including transmission projects.



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	75	84%	18
Gas	9	89%	27
Total	95	86%	18

NEET, by being able to draw from 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 voltage level 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 voltage level transmission line was built to interconnect NEER'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 ROW. 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. NEER, 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's Competitive Renewable Energy Zone 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 large, 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.

NextEra's Experience Responding to Contingencies

The NextEra family of companies has vast experience developing project-specific plans to address and timely remedy failure of project facilities, including facility and system restoration plans that document the actions to be followed in order to reestablish the electric system in a stable and orderly manner in the event of partial or total shutdown of the individual facilities or its power systems. Every outage in NextEra's transmission 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 approach has prepared us well to manage extreme geographic and climate conditions that is likely to be faced by future projects.



FPL's service area is uniquely susceptible to impacts of severe weather systems such as tropical storms and hurricanes, and NextEra 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 the impacted area. NextEra updates its storm plan every year based on lessons learned from the previous year's storms across North America.

Additionally, NEET's previously filed pre-qualification documents contain more information regarding its ability to restore transmission facilities.



C. Proposed Project Constructability Information

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

Scope of Project

The Pleasant Shade 500/230 kV Substation portion of Segment 1 consists of:

[Redacted text block]

The Rogers Road – Pleasant Shade 500 kV Transmission Line portion of Segment 1 consists of:

[Redacted text block]

The Carson to Rawlings 500 kV Transmission Line in Segment 2 consists of:

[Redacted text block]

Is the project being proposed as a solution to Cross-Border issues?

[Redacted text block]

This project is not being proposed as a solution to a Cross-Border issue.

Is evaluation for Interregional Cost Allocation desired?

Evaluation for Interregional Cost Allocation is not desired.

Has the proposal been evaluated in a coordinated interregional analysis under PJM Tariff or Agreement provision? Please specify the analysis and applicable tariff or Agreement provisions

The proposal has not been evaluated in a coordinated interregional analysis.

List the specific Regional and Interregional violations and issues from the Regional and/or Interregional analyses that identified the violations and issues addressed by the proposal

Not applicable.

Detailed breakdown of all proposal elements

General Description

Segment 1: Pleasant Shade 500/230 kV Substation

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. The area is currently zoned for agricultural use and the site is completely forested. Based upon available desktop resources, there do not appear to be any wetlands or streams onsite.

Segment 1: Rogers Road to Pleasant Shade 500 kV Transmission Line

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Segment 2: Carson to Rawlings 500 kV Transmission Line

[REDACTED]

Geographic description

Segment 1: Pleasant Shade 500/230 kV Substation

The terrain of the site is typical of the Piedmont Physiographic Province and is comprised of gently rolling hills and valleys. Slopes range from 0 to 7 percent according to the U.S. Department of Agriculture (USDA) Soil Survey.

Segment 1: Rogers Road to Pleasant Shade 500 kV Transmission Line

[REDACTED]

The terrain of this area is typical of the Piedmont Physiographic Province and is comprised of gently rolling hills and valleys. Slopes range from 0 to 15 percent according to the USDA Soil Survey.

Segment 2: Carson to Rawlings 500 kV Transmission Line

The terrain of this area is typical of the Piedmont Physiographic Province and is comprised of gently rolling hills and valleys. Slopes range from 0 to 15 percent according to the USDA Soil Survey.

Route description including existing/new ROW, if new ROW is required details on obtaining land

Segment 1: Pleasant Shade 500/230 kV Substation

[REDACTED]

Segment 1: Rogers Road to Pleasant Shade 500 kV Transmission Line

[REDACTED]

[REDACTED]

Segment 2: Carson to Rawlings 500 kV Transmission Line

[REDACTED]

[REDACTED]

[REDACTED]

Physical characteristics

Segment 1: Pleasant Shade 500/230 kV Substation

Site Area: [REDACTED] acres

Segment 1: Rogers Road to Pleasant Shade 500 kV Transmission Line

This segment will require [REDACTED]

Segment 2: Carson to Rawlings 500 kV Transmission Line

This segment will require [REDACTED]

Maps and supporting diagrams

Appendix 3 shows the aerial maps of the project.

Specific location of interconnection with incumbent TO facilities and assumptions that were made for this proposal

NEET assumes that DVP will construct the proposed Rogers Road switchyard [REDACTED]. NEET assumes DVP will be responsible for accommodating NEET's proposed 500 kV line. See Appendix 2 for the single line diagrams.



[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] NEET assumes DVP will be responsible for accommodating NEET's proposed 500 kV line. See Appendix 2 for the single line diagrams.

Generation/Transmission outages required for construction, proposed coordination with Generation/Transmission owner

NEET has assumed that PJM will be able to schedule outages such that there will be no impact on NEET's schedule or cost.

Total cost of project and total cost for each major component (e.g. new transmission line, modification work at substation A, and modification at Substation B)

Please see Appendix 6 for a detailed description of estimated project costs, assumptions and cost commitments.

Identification of construction responsibility of each component

Segment 1: Pleasant Shade 500/230 kV Substation

- [REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
[REDACTED]

Segment 1: Rogers Road – Pleasant Shade 500 kV Transmission Line

- [REDACTED]
[REDACTED]

[REDACTED]

[REDACTED]

Segment 2: Carson to Rawlings 500 kV Transmission Line

[REDACTED]

Summary of Methods

Rogers Road – Pleasant Shade 500 kV Transmission Line and Pleasant Shade 500/230 kV Substation

NEET’s consultant, [REDACTED], completed a desktop review of potential transmission line routes and substation sites based on preliminary information provided by NEET. [REDACTED]

[REDACTED]

[REDACTED] To conduct the review, [REDACTED] utilized publicly available GIS information and online database sources such as:

- U.S. Fish and Wildlife (USFWS) National Wetland Inventory (NWI);
- National Hydrography Dataset (NHD);
- Federal Emergency Management Agency (FEMA) 100-year floodplain boundaries;
- U.S. Department of Agriculture (USDA) web soil survey;
- USFWS Information Planning and Conservation System (IPAC);
- Virginia Department of Game and Inland Fisheries (DGIF) Virginia Fish and Wildlife Information System (VAFWIS);



[REDACTED]

- Virginia Department of Conservation and Recreation (DCR) Division of Natural Heritage Data Explorer (DNH);
- Center for Conservation Biology (CCB) Eagle Nest Locator;
- Virginia Department of Historic Resources (VDHR) Cultural Resource Information Service (V-CRIS); and
- [REDACTED] parcel data.

Sites satisfying the minimum criteria were identified as a result of this effort. The sites were further refined based on the extent of constraining factors present onsite, as well as the potential difficulty in obtaining the required land for development and securing the appropriate approvals. Once the preferred Pleasant Shade 500/230 kV substation site was identified, [REDACTED] reviewed and selected a route for the transmission line that would minimize environmental impacts to the greatest extent practicable.

Carson to Rawlings 500 kV Transmission Line

[REDACTED] completed a desktop review of the proposed transmission line route based on preliminary information provided by NEET. [REDACTED]. For the purposes of this review, the route paralleling an existing transmission line corridor for the entire route was used. To conduct the review, [REDACTED] utilized publicly available GIS information and online database sources such as:

- USFWS NWI;
- NHD;
- FEMA 100-year floodplain boundaries;
- USDA web soil survey;
- USFWS IPAC;
- Virginia DGIF Virginia FWIS;
- Virginia DCR DNH Data Explorer;
- CCB Eagle Nest Locator;
- VDHR V-CRIS; and
- [REDACTED]



Potential Siting Issues Related to Environmental and Cultural Impacts

Segment 1: Rogers Road to Pleasant Shade Segment

Using the information cited above, potential constraints to development such as streams, wetlands, regulatory floodplains, known bald eagle nest sites, potential T&E species, and cultural resources were assessed. Based on the desktop review, it appears that a substation could be constructed on the selected site with no impacts to streams and wetlands and transmission line towers could be sited outside of streams and wetlands. Minor impacts to forested wetlands could result from the clearing of new transmission line easement as this area would be converted to and maintained in an emergent/scrub-shrub state.

The USFWS identified the federally endangered American chaffseed (*Schwalbea Americana*) and federally threatened northern long-eared bat (*Myotis septentrionalis*) as potentially occurring in the vicinity of the project. The DGIF did not report either of these species but did identify the state threatened Bachman's Sparrow as having been observed in the vicinity. The American chaffseed has not been documented in the region in over 75 years and is believed to be extirpated from the state. Clearing of both the substation site and transmission line easement could be subject to time-of-year restrictions (TOYR) to avoid impacts to both the northern long-eared bat and Bachman's Sparrow. TOYRs for these species are April 15 - September 1 and April 1 - August 15, respectfully.

If clearing is required to take place within the TOYR for the northern long-eared bat, coordination with the USFWS will be required. Acoustic surveys, among other methods, documenting the absence of this species would relieve the TOYR restriction and remain valid for 3 years. If the project is awarded, acoustic surveys could be conducted next survey season, May 15 - August 15. The observation of the Bachman's Sparrow is nearly 20 years old and occurred during a state-wide systematic survey which noted the rapid decline of this species population. No current survey information was available. The DGIF also identified the state threatened green floater (*Lasmigona subviridis*) and Atlantic pigtoe (*Fusconaia masoni*) as occurring downstream of the project area. These species should not present an issue for the project if sediment and erosion control best management practices are implemented during construction.



[REDACTED]

The USFWS identified the federally threatened northern long-eared bat (*Myotis septentrionalis*) as potentially occurring in the vicinity of the project. The project area is located within the designated White Nose Buffer Zone, and based on the extent of forested area, it can be reasonably assumed that clearing of appropriate NLEB habitat will be required. The project likely requires federal authorization from the US Army Corps of Engineers for crossings of Section 10 waters and under Section 404 of the Clean Water Act. As such, coordination with USFWS will be required to determine potential impacts to the NLEB. The project will likely be subject to time of year restrictions on clearing (April 15 to October 15) or require surveys to determine if NLEB is present. Acoustic surveys, among other methods, documenting the absence of this species would relieve the time of year restrictions and remain valid for 3 years. The acoustic survey season is May 15 - August 15 of each year.

A search of the DGIF VAFWIS database did not report the presence of NLEB, but did identify several state and federally listed freshwater mussel species as having been observed in the vicinity of the proposed project corridor. Mussel species include the dwarf wedgemussel (*Alasmodonta heterodon*), Atlantic pigtoe (*Fusconaia masoni*) and yellow lance (*Elliptio lanceolata*). In addition, the project will cross several anadromous fish use reaches and designated threatened & endangered species waterways. It is expected that all of these crossings can be spanned and appropriate sediment and erosion control best management practices would be implemented to avoid any direct impacts to these resources.

[REDACTED]

[REDACTED]

[REDACTED]

D. Analytical Assessment

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

- N-1 Contingency Analysis
- N-1-1 Contingency Analysis
- Generator Deliverability Analysis

NEET utilized the powerflow data supplied by PJM to study Segment 1 and Segment 2 as a combined project.

The project resolves the targeted generator deliverability issue, Flowgate 52 Carson – Rogers Road 500 kV overload. Additionally, it does not result in any additional violations on the PJM transmission system.

The complete details of NEET's analytical assessment can be found in the zip files uploaded to PJM's website. As verified by emails received from PJM, the following files were submitted to PJM at approximately 3:15pm on July 20, 2015:

NEET1A_2015 - Appendices & RTEP Template Final submitted.zip has been sent to PJM.

That zip file contained a number of documents as follows:

“NEET1A_2015 - Appendices & RTEP Template Final submitted.zip” contained the following files:

Name	Type	Compressed size	Password ...	Size	Ratio	Date modified
Appendix 1 - Powerflow Results - NEET1A_2015.pdf	Adobe Acrobat Document	155 KB	No	168 KB	9%	7/20/2015 1:13 PM
Appendix 2 - SLG - NEET1A_2015.pdf	Adobe Acrobat Document	224 KB	No	246 KB	10%	7/18/2015 2:05 PM
Appendix 3 - Aerial Map - NEET1A_2015.pdf	Adobe Acrobat Document	693 KB	No	723 KB	5%	7/20/2015 9:39 AM
Appendix 3 - Segment 1 Rogers Road to Pleasant Shade Detailed M...	Adobe Acrobat Document	4,162 KB	No	5,108 KB	19%	7/17/2015 10:44 AM
Appendix 3 - Segment 2 Carson Rawlings Detailed Mapbook.pdf	Adobe Acrobat Document	20,495 KB	No	25,090 KB	19%	7/20/2015 10:19 AM
Appendix 4 - Contingencies - NEET1_2015 - Segment 1.con	CON File	1 KB	No	1 KB	71%	7/20/2015 2:46 PM
Appendix 4 - Contingencies - NEET1_2015 - Segment 2.con	CON File	1 KB	No	1 KB	84%	7/20/2015 2:46 PM
Appendix 5 - NEET1_2015 - Segment 1.idv	IDV File	1 KB	No	2 KB	65%	7/15/2015 10:15 AM
Appendix 5 - NEET1_2015 - Segment 2.idv	IDV File	1 KB	No	2 KB	67%	7/15/2015 10:15 AM
NEET1A_2015 - RTEP Proposal Template 2015.xlsx	Microsoft Excel Worksheet	22 KB	No	45 KB	51%	7/20/2015 1:22 PM

NEET has, through the July 20, 2015 proposal submittal, provided PJM with the following:

- Detailed analysis report on proposed solutions, including:
 - Breaker one-line diagrams to illustrate system topology and substation configuration
 - Spreadsheets of analysis as appropriate

- Equipment parameters and assumptions
 - All parameters (Ratings, impedances, mileage, etc.)
 - For reactive devices, settings and outputs
 - For synchronous machines, MW and MVAR output assumptions
- All necessary PSS/E idev files or appropriate data to model upgrade
- Proposal Template spreadsheet (in excel format) including flowgates your project is addressing, general scope, detailed solution components, total cost.

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

NEET estimates that the total project will cost approximately \$105.1 million (in 2015 dollars), of which approximately \$91.8 million is estimated to be designated to NEET. NEET further estimates that the total project will cost approximately \$116.2 million (In-Service Year dollars), of which approximately \$101.2 million is estimated to be designated to NEET.

Both the \$91.8 million (2015 dollars) and the \$101.2 million (In-Service Year dollars) are binding estimates (Binding Construction Cost Estimates), subject to adjustment to reflect any scope changes that are directed by a governmental body or are due to events outside of NEET's control as further described in Appendix 6. A more detailed cost breakdown and explanation of NEET's cost cap estimate is included in Appendix 6 of this application, including the details of the cost commitment being offered by NEET.



F. Schedule

Detailed conceptual schedule for proposed project, including environmental, routing, and permitting

Segment 1 and 2: Combined Milestone Schedule

<u>Schedule Milestones</u>	<u>Date</u>
Project Award	[REDACTED]
Permitting Complete (including federal/state/local)	[REDACTED]
Site Acquisition/ROW Complete	[REDACTED]
Engineering and Design Complete	[REDACTED]
Start Construction/Activities	[REDACTED]
Start Testing and Commissioning	[REDACTED]
Project COD	[REDACTED]



G. Operations/Maintenance

Overview plan for operating and maintaining the transmission facilities for the proposed project

Intentions for a control center

It is anticipated that the proposed project will be operated from Lone Star's control center and use a similar data acquisition architecture. Lone Star operators operate a multi-site EMS with redundant servers and telecommunications to two data centers. The proposed project facilities will be dual scanned from both data centers and redundant ICCP (Inter-Control Center Communications Protocol or IEC 60870-6/TASE.2) servers will exchange supervisory control and data acquisition (SCADA) data with PJM and other neighboring entities. The EMS will include displays and alarm processing to ensure transmission operations has real-time situational awareness. In addition, the EMS has Power Flow and Contingency Analysis applications to study what-if scenarios. The EMS support personnel will perform daily checks of the applications and hardware to ensure they are in proper working order. The EMS system has several monitoring mechanisms to notify the EMS support personnel to respond to issues. The EMS support team will also have the skillsets necessary to enhance applications and/or systems to meet safety, reliability and business requirements. These transmission operations facilities are designed and operated to meet applicable NERC Transmission Operation Reliability Standard requirements.

NEET's Lone Star control center will provide operational coordination with PJM, and they will also coordinate with local operational support with HV Technicians staffed and managed from NextEra's existing Meyersdale, PA facility. The local operational obligations will include site safety management, lock-out-tag-out and 24/7 out-of-hours response.

Maintenance contracts

The NextEra family of companies has experience with their existing overhead line, substation, and environmental service level agreements for assets throughout North America. These existing agreements provide the special tools, spares and skill-sets needed for non-emergency routine maintenance work and emergency response services for high voltage transmission



facilities. The contractors providing these services include Quanta, whose services include substation repair, ground inspection crews, small repair line crews, conductor repair crews, and aerial inspections.

NEET will rely on transmission maintenance personnel both in the project area and in support functions throughout the NextEra affiliate company organizations to ensure 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 any and all operating events during normal and emergency conditions. In addition to proven event response processes NextEra companies are experienced at devising recovery plans, specifically for storms, to help respond to system emergencies.

Previous experience

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 transmission facilities.
- 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. Many of these personnel will provide support to NEET through our 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 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 NEET well to manage extreme geographic and climate conditions that NEET is likely to face in future projects.

The NextEra family of companies' framework that provides control, audit, and oversight of maintenance for its transmission and substation assets is called the Op Model. The NextEra family of companies' 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; NERC and Environmental Compliance; Training; Contingency Planning; Restoration; ROW; Switching; Maintenance; Testing; Work Management; Protection; Reliability Metric; Troubleshooting and Event Response.

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

The NextEra family of companies' transmission line patrols, inspections, and maintenance practices address: 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.

The NextEra family of companies has inventory and spare strategies for routine maintenance requirements and loss of functionality 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 and control, vegetation management, and environmental needs.

