

NORTHEAST TRANSMISSION DEVELOPMENT

a Member of the LS Power Group

PROPOSAL



In Response to the:

PJM RTEP – 2016/17 RTEP Long Term Proposal Window

Baltimore 3

February 28, 2017

NORTHEAST TRANSMISSION DEVELOPMENT

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A. EXECUTIVE SUMMARY

Northeast Transmission Development, LLC (“NTD”), a member of the LS Power Group (“LS Power”) is pleased to present the following project (“Project”) to resolve market efficiency congestion in PJM.

NTD seeks to be the Designated Entity¹ for the Project, designated by PJM to develop, construct, own, operate, maintain, and finance the Project. NTD has demonstrated its capability to develop, finance, construct, own and operate large scale power projects, including high-voltage transmission projects. LS Power has a strong track record of success throughout the United States, including significant generation experience and the successful development, construction, and operation of hundreds of miles of high-voltage transmission.

NTD provides cost containment for the Project to cap the costs to place the Project in-service. The Project should be evaluated independently and can be placed in service in advance of the identified need.

The Project consists of a new approximately 7-mile double circuit 230 kV transmission line connecting the existing Graceton 230 kV substation to a new Bookers Run 500/230 kV substation, which connects to the existing Peach Bottom to Three Mile Island 500 kV transmission line. The Project also includes transmission owner upgrades to the Graceton to Northeast 230 kV double circuit transmission lines and both Five Forks to Windy Edge 115 kV transmission lines. Furthermore, the Project removes the planned Furnace Run (b2752.1-b2752.6) transmission improvements. The Project has an estimated construction cost of approximately \$28.1 million and will relieve market congestion in Pennsylvania and Maryland.

¹ Pre-qualification ID 13-06.

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B. COMPANY EVALUATION INFORMATION

NTD is a member of the LS Power Group,² an experienced developer of large-scale energy projects, including several transmission projects. Since 1990, LS Power has had the technical and engineering capability to develop, own and/or operate over 30,000 MW of power generation facilities and two large high-voltage (345 kV and 500 kV) transmission projects totaling over 700 circuit-miles. LS Power currently has operating assets and development projects within PJM in Delaware, Illinois, Kentucky, New Jersey, Pennsylvania and Virginia. Additional information confirming NTD's qualifications to be selected as the Designated Entity was included in the pre-qualification documentation.

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C. CONSTRUCTABILITY

A general location map for the Project can be found in *Appendix A*. A more detailed map depicting each representative location can be found in *Appendix B*.

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A. REMOVE FURNACE RUN TO CONASTONE (B2752.1-B2752.6)

The first component of the Project consists of removing the planned Furnace Run 500/230 kV substation (b2752.1), Furnace Run – Conastone 230 kV transmission line (b2752.5) and associated improvements (b2752.2, b2752.3, b2752.4 & b2752.6) (all together “Furnace Run”). The approval of b2766.1 and b2766.2 (Peach Bottom – Conastone 500 kV upgrade) negates benefits that were to be provided by Furnace Run. Furnace Run now significantly increases congestion around Baltimore and on the PJM system.

B. BOOKERS RUN 500/230 kV SUBSTATION

The second component of the Project consists of a new Bookers Run 500/230 kV substation interconnecting the existing Peach Bottom to Three Mile Island 500 kV transmission line. The new Bookers Run substation is proposed to be located on privately-owned land in York County, Pennsylvania.

C. TRANSMISSION LINE INTERCONNECTION

The third component of the Project consists of constructing new towers to connect the existing Peach Bottom to Three Mile Island 500 kV transmission line to the new Bookers Run substation.

D. BOOKERS RUN – GRACETON 230 kV TRANSMISSION LINE

The fourth component of the Project is a new approximately 7-mile double circuit 230 kV transmission line from the new Bookers Run substation to the existing Graceton 230 kV substation. The representative route is located in York County, Pennsylvania and Harford County, Maryland.

E. GRACETON 230 kV SUBSTATION INTERCONNECTION

The fifth component of the Project consists of interconnecting to the Graceton 230 kV substation and associated terminal improvements. This work would be completed by the incumbent transmission owner.

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F. GRACETON TO BAGLEY TO RAPHAEL ROAD 230 kV UPGRADE

The sixth component of the Project consists of upgrading both Graceton to Bagley to Raphael Road 230 transmission lines through the addition of a second conductor per phase and associated terminal improvements. This work would be completed by the incumbent transmission owner.

G. RAPHAEL ROAD TO NORTHEAST 230 kV REBUILD

The seventh component of the Project consists of a reconductor or rebuild of the Raphael Road to Northeast 230 kV double circuit transmission line and associated terminal improvements. This work would be completed by the incumbent transmission owner.

H. FIVE FORKS TO ROCK RIDGE 115 kV REBUILD

The eighth component of the Project consists of a reconductor or rebuild of both the Five Forks to Rock Ridge 115 kV transmission lines and associated terminal improvements. This work would be completed by the incumbent transmission owner.

I. ROCK RIDGE TO WINDY EDGE 115 kV UPGRADE

The ninth component of the Project consists of upgrading both Rock Ridge to Windy Edge 115 kV transmission lines and associated terminal improvements. This work would be completed by the incumbent transmission owner.

D. ANALYTICAL ASSESSMENT

The Project one-line diagram can be found in *Appendix C* and a preliminary sketch of the proposed configuration can be found in *Appendix D*.

NTD determined the technical specifications for each Project including ratings and impedances, which are each specified in the modeling files submitted for review by PJM. NTD has completed an extensive modeling effort to evaluate the merits of the Project. The model results demonstrate that the Project will relieve market congestion as identified in *Appendix E*.

NTD conducted a power flow contingency analysis using a power flow case and contingency files provided by PJM to identify any potential violations of thermal ratings due to the addition of a Project. NTD's analysis showed the Project did not create new thermal overloads on the PJM system.

E. COST

1. PROJECT COST ESTIMATES

The total cost for the Project, both in current year dollars and in-service year dollars, and a detailed breakdown of estimated costs for each component of the Project is identified in *Appendix F*.

An estimated yearly cash flow for the Project is included as *Appendix G*.

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F. SCHEDULE

NTD has prepared execution plans for all Project components outlining major Project development, construction and operations activities. NTD identified and evaluated any potential fatal flaws for the Project and confirmed the preliminary feasibility of each Project proposed for consideration by PJM. A detailed conceptual schedule for each proposed Project component can be found in *Appendix K*. NTD's schedule allots sufficient time to complete each aspect of the Project to meet an in-service date as early as June 1, 2021 without risking a delay if unforeseen issues would arise. NTD will meet the in-service date directed by PJM.

LS Power will assign a Project Director to oversee the Project through development, construction and operations/maintenance. *Appendix L* contains an organizational chart depicting the management structure NTD intends to implement the Project. The following sections summarize each of the major activities during the development, construction, and operations and maintenance phases of the Project.

A. SITE SELECTION/ROUTING ANALYSIS

NTD will conduct a detailed analysis to identify preferred and alternative routes/sites taking into consideration factors such as safety, environmental impacts and land use. The detailed analysis will include data collection, field evaluation, environmental review, engineering analysis, right-of-way review and agency and public review. The detailed analysis will identify all information necessary to support development of the application for any siting approval process.

B. COMMUNITY AND LANDOWNER ENGAGEMENT

NTD will identify and engage stakeholders, such as community officials and landowners within the Project area, early in the process and maintain an active dialogue throughout. Public meetings may be held to offer a venue for landowners and other interested community members to learn about the Project and for NTD to learn more about specific landowner and community preferences. NTD plans to make information available on its website and provide notification of public meetings to landowners within the Project area as required in the siting approval process.

C. PERMITTING

As with all of LS Power's development projects, LS Power employees will directly oversee all Project permitting activities. From senior management to project managers and environmental, electrical and project engineers to support services including legal, administrative, regulatory and others, the Project will benefit from LS Power's detail-oriented and hands-on philosophy. In addition to LS Power personnel, NTD will utilize qualified third-party firms to support permitting and development efforts. In its experience, LS Power has found that working with local consultants and legal counsel provides both invaluable insight and the benefit of established relationships with permitting agencies. Additionally, LS Power has strong working relationships with numerous equipment manufacturers, suppliers,

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contractors and engineers to provide specialized technical data as necessary to support permitting; such information includes, for example, the most current equipment offerings and respective performance data, construction techniques to minimize impacts and permitting complexity and procurement and installation schedules. NTD has already held preliminary discussions with third-party support firms to confirm expectations on schedule and feasibility for permitting processes, procurement and construction, which information is incorporated in this Proposal. NTD will be involved in each step of the development process, carefully managing and reviewing work to ensure the various aspects of the Project fit together upon completion, ultimately being financeable and constructible.

D. SITING APPROVAL

Most high-voltage transmission projects will require a state siting approval. To begin the siting approval process, NTD plans to hold pre-application meetings with the regulatory agency to introduce NTD and the Project, as well as confirm its understanding of the process. Shortly thereafter, NTD will simultaneously begin collecting siting data and start its outreach efforts so that public siting input is incorporated at the earliest stages of the Project. Once NTD identifies a preferred site/route and at least one viable alternative site/route, NTD will carry out the environmental and detailed engineering work described in the Site Selection/Routing Analysis section above in order to establish a highly-detailed Project plan to support the siting applications.

E. WETLANDS AND WATERWAYS

The proposed Project was sited to avoid and minimize impacts to wetlands or other areas of environmental concern based on GIS data. It is possible that the Project cannot avoid impacts to a limited number of wetlands and waterways. If so, NTD expects the Project will be subject to regulation under certain permitting programs, namely Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and Section 401 of the Clean Water Act. NTD will engage a qualified consultant to conduct a wetlands delineation of the selected site/route in order to establish the extent of proposed impacts and the need for specific permits from the state or U.S. Army Corps of Engineers.

F. VARIOUS MINOR PERMITS

In addition to the permits described above, NTD has identified other permits which may be required for the construction of the Project. NTD considers these permits to be minor due to the more limited effort to prepare applications and the less intensive permitting processes which follow. These include permits related to airspace clearance, stormwater/erosion and sedimentation control, road crossings, and utility and railroad crossings.

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G. RIGHT-OF-WAY ACQUISITION

The Project will be located primarily on new right-of-way to be acquired by NTD predominately in the form of easements. NTD will assign a Right-of-Way Manager to oversee all real estate related activities for the Project including appraisals, title work, surveying, land acquisition and restoration.

A land valuation study will be prepared to establish acreage values for the Project area to serve as the basis for consistent offers for securing easements. Title work will be prepared for each parcel and provided to the survey team for use in preparing legal descriptions for each easement. A right-of-way agent will contact each property owner in person to explain the Project and, as necessary, secure permission to conduct surveys, archaeological studies, etc. Right-of-way agents will be the primary point of contact and negotiate with property owners to acquire the easements on a mutually agreeable basis. To the extent that negotiations reach an impasse, NTD will be able to pursue eminent domain. The right-of-way agents will continue to act as a liaison with the property owners during construction and through the restoration process.

H. PROJECT CONSTRUCTION

NTD intends to follow the same approach for construction as was most recently used to construct the Cross Texas Transmission facilities in Texas. NTD will assign a Construction Manager, an Engineering Manager and a Permit/Compliance Manager to oversee, construction, engineering and compliance activities. This will include quality assurance, field inspectors, coordination activities, outage planning, document control, and various specialists. *Appendix L* provides an organizational structure depicting NTD's planned management arrangement.

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G. OPERATIONS/MAINTENANCE

For all Project components, NTD intends to follow the same approach for operations and maintenance as is being used for the Cross Texas Transmission Facilities in Texas. NTD will maintain a reliable system and ensure safety and compliance with all applicable codes and standards. NTD will assign a Planning and Operations Manager to oversee the planning, maintenance, real-time operations, and emergency response activities. NTD will actively monitor the condition of the Project, perform condition based maintenance activities and replace equipment as needed. *Appendix L* provides an organizational structure depicting NTD's planned management arrangement.

1. OPERATIONS PLAN

NTD will have a transmission operations center to provide 24/7 monitoring of the Project to monitor and control voltage levels, power flows, or other parameters of the Project, as well as implement procedures needed for emergency or planned maintenance.

2. MAINTENANCE PLAN

NTD will implement an active, thorough inspection and maintenance program for the Project consistent with industry practices including transmission line inspections, vegetative and right-of-way maintenance, and substation maintenance.