

NORTHEAST TRANSMISSION DEVELOPMENT

a Member of the LS Power Group

PROPOSAL



In Response to the:

PJM RTEP – 2016 RTEP Proposal Window #3

Butternut Ridge

November 15, 2016

NORTHEAST TRANSMISSION DEVELOPMENT

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NORTHEAST TRANSMISSION DEVELOPMENT

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 potential reliability criteria violations identified by PJM. The potential reliability criteria violations were identified in accordance with all applicable planning criteria (PJM, NERC, SERC, RFC, and Local Transmission Owner criteria) for the 2016 RTEP Proposal Window #3.

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 can be placed in service in advance of the identified need.

The Project consists of a new approximately 2-mile double circuit 138 kV line from the existing Fieldstone to Johnson 138 kV line and the Carlisle to National Bronze 138 kV line to a new switching station (“Butternut Ridge”) interconnecting the existing Astor to Crystal 138 kV line and the Crestwood TP3 to Fowles 138 kV line. The existing Fieldstone to Johnson 138 kV line and the Carlisle to National Bronze 138 kV line will be reconfigured to have a Johnson to National Bronze 138 kV line, a Fieldstone to Butternut Ridge 138 kV line and a Carlisle to Butternut Ridge 138 kV line. The Project has an estimated construction cost of approximately \$19 million and will resolve generator deliverability violations in northeastern Ohio.

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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1. FIELDSTONE/JOHNSON & CARLISLE/NATIONAL BRONZE – BUTTERNUT RIDGE 138 kV TRANSMISSION LINE

The first component of the Project is a new approximately 2-mile double circuit 138 kV transmission line from the existing Fieldstone to Johnson 138 kV line and the Carlisle to National Bronze 138 kV line to the new Butternut Ridge 138 kV switching station. The representative route is located in Lorain County, Ohio.

2. BUTTERNUT RIDGE 138 kV SWITCHING STATION

The second component of the Project consists of a new Butternut Ridge 138 kV switching station looping in the existing Astor to Crystal 138 kV line, the Crestwood TP3 to Fowles 138 kV line, and the new double circuit 138 kV line to the existing Fieldstone to Johnson 138 kV transmission line and the Carlisle to National Bronze 138 kV transmission line. The new Butternut Ridge switching station is proposed to be located on privately-owned land in Lorain County, Ohio.

3. RECONFIGURE EXISTING TRANSMISSION LINES

The third component of the Project is reconfiguring the existing Fieldstone to Johnson 138 kV line and the Carlisle to National Bronze 138 kV line to have a Johnson to National Bronze 138 kV line, a Fieldstone to Butternut Ridge 138 kV line and a Carlisle to Butternut Ridge 138 kV line. Remove the remaining double circuit 138 kV transmission line between the new Johnson to National Bronze 138 kV line and the new Fieldstone to Butternut Ridge and Carlisle to Butternut Ridge double circuit 138 kV line from service.

4. TRANSMISSION LINE INTERCONNECTION

The fourth component of the Project is constructing new towers to connect the existing Astor to Crystal 138 kV line and the Crestwood TP3 to Fowles 138 kV line.

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 the 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 resolve potential reliability criteria violations as identified in *Appendix E*.

NTD conducted a power flow contingency analysis using the 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 ESTIMATE

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 the 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, 2020 without risking a delay if unforeseen issues would arise. NTD has proposed a June 1, 2020 in-service date in circumstances where it would appear appropriate to be in-service earlier to resolve the identified violation. 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

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Power has strong working relationships with numerous equipment manufacturers, suppliers, 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.