PJM Generator Interconnection Request
Feasibility Study Report

Queue Position #U1-076
Allegheny Lock & Dam #2 Project
12 MW
July, 2008

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Preface

The intent of the feasibility study is to determine a plan, with high level cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an interconnection customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the feasibility study, but the actual allocation will be deferred until the impact study is performed.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

General

The Interconnection Customer has proposed construction of a 12 MW (12 MW Capacity) hydro-electric generating facility at the Allegheny Lock and Dam #2 located along the Allegheny River on in O'Hara Township, Allegheny County, Pennsylvania. The proposed point of interconnection is via a line tap on the 23kV subtransmission line Pine Creek-Blawknox No. 1, also referred to as 22567, owned by the Duquesne Light Company (DLCO). The planned in-service date is the first quarter of 2015.

This Generation Interconnection Feasibility Study provides analysis results to aid the Interconnection Customer in assessing the practicality and cost of incorporating the facility into the PJM system. This study was limited to load flow analyses for all single and tower contingencies. Using information provided by the transmission owners, this report includes facility cost and schedule estimates where appropriate. If the interconnection customer elects to pursue a System Impact Study, a more comprehensive analysis will be performed.

PJM Analysis:

Network Impacts

The queue project U1-076 was studied as a 12MW (capacity) injection into the Duquesne system. The project was modeled as a direct connection to the Pine Creek 138kV substation (which feeds the tapped line). U1-076 was evaluated for compliance with reliability criteria for summer peak conditions in 2012. Potential network impacts were as follows:

Generator Deliverability
(Single or N-1 contingencies for the Capacity portion only of the interconnection)

No problems identified.

Multiple Facility Contingency
(Double Circuit Tower Line contingencies only for the full energy output. Stuck breaker and bus fault contingencies will be performed for the Impact Study)

No problems identified.

Contribution to Previously Identified Overloads
(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

No problems identified.

New System Reinforcements
(Upgrades required to mitigate reliability criteria violations, i.e. "Network Impacts", initially caused by the addition of this project generation)

None.

Contribution to Previously Identified System Reinforcements
(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None.

Short Circuit

Not required.

Transmission Owner Analysis:

Attachment Facilities

The proposed generation project will be connected to the DLCO subtransmission system via a line tap on the 23 kV subtransmission line Pine Creek-Blawnox No. 1, also referred to as 22567. See Single Line Diagram of the proposed interconnection. The proposed interconnection will require the construction of approximately 0.95 miles of new 23kV line to connect the generation site to the tap point.

The following assumptions were used in the preparation of this high-level cost estimate:

- DLCO will engineer, purchase, and construct approximately 0.95 miles of standard 23kV line.
- DLCO will be responsible for the engineering, purchase, and construction of the high voltage equipment from the 23kV line entrance to the metering point within the customer substation.
- DLCO will be responsible for the engineering of the foundations, structural steel, UG conduit and grounding associated with the DLCO high voltage equipment.
- The customer will be responsible for providing land for the interconnection substation including space for DLCO protection and supervisory control within a secure and environmentally controlled building in or adjacent to the customer substation.
- The customer will be responsible for the engineering, purchasing, and construction of the customer substation, except as noted above.
- The customer must meet all National, State, Local, and DLCO requirements and must share control of the customer-purchased circuit breaker.
- DLCO will be responsible engineering, procurement, and installation of the line disconnect switch located in the customer substation.
- The line metering, protection, and supervisory control for the DLCO system will be located inside a customer provided secure and environmentally controlled structure within or adjacent to the customer substation.
- The customer is responsible for providing, installing, and maintaining the steel, foundations, conduit, grounding, fencing, and control house per DLCO specifications.
- The customer is responsible for providing station service for DLCO use per DLCO specifications.
- All customer substation equipment beyond the DLCO metering point must be coordinated and meet DLCO specification.

New System Reinforcements

No system upgrades were identified during the course of this feasibility study.

No breaker replacements were identified during the short circuit analysis.

Preliminary Cost Estimate

The preliminary cost estimate is **$2,200,000** in 2008 dollars, which includes the Attachment Facilities costs and tax gross-up. The price will be adjusted for labor rate and material cost changes based on the actual project schedule

Construction Lead Time

This project will require 3–5 years to complete from the date of receipt of a signed Interconnection Service Agreement (ISA). This estimate is a conservative high-level estimate for the lead-time of the proposed interconnection. If Developer elects to pursue the System Impact Study, a more comprehensive analysis will be performed. Delays could be based on weather, equipment lead-time, procurement of right of ways, site preparation, and availability of outages to perform the work.