

PJM Generator Interconnection Request Combined Feasibility / Impact Study Report

**Queue Position #S38
Westvaco 138 KV
8 MW (Energy Only)
March 2009**

Preface

The intent of this System Impact Study is to determine a plan, with cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the Interconnection Customer. The Interconnection Customer may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, 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 System Impact Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The Interconnection Customer 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.

Queue Position #S38 Westvaco 138 kV Combined Feasibility / Impact Study Report

GENERAL

The Luke Paper Company proposes to bring existing generation from behind the meter as an energy only resource in the amount of 8 MW to be injected at the Westvaco 138 kV bus. The generation is presently in service.

DIRECT CONNECTION FACILITIES

The existing facilities at the Luke Paper Company will inject into the Westvaco 138kV substation an additional 8 MW of energy only generation. The existing service point will serve as the Point of Interconnection.

Upgrades have been identified to enable the metering of this injection to the system. The existing metering is only capable of measuring the existing load. Necessary upgrades include:

- Replace the existing potential transformers and metering current transformers with new PTs and extended range CTs.
- Install meter rack and bi-directional metering
- Replace SCADA
- Install new 138 kV line panel with over/under frequency relaying

Estimated Cost: \$142,000 in 2009 dollars

The estimated duration for the substation work is 12 months after receipt of the Interconnection Service Agreement and Interconnection Construction Service Agreement. Note that some work has previously commenced and a proposed in-service date of April 30, 2009 can be accommodated.

Design Requirements

The Interconnection Customer is responsible for specifying appropriate equipment and facilities such that the parallel generation is compatible with the Allegheny Power Transmission System. The Interconnection Customer is also responsible for meeting any applicable federal, state, and local codes.

Allegheny Power reserves the right to review the electrical protection design and relay settings for interconnecting customer facilities to ensure that the protective relaying equipment will be compatible with that installed at the new switching station. The relaying package will likely include both primary and backup protection. Allegheny Power personnel must be present at the time of commissioning to witness proper function of the protection scheme and related coordination. The estimated cost to perform this engineering review and field test effort is **\$5,000 in 2009 dollars**.

Note: The purchase and installation of protective relaying and associated equipment at the generation site is the responsibility of the interconnecting customer and is not included in this scope of work.

Reactive Power

The Interconnection Customer shall design its Customer Facility with the ability to maintain a power factor of at least 0.95 leading to 0.90 lagging measured at the generator's terminals.

COST AND TIMING SUMMARY

While the information in this transmittal is reasonable for the scope of work defined, it should be noted however, that the cost figures are conceptual in nature at this stage, and that an engineering team has not yet been assigned to the project. Obviously, any change to the scope of work will require that the estimates be revisited. The costs are a best estimate, but the developer will be charged for actual costs. Any under-runs or over-runs will be reconciled at the conclusion of the project.

The cost estimates in this report do not include tax gross-up.

NETWORK IMPACTS

The Queue Position #S38 project was studied as an 8MW(Capacity=0MW) injection at Westvaco 138 kV substation in the APS area. Queue Position #S38 was evaluated for compliance with reliability criteria for summer peak conditions in 2012. Potential network impacts were as follows:

Generator Deliverability – at the 20 MW capacity value level

No problems were identified.

Multiple Facility Contingency – Reliability Requirements at the 100 MW full output level

No problems were identified.

Contribution to Previously Identified System Overloads

No problems were identified.

New System Reinforcements

None

Contribution to Previously Identified System Upgrades

None

Steady-State Voltage Requirements

(Results of the steady-state voltage studies should be inserted here)

None

Short Circuit

No breakers were identified as being over their maximum interrupting rating.

Delivery of Energy Portion of Interconnection Request

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

None

Appendix

Figure #1
Single line diagram

