

***PJM Generator Interconnection Request
Queue #Q22
Columbia (Great Bear Hydro) 4.8kV
Feasibility/Impact Study Report***

**September 2006
#384558**

Columbia (Great Bear Hydro) 4.8kV (Q22) Feasibility/Impact Study

General

Great Bear Hydropower, Inc. has proposed having its existing two unit hydro installation on the Delaware River at the Columbia Dam, Route 46 Columbia, Warren County, New Jersey sell into the PJM market. This project has been assigned position Q22 in the PJM Generation Interconnection Queue. The project is to be evaluated as a capacity resource. The proposed in-service date is December 26, 2006.

The intent of the feasibility / impact study is to determine system reinforcements and associated costs and construction time estimates required to facilitate the addition of the new generating plant to the transmission system. The reinforcements include the direct connection of the generator to the system and any network upgrades necessary to maintain the reliability of the transmission system.

Direct Connection

The direct connection facilities currently in place have sufficient capability to accommodate that output of the plant. See Figure #1.

As a capacity resource the project is required to provide the following data to PJM.

The Interconnection Customer is responsible for installing metering equipment that is capable of transmitting the following real time data to PJM. (See PJM manual 14D)

- a. Instantaneous net MW for the plant
- b. Instantaneous net MVAR for the plant

The Interconnection Customer is responsible for installing metering equipment that is capable of transmitting the following non real-time data to PJM. (See PJM manual 14D)

- a. Hourly compensated MWh delivered by the plant.
- b. Hourly compensated MWh received by the plant.
- c. Hourly compensated MVARh delivered by the plant
- d. Hourly compensated MVARh received by the plant

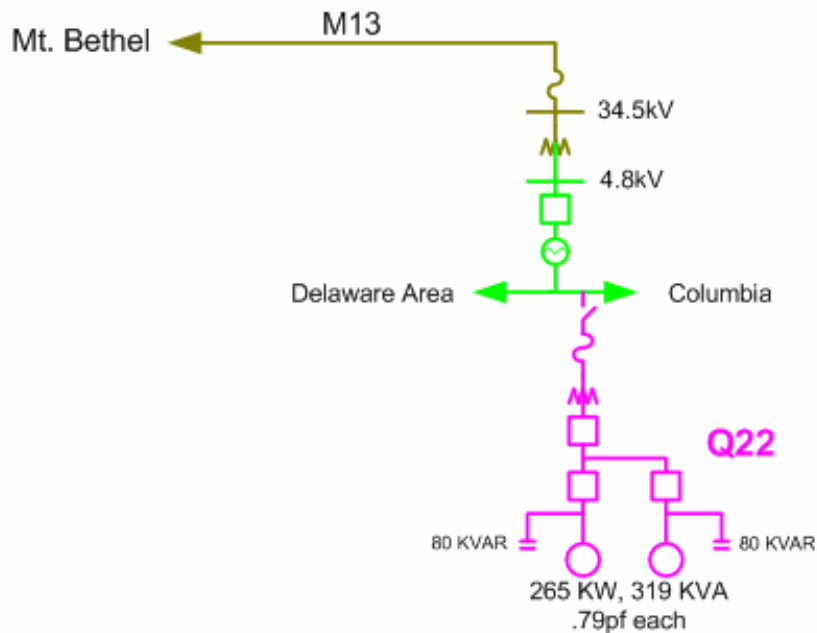
If the project does not want to participate in the capacity market, but wants to sell energy only the following data needs to be provided to PJM

The Interconnection Customer is responsible for installing metering equipment that is capable of transmitting the following real time data to PJM. (See PJM manual 14D)

- c. Instantaneous net MW for the plant
- d. Instantaneous net MVAR for the plant

Figure #1

Q22 Columbia (Great Bear Hydro) 4.8kV



Network Impacts

The #Q22 project was studied as an injection of 0.5 MW into the Columbia 34.5kV bus. Project #002 was evaluated for compliance with reliability criteria for summer peak conditions in 2009. Potential network impacts were as follows:

Generator Deliverability

No identified problems

Multiple Facility Contingency – Tower Line Outages

No identified problems

Contribution to Previously Identified Overloads

None

Short Circuit

No identified problems

Stability

No analysis required

New System Reinforcements

None

Contribution to Previously Identified System Reinforcements

None