

Network Impacts

Potential network impacts for the injection of 500 MW into the existing Hudson 230 kV system was evaluated for summer peak conditions in 2005.

Normal System

- No identified problems.

Multiple Facility Contingency (MAAC Criteria IIC)

- No identified problems.

Generator Deliverability

- The N. Milford – Maywood 230 kV circuit was normally overloaded at 118 %. The new generator contributes approximately 93 MW to the overload.

Short Circuit Analysis

- The F02 project causes 10-15, 138 and 230 kV circuit breakers to exceed the interrupting capability.

System Reinforcements

To eliminate the overdutied circuit breakers identified above, the following system upgrades are required. Replace 10-15, 138 and 230 kV circuit breakers at a cost of approximately \$4 million and take 2.5 years to complete. In addition, the F2 project is expected to contribute to several other circuit breakers identified to be replaced for previous generation projects. The cost contribution should not substantially impact the \$4 million estimate. The estimated cost does not include a tax gross-up, which will be addressed in the Interconnection Agreement. The current tax rate is 38% in New Jersey.

The following system reinforcement will alleviate the overload described above.

The New Milford - Maywood 230 kV cable will need to be replaced with a higher ampacity cable. The cost is estimated at \$15.5 million with a 4 - 5 year lead-time.

The total estimated system reinforcement cost directly accountable to this project is \$19.5 million. After the developer signs the Interconnection Service Agreement contract, a project timeframe of 4 - 5 years should be expected.

The new generator will be allocated a percentage of the costs for the previously identified network reinforcements as follows:

1. Upgrade the Kearny – Roseland 138 kV circuit (D-1304) to 230 kV operation and terminate one end at Roseland 230 kV substation and the other end at the new Kearny 230 kV substation. The conversion of the line is estimated to cost \$6 million and take 2 years to complete.
2. Install a new 230 kV cable circuit between Bergen and Athenia substations. Install a 1% reactor, with bypass switch, at Bergen in series with the new cable. The reactor is being added to this new circuit path to provide impedance that will optimize transmission circuit flows. Provide for termination of the circuit at both Bergen and Athenia. The cost is estimated at \$37 million with a three-year lead-time.
3. Provide forced cooling circulation on the Bergen – Leona Tap 230 kV underground circuit to increase the cable rating. The cost is estimated at \$ 2 million and will take 2 years to complete.
4. Convert the Kearny – Roseland, G-1307-7, 138 kV circuit to 230 kV. Provide new line terminal at Roseland and Essex for the converted 230 kV circuit. The cost is estimated at \$10 million and takes three years to complete.
5. Construct a new 230 kV four breaker ring bus adjacent to Hudson that connects the existing Essex- Hudson and Hudson - Belleville circuits. The cost is estimated at \$6 million with a 4-year lead-time.

Cost allocation percentages are not provided as part of the Feasibility Study analysis, however, cost allocation will be provided at the conclusion of the Queue D, E & F Impact Study evaluations.