Bergen 2 Disconnect Study

General

PJM received a January 15, 2008 notice from PSEG Power LLC ("PSEG Power") that PSEG Fossil LLC ("PSEG Fossil") intends to permanently and physically disconnect the 550-MW Bergen 2 unit from the PJM system so that it could be interconnected to the Con Edison West 49th Street Substation and become a NYISO generation resource on or about June 1, 2011. PJM views the permanent and physical removal of a generating unit from the PJM Region, even if that unit will continue to interconnect with and provide power to another control area, as the deactivation of such generating unit subject to all applicable rules in the PJM OATT, particularly Part V.

Reliability Analysis Results

PJM assessed the reliability impact of disconnecting the Bergen 2 generating unit considering several possible alternative scenarios involving the following existing or potential resources:

- Q75 Bergen – a merchant transmission project consisting of an AC circuit with Phase Angle Regulator control studied as a 1200 MW firm withdrawal from Bergen.
- T159 Bergen – a 230MW generation interconnection project at Bergen 230 kV.
- Hudson 1 – a 383 MW capacity resource with a projected deactivation date of 9/1/2010.

PJM performed the Bergen 2 disconnect reliability assessment for four different scenarios as follows:

Scenario 1 - Q75 active; T159 not in service; Hudson 1 not in service
Scenario 2 - Q75 active; T159 in service; Hudson 1 in service
Scenario 3 - Q75 withdrawn; T159 not in service; Hudson 1 not in service
Scenario 4 – Q75 withdrawn; T159 in service; Hudson 1 in service.

Scenario 1 and 2 with Q75 active resulted in load flow cases that would not converge and would clearly require numerous significant upgrades just to resolve the steady state reliability problems even prior to performing any contingency analysis. The required transmission upgrades could not be identified in the time available for this reliability analysis, but PJM can say with confidence that the upgrades could not be completed before the requested disconnect date.

For Scenario 3 with Q75 withdrawn, T159 not in service and Hudson 1 not in service, PJM identified on the order of 30 overloaded facilities that are due to the Bergen retirement. Of these, about 25 230 kV facilities are overloaded in PSEG and JCPL. Most of these overloaded facilities are beyond their conductor limits and many of the conductor limits already reflect planned reconductor work. PJM can say with confidence that the upgrades could not be completed before the requested disconnect date.

For the Scenario 4 with Q75 withdrawn, T159 in service and Hudson 1 in service, PJM identified two overloaded facilities that are due to the replacement of Bergen 2 with T159 and Hudson 1. The facilities are overloaded in the generator deliverability test:

2011 Generator Deliverability Violations

1. The Hudson to South Waterfront 230 kV circuit is overloaded pre-contingency and also under numerous contingency conditions. The worst contingency conditions are the Hudson - Penhorn 230 kV tower line outage and stuck breaker conditions at Hudson for faults on the Hudson - Penhorn 230 kV circuit.

   Solution:

   - Reconductor the Hudson - South Waterfront 230 kV circuit.
   - Cost Estimate - $12 Million.
   - Projected In-Service Date – June 1, 2011

2. The South Waterfront - Newport "R" 230 kV circuit is overloaded under numerous contingency conditions. The worst contingency conditions are the Hudson - Penhorn 230 kV tower line outage and stuck breaker conditions at Hudson for faults on the Hudson - Penhorn 230 kV circuit.

   Solution:

   - Provide oil circulation and reconductor a bus section at Newport 230 kV.
   - Cost Estimate - $4 Million.
   - Projected In-Service Date – June 1, 2011