

**#N29 – Roth Rock 138kV
Generation Interconnection**

Network Impacts

The #N29 project was studied as a total injection of 40 MW (8 MW of capacity) into a tap of the Mettiki – Mettiki Tap 138 kV circuit. Project #N29 was evaluated for compliance with reliability criteria for summer peak conditions in 2008. Potential network impacts were as follows:

Generator Deliverability

No problems were identified.*

Multiple Facility Contingency – Tower Line Outages

No problems were identified.

Contribution to Previously Identified Overloads

None

New System Reinforcements

None

Contribution to Previously Identified System Reinforcements

None

Short Circuit

No required breaker replacements were identified.

* 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.

As a result of the aggregate energy resources in the area, the following violations were identified:

1. The #N29 project will contribute to the costs associated with the network upgrades of the Parsons-William 138 kV circuit. With a distribution factor of 32%, it contributes approximately 13 MW to the contingency overloaded facility.
2. The Loughs Lane-Parsons Jct.138 kV circuit is overloaded to 105% of its emergency rating (126 MVA) for the outage of the Bedington-Black Oak 500 kV circuit. The #N29 project, with a distribution factor of 32%, contributes approximately 13 MW to the contingency overloaded facility.

3. The #N29 project will contribute to the costs associated with the network upgrades for the Black Oak 500/138 kV transformer. The project contributes approximately 7 MW to the contingency overloaded facility

AP also completed an analysis for the energy portion of these units and identified additional potential problems:

- The William – Parsons Jct. 138 kV loads to 105% of the base case rating when the Roth Rock facility runs at the full 40 MW output and the other generating facilities on the system are running at full output (capacity and energy). In order to prevent the base case overload, the conductor on the William - Parsons Jct. 138 kV line must be changed to 954 ACSR. As a result of this change, the Loughs Lane – Parsons Jct. 138 kV line loads to 106%. In order to prevent the base case overload, the conductor on the Loughs Lane - Parsons Jct. 138 kV line must be changed to 954 ACSR, meaning the entire William –Parsons Jct. – Loughs Lane 138 kV line must be converted to 954 ACSR.
- A number of other 138 kV circuits in the area may impose additional operating restrictions. In most cases, these circuits would be expected to result in minimal re-dispatch requirements.