Queue #O35 Crescent Ridge 138kV

Generation Interconnection

Network Impacts

The **#O35 project was studied as a total increase of 75 MW (15 MW of Capacity) to the Crescent Ridge 138 kV facility**. Project #O35 was evaluated for compliance with reliability criteria for summer peak conditions in 2009. Potential network impacts were as follows:

Generator Deliverability

No problems were identified

Multiple Facility Contingency

1. The Oglesby Tap to Crescent Ridge 138 kV line (#7713) loads from 87% to 152% of its load-dump rating (116 MVA) for the Kewanee to Crescent Ridge and Kewanee to Streator 138kV tower line outage (7413 & 6101). The #O35 project contributes 75 MW to cause this condition.

Contribution to Previously Identified Overloads

1. It contributes 5 MW to increase the loading on the Dresden to #O23 345 kV line (#1202) from 101.8% to 102.2% of its load-dump rating (1320 MVA). This thermal violation was originally identified for the #O27 project for the tower outage of lines #16101 and #97503.
2. It contributes 16 MW to increase the loading on the Nelson to Rock Falls Red 138 kV line (#15509) from 108% to 116% of its load-dump rating (212 MVA). This thermal violation was originally identified for the #O29 project for the Nelson to Dixon Blue and Nelson to Dixon/#O29 Red 138 kV tower line outage (#15507 & #15508).
3. It contributes 16 MW to increase the loading on the Rock Falls to #O09 138 kV line (#13311) from 124% to 131% of its load-dump rating (212 MVA). This thermal violation was originally identified for the #O29 project for the Nelson to Dixon Blue and Nelson to Dixon/O29 Red 138 kV tower line outage (#15507 & #15508). A thermal violation on line #13311 was originally identified for the #O09 project for the Kewanee to #O09 and the Nelson to Dixon/Kewanee Red 138kV tower line outage (#7411 & #15508).

Contribution to Previously Identified System Reinforcements

To be determined in Impact Study.

Short Circuit

The #O35 project caused two circuit breakers at TSS 74 Kewanee to become overdutied. The 138kV circuit breaker for Line 7408 is at 99.6% of the circuit breaker rating. The 138kV circuit breaker for Line 7423 is at 99.1% of the circuit breaker rating.

Potential Issues
During certain maintenance outages the #O35 project will be required to be taken off line.

MISO Impact
Impact on the MISO member transmission systems is not included in this analysis, but will be in the Impact Study, which possibly may reveal upgrades needed in the MISO system not identified in this Feasibility Study.

New System Reinforcements

Cost Estimate:

Qty	Item Description	Material	Labor	Total
	Line 7713			
1	Review and upgrade substation equipment for Line 7713 as necessary to meet or exceed the thermal capability. Review includes line and CB disconnects, leads, CT's, metering, relays, etc.	$ 300,000	$ 200,000	$ 500,000.00

Qty	Item Description	Material	Labor	Total
	TSS74 Kewanee			
2	Replace 138kV circuit breaker	$ 758,400	$ 505,600	$ 1,264,000

Note: “Cost Estimate Notes” above apply to New System Reinforcement costs.

System Reinforcement Schedule
Estimated timeframe to complete engineering, procurement, and construction for the system reinforcements is approximately 18-24 months, and can be done concurrently with the Direct Connection schedule.