Network Impacts

The queue V4-026 merchant transmission project was modeled as a new double circuit 345 kV transmission line with termination points at the Pontiac and Dumont substations, looping in a new substation at Reynolds. In order to see the effects of the project, a thermal analysis was performed by PJM with the project modeled, and again without the project modeled. The results were compared to see any potential impacts to the transmission system. Project V4-026 was evaluated for compliance with reliability criteria for summer peak conditions in 2014. Potential network impacts were as follows:

Normal System

No problems identified.

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

No problems identified

Multiple Facility Contingency

(Double Circuit Tower Line, Line with Failed Breaker and Bus Fault contingencies for the full energy output)

1. The 05TIFFIN-05GREENL 138 kV line (from bus 243130 to bus 243015 ckt 1) loads to 105.17% (DC power flow) of its emergency rating (201 MVA) for the tower contingency outage of CONTINGENCY DESCRIPTION ('464A').

CONTINGENCY '464A'

OPEN BRANCH FROM BUS 242935 TO BUS 292959 CKT 1

OPEN BRANCH FROM BUS 242939 TO BUS 292489 CKT 1

END

2. The 02SAMMIS-01WYLIE R 345 kV line (from bus 239092 to bus 235707 ckt 1) loads to 107.80% (DC power flow) of its emergency rating (1483 MVA) for the tower contingency outage of CONTINGENCY DESCRIPTION ('TWR_8').

CONTINGENCY TWR_8''

OPEN BRANCH FROM BUS 253902 TO BUS 253931 CKT 1

OPEN BRANCH FROM BUS 253936 TO BUS 253975 CKT 1

END

3. The 05GREENL-05MELMOR 138 kV line (from bus 243015 to bus 243039 ckt 1) loads from 99.95% to 100.01% (DC power flow) of its emergency rating (201 MVA) for the tower contingency outage of CONTINGENCY DESCRIPTION (‘520').

CONTINGENCY ‘520'

OPEN BRANCH FROM BUS 248103 TO BUS 238607 CKT 1

OPEN BRANCH FROM BUS 248103 TO BUS 238654 CKT 1

END

Short Circuit

4. Installation of the V4-026 results in the E1 345kV circuit breaker at Olive station becoming overdutied.

BUS_NO	BUS	BREAKER	Rating Type	Duty Percent With v4-026_MTX	Duty Percent Without v4-026_MTX	Duty Percent Difference	Note
0	05OLIVE 345.kV	E1	T	101.40%	97.20%	4.20%	New Over-duty

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

Steady-State Voltage Requirements

(Results of the steady-state voltage studies should be inserted here)

To be determined

Stability and Reactive Power Requirement

To be determined.