

Light Load Operational Performance

Paul McGlynn
PJM Planning Committee
January 6, 2011

- Analysis was performed to test the potential impact of a light load criteria test on an RTEP case
- Modified generator deliverability tool to test the sensitivity of new variables
 - Ramping impact of wind generation above peak case levels
 - Wind impacts from neighboring systems
- Generator deliverability test & common mode outage test
- Detailed results distributed to TO's

Network Model	5 year out case
Load Model	Light Load (50% of 50/50 Summer Peak)
Base Generation Dispatch (Online in base case)	Coal > 500MW = 60% Coal < 500 MW = 45% Nuclear = (1-EEFORD) = approximately 92% Wind = 40%
External Transfers (Interchange)	PJM Net Interchange = Net of Yearly Long Term Firm Transactions in PJM Operations
Notes:	Scale coal generation to balance the case to meet load + losses + interchange
Contingencies	NERC Category A, B, C (except C3)
Monitored Facilities	All PJM market monitored facilities

Preliminary Sensitivity Analysis Result

- These are the same results that were discussed at the December PC meeting
- Detailed results distributed to TO's
- Scenario analysis example

3% / 80% = 3% MISO wind DFAX Cutoff
80% = 80% maximum wind ramping limit

Area	Voltage	MISO Wind DFAX Cutoff / Maximum Wind Ramping Limit*			
		0% / 100%	0% / 80%	3% / 80%	5% / 80%
AEP	345/500	2	2	0	0
	138/138	3	2	0	0
APS	138/138	7	6	5	5
COMED	345/345	3	1	1	1
	345/138	1	0	0	0
	138/345	1	0	0	0
	138/138	30	15	9	9
DOMINION	500/500	2	2	2	2
	138/115	1	1	1	1
PECO	500/230	1	1	1	1
	230/230	1	1	0	0
	138/138	1	1	1	1
PECO/BGE TIE	230/230	1	1	0	0
PENELEC	115/115	1	1	1	1
	230tx	2	2	2	2
PL	230/230	1	1	0	0
PL/BGE TIE	230/230	1	1	0	0
	115/115	1	1	0	0
PL/JCPL TIE	69/18	2	2	0	0
PL/UGI TIE	69/69	1	1	1	1
PSEG	345/345	2	2	2	2
	230/230	1	1	1	1
	345tx	3	3	3	3
TOTAL		69	48	30	30

* Ramping limit was applied to both PJM and MISO wind

- Additional analysis requested by the Planning Committee
 - External Wind Sink Scenario Analysis
 - Model as transfer from MISO wind generation to all online PJM generation
 - The results using this assumption are on the previous slide and were discussed at the December 2010 PC Meeting
 - Model as transfer from MISO wind generation to all MISO generation (circulation / loop flow)
 - This scenario was tested and produced a very similar result as the previous result

<p>Test Methodology</p>	<p>Generator Deliverability (NERC Category A, B), Common Mode Outage Procedure (NERC Category C, except C3)</p>
<p>Ramping Limits for Generator Deliverability test methodology</p>	<p>Wind is dispatched 40% of nameplate capability in base case and ramped up to 80% if selected by the test criteria</p>
<p>Generation Participation from Neighboring Systems</p>	<p>MISO Wind DFAX cutoff (0%)</p>
<p>Sink for external ramped generation</p>	<p>MISO wind to all online PJM Generation</p>

- Analyze and reinforce the baseline system
 - Perform baseline analysis with proposed criteria
- Apply criteria to interconnection studies
 - Future interconnection studies will include all of the required baseline upgrades in the base model but will also be tested for compliance with the proposed criteria

- Draft Manual 14B Language
- Seek MRC approval