



OPERATIONS MEMO #50

REV: 1

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Subject: Controlling for thermal overloads on the 12204 (Marengo Tap-Pleasant Valley) 138KV line for loss of the 15616 (Cherry Valley-Silver Lake) 345kV line.

Background: During light load periods, west to east flows across the ComEd system increase due to lack of ComEd western load, increasing wind generation, base load steam and nuclear generation, resulting in overloads on the 12204 (Marengo Tap-Pleasant Valley) 138KV line for loss of the 15616 (Cherry Valley-Silver Lake) 345kV line.

Procedure:

- 1.) Determine the direction of the post contingency flow on the 12204 Marengo Tap-Pleasant Valley line. Confirm with the ComEd RD if the following seasonal directional ratings can be applied:
 - a. Flow into 141 Pleasant Valley:
 - i. Summer ratings: 208MVA-Normal, 264MVA-Emergency, 275MVA-Load Dump
 - ii. Winter ratings: 249MVA-Normal, 294MVA-Emergency, 307MVA-Load Dump
 - b. Flow out of 141 Pleasant Valley
 - i. Summer ratings: 208MVA-Normal, 264MVA-Emergency, 275MVA-Load Dump
 - ii. Winter ratings: 249MVA-Normal, 264MVA-Emergency, 281MVA-Load Dump

2.) If the post-contingency flow on the “12204” line reaches 100% of the Emergency rating, the following switching options can be implemented:

Option A: Request ComEd to open the **Marengo “12204/12205” 138kV CB** precontingency*.

- i. Analysis shows approximately 15MVA help from this switching*
- ii. NOTE: This CB is normally open, but is closed during the summer months for Reliability concerns. Refer to SPOG 2-2-B for additional information.*

Option B: Request ComEd to open the **Marengo “12204/12205” 138kV CB AND the 141 Pleasant Valley “1-2” OR the “2-3”CB 138kV CB** precontingency*. System conditions should dictate which Pleasant Valley CB can be opened to provide the most relief.

- i. Analysis shows approximately 25MVA help from this switching*

***NOTE:** The switching options listed above may not be acceptable on a pre-contingency basis for the following reasons:

- i. Storms in the area,*
- ii. Temperatures are expected to be at or below 15-degrees Fahrenheit,*
- iii. Studies indicate additional problems will arise from the switching*

3.) Bind the constraint in the UDS system and initiate Market to Market (M2M) Coordination with MISO reducing cost-effective generation to economic minimum. Ensure that a shadow price is being sent to MISO.

- a. If a Shadow Price cannot be sent to MISO, the Shadow Price Override Procedure should be utilized.

4.) Concurrently with Step #3, initiate TLR on flowgate #510 - “Marengo Tap-Pleasant Valley 138kV line I/o Cherry Valley-Silver Lake 15616 345kV line”.

5.) Curtail effective Spot Market Transactions when interface prices fall to \$0.

- 6.) Declare a Local Minimum Generation Event, manually curtailing effective generation below economic minimum, (Specific unit names deleted):
- Note:** Effective June 2009, Wind Farms will receive economic basepoints via UDS. Manual dispatch directives may be necessary if economic base points are not effective.
- 7.) Issue a PCLLRW with the following post contingency switching solution
- a. **Close the Pleasant Valley 1-2CB, open the Marengo “12204/12205” 138kV CB AND the 141 Pleasant Valley “2-3” 138kV CB AND the 141 Pleasant Valley 345/138kV transformer.**
- i. **Screen Post-Contingency Switching option within PJM Security Analysis by implementing Contingency “OM 50: 15616 & TSS141 CB 2-3 & 345/138kV XF” in the real-time “SA Specials” display to ensure post-contingency option is valid and that additional problems will not arise from switching solution.**
- Note:** The switching options listed above may not be acceptable on a pre-contingency basis for the following reasons:
- i. Storms in the area,
- ii. Temperatures are expected to be at or below 15-degrees Fahrenheit,
- iii. Studies indicate additional problems will arise from the switching
- 8.) If the post contingency switching solution will not reduce the post contingency flows below the Load Dump and/or Emergency limits, Pre and/or Post contingency reductions at nuclear units may be required. If nuclear unit reductions can satisfy the conditions “a” and “b” below, THEN post contingency nuclear redispatch is an acceptable post contingency plan;
- a. The unit(s) can provide the necessary flow relief to reduce the post contingency flow below the Emergency rating within the 15-minute PJM requirement.
- i. IF the units can not reduce to bring the post contingency flow below the Emergency rating within 15-minutes, THEN the units will be

directed to lower to a pre-contingency output level that will allow the 15-minute control requirement to be met.

- b. The studied contingency results in a loading below the load dump rating.
 - i. IF the study shows the contingency results in a loading violating the load dump rating, THEN nuclear generation will be re-dispatched on a pre-contingency basis.

NOTE: IF the above post contingency nuclear redispatch option is available, the PCLLRW is still issued until the studied flows are within acceptable limits.

Note 1: Load dump will be required if Steps 7 and 8 cannot be executed within 15 minutes.

Note 2: PJM evaluates minimum down time, start-up costs, and impact to next day operations as input into which generators should be cycled.

Note 3: Prior to reducing Nuclear Generation consider the following:

- Fuel reliability – Nuclear units have set up reduced ramp rates to protect the fuel from conditions that could lead to defect formation. Rapid down powers and returns to full power will set up power distribution that can create additional fuel cladding stresses that could lead to failure.
- Recovery Time – It can take about 13 hours to return from a 200 MW (~84%) load drop.