

Doubs-Mt Storm Impact Summary

February 2011

- The following is a summary of an operational study focused on the impacts of the Doubs-Mt Storm outage on the system after the TRAIL line is in-service. This study is not an RTEP/Planning study and is only valid for the Fall 2011 outage period.

- Dominion and PJM have determined that the structures along the Doubs – Mt Storm line have deteriorated beyond repair and the entire line needs to be rebuilt by 2015.
- The rebuild outages will be scheduled to occur Sept-Dec and Feb-May starting 2011 through 2015. eDart tickets are being updated.
- Final Impedance and Ratings:
 - $R = .00099$, $X = .021$, $B = 2.002$
 - Summer Normal/Emergency rating = 4325MVA (current limit 3183MVA)
- Check webpage for the latest info and updates:
 - <http://www.pjm.com/planning/rtep-upgrades-status/backbone-status/mount-storm-doubs.aspx>

- **Base Case information:**
 - Starting Point: PJM EMS Saved case from 1/26/2011 (this is not a longer term RTEP case)
 - RTO Load: 113,257 MW, importing 859 MW
 - APS Load: 8,510 MW, importing 1,224 MW
 - Dominion Load: 18,291 MW, importing 1,477 MW
- All EHV lines assumed in-service
- TRAIL was the only new transmission project/upgrade assumed in-service.
- No new generation projects assumed on-line.

- No Actual or N-1 issues expected at APS load below 8000MWs.
- For APS load over 8000MWs, Stephens-Stonewall and Lovettsville-Millville 138kV lines may overload for loss of Bedington-Black Oak.
 - Solution: Open the Lovettsville-Millville 138kV line as needed to control loading. Effective until loads of ~8500MWs.

- No voltage violations observed

Interface	Interface Limit Increases from TRAIL*	Interface Limit Reduction from Doubs-Mt Storm Outage	Net Interface Limit Impact
EAST	+42 MW	-133 MW	-91 MW
CENTRAL	+78 MW	-161 MW	-83 MW
WEST	+91 MW	-281 MW	-190 MW
BED-BLA	+12 MW	-30 MW	-18 MW
APSOUTH	+543 MW	-553 MW	-10 MW
50045005	+4 MW	-60 MW	-56 MW
AEP-DOM	+23 MW	-130 MW	-107 MW

*These values are from the TRAIL impact presentation reviewed at the January Committees and available on the [pjm.com](http://www.pjm.com) website in the January 2011 Meeting Materials section.

NOTE: The Interface limits that will be use in ARR/FTR auctions will be developed and posted at the following link in 2-3 weeks:

<http://www.pjm.com/markets-and-operations/ptr/~media/markets-ops/ptr/network-model-annual-2010-2011/annual-pjm-interface-definitions-limits.ashx>

- Analysis was performed to determine any outage (planned or unplanned) that would result in the system not being N-1 secure. Based upon this analysis, a list of facilities has been determined that should not be scheduled out concurrently with Doubs-Mt Storm.
- If any outage on this list must be taken, every effort shall be made to align them with the lightest load period possible and to shorten their duration/restoration time.



Outages to avoid as a result of this Operational Study

- Hatfield-Black Oak 500kV line
- Black Oak-Bedington 500kV line
- Bedington-Doubs 500kV line
- Meadow Brook-Loudoun 500kV line
- Meadow Brook-Morrisville 500kV line
- Bristers-Chancellor-Ladysmith 500kV line
- Chancellor 500/115kV XF
- Doubs-Pleasant View 500kV line
- Pleasant View-Loudoun 500kV line
- Bedington-Nipetown-Reid 138kV line
- Meadow Brook-Klines Mill-Riverton 138kV line
- Meadow Brook-West Winchester 138kV line
- Double Toll Gate-Old Chapel-Millville 138kV line
- Meadow Brook-Hampshire-Gore 138kV line
- Bedington-Opequon 138kV line
- Meadow Brook-Strasburg 138kV line
- Marlowe-Halfway 138kV line
- Cherry Run-Harmony Junction-Bedington/Marlowe three terminal 138kV line
- Bedington-Marlowe #1 or #2 138kV lines
- Doubs-Monocacy 230kV line
- Doubs-Limekiln 230kV line
- Marlowe-Boonsboro 138kV line