Transient Security Assessment (TSA)

Update for the Real-Time

Operations Planning
Applied Solutions
Topics

- Committee Updates
- Plans & Next Steps
- TSA Overview
Prior Committee Updates

- Provided updates to the Committees
  - April 2008 (SOS, OC)
  - September 2009 (SOS, OC, PC)
  - February 2012 (SOS, OC, PC)
Current Activities

- Use TSA in near-term Outage Studies (started at the end of 2012).
  - eMail outage concerns to: TSA_Outage_Study@pjm.com
- Run TSA in real-time trial run mode (started in April 2013).
Next Steps

- Complete benchmarking with Transmission Owners.
- Provide additional training for PJM Operators.
- Develop an Operating Memo for Real-time.
- Incorporate real-time TSA results in IEP alarming.
Real-Time Implementation

- Implement TSA in Real-Time starting June 1, 2013
  - Initially, only known stability concerns identified in M-03 will be monitored in real-time.
  - Monitoring and Controlling except for ComEd and AEP plants.
  - Monitoring only for ComEd and AEP plants (control will use M-03 procedures).
  - M-03 Section 5 transient stability limit applicable procedures will serve as a validation and backup in case TSA is down.
Examples from Real-Time

- Issues and the need for TSA.
Overview of TSA

- Monitor and determine **transient stability** of the PJM system subject to select contingencies.
- Compute **stability limits** by using real time data input and real time network models.
- Provide recommend **transient stability control measures** required to prevent the generators from going unstable.
Overview of TSA

- Advanced non-linear system technology
- Parallel computation
- Assessment cycle: every 15-20 minutes
Questions?

Dr. Jianzhong Tong (tongji@pjm.com)
Liem Hoang (hoangl@pjm.com)
TSA Study Group (TSA_Outage_Study@pjm.com)