JCM update on Capacity Deliverability Fact Finding

November 8th, 2013
• Fact Finding #1 Update
  – Joint Model Development
  – Run Coordinated Intra-RTO Deliverability Study
  – Develop Joint Methodology for Inter-RTO Deliverability Study

• Fact Finding #2 Update
  – Establish Transfer Methodology for Capacity Import/Export limits between MISO and PJM
Joint Model Development

• Joint Model Development - Complete

• MISO and PJM merged their respective RTEP and MTEP 2018 Summer Peak cases to build the joint model

• MISO and PJM used their respective generation and transmission assumptions in the Joint Model
• PJM Basecase Assumptions – consistent with standard RTEP assumptions
  – PJM topology based on a 2018 study year that is being used in the 2013 RTEP
    • The case includes all PJM Board approved upgrades through the October PJM Board of Manager approvals
  – Long term firm transmission service is consistent with Operations
  – Outage Rates
    • Generation outage rates will be based on the most recent Reserve Requirement Study (RRS) performed by PJM
    • Generation outage rates for future PJM units will be estimated based on class average rates
  – Peak Load
    • Load is modeled consistent with the PJM 2013 PJM Load Forecast
Joint Model Development– PJM Assumptions

• PJM Basecase Assumptions
  – Generation Assumptions – consistent with RTEP assumptions
    • All existing generation expected to be in service in 2018 is modeled
    • Future generation with an executed Interconnection Service Agreement (ISA) is modeled along with any associated network upgrades
      – Future ISA generators are modeled on-line and will contribute to and be allowed to back-off problems
    • Future generation with an executed Facility Study Agreement (FSA) will be modeled in the case along with any associated network upgrades
      – Future FSA generators will be modeled off-line in the case but may be turned on consistent with the generation deliverability procedures noted in PJM Manual 14B
Joint Model Development– PJM Assumptions

- PJM Basecase Assumptions
  - Contingency Lists
    - Include all Bulk Electric System (BES) facilities
    - NERC category A (no outage)
    - NERC category B (single contingency outage)
    - NERC category C (including DCTL and bus contingencies)
  - Voltage and thermal limits consistent with those used in Operations
• **MISO transmission, generation & load assumptions**
  - Transmission projects approved by the MISO Board of Directors through latest completed MTEP (Appendix A projects) and scheduled to be in-service by 2018 were included
  - Transmission projects submitted for approval by the MISO Board of Directors in December 2013 and scheduled to be in-service by 2018 were included
  - Generation Interconnection projects with executed Interconnection Agreements (along with associated transmission upgrades) were included
  - Generation projects currently in study phase, were NOT included
  - 2018 Peak load forecast submitted by MISO Transmission Owners to MISO through Model on Demand (MOD) were included
Joint Model Development– MISO Assumptions

- Contingency Lists
  - Include all Bulk Electric System (BES) facilities
  - NERC category A (no outage)
  - NERC category B (single contingency outage)

- Monitored Area
  - All MISO Balancing Areas
  - First Tier Members
STEP 1: Coordinated Intra-RTO Deliverability

Analysis

– MISO Gen to MISO Load Deliverability (On-Going)

– PJM Gen to PJM Load Deliverability (On-Going)

– Update stakeholders and post results when complete
FACT FINDING #1 UPDATE

STEP 2: On going discussions on analytic approach to Inter-RTO Deliverability ((MISO & PJM Gen) to (MISO & PJM Load))

Analytic Approaches for Joint Deliverability

- Run Inter-RTO Deliverability using both MISO and PJM methodology and then compare the differences
  - Use average of the two numbers
  - Use lower of the two numbers
- Run Inter-RTO Deliverability by developing a new methodology

Next Step:
- Discuss analytic approach for Incremental Deliverability
- Run Incremental Deliverability (Dec 2013)
- Run Inter-RTO Deliverability analysis (Jan 2014)
Fact Finding #2 Update

- MISO and PJM developing methodologies to address Capacity Import and Export Limits
- Joint RTO Planning Committee meeting 11/1 shared and discussed approaches

Next Steps
- Continue to refine common methodology
- Present proposed method to JCM