JCM update on Capacity Deliverability Fact Finding

November 8th, 2013

Agenda

- **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**

Joint Model Development– PJM Assumptions

- 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

Joint Model Development– MISO Assumptions

- **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

FACT FINDING #1 UPDATE

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