

Transmission Adequacy Study

Scope of Work

Northeast Coordinated System Plan

IPSAC05

December 14, 2007

Background

- Previous NPCC and JIPC studies have shown that interregional transfer limits are sufficient for meeting resource adequacy requirements
 - NPCC Area Reviews
 - Other studies conducted by NPCC
 - JIPC and other studies
- Transmission security and adequacy studies have also been well coordinated
 - NPCC Area Reviews
 - Other NPCC and NERC studies
 - JIPC studies

Need for Further Study

- Transmission System Assessment
 - Consideration of long-term transmission improvements
 - Impact of new ties and resources near Area borders
 - Confirmation of transmission limits used in resource adequacy studies
- Proactive Planning
 - Identification of system improvements that could benefit multiple Areas

Transmission Adequacy Scope of Work

- IPSAC input being sought on proposed approach
- Phase I – Conduct system assessment
 - Goal
 - Model development
 - Conduct transmission assessment
 - Transmission adequacy analysis
 - Transmission security analysis
- Phase II – Identify needed system improvements
 - Review Phase I results
 - Process for identifying possible system improvements
- Schedule

Goal: System Assessment

- Assess transmission system performance for:
 - Proposed transmission system improvements
 - Confirm “no adverse impact” by resources near Area borders
- Determine transfer limits of key major interfaces
 - Assess transmission system performance
 - Develop suitable models for resource adequacy studies
- Find loss of source contingency limitations

Model Development: System Assessment

- Review baseline data that includes all transmission enhancements included in PJM, NYISO, ISO-NE, and Canadian regional transmission expansion plans and all committed interconnection projects and any associated Network Upgrades identified for the 2012 planning year
- The models will be reconciled into a common 2012 PSS/E model as per MMWG schedules and methods
- A list of key system changes will be developed
 - Highlights will now be discussed

System Improvements in New England

- NSTAR 345 kV Transmission Reliability Project
 - Phase I
 - Phase II
- Northeast Reliability Interconnect Project
- Northwest Vermont Reliability Project
- Southwest Connecticut Reliability Project
 - Phase I
 - Phase II
- Southeast Massachusetts Projects
- Monadnock Area Projects
- Others

System Improvements in PJM

- Susquehanna to Roseland 500 kV line
- Amos to Bedington to Kempton
- Kammer 765 kV / 500 kV transformer
- 502-Junction to Loudoun 500 kV line
- Possum Point to Calvert Cliffs to Salem 500 kV line
- Neptune Merchant Transmission

System Improvements in New York

- Millwood 345 kV Capacitor Bank
- Reactor Bypass/Increased Transfer Capability
- M29 – 345 kV Cable into NYC
- Neptune PJM-LI HVDC Tie
- Linden VFT
- Besicorp 660 MW Generation
- Caithness LI Generation
- Gilboa Uprate

Resource Constraint Analysis

- Validate that there are no cross-border problems identified due to deliverability of each market's resources to its respective loads
 - Identify any cross border loop flows
 - Identify the extent to which these loop flows adversely impact the transmission system performance
 - Identify other potential cross border impacts

Transmission Security Analysis

- Assess the systems with AC contingency analysis
 - Simultaneously stress interfaces
- Identify critical contingencies internal to PJM and NY with cross border impacts
- Analyze contingency loss of 1200, 1500, and 1800 in New England for impacts on NY and PJM
- Review resource adequacy models and study results
 - Identify key major interfaces that are constraining
 - Identify potential needed revisions
- Determine transfer limits for key major interfaces
 - Thermal limits
 - Voltage limits
 - Compare to what is used

Need for Further System Improvements

- Relief of key interface limits in resource adequacy assessments
 - Participate in existing resource adequacy studies
 - Identify interfaces that are potentially binding
- Relief of interfaces to improve transmission adequacy performance
 - Review results of JIPC Transmission System Assessment and other studies
 - Identify need for higher transfer limits
- Identify possible transmission improvements
- Seek IPSAC input

Next Steps: Summer 2008

- Complete transmission assessment analysis
 - Identify need for improvements based on transmission adequacy performance
 - Revise interface limits used in resource adequacy models
- Plans for further resource adequacy studies
- Stakeholder discussions to review results and discuss further study work