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NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Reliability of Off-Site Power for Nuclear Power Plants

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ENCLOSURE 7

Topics

- Reliability Readiness Audits
- Collaborative Studies with NRC
- Off-Site Power Reliability Standard
- SERC Interface Study

Reliability Readiness Audits

Examples of good practices

- Special EMS alarms
- Special NPP voltage adequacy load flow program
- Setting conservative system voltage limits
- Interface agreements including individualized voltage support guidelines

Reliability Readiness Audits

Areas for Improvement

- Communication of NPP voltage requirements to TSOs
- Model and monitor post-trip voltages at NPP critical busses in RTCA programs
- Detailed modeling of NPP loads in RTCA programs
- Understanding of Code of Conduct exceptions for NPPs

Collaborative Studies with NRC

- NRC-MOA Appendix III – *Coordination Plan for Exchange of Operational Experience Data and Information*
- Working with NRC to include NPP operating parameters in regional and interregional studies
- Collaborating on technical assessments of grid performance
- Expansion of grid models to represent NPPs in more detail (Susquehanna Pilot)

Off-Site Power Reliability Standard

- NEI Grid Reliability Task Force
  - Industry deregulation and restructuring
  - Recent operating events (INPO SOER 99-1 Addendum and TR4-40 Topical Report)
- Addresses required coordination between NPPs and TSOs to ensure safe operation and shutdown of NPPs
- Applies to NPPs and Transmission Owners, Operators, Planners, Reliability Coordinators, etc.

Off-Site Power Reliability Standard

- Clear communication of NPP interface requirements
- Factor into planning studies, system operating limits, and reliability analyses
- Coordinate outages, maintenance, and design changes
- Establish protocols in written interface agreements
- *Mandatory compliance!*

Off-Site Power Reliability Standard

- 1st draft posted for comment through January 17, 2006
- http://www.nerc.com/~filez/standards/Nuclear-Offsite-Supply.html
- Proposed effective date: July 1, 2007

SERC Interface Study

- Investigate interface practices
- Enhance safe and reliable operation of NPPs and off-site power supply
- Focus on unique NPP operating requirements
- Share noteworthy practices with others
  - Interface agreements
  - Maintenance
  - Communications
  - System analysis

SERC Interface Study

Areas for additional study:

- Investigate NPP interface with RTOs/ITCs
- Code of Conduct issues regarding communications between TSOs and NPPs
- Standards for real-time tools and model validation
- Training and education for improved communications between TSOs and NPPs