

Grid Reliability

**NRC 2005 Regulatory Information Conference
Session T-C1**

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Objectives

- Grid Reliability Historical Perspective
- Industry Actions
 - NEI
 - NERC
 - EPRI
 - INPO
- Current Industry Focus
- Ultimate Goal
- Next Steps



Historical Perspective

- Offsite power systems are the preferred power supply for Nuclear Power Plants
 - Emergency cooling for the reactor following planned or unplanned shutdowns
 - Auxiliary systems for plant startup and safe shutdown
- NRC regulatory requirements
 - General Design Criteria 17
 - 10 CFR 50.63
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 - Plant Technical Specifications
- Overall improvement has occurred in reliability of offsite power and onsite emergency power since 1990



August 2003 Blackout

- Identified additional issues, but no specific report recommendations for nuclear industry
- NEI is coordinating industry actions to improve performance as well as encourage communications
- Goal is increased grid reliability



NEI Grid Reliability Task Force

- NEI is the lead organization for nuclear policy
- NEI is coordinating with NERC, INPO, EPRI and others by using a task force since December 2003
- Members of the task force are participating in various grid-related activities



NEI Task Force Actions

- Supported several NRC public meetings
- NEI Loss of Offsite Power Survey in March 2004
- NRC Commissioner Briefing May 10, 2004
- Met with NERC on several occasions
 - Support NERC Action Plan
 - NERC Standards Authorization Request submitted October, 2004
 - Conducted NEI/INPO/EPRI/NERC Grid Reliability Workshop February 16-17, 2005



Opportunities

- Open forum for improved awareness
- Coordination between system operators and nuclear operators
- Understanding Lessons Learned from past events
- Preventing future events
- Achieving maximum levels of reliability

NERC

- NERC is the lead organization for grid reliability
 - A voluntary process is in place without further legislation
 - Legislation is needed to make NERC standards mandatory
- NERC has just completed several major actions to prevent further blackouts
- NERC Readiness Audit Program underway
 - Noteworthy Nuclear Practices identified in at least seven companies
 - Audit Results posted on NERC Web site



EPRI

- EPRI Role is industry technical advisor and helps focus on future infrastructure and tool improvements
- Collaboration through EPRI Divisions
 - Generation and Distributed Resources
 - Nuclear Power
 - Power Delivery and Markets
- PRA/Risk Management event trends and event prevention approaches
- Evaluating and recommending new technology tools to improve grid reliability
- Time horizon for changes is longer range view



INPO

- INPO is leading significant actions related to equipment performance and human performance
- SOER 99-1 Addendum
- TR Equipment analyses reports based on
 - OE Network
 - EPIX data
- Substation Visits
- Diesel Generator Visits
- Ongoing Plant Evaluation Process



SOER 99-1

“Loss Of Grid – Addendum”

- Includes recommendations for actions to address key grid issues
- SOER 99-1 was issued in December 1999 following grid events in South Africa and the U.S.
- Addendum issued in December 2004
 - expanded original recommendations
 - clarified others
 - added new recommendations based on recent events



INPO SOER 99-01 “Loss Of Grid – Addendum” Topics

- Exchanging Information
- Analysis and Monitoring Tools
- Monitoring the Grid
- Understanding Grid Margins
- Risks Associated With Grid and Plant Testing
- Maintenance Standards and Practices
- Design Methods
- Operating Experience
- Training



Nuclear Industry – A Standards Focus

- Nuclear Generators have historically been under-represented in NERC standards process
- NEI Task Force interaction is helping focus on Nuclear “Customer Requirements”
- Standards compliance is key to ensure nuclear design and licensing bases are satisfied



Standards Authorization Request –

Written Agreements to Address:

- Transmission Planning Requirements
- Transmission Operations and Maintenance Requirements
- Communication Requirements
- Each Nuclear Plant's Specific Licensing and Design Requirements



SAR Status

- Industry Comments Submitted on first draft
- Standard Drafting Team (SDT) Selected
- Conference Call 2/3/05 – Initial Discussion
- Meetings began in February
- The team encourages Transmission Operator Participation



Ultimate Goal

- Reliable and safe generation and transmission of electricity
- Reliable offsite power in conjunction with onsite emergency power availability are required to assure public safety



Next Steps

- Continue NEI Task Force activities
- Periodic INPO Updates on progress of implementing SOER 99-1 Addendum
- Review NERC Standards
 - Selected members to participate in public forums
 - NEI will submit comments if required
 - Complete nuclear offsite power standard



Questions?

