

NERC RELIABILITY STANDARDS: ARE YOU FULLY PREPARED?

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Bruder, Gentile & Marcoux, L.L.P.
Regulatory Policy Drivers and the Keys to Compliance
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What, Me Worry?



Why Should You Care? (NERC Perspective)

- NERC has issued 126 Reliability Standards containing more than 400 separate requirements.
- NERC has closed only 859 violations. Another 3330 are in the pipeline.



Why Should You Care? (NERC Perspective) (cont'd)

- NERC can issue penalties of up to \$1,000,000 per day per violation.
- NERC has been increasing the number and magnitude of penalties:
 - ❖ 10 penalties in excess of \$50,000, 6/1/08 – 10/31/09.
 - ❖ 15 penalties in excess of \$50,000, 11/1/09 – 4/30/10.

Why Should You Care? (FERC Perspective)

- FERC can – and has – opened an inquiry into the size of a proposed penalty for violation of a reliability standard.
- FERC is attempting to include more facilities within the scope of the Bulk Electric System so that they are subject to the Reliability Standards.
 - ❖ The good news: Order No 733 abandoned the “rule out” approach for the “rule in” approach for sub-100 kV facilities to which PRC-023 applies.
 - ❖ The not-so-good news: FERC stated that the results of the two approaches should be the same.

Why Should You Care? (Reliability Perspective)

- It's not really about the penalties – its about reliability!
- Systems are operating closer to their limits, leaving less margin for error.
- Systems are operating differently than in the past (e.g., wind turbines), placing new stresses on the system.
- Systems are more vulnerable to cyber attacks than we would like to believe.



Why Should You Care? (Utility Perspective)

- The 126 Reliability Standards and 400 requirements don't just affect transmission. They affect virtually every aspect of a utility's operations except customer service.
- The standards cover transmission and generation planning, operations, design, and maintenance; system planning; interchange; communications; personnel; and security.
- The procedures that utilities adopt to comply with the Reliability Standards include requirements that may apply to most of the utility's personnel.

Overview of NERC Reliability Standards

- Resource and Demand Balancing (BAL): 6 standards covering disturbance control, frequency response, time error correction, automatic generation control and inadvertent interchange.
- Communications (COM): 2 standards addressing internal and external communications.
- Critical Infrastructure Protection (CIP): 9 standards addressing sabotage reporting, identification and protection of critical cyber assets, personnel access and training, incident reporting and responses and recovery plans.

Overview of Reliability Standards (cont'd)

- Emergency Planning and Operations (EOP): 9 standards governing emergency operations planning, capacity and energy emergencies, load shedding, disturbance reporting and system restoration.
- Facilities Design, Connection and Maintenance (FAC): 10 standards addressing facility connections, coordination of new generation, transmission and load, vegetation management, facilities ratings, system operating limits and available transfer capability.
- Interchange Scheduling and Coordination (INT): 9 standards covering coordination and communication of interchange information.

Overview of Reliability Standards (cont'd)

- Interconnection Reliability Operations and Coordination (IRO): 12 standards addressing reliability coordination for facilities, planning, current operations, transmission loading relief, data collection and communications and coordination.
- Modeling, Data and Analysis (MOD): 26 standards covering Total and Available Transfer Capability, Capacity Benefit Margin, Transmission Reserve Margin, modeling, demand and energy forecasts and generator capability.
- Nuclear (NUC): 1 standard addressing coordination of nuclear interface with the transmission system

Overview of Reliability Standards (cont'd)

- Personnel Performance, Training and Qualifications (PER): 5 standards governing responsibilities, training, credentials and staffing.
- Protection and Control (PRC): 22 standards addressing system protection coordination, misoperations, generator and transmission maintenance and testing, load shedding and special protection systems.
- Transmission Operations (TOP): 8 standards governing reliability responsibility and authority, operations planning, coordination of planned outages and monitoring system conditions.

Overview of Reliability Standards (cont'd)



- Transmission Planning (TPL): 6 standards addressing system performance under varying contingency conditions and reliability reports.
- Voltage and Reactive (VAR): 2 standards covering voltage and reactive controls on transmission and generation.

What Should Utilities Focus On?

Prioritize Compliance Efforts

➤ One approach is to consider how active your region is in uncovering and processing violations.

❖ WECC is responsible for 2304 of 4189 alleged violations.

❖ Other RROS:

• SERC	521
• FRCC	352
• RFC	303
• SPP	253
• MRO	151
• NPCC	145
• TRE	68

What Should Utilities Focus On?

Prioritize Compliance Efforts Based on Violation Frequency

- Another approach is to focus on the most frequently-violated Reliability Standards.
- The 10 most-violated standards comprise 1700 of the 3052 active and closed violations.
 - ❖ PRC-005 (494 violations)
 - ❖ CIP-001 (353 violations)
 - ❖ CIP-004 (210 violations)
 - ❖ EOP-5 (112 violations)

What Should Utilities Focus On?

Prioritize Compliance Efforts Based on Violation Frequency (cont'd)

➤ The last six of the top-ten violations:

- ❖ TOP-002 (104 violations)
- ❖ FAC-008 (101 violations)
- ❖ PER-002 (83 violations)
- ❖ CIP-007 (82 violations)
- ❖ EOP-001 (82 violations)
- ❖ FAC-001 (80 violations)

What Should Utilities Focus On?

Prioritize Compliance Efforts Based on NERC Analysis

- NERC publishes Compliance Analysis Reports of some Standards with a high frequency of violations.
- NERC has analyzed compliance with:
 - ❖ PRC-005, System Maintenance, Protection and Testing.
 - ❖ FAC-008 and FAC-009, Facilities Ratings Methodology.
 - ❖ CIP-004, Personnel and Training.

What Should Utilities Focus On?

Prioritize Compliance Efforts Based on Penalty Size

- Another approach is to focus on the Standards for which violations resulted in the penalties over \$50,000.
 - ❖ FAC-003 (vegetation management) was involved in 9 of 10 such penalties in 6/08 – 10/09 and 7 of 15 such penalties in 11/09 – 4/10 – a total of 16 of the 25 largest penalties.
 - ❖ PRC-005 (maintenance and testing) was involved in 7 of 25 such penalties.

What Should Utilities Focus On?

Prioritize Compliance Efforts Based on Penalty Size (cont'd)

- Other violations cited in connection with penalties of \$50,000 or more:
 - ❖ BAL-005 (Automatic generation control)
 - ❖ CIP-001 (Sabotage reporting)
 - ❖ EOP-001, 003, 004 and 005 (Emergency planning, disturbance reporting and system restoration)
 - ❖ FAC-001 (Facility connection and performance requirements)
 - ❖ PER-002 (Training of transmission and balancing authority personnel)

What Should Utilities Focus On?

Prioritize Compliance Efforts Based on Penalty Size (cont'd)

- ❖ PRC-017 (Special protection system maintenance and testing)
- ❖ TPL-001, 002, 003 and 004 (System simulations under contingency scenarios)
- ❖ VAR-002 (Generator reactive output)
- Caveat: The penalties frequently are assessed for multiple violations.

What Should Utilities Focus On?

Develop Procedures

- Develop good procedures.
 - ❖ Procedures increase the likelihood that personnel will act appropriately in routine and emergency situations.
 - ❖ Good procedures clearly assign ownership of compliance obligations.
 - ❖ Procedures are a good basis for training.
 - ❖ Procedures reduce the loss of institutional knowledge with staff turnover.
 - ❖ Procedures are significant in demonstrating compliance with the Standards.

What Should Utilities Focus On?

Develop Procedures (cont'd)

- Develop a procedure for writing procedures.
 - ❖ Procedures should follow a standardized format.
 - ❖ They should repeat the Reliability Standard and Requirements that they implement.
 - ❖ They should identify the owner of the procedure, the persons who must review and approve changes and the persons who must comply with them.
 - ❖ They should require documentation of compliance.
 - ❖ They should clearly show the history of modifications.

What Should Utilities Focus On? Training



- Regular training is critical to ensure continued compliance with Reliability Standards and the Procedures.
- Avoid training overload: train employees only on what they need to be trained on.
- Document training for internal and external (NERC audit) purposes.

What Should Utilities Focus On? Documentation

- Many of the Reliability Standards impose documentation requirements.
- Even the Standards that don't impose documentation requirements will be audited, and audits consist primarily of reviews of documentation.



What Should Utilities Focus On? Communication

- Communications between the Compliance Officer, the owners of procedures to implement a Standard and the persons who implement the Standards are critical.
- Scheduled meetings to discuss compliance with each Standard are important in providing feedback on compliance efforts and cross-fertilization within the utility.
- The team should meet at least once each year, and whenever the Standards or the company's procedures change.

What Else Should Utilities Do?

