

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Reliability Readiness Reviews

Docket No. PL04-13-000

POST-CONFERENCE COMMENTS OF THE
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

The North American Electric Reliability Council, a New Jersey non-profit corporation (“NERC”)¹, is pleased to present these comments to supplement NERC’s presentations during the Commission’s September 29 technical conference to evaluate NERC’s reliability readiness audit program and to respond to issues and questions raised at that time. NERC believes that the readiness audit program is the most important and effective step that NERC and the industry can take at this time² to enhance the reliability of the bulk electric systems serving North America. NERC appreciates the Commission’s ongoing support for that effort.

In general, NERC believes that most of the entities audited to date are ready to meet their reliability responsibilities. The audit teams identified a number of best practices, including regular simulator training for system operators, hot-standby backup control centers, real-time monitoring of reactive area control error, wide-area visualization tools for system operators, and regularly exercised emergency response plans. The audit teams also identified a number of areas where particular organizations can make significant improvements, including operator training, backup control facilities,

¹ NERC was formed after the Northeast blackout in 1965 to promote the reliability of the interconnected electric systems in North America. Its mission is to ensure that the bulk electric systems that serve North America are adequate, reliable and secure. It works with all segments of the electric industry as well as customers to “keep the lights on” by developing and encouraging compliance with rules for the reliable operation and adequacy of supply of these systems. NERC comprises ten Regional Reliability Councils that account for virtually all the electricity supplied in the United States, Canada, and a portion of Baja California Norte, Mexico.

² NERC and a broad coalition of industry stakeholders, customers, and regulators (including the Commission) have been urging Congress to pass pending legislation that would make reliability standards mandatory and enforceable for all owners, operators, and users of the bulk electric system. Passage of that reliability legislation has been thwarted by debates over other, unrelated issues in the comprehensive energy bill now before Congress.

documenting authority and responsibilities, real-time monitoring, reactive-reserve monitoring, and procedure and policy updates.

These comments discuss six topics that arose during the course of the September 29 conference:

1. Current status and next steps for the readiness audit program.
2. Improvements that NERC has already made in the readiness audit program and further planned improvements.
3. Important distinction between the readiness audit program and the Compliance Enforcement Program.
4. Goals and status of Version 0 reliability standards and the corollary effort to register entities into the appropriate functional model categories for purposes of compliance monitoring.
5. Importance of competent and effective auditors.
6. Correction of inaccuracies regarding requirements for load shedding and operating tools.

1. Current status and next steps for the readiness audit program

In February 2004, NERC established the readiness audit program to assess, on a three-year cycle, the capability of all control areas and reliability coordinators to perform their reliability functions, with at least 20 audits of the largest control areas to be completed by June 30, 2004. With more than 150 control areas and 17 reliability coordinators, NERC plans to conduct audits at the rate of more than one per week. As of October 14, 2004, NERC has completed on-site audits for 43 control areas, 4 reliability coordinators, and 1 transmission operator, representing 64 percent of the demand in the Eastern Interconnection and 14 percent of the demand in the Western Interconnection. NERC publicly posts the final audit reports on its website and to date has posted final audit reports for 25 of those audits.³

NERC scheduled audits for an additional 21 control areas and 2 reliability coordinators in the second half of 2004, meaning NERC will have met its goal of completing approximately 50 readiness audits by the end of 2004. NERC expects to

³ Link: <http://www.nerc.com/~rap/index.html>

complete the initial round of audits for all 150 control areas and 17 reliability coordinators by the end of 2006.

2. Improvements that NERC has already made in the readiness audit program and further planned improvements

The readiness audit program is evolving, and NERC will continue to improve its processes and procedures over time. Toward that end, NERC convened a workshop at the end of June where the audit team leads, representatives of audited entities, FERC representatives who had participated in the audits, and NERC staff evaluated the readiness audit program. That workshop and additional feedback from audited entities identified several aspects of the program where improvements could be made, including:

- A need for everyone to follow the established procedures regarding process and confidentiality — team leaders, volunteers, auditors, FERC staff, observers, regions, and those being audited.
- The time for report development initially was too short to allow adequate time for comment by all parties.
- A need to re-evaluate the size of the team for smaller control areas, as they have fewer employees and fewer sub-teams may be needed.
- A recognition that, because of delegation of responsibilities and control areas with multiple operating sites, visits to multiple sites would be required to evaluate all aspects of an operation.
- When control areas operate across multiple regions, each region needs to be included on the audit teams.
- A need to develop a more consistent format for the audit reports.

As reported at the September 29 conference, NERC has already made a number of changes in the readiness audit process and procedures, based in part on feedback from the entities that have been audited and in part on the evaluation session with audit team participants and FERC representatives in June, and work is under way to address remaining areas for improvement. Improvements already implemented beginning with the July audits include:

- Extending the site visit from one and one half days to several days.
- Developing a checklist for the audit team's use during the control room visit.

- Revising the self-assessment questionnaire and reviewers' guides — questions have been reviewed and revised for clarity and preciseness; discussion is now encouraged, with fewer yes or no answers allowed; the formats of both documents now match; and sub-team guides have been developed.
- NERC is hiring full-time staff to replace the contract staff used to get the program started quickly. Having full-time, well-trained staff will allow for improved consistency in the reviews and the reports.
- Developing an orientation program for the industry peer reviewers (volunteers) who are such an important part of the process.
- Consulting with the Institute for Nuclear Power Operations on audit processes and training methods.

NERC plans to make further process improvements, including combining the reliability coordinator and control area audit processes to avoid duplication and inefficiencies; developing functional-model-based modules, so that future audits can focus on the particular reliability functions being performed by each audited entity; developing training for auditors to improve consistency; developing additional checklists for use by auditors, and formalizing the process of obtaining constructive feedback from those audited and others with an interest in the industry's reliability capabilities.

3. Important distinction between the readiness audit program and the Compliance Enforcement Program

NERC and its member regional reliability councils have two distinct audit programs, the reliability readiness audit program and the Compliance Enforcement Program. The two programs have different goals and follow different procedures. At times during the September 29 conference, several participants appeared not to have a clear understanding of the differing purposes and focus of these two programs. At several points they referred to the need for clear standards for use in the readiness audits. As discussed below, NERC agrees there must be clear and enforceable standards developed within the industry. However, compliance with those standards is determined through the NERC Compliance Enforcement Program. The readiness audits are designed to reach beyond the standards to achieve excellence in control area and reliability coordinator planning and operations by identifying areas where those audited can improve their

reliability readiness, even if they meet the current standards. The nature of these readiness audits requires the informed judgment of individuals with actual planning and operating experience as opposed to auditors measuring compliance with specific reliability standards. As noted by one audited entity on September 29th, “It’s possible for an organization to be fully compliant with all policies and still, even to the not-so-trained eye, you can tell that they really aren’t as flexible or competent as they might be.”⁴

Readiness Audit Program

In February 2004, NERC established the readiness audit program to audit the capability of all reliability coordinators and control areas in North America to perform their assigned reliability responsibilities. These audits give immediate attention to deficiencies in control area and reliability coordinator capabilities identified by the August 14, 2003, blackout investigation and then focus in addition on the other aspects of planning and operating a reliable bulk electric system.

The purpose of the readiness audits is to provide an independent review of control area and reliability coordinator operations to identify areas for improvement and help them achieve excellence. The readiness audits are not a “pass-fail” audit and are not intended to identify wrongdoing. The readiness audits should not be confused with the ongoing NERC and regional Compliance Enforcement Program that measures compliance with NERC and regional planning standards and operating policies.

The goal of the readiness audit program is rooted in the recognition that standards cannot prescribe all aspects of reliable operations. Standards present a performance threshold, not a goal for reliability excellence in the industry. Reliability coordinators and control areas must be ready to perform under a broad range of emergency conditions and constantly strive to improve their readiness for performing their assigned reliability functions and responsibilities.

The readiness audits initiate a process to ensure that operators of the bulk electric system have the tools, processes, and procedures in place for reliable operation. These audits will help control areas and reliability coordinators recognize and assess their

⁴ Transcript of September 29 conference, page 37, line 1.

reliability responsibilities and evaluate how their operation supports those responsibilities. NERC intends to use the results of these audits to help champion the changes required to better meet the reliability responsibilities of these entities. The readiness audit program seeks to achieve excellence through peer reviews using industry expertise.

Those that have been audited provide feedback on the success of the program. Representatives of audited organizations highlighted several programmatic successes at the September 29 conference, including:

- Performing the self-assessment in preparation for the audit forces an in-depth examination of the organization's operation.
- The audit produces a heightened awareness of the roles and responsibilities of the organization and its operators.
- The audit has organizations ask themselves questions that have not been asked before.
- The audit achieves a sharing of knowledge among operating entities on best reliability practices, as those who participate on the audit teams learn from the organizations they are auditing.

Thus, the readiness audits are designed to target those areas where entities are technically compliant with reliability standards but still have areas in which they can improve their planning and operating excellence.

Compliance Enforcement Program

NERC's Compliance Enforcement Program, by contrast, is designed to measure and enforce compliance with NERC and regional reliability standards. In that sense, it is backward looking, focused on assessments of past performance. The program's objective is to encourage all owners, operators, and users of the bulk electric system to adhere to NERC and regional reliability standards.

NERC recognized the need for mandatory and enforceable standards nearly ten years ago as a result of significant changes under way in the industry, with the move to open access transmission, functional unbundling, industry restructuring, and a variety of

new entrants into the electric industry. Federal legislation is needed in the United States to provide NERC and the regions with the authority to ensure that all owners, operators, and users of the bulk power system comply with all applicable reliability standards.

In anticipation of the legislation and to monitor compliance with reliability standards, NERC and the regional councils established the Compliance Enforcement Program. Absent legislative authority for enforcement, the compliance program relies in most cases on simulated enforcement actions. In general, sanctions or penalties for non-compliance should be based on the level of non-compliance and its frequency, and be intended to provide a significant deterrent to future non-compliance.

Each region is responsible for reviewing and enforcing compliance by its members; NERC oversees each region's compliance review and enforcement process. Entities that are monitored under regional compliance review and enforcement processes are subject to compliance audits by the regions to confirm all periodic and self-reporting. Compliance assessment and compliance audits can result in findings of non-compliance. These audits are separate and distinct from the readiness audits.

If a region finds that one of its members has not complied with a standard, then that entity is directed to correct the violation. A finding that an entity has violated a reliability standard can have significant consequences. Before finding that an entity has committed such a violation, that entity must be afforded full due process. Regional appeals and alternative dispute resolution processes are available to resolve issues associated with compliance review and enforcement processes.

Annual reports on the compliance program for the years 1999 through 2003 are available on the NERC website. Further, following the events of August 14, 2003, NERC enhanced the Compliance Enforcement Program by adopting improved standards and compliance templates. NERC is incorporating those improved standards and templates into the Version 0 standards. NERC also approved disclosure guidelines under which confirmed violations of NERC standards will be publicly released.

4. Goals and status of Version 0 reliability standards and the corollary effort to register entities into the appropriate functional model categories for purposes of compliance monitoring.

The goal of the Version 0 reliability standards project is to translate the existing NERC reliability rules, comprising operating policies, planning standards, and compliance templates, into an integrated set of reliability standards, and to be positioned in February 2005 to move forward with one set of NERC standards administered through NERC's ANSI-accredited process. More specifically, NERC will translate the existing reliability rules — namely the existing operating policies and planning standards and the 38 compliance templates approved in April 2004 — into an initial baseline (Version 0) set of reliability standards for adoption by the NERC board at its February 2005 meeting. Version 0 will identify the functional model designation for each performance requirement and measure in the Version 0 standards. The new standards will be stated in the active voice and clearly identify the entities responsible for meeting each requirement. NERC will retire the existing operating policies, planning standards, and compliance templates coincident with adoption of the Version 0 standards. Material that is not part of Version 0 standards will be converted into NERC reference documents or business practices (within the scope of the North American Energy Standards Board), slated for future development as reliability standards, or dropped if not needed.

NERC is on track to meet its goal of having Version 0 adopted in February 2005. NERC posted the first draft of the Version 0 standards for comment on July 9; the second draft was posted for comment on September 1. NERC will post the third and final draft of the Version 0 standards in early November and will present the third draft for endorsement by the Planning, Market, and Operating Committees on November 9 and 11. NERC has scheduled the ballot on Version 0 in December 2004.

In a parallel effort, NERC is working with the regional reliability councils to register entities into the various functions identified in the functional model. Doing so serves a dual purpose. The entities will know which responsibilities set out in Version 0 they will be accountable for, and NERC and the regional councils will have a clear

identification of the responsible entities for use in the compliance monitoring program.

Both purposes achieve clearer accountability.

5. Importance of competent and effective auditors

A number of suggestions were presented at the technical conference regarding the staffing of the audit teams. Presently, the audit teams consist of:

- One representative from the NERC staff to co-chair the audit team;
- One regional representative to co-chair the audit team;
- Two representatives from different control areas or operating entities within the region;
- One representative from a control area or operating entity from outside the region but from inside the same interconnection;
- One representative from a control area or operating entity from within a different interconnection;
- Two representatives from FERC staff;
- One representative from a Canadian regulatory agency as appropriate.

The team members should possess a good cross-section of operating and planning expertise, with at least five years experience. At least one member of the team should be a NERC-certified system operator. As noted, each audit team contains two representatives from FERC. NERC's understanding with the Commission is that these two members are to be full audit team members who contribute to the audit and the final report and, along with the other audit team members, take responsibility for the conclusions stated in the final report.

Using professional auditors was suggested during the September 29 conference. NERC is hiring experienced, full-time staff to serve in this role. NERC has now hired two permanent auditors and is seeking to add three additional auditors as soon as qualified candidates can be identified. To initiate the program quickly, NERC relied on contractors with a vast amount of experience in utility operations and with audit experience. Over time, NERC will replace all the contractors with full-time staff.

As noted, others on the team include a regional co-chair and industry volunteers. Some have suggested that more permanent staff be hired to replace the volunteers. Using permanent staff to replace the industry volunteers presents advantages and disadvantages. The advantages include the ability to staff the teams easily and consistency in the audit processes. The disadvantages include a diminished ability to keep permanent staff current on industry practices, tools, and trends, as well as the loss on the part of industry participants of the ability to directly learn and share reliability practices among team participants and those audited. Several participants at the technical conference highlighted the ability to share these practices among industry employees as a very positive outcome of the readiness audits. Furthermore, our experience has shown that industry (peer) volunteers ask very detailed questions, and are quick to point out deficiencies. They are, after all, affected by the operations of the systems they are connected to, as was clearly the case on August 14, 2003. Therefore, we believe that industry volunteers will continue to provide a critical role in our audits.

As part of its ongoing review of the readiness audit process, NERC is currently evaluating options for staffing the audit teams, including using a mixture of “loaned employees” and industry peers. NERC will share with the Commission further developments in this area.

6. Correction of inaccuracies regarding requirements for load shedding and operating tools

The events of August 14, 2003, demonstrated the importance of being able to know when it becomes necessary to shed firm load, based on a wide-area system analysis. Through the readiness audits, NERC has been working to confirm that control areas have the authority and ability to take appropriate load-shedding actions when necessary. The circumstances under which a control area would shed firm load were a particular focus of discussion at the technical conference. NERC does not agree with Commission staff’s description of NERC’s standards on this subject nor with staff’s characterization of the position taken by the particular audited entity referred to in the discussion.

NERC Operating Policy 9 specifies the responsibilities and authorities of reliability coordinators and operating authorities (control areas and transmission operators) related to shedding of firm load. Policy 9 states:

All OPERATING AUTHORITIES shall comply with RELIABILITY COORDINATOR directives unless such actions would violate safety, equipment, or regulatory or statutory requirements. Under these circumstances the OPERATING AUTHORITY must immediately inform the RELIABILITY COORDINATOR of the inability to perform the directive so that the RELIABILITY COORDINATOR may implement alternate remedial actions.

Operating Policy 9 does not contain an absolute imperative that control areas blindly follow directives from a reliability coordinator, as suggested by staff at the conference. The reliability coordinator can be compared to the air traffic controller in the airline industry. The air traffic controllers direct the pilots as to the appropriate direction, altitude, and speed for the safety of the flight. However, the pilot remains at the controls of the aircraft and is expected to have detailed knowledge of the local situation. If the air traffic controller were to give the pilot a directive that would result in flying the aircraft into danger possibly resulting in a crash, the pilot is expected to question the directive of the air traffic controller rather than put the aircraft and its passengers at risk.

The same is true with the control area operator and the reliability coordinator. The reliability coordinator monitors a wide area view of the bulk electric system and provides directives as necessary to operating authorities. Those operating authorities typically monitor their local system in more detail than the reliability coordinator. Operating Policy 9 calls for a defense-in-depth approach where the local operator is expected to review and, when appropriate, question the directives of the reliability coordinator, while still recognizing that the reliability coordinator's wide area view gives it a broader information base than is available to the control area operator.

NERC has completed a review of the audit notes provided by all auditors, including the FERC representatives, for one of the control areas in question. The auditors' notes indicate to NERC's satisfaction that the control area does understand its responsibility and would shed load or take any other actions directed by the reliability

coordinator, unless it had strong countervailing reasons. In other words, those operators would indeed act to preserve the reliability of the interconnected system.

This discussion demonstrates why having auditors with appropriate experience and knowledge in control area operations is absolutely necessary for an effective audit program. Further, familiarity with the rules under which the entity operates is essential.

Where an audit team does identify circumstances of unclear authority and authorization, NERC follows up to address the situation promptly. When employees at one control area indicated that a Kentucky statute would prohibit their following directives from a reliability coordinator, NERC reviewed the statute in question with the control area. After consultation with legal counsel, the control area agreed that it would implement directives from the reliability coordinator to protect the interconnected grid.

Commission staff also indicated that NERC standards do not require reliability coordinators to have state estimators and real-time contingency analysis tools.⁵ That statement is not accurate. Operating Policy 9 contains a number of requirements for reliability coordinators including:

- The RELIABILITY COORDINATOR is responsible for having the WIDE AREA view, the operating tools, processes and procedures, including the authority, to prevent or mitigate emergency operating situations in both next-day analysis and during real-time conditions.
- The RELIABILITY COORDINATOR shall have adequate analysis tools such as State Estimation, pre- and post-CONTINGENCY analysis capabilities (thermal, stability, and voltage) and WIDE AREA overview displays.

Policy 9 also requires detailed monitoring, alarming, and understanding of system conditions and potential system risks. Policy 9 and other NERC policies are performance-based, defining what must be accomplished, not how it is to be accomplished. This approach allows flexibility and innovation in the industry in meeting the performance objectives.

⁵Technical conference transcript, page 101, line 15.

Conclusion

NERC is dedicated to improving the reliability and security of the bulk electric system and believes these readiness audits are a most important step in that regard. NERC welcomes constructive feedback on how to improve the readiness audit program and other NERC programs and initiatives. The Commission's technical conference was helpful in providing that feedback, and NERC looks forward to continuing to work with the Commission and its staff in making further improvements to this and other NERC reliability programs.

Respectfully submitted,

A handwritten signature in black ink that reads "David N. Cook". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

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