



NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Princeton Forrestal Village, 116-390 Village Boulevard, Princeton, New Jersey 08540-5731

Summary of Responses to Michehl Gent's October 15, 2003, Letter on Near-Term Actions to Ensure Reliability

NERC received and reviewed responses from virtually all control areas and reliability coordinators to the letter sent by Michehl Gent on October 15.¹ Mr. Gent requested that each entity review a list of reliability practices to ensure that they are within NERC and regional reliability council standards and established good utility practices. They were asked to report in writing that such a review was completed and indicate the status of any necessary corrective actions. Almost all entities considered themselves to be in compliance with NERC reliability rules. Some of the responses were very positive and detailed, indicating that the entity put a lot of effort into its review of its processes and procedures and found itself to be compliant with the items identified in the letter. Others indicated that they were compliant, but identified areas for improvement and stated that they were in the process of making changes. Other responses were very cursory, and it was difficult to determine the level of effort that went into conducting the review.

The responses generally fell into four major categories:

1. A brief one-page response that states “we have reviewed our processes and programs, and find them completely compliant with all NERC and Regional Reliability Council policies and standards, and have no need to make any changes in our operations.”
2. A response that states “we have carefully reviewed the status of our activities, processes, and programs that are described in Mr. Gent’s letter and find them completely compliant with all NERC and Regional Reliability Council policies and standards, and have no need to make any changes in our operations.” This is followed by a somewhat detailed description of how that entity believes it complies with the items in the letter.
3. A third response states, “We reviewed our practices and procedures within the context of the actions presented in the letter, and found areas where we could make improvements. We are instituting actions to strengthen our performance in this area.”
4. A fourth type of response, typical of smaller control areas, suggests an area or areas that could use follow-up by their Regional Reliability Council.

By far, most of the responses fell into category 1 or 2. Below is a summary of the responses to the October 15 letter.

¹ NERC sent letters to 168 control areas and reliability coordinators in North America; 166 responses were received.
Phone 609-452-8060 ■ Fax 609-452-9550 ■ URL www.nerc.com

Voltage and Reactive Management: Ensure sufficient voltage support for reliable operations.

Most entities indicated that they were compliant in this area. The following are typical responses from entities that found areas where they could make improvements (category 3):

- We are evaluating enhancements to our next-day plan.
- We currently have no formal plan for reactive management, and are developing a day-ahead plan. We will begin coordinating voltage schedules with neighboring control areas.
- Our Regional Reliability Council is forming a Voltage and Reactive Management Task Force to develop procedures and regional criteria as necessary to address any deficiencies.
- We are developing a daily report on available reactive resources, and are training personnel on real-time power flow analysis for any system status changes.
- We are adding alarming and real-time monitoring of reactive resources.
- We will begin monitoring the status of automatic voltage regulators (AVR) on non-owned generators embedded in our control area.
- We have retained an outside consultant to assist in adding AVR to many of our generators.
- We will begin obtaining AVR data from those units in our area that are required to be on AVR by July 2004.
- Our review discovered numerous small generators in our Region without AVR. We are performing a study to determine if this is a concern.

Typical responses from smaller control areas (category 4) that could use follow-up by their Regional Reliability Council:

- Our generators operate on AVR, but on scheduled VAR mode, not voltage control.
- We have no formal written policy on daily reactive management. Our dispatchers monitor voltage.
- Several IPP generators stated that they have no requirement to furnish reactive support, but would if called upon in an emergency.
- One reliability coordinator stated they delegate reactive management to the control areas, and conduct no oversight of AVR status.

Reliability Communications: Review, and as necessary strengthen, communication protocols between control area operators, reliability coordinators, and ISOs.

Typical responses in this area include:

- **Share Status of Key Facilities** — Virtually all reporting entities do transmit and, as appropriate, receive status data. This sharing occurs among reliability coordinators, control areas, and adjacent utilities. Less clear is the type of data shared (facility service status, real and reactive flows, voltages). A variety of transmittal mechanisms exists, ranging from ISN/ICCP to Regional pool data networks to voice and email (the latter two are rare). A variety of messaging systems exist; RCIS could be more broadly used as indicated below.
- **Conduct Conference Calls** — All entities participate in conference calls as needed. A variety of voice communication channels exists. Almost all indicate a good relationship with those with whom they have close operating communications is required.

The following issues require further clarification:

- Many reports mention real-time status of key facilities. Does this mean in-service or out-of-service only or does it also include line loading and voltages? Does it include breaker status to permit contingency evaluation of neighboring system outages?
- Is modeling data shared? This is requisite for reliability analysis.
- Many responses mention sharing data with adjoining utilities or control areas. Data sharing must be conducted with remote control areas also, in order to effect an accurate system analysis. The

degree of remoteness (reach into a non-adjacent but interconnected system) clearly varies by system.

- Some reliability coordinators participate in daily conference calls. Others participate only “as needed.” Should there be uniformity?

Failure of System Monitoring and Control Functions: Review and as necessary, establish a formal means to immediately notify control room personnel when SCADA or EMS functions, that are critical to reliability, have failed and when they are restored.

Most entities indicated that they were compliant in this area. For entities that indicated they needed to make improvements in their system monitoring and control functions, the responses fell into two categories:

- We are working with the vendor, or
- We need to improve.

Approximately 50 percent of the responses were judged to be too vague to make any conclusion or assumptions about the degree of compliance in this category.

Emergency Action Plans: Ensure that emergency action plans and procedures are in place to safeguard the system under emergency conditions by defining actions operators may take to arrest disturbances and prevent cascading.

Most entities indicated that they have adequate emergency action plans and procedures in place. Typical responses included:

- Our interconnection agreement with XXXX outlines our requirements and obligations when we need to take action.
- Transmission system operating procedures, load preservation procedures, and black-start procedures are available for emergency operating conditions.
- Operators are trained and have the authority to utilize load shedding in an emergency.
- We went through regional audits and were found to be compliant.

Two control areas indicated that they did not have under-frequency load-shedding schemes in operation.

Few entities stated what system emergencies their plans covered or how they update their plans. Most just stated that they have plans and are compliant with NERC requirements. One reliability coordinator is updating its emergency plans to reflect the changes in their reliability coordination function stemming from the blackout.

In response to the directive that system operators must have the authority to shed load during system emergencies and that they are expected to use that authority, only one company noted that it was changing its policies to give its system operators that authority, which they currently do not have. (This one exception is a municipal utility.) All other respondents noted that they comply with this requirement. Some provided additional details:

- A statement indicating that this authority is in their job description,
- A signed memorandum (by a company officer) is posted in the control center,
- The system operators sign papers acknowledging their authority and responsibility,
- The culture is such that operators are expected to know and exercise their authority, or
- Control area procedures include statements requiring operator action.

Training for Emergencies: Ensure that all operating staff are trained and certified, if required, and practice emergency drills that include criteria for declaring an emergency, prioritized action plans, staffing and responsibilities, and communications.

The majority of entities responded that they are meeting these objectives. However, there was little information in the responses to support the statement that all entities were 100 percent compliant. Typical responses included:

- X out of X number of system operators are NERC certified (not 100% compliant),
- Plans to conduct emergency drills in 2004,
- Establishing a new system operator training program in 2004,
- Conduct restoration drills every x years (not annually),
- Evaluating and updating training program for further potential enhancements,
- System operators are NERC and Regional certified (WECC and MAAC only),
- Flexible work schedule that provides a training week every six weeks,
- Annual training and simulation exercises,
- Increased operating staff for a more flexible work schedule, which will allow more training,
- Staff is trained in recognizing the need for implementation of and performing emergency procedures,
- Attend Regional training programs (WECC mainly),
- Involve market participants in annual exercises,
- Use of operating training simulator (very few responses).

The use of operator training simulators is a much-overlooked tool that could enhance any system operator training program. A limited number of entities have a fully functional simulator. While many entities may have them, most of those are not in use, as it takes a full-time staff to maintain a simulator.

Vegetation Management: Ensure high-voltage transmission line rights-of-way are free of vegetation and other obstructions that could contact an energized conductor within the normal and emergency ratings of each line.

Some entities did not specifically address the issue of vegetation management. Of those that did, almost all indicated they have an active comprehensive vegetation program in place with rights-of-way patrolled at least annually. One entity indicated it did not yet comply with the heat-sensing portion of the Regional Reliability Council's operating procedure but is taking action to do so in 2004.

Some entities patrol by air, some by ground, and some by both. To some extent, the amount of transmission an entity is responsible for determines the type of patrol used. Routine tree trimming is conducted on cycles that range from every three to six years. Local vegetation type and geographic region of the country has an impact on deciding the frequency of the trimming cycle. Typical problems and concerns noted are as follows:

- One entity owns transmission lines located on lands under the jurisdiction of the U.S. Forest Service or Bureau of Land Management. The need for special use permits can impede the ability to remove vegetation from rights-of-way for these circuits.
- One entity state and federal restrictions, such as those related to environmental or endangered species regulations, which create concerns because they are not allowed to clear rights-of-way appropriately to ensure reliability.