December 17, 2009

VIA ELECTRONIC FILING

Veronique Dubois
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Re: *North American Electric Reliability Corporation*

Dear Ms. Dubois:

The North American Electric Reliability Corporation ("NERC") hereby submits its Three-Year Electric Reliability Organization Performance Assessment Report.

Please contact the undersigned if you have any questions.

Respectfully submitted,

/s/ Rebecca J. Michael

Rebecca J. Michael

Attorney for North American Electric Reliability Corporation

BEFORE THE
RÉGIE DE L'ÉNERGIE
THE PROVINCE OF QUÉBEC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

THREE-YEAR ELECTRIC RELIABILITY ORGANIZATION PERFORMANCE ASSESSMENT REPORT

December 17, 2009

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I. INTRODUCTION

On July 20, 2006, the Federal Energy Regulatory Commission ("FERC") issued its Order certifying the North American Electric Reliability Corporation (NERC) as the Electric Reliability Organization (ERO).[1] FERC's regulations at 18 C.F.R. Part 39[2] require the ERO to submit an assessment of its performance three years from the date of certification.

> The Electric Reliability organization shall submit an assessment of its performance three years from the date of certification by the Commission, and every five years thereafter. After receipt of the assessment, the Commission will establish a proceeding with opportunity for public comment in which it will review the performance of the Electric Reliability Organization.
>
> (1) The Electric Reliability Organization's assessment of its performance shall include:
>
> (i) An explanation of how the Electric Reliability Organization satisfies the requirements of §39.3(b);
>
> (ii) Recommendations by Regional Entities, users, owners and operators of the Bulk-Power System, and other interested parties for improvement of the Electric Reliability Organization's operations, activities, oversight and procedures, and the Electric Reliability Organization's response to such recommendations; and
>
> (iii) The Electric Reliability Organization's evaluation of the effectiveness of each Regional Entity, recommendations by the Electric Reliability Organization, users, owners, and operators of the Bulk-Power System, and other interested parties for improvement of the Regional Entity's performance of delegated functions, and the Regional Entity's response to such evaluations and recommendations.[3]

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[1] *Order Certifying the North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing*, 116 FERC ¶61,062 (2006) (ERO Certification Order).

[2] *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, FERC Stats. & Regs. ¶31,204 (2006) (ERO regulations).

[3] 18 C.F.R. §39.3(c).

This report is NERC's three-year performance assessment submitted in accordance with §39.3(c) of FERC's ERO regulations. This report will show that NERC is meeting the requirements of 18 C.F.R. §39.3(b), and that NERC is successfully carrying out its statutory and regulatory responsibilities as the ERO to develop and enforce mandatory reliability standards and to promote and maintain the reliable operation of the North American bulk power system. This report will also provide NERC's evaluation of the effectiveness of the Regional Entities, and discuss comments and recommendations received from interested entities concerning the performance of NERC and the Regional Entities.[4] Finally, this report will identify actions that NERC and the Regional Entities plan to take to improve NERC's and the Regional Entities' operations and to continue to enhance the reliable operation of the bulk power system.

This performance assessment includes a review of NERC's programs and activities in the United States, Canada, and Mexico. The information presented generally applies to the entire bulk power system overseen by NERC. Where detailed information is presented regarding the compliance and enforcement program, that material pertains only to the portion of the bulk power system in the United States. NERC asked the eight Regional Entities to prepare draft statements of activities and achievements, and the NERC program staff prepared draft statements of activities and achievements for their individual program areas. NERC posted those draft statements for stakeholder comment in mid-January 2009. In conjunction with that posting,

[4] The eight Regional Entities, each of which performs functions delegated by NERC pursuant to Commission-approved delegation agreements, are Florida Reliability Coordinating Committee (FRCC), Midwest Reliability Organization (MRO), Northeast Power Coordinating Council, Inc. (NPCC), Reliability *First* Corporation (Reliability*First*), SERC Reliability Corporation (SERC), Southwest Power Pool Regional Entity (SPP RE), Texas Regional Entity, a Division of the Electric Reliability Council of Texas (Texas RE), and Western Electricity Coordinating Council (WECC). The Commission initially approved the delegation agreements between NERC and the Regional Entities, and thus the designation of the Regional Entities, in an Order issued April 19, 2007. *North American Electric Reliability Corp.*, 119 FERC ¶61,060 (2007).

NERC and the Regional Entities also developed a 70-question online survey, and asked stakeholders to complete the questionnaire with both numerical ratings and free-form responses. NERC and the Regional Entities received completed questionnaires from 142 different organizations comprising 236 registered entities, five trade associations or other organized interest groups, three government agencies, and six other interested parties, with 135 responses from U.S. entities, six from Canada, and one from Mexico. A compilation of the responses to the individual questions, for NERC and each Regional Entity, is included as **Attachment 5**. NERC also received separate written comments from four organizations. The significant issues raised by stakeholders, and the responses by NERC and the Regional Entities to those issues, are addressed in this report.

NERC posted a revised draft of the assessment report for comment on April 27, 2009. NERC included discussion of the revised assessment report as an agenda item for the May 5, 2009 NERC Member Representatives Committee (MRC) meeting, and NERC and the Regional Entities received significant comment there. On May 15, 2009, NERC posted its draft assessment of the Regional Entities. NERC held a workshop on the performance assessment for stakeholders on May 19, 2009, attended (in person and by phone) by nearly 100 representatives of numerous stakeholder organizations and Regional Entities. NERC continued to take written comments after the MRC meeting and the workshop, until May 29, 2009; a total of 25 sets of written comments were received from individual organizations, industry groups and trade associations, and Regional Entities. Those comments were reflected as appropriate in a third version of the performance assessment, which was posted on the NERC website on July 2, 2009; NERC received five additional sets of comments. On July 13, 2009, the NERC Board of

Trustees took final action to approve this three-year performance assessment report for submission.

This three-year performance assessment report is presented in six parts, organized as follows:

- **Overview** of NERC's reliability and organizational accomplishments since its certification as the ERO, which summarizes how NERC continues to meet the certification criteria of 18 C.F.R. §39.3(b) and identifies the principal comments and recommendations submitted by interested parties for this assessment. **Appendix A** to the Overview provides a list of the specific actions planned by NERC in response to stakeholder and Regional Entity comments and recommendations.
- **Attachment 1 —** a detailed discussion of how NERC continues to meet the criteria of §39.3(b), and detailed discussions of the activities, achievements, and effectiveness of each of the NERC programs since ERO certification.
- **Attachment 2 —** summaries of stakeholder and Regional Entity comments and recommendations that were received concerning each NERC program area, NERC's discussion of and responses to these comments and recommendations, and specific actions NERC is taking or plans to take in light of the comments and recommendations.
- **Attachment 3 —** NERC's assessment of the performance of the Regional Entities.
- **Attachment 4 —** an overview statement prepared jointly by the eight Regional Entities, including responses to the NERC assessment of the performance of the Regional Entities and recommendations from stakeholders, and the Regional Entities' recommendations for improvements, as well as a statement prepared by each Regional

Entity (Attachments 4.A through 4.H) of its activities, accomplishments and effectiveness since designation as a Regional Entity, and its plans for improvement.

- **Attachment 5** — the summary results of the stakeholder survey conducted by NERC and the Regional Entities in January and February 2009.

All statistics presented in this performance assessment report are as of May 31, 2009, unless otherwise indicated.

II. SINCE CERTIFICATION AS THE ERO, NERC HAS ACHIEVED SUBSTANTIAL ACCOMPLISHMENTS TOWARD IMPROVING THE RELIABILITY OF THE BULK POWER SYSTEM

A. Background

In the wake of the cascading outages that occurred in the Western Interconnection in July and August 1996, concerns regarding the ability of the electric industry to continue to rely exclusively on voluntary means to ensure reliability of the bulk power system in the face of increasing competition and consequent industry restructuring, and the major blackout that occurred in the Midwestern and northeastern United States and the province of Ontario in August 2003, the U.S. Congress added §215 to the FPA as part of the Energy Policy Act of 2005. Where there formerly existed only a system of voluntary electric industry reliability policies, standards, criteria, guides, and practices for which there was no compliance and enforcement mechanism,[5] §215 provided for a regime of mandatory reliability standards for the bulk power system, to be developed and enforced in the United States by an ERO certified by, and operating under the ultimate oversight of, FERC, and to be fairly applied to owners, operators, and users of

[5] An exception was in the Western Systems Coordinating Council (WSCC), the predecessor to WECC, where the Reliability Management System agreement imposed, by contract, penalties for violation of a subset of reliability standards on those entities in WSCC that had signed the contract.

the bulk power system. Prior to adoption of §215 in the U.S., the provinces of Ontario (in 2002) and New Brunswick (in 2004) made reliability standards that were developed and approved through NERC's standards development process and adopted by the NERC board mandatory and enforceable within their respective jurisdictions as a part of their market rules. Other jurisdictions in Canada are taking steps to make reliability standards mandatory and enforceable as well. While no regulatory authority exists in Mexico with regulatory jurisdiction over the reliability of the bulk power system, the Comisión Federal de Electricidad ("CFE")[6] has signed the contract-based Reliability Management System developed by WECC's predecessor and implemented in the Western Interconnection.

In enacting the legal authority for mandatory and enforceable reliability standards, Congress chose the model of audited self-regulation reflected in the consensus legislative proposal developed by NERC, supported by a broad array of industry, government, and customer stakeholders and endorsed by the Commission. Audited self-regulation means congressional or agency delegation of power to a private self-regulatory organization to implement or enforce laws or agency regulations with respect to the regulated entities, with powers of independent action and review retained by the agency.[7] The advantage of the audited self-regulation model is that the statute and agency rules are supplemented and enforced by those entities most directly

[6] CFE provides generation, transmission, and distribution of electricity services in Mexico. Only a portion of the CFE grid in Baja California Norte, Mexico is synchronously connected to the Western Interconnection.

[7] *See* Recommendations of the Administrative Conference of the United States, Recommendation 94-1, The Use of Audited Self-Regulation as a Regulatory Technique, 59 *Federal Register* 44701 (Aug. 30, 1994). *See also* "Federal Agency Use of Audited Self-Regulation as a Regulatory Technique," a report for the Administrative Conference of the United States by Douglas C. Michael (Nov. 1993).

involved in the regulated activity, which may have more detailed knowledge of the operational or technical aspects of that activity.

In the context of assuring the reliability of the bulk power system, audited self-regulation has three components: "audited," "self," and "regulation." It is useful to discuss them in reverse order:

- "Regulation" means the reliability standards are mandatory and enforceable. It marks a sea change from the prior system of voluntary compliance that had existed and operated successfully for nearly four decades based solely on peer pressure, with no formal mechanism for enforcement.
- "Self" means that industry stakeholders have primary responsibility for developing the reliability standards that users, owners, and operators of the bulk power system must follow. To do so, the model seeks to harness the considerable technical expertise of those who have the actual experience and responsibility for planning, operating, and protecting the security of the bulk power system. Stakeholders also elect NERC's independent Board of Trustees, exercise power jointly with the NERC board to amend NERC's bylaws, and play a significant role in developing and implementing the broad range of NERC's other reliability improvement programs.
- "Audited" means that industry actions and implementation of reliability standards will be reviewed in the first instance by an independent authority, NERC, led by its independent Board of Trustees (sometimes acting through delegated authority to Regional Entities and sometimes on its own), and then by FERC, with its powers of review and independent enforcement action. (In the delegated model permitted by §215 and the Commission's regulations and implemented by NERC, NERC's review of industry actions and implementations is initially conducted by the Regional Entities acting pursuant to delegation agreements.)

Under the model chosen by Congress and embodied in §215, nearly 700 electric industry participants — including vertically-integrated, investor-owned utilities; merchant generators; transmission owners and operators; state- and municipally-owned electric utilities; generation, transmission and distribution cooperatives; federal power marketing agencies and other federal power entities; independent system operators and regional transmission organizations; state regulators; and large and small end-use customers — participate together as members of a private organization with independent governance to develop and enforce mandatory reliability

standards, subject to oversight in the United States by the Commission. The following table portrays NERC's current membership.

NERC Membership Sectors[8]	# of Entities in Each Sector
1. Investor-Owned Utility	65
2. State/Municipal Utility	138
3. Cooperative Utility	98
4. Federal or Provincial Utility/ Federal Power Marketing Administration	15
5. Transmission-Dependent Utility	86
6. Merchant Electricity Generator	34
7. Electricity Marketer	27
8. Large End Use Electricity Customer	14
9. Small End-Use Electricity Customer	145
10. Independent System Operators and Regional Transmission Organizations	16
11. Regional Entity	7
12. Government Representatives	36

The audited self-regulation model adopted by Congress also addressed the international nature of the North American bulk power system by providing for a single forum – the ERO – where the interests of multiple jurisdictions and their stakeholders could be considered and addressed. Outcomes that were mutually satisfactory across all of North America could then be taken back to the applicable regulatory authorities for approval, free from concerns over intrusions by governmental agencies in one country over another country's sovereignty.

[8] NERC members may join only one sector. NERC considers a corporation and its affiliates as a single member. That member may apply to join only one sector, which may be any single sector for which the corporation or any of its affiliates is eligible. NERC Bylaws, Article II, section 4b.

There can be no dispute that the task of establishing, monitoring, and enforcing compliance with standards for the reliable operation and planning of the North American bulk power system is a massive and challenging one. The bulk power system is possibly the largest, most complex machine humans have yet devised. It is so vast that it crosses two international boundaries. Our North American society is totally dependent on the reliable performance of this "machine" for all our communications, our industry and commerce, educating our children, operating our health care facilities, carrying out law enforcement and other governmental functions, and defending our countries. Yet the ownership of this vast machine, and the responsibility for planning, operating, and maintaining it, is divided among over 1,800 different entities. The standards that NERC, as the ERO, must develop, implement, monitor, and enforce form the common set of rules by which the North American bulk power system, with its disaggregated ownership and segmented responsibilities, must be planned and operated, second by second, day by day.

The mandatory reliability standards that have been and are being developed, implemented, monitored, and enforced by NERC through the process of audited self-regulation pursuant to §215 serve two essential purposes.

- First, ***the bulk power system must be planned, designed, built, and operated in a manner that avoids cascading outages*** – like those that motivated the enactment of §215. It is inevitable that individual things will go wrong on the bulk power system – machines break, people make mistakes, severe weather happens. When those inevitable events occur, the consequences on the bulk power system must be controlled and confined to a localized area. The mandatory reliability standards use a defense-in-depth strategy and are intended to ensure that the procedures, practices,

trained personnel, and equipment are in place and functioning properly to ensure such containment occurs.

- Second, ***the bulk power system must be planned, designed, built, and operated in a manner that protects the elements of the system from physical damage.*** Because of our critical dependence on electricity, we cannot afford to have major elements of the bulk power system out of service for extended periods due to catastrophic damage and the extended time needed to repair or replace major components. The mandatory reliability standards are intended to ensure that the procedures, practices, trained personnel, and equipment necessary to prevent or limit catastrophic damage to elements of the bulk power system are in place and functioning properly, so that in the event of a disturbance, restoration of the system can occur without delay.

From study of past major system disturbances, NERC and the industry have learned that a widespread blackout does not have a single major cause. Instead, major disturbances are caused by a number of smaller, supposedly independent, events that happen to occur at the same time. They are also not "accidents"; that is, they are not unpreventable random occurrences. The industry does not have control over every risk facing the bulk power system, but it does have control over many of them. NERC's goal, and the industry's goal, is to drive to zero the risks the industry does have control over, and to minimize the consequences of those that it does not. It is the same approach one takes for safety issues.

NERC and the industry have more to learn about preventing major system disturbances. The starting textbook for that learning could be *Flirting with Disaster – Why Accidents Are*

Rarely Accidental, by Marc Gerstein.[9] In case studies ranging from *Columbia* and *Challenger*, Hurricane Katrina, Chernobyl, Vioxx, and the BP Texas City refinery, to the collapse of the Polynesian culture on Easter Island and the collapse of Arthur Andersen, Gerstein explores the dynamics of institutional decision-making and the role it plays in major catastrophes.

> The lesson of this book is that while not all disasters are preventable, a surprising number of them are. In virtually all cases, the damaging aftermath can be substantially reduced by better planning, hard work, and most of all, a mind open to the nature of risk. As with all such difficult and persistent human problems, the question is whether we have the wisdom and will to change.[10]

The fundamental question to be addressed by the three-year performance assessment, and the Commission's review of it,[11] is whether, after three years of effort, bulk power system reliability is better today than it was when NERC was certified as the ERO, and whether NERC's plans for the future will enable further improvement in reliability. For the reasons discussed in the remainder of this report, it is clear that as the ERO, NERC has made significant strides, on multiple fronts, towards implementing the necessary systems of information, evaluation, standards, enforcement, and training, education, and personnel certification to ensure the reliability of the bulk power system. The Regional Entities as well have made great progress in implementing the authorities spelled out in their delegation agreements with NERC. There are now over 1,800 registered users, owners, and operators of the bulk power system, which have lessened the risks to the reliable operation of the bulk power system by completing mitigation plans for over 1,000 violations, aimed at remedying and preventing recurrence of noncompliance with reliability standards.

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[9] *Flirting with Disaster –Why Accidents Are Rarely Accidental*, by Marc Gerstein with Michael Ellsberg, Union Square (2007).

[10] Gerstein, p. 10.

[11] Under 18 C.F.R. §39.3, after receipt of this assessment report, the Commission is to establish a proceeding, with opportunity for public comment, in which it will review the ERO's performance.

Is reliability as good as it needs to be? No. It is clear that substantial work is needed in the years ahead. Are there specific aspects of the reliability model and NERC's programs and procedures that need improvement? Most assuredly. Among other things, as explained in more detail in §II(I) below, legislation is needed providing the United States government with emergency authority to deal with imminent cyber security threats; a much more focused, prioritized, and expeditious approach is needed to standards development; and delegation agreements with the Regional Entities need to be enhanced.

But overall, the Congressional objectives embodied in §215 of the Federal Power Act have been put in place by NERC, as the ERO, the eight Regional Entities, and the users, owners, and operators of the bulk power system — all under the oversight and approval of the Commission and governmental authorities in Canada.

B. NERC Has Developed a Comprehensive Body of Reliability Standards for the Bulk Power System

Using its American National Standards Institute-accredited and Commission-approved reliability standards development procedure, embodied in Section 300 of its Rules of Procedure and Appendix 3A, *Reliability Standards Development Procedure*, NERC has developed, and obtained approval of, a comprehensive body of reliability standards for the bulk power system. As of May 31, 2009, FERC has approved a total of 95 continent-wide standards pursuant to §215(d) of the FPA and 18 C.F.R. §39.5, 94 of which are in effect in the United States Most notably, none of the standards is being challenged in court. In addition, identical standards are in place and enforceable in the United States and in several Canadian provinces. The approved continent-wide standards cover a broad scope of reliability topics:

- Resource and Demand Balancing (6 approved standards)
- Communications (2 approved standards)

- Critical Infrastructure Protection (9 approved standards)
- Emergency Preparedness and Operations (8 approved standards)
- Facilities Design, Connections and Maintenance (9 approved standards)
- Interchange Scheduling and Coordination (9 approved standards)
- Interconnection Reliability Operations and Coordination (9 approved standards)
- Modeling, Data and Analysis (10 approved standards)
- Nuclear (1 approved standard)[12]
- Personnel Performance, Training and Qualifications (4 approved standards)
- Protection and Controls (14 approved standards)
- Transmission Operations (8 approved standards)
- Transmission Planning (4 approved standards)
- Voltage and Reactive Power (2 approved standards)

FERC approved the initial set of 83 reliability standards in 2007 and those became effective on June 18, 2007.[13] FERC also approved a set of eight Critical Infrastructure Protection (CIP) reliability standards in January 2008[14] and four additional reliability standards in separate orders issued by FERC.[15]

The approved reliability standards have been developed through an open process conducted by stakeholders with facilitation and oversight by NERC technical and managerial

[12] The Nuclear Plant Interface Coordination standard has been approved to become mandatory and effective on April 1, 2010.

[13] *Mandatory Reliability Standards for the Bulk-Power System*, Order No. 693, 118 FERC ¶61,218 (2007).

[14] *Mandatory Reliability Standards for Critical Infrastructure Protection*, Order No. 706, 122 FERC ¶61,040 (2008).

[15] FAC-010-2, FAC-011-2, FAC-014-2 and NUC-001-1.

staff. The standards development process, which has gained widespread acceptance by the industry, provides reasonable opportunity for public comment, due process, openness, and balance of interests in developing the standards. Overall supervision of the standards development process is the responsibility of the industry-based Standards Committee, whose members are elected on a segment basis from the Registered Ballot Body (RBB). Interested parties actively participate in the process as members of Standard Drafting Teams (SDT), by reviewing and providing comments on drafts of proposed new and revised standards, and by participating in the standards balloting process. As shown in the following table, as of May 31, 2009, there were 740 separate entities registered in the RBB eligible to vote on proposed new and revised standards.

Registered Ballot Body Segments[16]

Segment Type	# of Entities in each Segment
1. Transmission Owners	139
2. Regional Transmission Organizations/ Independent System Operators	11
3. Load-Serving Entities	155
4. Transmission Dependent Utilities	57
5. Electric Generators	141
6. Electricity Brokers, Aggregators, and Marketers	88
7. Large Electricity End Users	25
8. Small Electricity Users	86
9. Federal, State, and Provincial Regulatory or Other Governmental Entities	30

[16] An entity and its affiliates may register in as many segments as it qualifies for. The segment qualification guidelines are inclusive; i.e., any entity with a legitimate interest in the reliability of the bulk power system that can meet any one of the guidelines for a segment is entitled to belong to and vote in that segment. Because of the differing sizes of the segments, votes on standards are weighted such that each segment has 10 percent of the vote.

10. Regional Entities	8

Through the activities of the Standard Drafting Teams, with the oversight of the NERC Standards Committee, the facilitation and assistance of NERC staff, and the input of industry participants through the public comment and balloting processes, the reliability standards are written in accordance with a common format and structure as specified in §300 of the NERC Rules of Procedure and the ***Reliability Standards Development Procedure***, and conform to the essential attributes of technically excellent reliability standards specified in the Rules of Procedure.[17] Proposed new or revised standards must be approved by the ballot body on a weighted-segment basis, adopted by the NERC Board of Trustees, and filed with and approved by FERC in order to become mandatory and enforceable in the United States. Since the initial set of 83 standards was approved by FERC, a number of standards have been revised and approved through the standards development process and then approved by the NERC board and FERC.

NERC has developed and follows a series of rigorous three-year Standards Development Plans for identifying and prioritizing standards development projects, both for new standards and for revisions to existing standards. The Standards Development Plan is revised each year, based on input from the Standards Committee, the Standard Drafting Teams, NERC staff, NERC technical committees and subgroups, other industry participants, and governmental authorities. The annual plans, which take into account FERC orders, look ahead an additional year and reprioritize existing projects and add new projects for the three-year window. Each year's

[17] These essential attributes of technically excellent standards include applicability; reliability objectives; performance requirement or outcome; measurability; technical basis in engineering and operations; completeness; consequences for noncompliance; clear language; practicality; and consistent terminology. *See* §302 of the NERC Rules of Procedure. For some standards, measures have not yet been developed.

revised three-year plan is submitted to the NERC board for approval and filed with FERC and governmental authorities in Canada for information. The Standards Development Plan for 2008–2010 covered over 35 standards development projects, while the 2009–2011 plan includes 39 projects.

In addition, each of the eight Regional Entities has developed and adopted a regional reliability standards development procedure, which in each case has been approved by NERC and by FERC. Each Regional Entity's approved Regional reliability standards development procedure is included in Exhibit C to its delegation agreement with NERC. NERC approved each Regional reliability standards development procedure only after determining it met a comprehensive set of 34 essential attributes (also included in Exhibit C to the delegation agreements). A number of the currently effective Regional reliability standards development procedures reflect revisions made to earlier versions in response to directives in FERC Orders.

Improvement to the Reliability of the Bulk Power System

NERC and the industry have made significant progress toward accomplishing the goal of the U.S. Congress of having a comprehensive set of mandatory and enforceable reliability standards for the bulk power system. Although the initial group of 83 standards approved by FERC in 2007 were based on the operating policies and planning standards previously developed by NERC's predecessor entity, the North American Electric Reliability Council, compliance with the operating policies and planning standards was voluntary, while compliance with the 95 standards approved by FERC is mandatory and enforceable. Moreover, as noted, the approved standards are formatted on a consistent basis and conform to a rigorous set of essential attributes, including identification of the reliability functional entities responsible for complying with each standard, statement of the specific reliability objectives of the standard, specific performance

objectives (requirements) to be met by the responsible entities, and measures of compliance with the requirements of the standard. The eight CIP standards CIP-002 through CIP-009, which are being implemented by the industry pursuant to a phased implementation plan, establish a set of requirements designed to prevent the loss or unavailability of critical assets and critical cyber assets essential to the reliable operation of the bulk power system.

Regional Entities are also active in developing Regional reliability standards, with WECC having in force nine Regional reliability standards. Other Regional Entities have Regional standards under development. Additionally, through industry and regulatory input and the development and annual revision of NERC's three-year Standards Development Plans, the standards development process continues to be employed to develop new standards and revisions to previously-approved standards to meet evolving needs and priorities for maintaining and enhancing the reliability of the bulk power system.

Issues Identified by Stakeholders Concerning Reliability Standards[18]

The complex process for establishing standards has, as expected, come with a set of challenges. NERC received significant feedback with respect to the standard-setting process, especially regarding the respective roles that NERC, FERC, and stakeholders play in the establishment of a standard. The tensions reflected in the comments are a manifestation of the model chosen to develop and implement reliability standards. At a more fundamental level, they are a manifestation of the nature of the bulk power system itself. The bulk power system is a

[18] The issues identified in this subsection and in subsequent subsections concerning NERC's other program areas are the significant policy issues raised by stakeholders. Stakeholders also raised a number of other issues concerning, and proposed other changes and improvements to, the NERC programs. The stakeholders' comments, and NERC's analyses, responses, and plans for improvement, are addressed in detail in **Attachment 2** of this report. In addition, **Appendix A** to this Overview section contains a list of the specific actions identified in **Attachment 2** that NERC is taking or planning to take in response to each issue.

complex system with ownership and responsibility for planning and operations divided among over 1,800 separate entities. It spans two international borders, with multiple, separate, regulatory authorities having responsibility for oversight of their respective portions of the grid.[19]

NERC believes the tensions reflected in the comments on NERC's standards development process are an inevitable part of the policy choice made for how standards would be developed and approved. Industry stakeholders are well aware that the bulk power system is only as strong as its weakest link. Past disturbances on the system have demonstrated, if any demonstration were necessary, that one entity's failure to follow the reliability rules can cause serious adverse impacts on the reliability of entities throughout an entire Interconnection. Stakeholders have a keen interest in ensuring that an appropriate set of technically sound, enforceable reliability standards are in place for all to follow. Governmental authorities, for their part, do not want a repeat of major, widespread outages like the ones of July and August 1996 in the Western Interconnection, August 2003 in the midwestern and northeastern United States and adjoining province of Ontario, and February 2008 in Florida. The U.S. Congress enacted §215 of the Federal Power Act to ensure reliability. The regulators are seeking to ensure that happens.

NERC has established its standards development process, under the supervision of the industry-based Standards Committee, as the forum where the industry's technical expertise can be brought to bear on the reliability issues at hand. Given the large number of diverse users, owners, and operators, it is to be expected that differing views will emerge. The standards development process is designed to take these diverse views into account in producing consensus reliability standards that the industry can support. NERC has multiple roles in this process: to

[19] These regulatory authorities include the Commission; the National Energy Board of Canada; and the applicable provincial authorities in the Canadian provinces of Alberta, British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario, Québec, and Saskatchewan. No regulatory authority for reliability exists in Mexico; CFE has responsibility for reliability in that country.

ensure the process works fairly and openly; to provide an independent perspective on emerging issues based on learning from event analyses and the compliance program; and, through the industry balloting process, to give the industry the opportunity to evaluate the relative improvements in reliability to be derived from proposed changes in reliability standards. NERC views the tensions reflected in the comments as constructive tensions, ones that continue to ask the important questions of whether NERC has the right standards; whether the standards as written support improving reliability; whether the standards take appropriate account of Regional differences, or whether the issues that have historically been dealt with in Regional criteria should more appropriately be covered by continent-wide standards; and whether the reliability benefits to be gained from implementing different or additional standards justify the costs and other consequences of doing so.

Another such tension revolves around the respective roles of the various regulators in the standards-setting process. The forum provided by the single ERO was the solution endorsed by governmental authorities on both sides of the border to deal with the fact that the bulk power system needs to operate to a common set of rules, but that no one jurisdiction had the authority to set those rules for all of North America. The necessarily international nature of the ERO was recognized from the beginning. In 2005, the United States and Canada adopted Terms of Reference for a Bilateral Electric Reliability Oversight Group (the Bilateral Group), comprising representatives from FERC and the U.S. Department of Energy (DOE), with assistance from the U.S. Department of State; and the Federal-Provincial-Territorial Electricity Working Group of the Council of Energy Ministers of Canada, with assistance from the Canadian Department of Foreign Affairs and International Trade.

> Recognizing that reliability standards will no longer be voluntary and that there will be multiple jurisdictions and regulatory authorities involved in managing

> mandatory reliability standards, there is an ongoing role for the Bilateral Group. This role is to consult on the establishment of an international reliability framework and monitor its operation to help identify issues related to international aspects and options for resolution of those issues.[20]

In support of that mission, the Bilateral Group developed a set of principles to guide the establishment of an international ERO, and those principles were filed with FERC on August 3, 2005.

The single ERO forum allows the interests of all jurisdictions to be discussed as standards are developed, with a goal that the standards developed are acceptable to all jurisdictions. The product of that standards development effort can then be taken to each regulator for final approval, thus respecting the sovereignty each has over its portion of the grid. What the choice of the ERO model did not do, and could not do, is reconcile the different regulatory philosophies that exist in the United States, Canada, and Mexico with respect to the role of regulators in the development of standards and how active the regulators choose to be. Many commenters spoke about the active role of FERC and FERC staff in the standards development process. The difference in regulatory philosophies and different degrees of regulatory involvement in the standards development process is not an indication that the model chosen is not working — rather, it evidences a tension that all participants, including NERC, must recognize and take into account as they participate in NERC's standards development activities.

One clear message from the stakeholder comments on the standards program is the need to better prioritize standards development activities; NERC agrees with those comments. On February 23, 2009, NERC filed the third update to its three-year Standards Development Plan.[21]

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[20] Terms of Reference for Bilateral Electric Reliability Oversight Group (June 30, 2005).

[21] *North American Electric Reliability Corporation 2009-2011 Standards Development Plan Pursuant to Section 310 of the ERO Rules of Procedure*, filed February 23, 2009 in Docket Nos. RM05-17-000, RM05-25-000 and RM06-16-000.

Each annual plan has included more standards projects than did its predecessor. The 2009–2011 plan lists 39 standards projects. That level of effort requires a huge commitment of resources from the industry in support of the standards development plan, which level of effort cannot be expected to continue. Not everything can be a priority. NERC's initial objective to review all standards on a three-year cycle further adds to the pressure, as does the commitment to act promptly through the standards process on any industry request for formal interpretation of an existing standard. There is no question a streamlined interpretations process would be useful, but it should not have the effect of slowing down the key standards development projects that are underway.

Fundamentally, the model that Congress chose for development of reliability standards is working in the way Congress had envisioned it, harnessing the industry's technical expertise through a consensus-based process. Section 215 requires that standards be developed through a process that provides "for reasonable notice and opportunity for public comment, due process, openness, and balance of interests." Those requirements are embodied in Section 300 of NERC's Rules of Procedure and in Appendix 3A, NERC's *Reliability Standards Development Procedure*, and FERC has approved that procedure as appropriately implementing the statutory requirements. Working through that procedure, industry stakeholders have developed a comprehensive set of standards to govern reliability for the bulk power system of North America.

Section 215 also authorizes FERC to

> order the Electric Reliability Organization to submit to the Commission a proposed reliability standard or a modification to a reliability standard that addresses a specific matter if the Commission considers such a new or modified reliability standard appropriate to carry out this section.

FERC has exercised that authority in Order No. 693 (when it approved the first set of 83 reliability standards) and in subsequent orders. In directing modifications to standards, FERC stated,

> [W]e are directing the ERO to consider what needs to be done and how to do so, often by way of descriptive directives.
>
> We emphasize that we are not, at this time, mandating a particular outcome by way of these directives, but we do expect the ERO to respond with an equivalent alternative and adequate support that fully explains how the alternative produces a result that is as effective as or more effective that [sic] the Commission's example or directive.[22]

Most importantly, FERC directed NERC to pursue the modifications through NERC's approved standards development procedure. The wisdom of that approach is two-fold:

(1) It brings the collective technical experience of the industry to bear on the problem at hand, thus assuring the best minds are available to work on the problem and that the proposed modification is done in a manner that fits the change into the overall scheme of the reliability standards and does not introduce unintended reliability consequences.

(2) It places the proposed modification in a forum that includes active participation from Canadian interests, thereby recognizing the international nature of the bulk power system and increasing the likelihood that the ultimate decision reached will be acceptable to regulators in Canada.

In various orders, FERC has expressed concern that the standards process is too slow, and is at risk of producing least-common-denominator standards.[23] NERC recognizes the consensus-

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[22] *Mandatory Reliability Standards for the Bulk-Power System*, Order No. 693, 118 FERC ¶ 61,218 (2007), PP 30-31 (footnotes omitted).

[23] *See, e.g., North American Electric Reliability Corp., Order on Compliance Filings*, 118 FERC ¶ 61,030 (2007) (January 18, 2007 Order), at P 31.

based process can be time consuming. As described more fully in **Appendix A** to **Attachment 1**, it has taken on average 21.7 months (from submission of the Standard Authorization Request to adoption by the NERC Board of Trustees) to complete a reliability standard project. The median time has been 17.7 months. It is important to note, however, that none of the 95 standards that have (i) completed the standards development process including successful stakeholder balloting, (ii) been adopted by the NERC board, and then (iii) approved by FERC, has been the subject of appeals to the U.S. courts. The consensus-based NERC process may take more time to develop a standard, but it offers the prospect of a better balance of diverse viewpoints and greater industry acceptance of the end product, with no time-consuming court challenges, as demonstrated by the greater than 90 percent success rate in achieving the requisite two-thirds weighted segment approval acceptable for industry passage of a standard.

Nonetheless, NERC will continue to work to make improvements in the standards process where warranted while preserving the benefits that the consensus-based process was designed to capture. A key will be better efforts at prioritization going forward, and NERC will look for other ways to assure timely development of standards. (Some specific proposed actions are discussed in **Attachment 2**.)

NERC also acknowledges that a consensus-based standards process has the potential to produce standards that are less than what some may view as the best approach in a particular situation to ensure reliability. While a theoretical possibility, NERC does not believe this is in fact happening. Industry participants recognize that the bulk power system is only as strong as its weakest link. They also know that if a user, owner, or operator follows standards that are not rigorous enough, there can be serious adverse consequences for the entire Interconnection, not just for that entity. As noted above, the industry's registered ballot body has now voted to put in

place a comprehensive set of reliability standards. The RBB actually voted down one standard project in the Resource and Demand Balancing area because it believed the standards were not rigorous enough and did not adequately address certain technical issues within the standard. The RBB has also voted down one standard and one set of Violation Severity Levels (VSL) for technical issues and a series of ATC-related standards due to process shortcuts that prevented the industry due process time to fully evaluate the proposed standards. Specifically, the RBB voted against a revision to the FAC-008 – Facilities Ratings Methodology standard on the basis that certain of its requirements that were directed by FERC did not provide any reliability benefit and would be a needless diversion of registered entity resources. Stakeholders expressed concerns during the unsuccessful balloting of VSLs for the Emergency Operations standards, citing a variety of technical deficiencies with the proposed levels as well as process concerns. These outcomes are consistent with the objective of the reliability standards development process to develop technically sound reliability standards that deliver an adequate level of reliability at a reasonable cost.

NERC is dedicated to the stakeholder, consensus-based model, but at the same time recognizes it is incumbent upon all participants, including NERC, to make it work. The challenge is to sustain the consensus-based standards development process as an effective model in the face of different expectations about what the scope, content, and pace of change of the reliability standards should be.

Stakeholders raised a number of other issues concerning the standards development program, including that the number of current standards development projects should be reduced in order to concentrate on those projects with the greatest potential impact on reliability. Stakeholders expressed concern that with the existing number of projects, standards drafting

teams are stretched too thin, and that many industry participants, particularly smaller entities, do not have the resources to follow the process, comment on drafts, and participate in balloting. The full range of stakeholder comments on the standards development process, and NERC's responses and plans for improvement, are discussed in detail in **Attachment 2**.

C. NERC and the Regional Entities Have Developed and Implemented a Comprehensive Organization Registration Program

In order to begin monitoring and enforcing compliance with the mandatory reliability standards, it was necessary for NERC and the Regional Entities to identify and register the owners, operators, and users of the bulk power system that perform reliability functions and whose operations are important to reliability.[24] To accomplish this task, NERC:

- identified the different reliability functions performed by owners, operators, and users of the bulk power system using the Reliability Functional Model categories that are embodied in NERC's Reliability Standards,
- developed its *Statement of Compliance Registry Criteria* to define attributes that place an owner, operator, or user within a reliability functional category, and
- through the Regional Entities, identified the users, owners, and operators who perform these reliability functions and registered them, by function, on the NERC and Regional Entity Compliance Registries.[25]

As a result of this effort, over 1,800 entities that own, operate, or use portions of the bulk power system are registered, by reliability function, on the NERC Compliance Registry, and

[24] NERC's rules concerning organization registration are found in §500 of its Rules of Procedure and in Appendix 5, *Organization Registration and Certification Manual*, of the Rules of Procedure.

[25] Approximately 100 registration disputes have arisen as entities contested their inclusion on the Compliance Registry, either in their entirety or for particular reliability functions. Some of these disputes have been resolved at the Regional Entity level, some were resolved through appeals to NERC that were decided by the NERC Board of Trustees Compliance Committee, and a few were resolved through appeals to the Commission. As of June 30, 2009, only seven disputes remain unresolved.

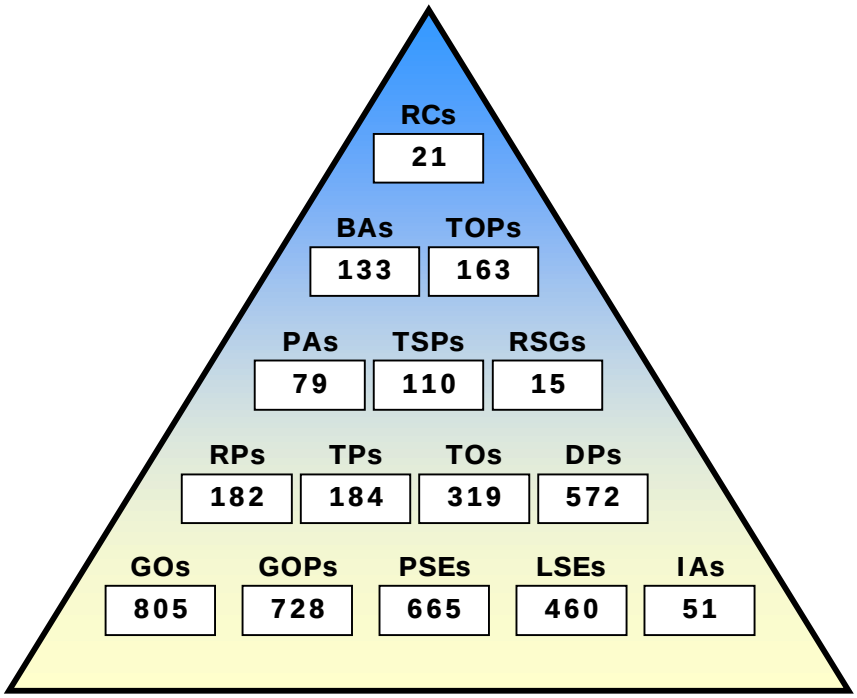
each registered entity knows its reliability functions under the Functional Model and, therefore, the reliability standards with which it is responsible to comply.[26]

Further, both the definitions of reliability functions and the composition of the Compliance Registry are dynamic. Since being certified as the ERO, NERC has refined reliability functional categories to define more precisely responsibilities for reliable operation of the bulk power system. Working with the Regional Entities, NERC has approved the addition and removal of entities from the Compliance Registry based on experience gained with respect to the operations of different types of entities and their importance to the reliable operation of the bulk power system. The current version of the *Statement of Compliance Registry Criteria* is Version 5.0, effective October 16, 2008, and it identifies and defines the attributes of 15 different reliability functions.[27] The figure below indicates the numbers of entities that were registered for each of the reliability functions as of June 23, 2009.

[26] As of June 23, 2009, 1,839 organizations were registered for 4,487 reliability functions.

[27] The 15 reliability functions identified in Version 5.0 of the *Statement of Compliance Registry Criteria* are Balancing Authority, Distribution Provider, Generator Operator, Generator Owner, Interchange Authority, Load-Serving Entity, Planning Authority, Purchasing-Selling Entity, Reliability Coordinator, Reserve Sharing Group, Resource Planner, Transmission Operator, Transmission Owner, Transmission Planner, and Transmission Service Provider.

Number of Entities on Compliance Registry, By Function



The Organization Registration process includes provisions (found in §501.1.2.7 and §507 of the NERC Rules of Procedure) for joint registrations by two or more entities. The joint registration process allows an entity to register to perform a reliability function on behalf of another entity that the second entity would otherwise be responsible for. For example, a generation and transmission cooperative may register to perform reliability functions on behalf of its distribution cooperatives, or a municipal joint action electric agency may register to perform reliability functions on behalf of the municipal utilities that are its members. The joint registration process also allows for an allocation of the responsibilities of a particular function among different entities, based on how they have chosen to carry out their particular businesses. Joint registrations may be based on existing, established relationships such as those mentioned in the preceding sentence, or may be based on agreements by which the entities allocate

responsibilities among themselves. NERC's oversight of the process ensures that an entity is identified as responsible for performance of each applicable reliability function within a relevant area or group of entities. As of May 31, 2009, more than 60 entities are registered as participating in joint registrations.

Improvement to the Reliability of the Bulk Power System

The establishment and implementation of the Organization Registration Program has improved reliability of the bulk power system because (i) NERC and the Regional Entities now know which entities are responsible for which reliability functions, (ii) the entities whose operations are important to the reliability of the bulk power system know who they are and what specific reliability functions and reliability standards requirements they are responsible for, and (iii) the due process rights of users, owners, and operators have been preserved.

Issues Identified by Stakeholders Concerning Organization Registration

Stakeholder survey respondents raised issues concerning whether NERC should consider moving to a "registration by requirement" approach; consistency of registration requirements across Regional Entities; the clarity of the joint registration criteria; whether the small- and medium-sized entities currently on the Compliance Registry in fact have a material impact on the reliability of the bulk power system; and the need for a single registration process for entities operating in more than one Region. Regional Entities also raised some of these concerns. These comments and NERC's analyses, responses and recommendations for improvement are discussed in detail in **Attachment 2**.

D. NERC and the Regional Entities Have Developed a Comprehensive and Effective Program for Monitoring and Enforcing Compliance with Reliability Standards

Since becoming the ERO, NERC, working with the Regional Entities, has developed and implemented a comprehensive compliance monitoring and enforcement program. The compliance program is embodied in Section 400 of the NERC Rules of Procedure and in the uniform Compliance Monitoring and Enforcement Program (CMEP), Appendix 4C to the Rules of Procedure. The CMEP sets forth detailed procedures to be employed by NERC and the Regional Entities in conducting the compliance program. Section 403.7 of the NERC Rules of Procedure (with which, as specified in §4(c) of the delegation agreements between NERC and the Regional Entities, the Regional Entities must comply) contains provisions directed towards ensuring the independence of the Regional Entities' compliance staffs.

The CMEP monitors registered entities' compliance with reliability standards through eight compliance processes: (i) compliance audits of registered entities, (ii) spot checks of registered entities, (iii) periodic data submittals by registered entities, (iv) self-certifications by registered entities, (v) self-reports of violations by registered entities, (vi) exception reporting by registered entities, (vii) compliance violation investigations (CVI) of registered entities by the Regional Entity and/or NERC, and (viii) complaints by others that are investigated by NERC and/or the Regional Entity. The Regional Entities have the front-line, day-to-day responsibilities for conducting audits and spot checks; receiving periodic data submittals from registered entities; receiving self-reports, self-certifications, and exceptions reports from registered entities; and conducting CVIs within their respective regional boundaries. NERC provides oversight of Regional Entity activities (e.g., by providing observers on Regional Entity compliance audits),

assists or leads CVIs, and leads complaint investigations as warranted (or when necessitated by conflicts of interest).

NERC develops a CMEP Implementation Plan each year for the following year, and the Regional Entities in turn develop individual CMEP Implementation Plans based on the NERC plan. The implementation plans identify the reliability standards that are to be emphasized in the NERC and Regional Entity compliance program activities for the following year, and the compliance monitoring process that is to be used as the principal means of monitoring compliance with each standard (e.g., compliance audits, spot checks, self-certifications). In addition, each Regional Entity develops a compliance audit schedule for the following year listing the registered entities to be audited and the dates on which each audit will be conducted. As required by §403.11.1 of NERC's Rules of Procedure, those registered entities having primary responsibilities for the reliable operation of the bulk power system (Reliability Coordinators, Balancing Authorities, and Transmission Operators) are to undergo a compliance audit at least once every three years. NERC's objective is that all other registered entities will undergo a compliance audit at least once every six years.

From June 18, 2007 (the effective date of the initial set of 83 mandatory reliability standards) through May 31, 2009, NERC and the Regional Entities have conducted, in the aggregate, hundreds of compliance audits and spot checks of registered entities. They have also received hundreds of self-certifications and self-reports of violations from registered entities.

The uniform CMEP also contains detailed procedures for identifying, notifying registered entities of, and processing to conclusion, notices of alleged violations of reliability standards. Registered entities are provided due process procedures for accepting, disputing, or settling notices of alleged violation. The CMEP requires the registered entity to submit a mitigation plan

for each undisputed or settled violation. The mitigation plan must document the actions the registered entity plans to take, or has already taken, to remedy the violation and prevent recurrence. Proposed mitigation plans must be accepted by the Regional Entity and then approved by NERC. The registered entity's performance in implementing an approved mitigation plan is tracked to completion by the Regional Entity, and the registered entity must demonstrate successful completion of the mitigation plan or be subject to further enforcement actions. As of May 31, 2009, mitigation plans for 1,714 violations have been submitted by registered entities, of which mitigation plans for 1,367 violations have been accepted by the Regional Entity and approved by NERC, and mitigation plans for 1,057 violations have been implemented by the registered entities and verified by the Regional Entities as complete.

NERC has developed and is utilizing guidelines for determining financial penalties to be assessed for violations of the requirements of reliability standards. Violation Risk Factors (VRFs) have been assigned to each requirement and sub-requirement of each standard (*i.e.* the risk presented to the reliable operation of the bulk power system if the requirement is violated.). In addition, a set of Violation Severity Levels (VSLs) has been assigned, or are being developed, for specified degrees of severity of violations of each standard. Through the use of the applicable VRF and VSL, and the NERC *Sanction Guidelines* (Appendix 4B to the Rules of Procedure), an initial Base Penalty Amount range is identified for each violation. The Final Penalty Amount is determined within the Base Penalty Amount range (or under certain circumstances, outside the range) based on (i) factors measuring the potential impact of the violation on the reliability of the bulk power system (such as the registered entity's net load and interconnection characteristics and the time horizon of the violation), and (ii) aggravating and/or mitigating factors, such as whether the violation was self-reported and the speed and quality of

the registered entity's corrective actions, the registered entity's compliance history (e.g., first violation versus repetitive violations), the presence (or absence) and quality of the registered entity's internal compliance program, whether the registered entity attempted to conceal the violation, and whether the registered entity violated the standard intentionally for purposes of economic gain. The proposed penalty for a violation is initially determined by the Regional Entity, must be approved by NERC, and then filed with FERC. That means the registered entity has an opportunity to contest the proposed finding of violation and penalty before the Regional Entity, at NERC on appeal, and within the 30-day period after it is filed with FERC. NERC's review includes an evaluation of whether the penalty imposed is (i) appropriate based on the *Sanction Guidelines* and (ii) consistent with penalties imposed on other registered entities for similar violations in similar circumstances, both within the same Regional Entity and within other Regional Entities.

As of June 24, 2009, NERC has filed with FERC 64 notices of penalty (confirmed violations or settlements) covering a total of 171 violations of requirements of reliability standards. A total of $833,000 in penalties has been assessed to 10 registered entities for violations of standards.

The compliance program also includes procedures for NERC and/or a Regional Entity to issue Remedial Action Directives to registered entities. A Remedial Action Directive is an action (other than a penalty or sanction) required of a registered entity by NERC and/or a Regional Entity that (i) is to bring the registered entity into compliance with a reliability standard or to avoid a violation of a standard, and (ii) is immediately necessary to protect the reliability of the bulk power system from an imminent threat. So far, NERC and the Regional Entities have exercised the Remedial Action Directives process in five circumstances.

NERC and the Regional Entities have devoted the most significant portion of their resources, in terms of budgets and staffing, to their compliance monitoring and enforcement programs. The NERC and Regional Entity 2009 Business Plans and Budgets indicate that the combined budgets for the Compliance Monitoring and Enforcement and Organization Registration Programs will exceed $32.5 million of direct expense with a total staffing for these programs of 158 employees, as well as consultants and contractors who may be engaged by NERC or a Regional Entity when needed to supplement Compliance Monitoring and Enforcement Program resources.

Additionally, NERC and the Regional Entities have observed that the advent of mandatory and enforceable reliability standards and the NERC compliance program have led many bulk power system owners, operators, and users to establish or enhance internal compliance programs to promote their compliance with reliability standards. Through workshops and other outreach activities, NERC and the Regional Entities have emphasized the importance, and promoted the development, of internal compliance programs by registered entities as a key component of maintaining and enhancing the reliability of the bulk power system. Among other things, the presence of an active internal compliance program at, and the overall compliance culture of, a registered entity is a mitigating factor that, under the NERC *Sanction Guidelines*, can result in a reduced penalty or no penalty for a violation of a standard. Further, NERC and the Regional Entities have observed many registered entities using the services of compliance professionals from consulting firms to ensure that the registered entity has programs, practices, and procedures in place that comply with the requirements of applicable reliability standards.

Improvement to the Reliability of the Bulk Power System

The development and implementation of the NERC and Regional Entity Compliance Monitoring and Enforcement Programs has provided significant new assurances of the reliability of the bulk power system. As intended by Congress in enacting §215 of the FPA and by FERC in promulgating its ERO regulations, bulk power system owners, operators, and users are now subject to financial penalties and other sanctions for violating specific requirements of reliability standards that have been established to ensure the reliability of the bulk power system. Through the NERC and Regional Entity compliance programs, owners, operators, and users are subject to a rigorous, systematic set of monitoring processes, conducted by independent compliance program staffs, to track the registered entities' compliance with reliability standards and identify violations, with potentially significant penalties and sanctions to the registered entity for noncompliance. Further, the development and implementation of mitigation plans by registered entities to remedy identified violations and prevent their recurrence is a critical component of the compliance program and a critical driver for continued improvement in the reliability of the bulk power system. The NERC and Regional Entity compliance programs also have the authority to issue Remedial Action Directives to registered entities to eliminate existing or threatened standards violations that pose an imminent threat to the reliability of the bulk power system. Finally, the institution of the NERC and Regional Entity compliance programs has served to encourage the development or enhancement of internal compliance programs by, and the overall compliance cultures of, many owners, operators and users of the bulk power system.

Issues Identified by Stakeholders Concerning the Compliance Program

Despite how much has been accomplished in starting up the NERC and Regional Entity Compliance Monitoring and Enforcement Programs, it remains an incomplete effort. At one

level, that is not surprising. In the broad sweep of implementing the electric reliability organization envisioned in §215 (creating the organization, developing mandatory standards, delegation of authorities for compliance monitoring and enforcement to Regional Entities, having mandatory standards take effect, and beginning to carry out compliance monitoring and enforcement activities), output from the compliance program is the last step.

Having only a small number of decided cases means that registered entities and other stakeholders are left to speculate about how the compliance program will be administered. The fact that all compliance actions are non-public until such time as NERC files a notice of penalty with FERC means that very little information is available to registered entities, either about what standards violations are being found and on what grounds, or the magnitude of penalties being assessed for these violations. In the months ahead, NERC and the Regional Entities will need to find ways to make generic information about standards violations more visible to registered entities so that these entities can evaluate their own compliance with these standards. As more cases are processed through the system, NERC and the Regional Entities will need to make sure that efforts to enforce standards do not undermine the more important goal of establishing a culture of compliance that encourages the open sharing of information learned from the Compliance Monitoring and Enforcement Programs.

Regional Entities and NERC have not processed the unanticipated large volume of compliance violations that have been self-reported by registered entities and discovered by the Regional Entities, as quickly, transparently, consistently, or efficiently as expected. This is evidenced not only by the statistical results (see the data provided in **Attachment 3** and in the individual Regional Entity Statements of Activities and Achievements in **Attachment 4**), but

also by the stakeholder comments regarding the slow rate at which notices of alleged violation, settlements and mitigation plans have been processed (see **Attachment 2**).

In addition to concerns about the slow rate at which alleged violations, settlements, and mitigation plans have been processed, the stakeholder survey and stakeholder comments identified other issues to which greater effort can be applied, including consistency in registration, application of the standards, enforcement actions, audit processes, and reporting forms and procedures. Numerous stakeholder comments pointed to the need for NERC to take a stronger leadership role in eliminating differences among Regional Entities and to ensure uniformity and consistency across all the Regional Entities. In addition, stakeholders commented that more NERC oversight and training of Regional Entity compliance audit teams could help improve the overall program.

NERC established a single set of rules for the organization registration and certification, and compliance monitoring and enforcement programs. Application of those programs was to vary with exceptions to those rules identified by some Regional Entities in their delegation agreements and approved by the NERC board and FERC. However, while the rules and program documents laid a good foundation, implementation can and has been different across the Regional Entities due to a lack of clarity in the delegation agreements, combined with legacy issues surrounding the familiarity of bulk power system owners, operators, and users with the existing programs.

NERC has not set or enforced mandatory performance metrics for, or required identical implementation of, the Regional Entity compliance programs. While this approach was slower, more inconsistent, inefficient, and less transparent than desirable, it did allow the implementation of the program to be grounded in decisions made primarily at the Regional Entity level and

therefore closer to the users, owners, and operators. Implementation of the program was also slowed by the policy choice made by FERC in its *Penalty Notice Guidance Order* to implement the program carefully and comprehensively from the start as opposed to a more experience-based, evolutionary approach.[28]

NERC believes the delegation of compliance enforcement to Regional Entities has created value by encompassing local knowledge of the bulk power system and providing a substantial source of resources. However, to achieve the level of consistent, transparent, efficient, and timely performance stakeholders are expecting, the delegation agreements will need to be amended to provide specific performance metrics and require consistent implementation across all Regional Entities.[29]

As discussed in more detail in **Attachment 3**, the Regional Entities have various governance structures, as is permitted by §215(e)(4)(A)(i) of the FPA.[30] The different governance models provide different challenges. NERC believes that its oversight of the responsibilities delegated to Regional Entities can be made more effective by including in the renegotiated delegation agreements performance metrics that make accountabilities clearer. The delegation agreements should also contain a more rigorous decision-making process for matters that need to be resolved on a consistent basis by NERC and the Regional Entities. Finally, NERC will seek to establish in the renegotiated delegation agreements (or other related

[28] *Guidance Order on Reliability Notices of Penalty*, 124 FERC ¶ 61,015 (2008 (*Penalty Notice Guidance Order*).

[29] The term of the current delegation agreements runs through May 2010.

[30] Section 215(e)(4)(A)(i) provides that the Commission may approve a delegation agreement with a Regional Entity if (among other criteria) the Regional Entity is governed by "an independent board, a balanced stakeholder board, or a combination independent and balanced stakeholder board".

agreements) any special provisions that may be necessary by virtue of a particular Regional Entity engaging in registered entity functions or other significant non-section 215 activities.

Stakeholder comments raised additional important issues with respect to the compliance program, including:

- Registered entities are unable to obtain advice/guidance from NERC and Regional Entities on what constitutes compliance with the requirements of standards and what is required to demonstrate compliance with the requirements. There is not a focus on assisting entities to determine how to achieve the desired levels of performance, and no readily available and accessible information as to what is necessary to demonstrate compliance. NERC and the Regional Entities need to address this void by such steps as adopting advisory processes such as "No Action Letters" through which a registered entity can obtain guidance and "safe harbor" without being at risk of an alleged violation for seeking advice; and making available templates of compliant practices and documentation and examples or case histories of acceptable documentation.
- Mitigation plans must be reviewed and approved more quickly.
- NERC and the Regional Entities must be more effective in encouraging self-reporting. NERC and the Regional Entities have not been effective in encouraging self reporting, because self-reports are not processed any more timely than violations reported or discovered through other means, the administrative process is burdensome even for minor self-reported violations, and there has been no indication that the fact of self-reporting is resulting in reductions in penalties – NERC and the Regional Entities need to show how self-reporting was taken into consideration in determining the final violation and penalty.
- Compliance audits currently focus too much on documentation and literal interpretations of and compliance with the requirements of standards, and do not provide the opportunity for registered entities to explain what they did to comply, nor focus on the impact of the registered entity's actions on reliability of the bulk power system.
- Even though audits currently are scheduled to occur every three or six years, they are a tremendous drain on the registered entity when they do occur due to the large number of standards covered in each audit, and more standards are covered in each audit than can reasonably be covered in the time allotted for the audit. NERC should consider moving to a system of more frequent compliance audits for each registered entity but with a reduced number of standards covered in each audit.
- Substantial revision, simplification and clarification of the Reliability Standards Audit Worksheets (RSAWs) are needed, particularly to ensure that the RSAWs do not expand compliance obligations beyond the terms of the standard.

- Compliance Violation Investigations (CVIs) following system events take too long to complete – sometimes more that a year – and are not being conducted efficiently; this may be occurring because too many CVIs are being conducted, i.e., CVIs are being conducted on events that do not warrant a CVI. As a result, the involved entities are kept in limbo as to whether they may have (or are continuing to) violate standards, and dissemination of lessons learned for the rest of the industry is delayed.
- The bases for NERC and Regional Entity penalty determinations for violations need to be more transparent.

All of these issues, along with NERC's analysis, responses, and specific proposed actions, are presented in detail in **Attachment 2**.

E. NERC Has Developed an Effective Program for Disseminating Alerts on Potential Reliability Issues to Owners, Operators and Users of the Bulk Power System

Since being certified as the ERO, NERC has developed a system of industry alerts for issuing formal notifications to potentially affected industry participants concerning important reliability information. The industry alerts program is embodied in §810, "Information Exchange and Issuance of NERC Advisories, Recommendations and Essential Actions," of the NERC Rules of Procedure, which has been approved by FERC. The program provides for three levels of notifications to the industry:

- Level 1 (Advisories) — purely informational, intended to advise certain segments of the owners, operators and users of the bulk power system of findings and lessons learned.
- Level 2 (Recommendations) — specific actions that NERC is recommending be considered on a particular topic by certain segments of owners, operators, and users of the bulk power system according to each entity's facts and circumstances.
- Level 3 (Essential Actions) — specific actions that NERC has determined are essential for certain segments of owners, operators, or users of the bulk power system to take to ensure the reliability of the bulk power system. Essential Actions require NERC board approval before issuance.

These notifications currently are sent to registered entities' designated compliance contacts. The industry alerts program as embodied in §810 of the Rules of Procedure does not give NERC authority to mandate that bulk power system owners, operators and users take

specific actions in response to these notifications. However, the bulk power system owners, operators, and users to which Level 2 and Level 3 notifications apply are required to acknowledge receipt of such issuances, and provide reports of actions taken and timely updates on their progress towards resolving the issues raised in these such notifications in accordance with reporting date(s) specified by NERC. The program therefore provides a vehicle by which NERC can monitor the actions taken by owners, operators, and users to identified bulk power system reliability threats and concerns.

To implement the industry alerts program and give it appropriate visibility within both NERC and the industry, NERC created and staffed the position of Manager of Alerts within its Event Analysis and Information Exchange Program. The alerts program works with the Compliance Monitoring and Enforcement and Organization Registration Program to streamline and regularly test the notification lists, while continuing to add bulk power system owners, operators and users to the lists, in order to improve the distribution of alerts and demonstrate the ability to disseminate information in an efficient and effective manner. The notification list has been increased from approximately 1,200 recipients in October 2008 to approximately 1,800 recipients (a number consistent with the number of entities in the Compliance Registry) in early 2009. NERC has also engaged in outreach efforts to educate recipients on the forms of alerts and the responsibilities of recipients. The response rate to NERC Alerts has improved from just over 58 percent in October 2008 to greater than 94 percent for alerts issued in early 2009.

NERC has developed and is currently testing a new NERC Secure Alert Notification System (NSANS) that will enable rapid alert creation and dissemination to the electric industry as well as provide for quick acknowledgement and response from the industry via a secure Web browser portal.

As of May 31, 2009, NERC has issued a total of 21 Advisories and four Recommendations to registered entities, on a number of different reliability-related subjects. NERC has issued no Essential Actions. A principal subject matter of the alerts has been cyber security issues, such as potential vulnerabilities in software that could be exploited by outsiders for use as a cyber attack vector. Ten CIP Alerts were issued in the fourth quarter of 2008, of which two were Level 2 Recommendations. Another principal subject matter of alerts has been equipment malfunctions or defects that could be systemic or generic in nature.

Improvement to the Reliability of the Bulk Power System

The industry alerts program has improved the reliability of the bulk power system by establishing a mechanism for dissemination of information to bulk power system owners, operators, and users on system events and vulnerabilities that may be important to reliability. It initially leveraged the Compliance Registry by disseminating these notifications to compliance contacts within the registered entities. The program will be enhanced going forward to include dissemination to NERC Alert mailboxes established within the registered entities. It also provides a mechanism for receiving reports on, and tracking, the actions taken by owners, operators, and users in response to Recommendations and Essential Actions.

Issues Identified by Stakeholders Concerning the Industry Alerts Program

Commenters' concerns focused on the inordinately large number of cyber-related alerts, which commenters noted may cause a diminished perception of the importance of the alerts; the timeliness and lack of detail in the alerts; the 24-hour acknowledgement requirement; and the identification of the appropriate contact point at the registered entity. The stakeholder comments and NERC's responses are discussed in detail in **Attachment 2**.

F. NERC Has Analyzed and Disseminated Information on System Events Affecting Reliability

NERC has established an Event Analysis and Information Exchange Program to analyze major events and other off-normal events occurring on the bulk power system and to disseminate information to the industry for use in improving reliability. The Event Analysis Program, working with Regional Entities and teams of technical industry experts, performs analyses of large-scale outages, disturbances, and near misses to determine root causes and lessons learned. It also identifies and continuously monitors performance indices to detect emerging trends and signs of decline in reliability performance and communicates performance results, trends, recommendations, and initiatives to the industry. NERC has established and staffed the position of Director of Event Analysis and Information Exchange, reporting directly to the Senior Vice President, to manage the Event Analysis Program.

Attention to the details of large-scale outages, disturbances, and near misses is crucial if NERC is to fulfill its mission of ensuring the reliability of the bulk power system. Gerstein's recent book *Flirting with Disaster – Why Accidents Are Rarely Accidental,* discussed earlier, is a gold mine of insights regarding the approach we need to take to ensuring the reliability of the bulk power system. After examining a number of recent disasters and catastrophes, Gerstein describes five "rules to live by":

- Understand the risks you face
- Avoid being in denial
- Pay attention to weak signals and early warnings
- Do not subordinate the chance to avoid catastrophe to other considerations
- Do not wait for absolute proof or permission to act

Gerstein did not include a chapter on the bulk power system, but such a chapter could well have been titled, "Blackouts — Why Cascading Outages Are Rarely Accidental."

As of May 31, 2009, the Event Analysis staff had reviewed or participated in the analysis of over 100 system events since NERC was certified as the ERO in July 2006. That number includes participation in seven detailed analyses of system disturbances that were led by Regional Entities and one event analysis led by NERC. Quarterly reports and/or similar presentations, including findings resulting from the analyses and information on disturbance trends, are provided to the NERC board, MRC, Planning Committee, Operating Committee, and the Transmission Owners and Operators Forum. Reports on the analyses of major system events and disturbances, including "lessons learned," are disseminated to the industry, some through the formal alerts process discussed in the preceding section of this report. Significant events that have been investigated and reported on by Event Analysis to date include the September 18, 2007 separation event in the MRO Region; the August 4, 2007 Midwest event; and the February 2008 Florida outage.

Improvement to the Reliability of the Bulk Power System

The Event Analysis Program has been effective in helping to improve the reliability of the bulk power system by analyzing major events occurring on the bulk power system, uncovering important information on risks and uncertainties potentially affecting the reliable planning and operation of the bulk power system, and disseminating information to the industry. Wider dissemination of more detailed information is restricted by issues of confidentiality and critical energy infrastructure information. Another significant impediment to the analysis and dissemination of information about system events is the absence of protocols or understandings between regulators on both sides of the international border governing the sharing of information about cross-border events. Due to the interconnected nature of the bulk power system, it is a foregone conclusion that cross-border system events will occur in the future. NERC encourages

FERC and the applicable governmental authorities in Canada to complete the work on such protocols as promptly as possible so NERC can share information more fully and more widely for the purpose of improving reliability.

In the future, NERC and the Regional Entities will work toward expanded distribution of redacted versions of post-event analyses to enhance the lessons learned from event analyses. As an example, a public version of the report on the September 18, 2007 disturbance in MRO was recently posted to the MRO Website.

Issues Identified by Stakeholders Concerning Event Analysis

Noting the backlog of system events being analyzed for which reports have not been published, stakeholders suggested a need for criteria to determine events to be analyzed (in order to reduce the number of occurrences that are analyzed), and recommended issuance of interim reports. Stakeholders also identified a need to improve the protocols for cross-border exchanges of information, and the sometimes-awkward relationship between the Event Analysis and Compliance Programs, which has contributed to delays in completing event analyses and reluctance of entities to provide information. The issues raised by stakeholder comments, and NERC's responses and specific proposed actions, are discussed in detail in **Attachment 2**.

G. NERC Has Developed Independent Short- and Long-Term Assessments of the Reliability and Adequacy of the Bulk Power System and Focused Attention on Emerging Issues Important to Reliability

One of NERC's long-standing activities, predating its certification as the ERO,[31] is the performance of annual long term and seasonal assessments of the reliability and adequacy of the North American bulk power system. NERC's continuation of this activity as the ERO is

[31] The first reliability assessment by NERC's predecessor organization was produced in 1970.

embodied in §215(g) of the FPA and in FERC's ERO regulations at 18 C.F.R. §39.11. As specified in §39.11, NERC is to provide its reports on the reliability and adequacy of the bulk power system to FERC and the Secretary of the U.S. Department of Energy, among other recipients. Section 800 of the NERC Rules of Procedure addresses NERC's obligations to independently and comprehensively assess and report on the reliability and adequacy of the North American bulk power system. NERC's activities in this area are the responsibility of its Reliability Assessment and Performance Analysis Program.

NERC prepares three reliability assessment reports each year: a long-term reliability assessment (LTRA) report, with a 10-year time horizon; an annual summer seasonal report; and an annual winter seasonal report. Beginning with the *2006 Long-Term Reliability Assessment*, NERC has identified and reported key findings and specific actions needed to be taken by bulk power system owners, operators, and users, governmental authorities, and NERC itself to improve the reliability of the bulk power system. These actions represent NERC's independent judgment of those steps that will help improve the reliability and adequacy of the North American bulk power systems. For example, NERC has identified, as emerging potential issues, (i) possible climate change legislation, (ii) large-scale integration of demand response, and (iii) the likely increase in development and use of renewable resources such as wind-powered generation, as emerging issues having both potential benefits as well as affecting the reliability and adequacy of the North American bulk power system.[32] In its *2007 Long-Term Reliability*

[32] *See* NERC's reports (i) *Special Report on Electric Industry Concerns on Reliability Impacts of Climate Change Initiatives*, issued Nov. 10, 2008 (**http://www.nerc.com/files/2008-Climate-Initiatives-Report.pdf**); (ii) *Data Collection for Demand-Side Management for Quantifying its Influence on Reliability*, issued December 2007 (http://www.nerc.com/docs/pc/drdtf/NERC_DSMTF_Report_040308.pdf) and (iii) *Special Report, Accommodating High Levels of Variable Generation*, issued April 16, 2009 (http://www.nerc.com/files/VGTF_Report_041609.pdf.).

Assessment and subsequent reports, NERC has reported on the progress being made in achieving each of the actions identified in the prior LTRA reports.

Additionally, in 2008, NERC, in concert with its stakeholders and Planning Committee, established and began implementation of a comprehensive Reliability Assessment Improvement Plan.[33] This plan focuses on creating a platform from which NERC, working with Regional Entities and industry volunteers, can address reliability considerations and increase the level of independence, granularity, transparency, and comprehensiveness of its reliability assessments, for example by assessing risks associated with emerging issues potentially affecting reliability, and developing multiple scenarios for the assessments. More generally, NERC continues to work on data collection and methodological improvements to the accuracy and usefulness of, and confidence in, its reliability assessments.

Improvement to the Reliability of the Bulk Power System

NERC's Reliability Assessment Program is contributing to maintaining and enhancing the reliability of the bulk power system by continuing to produce, on a regular schedule, long-term and short-term (seasonal) assessments of the reliability and adequacy of the North American bulk power system. These reports provide the electric industry, governmental authorities, and others with realistic assessments of reliability and adequacy, prepared by a respected, independent source. NERC is providing the foundation for governmental authorities and the industry to recognize and respond to such issues in a proactive, forward-looking basis so as to maintain and enhance the short-term and long-term reliability of the bulk power system. NERC does this by: (1) identifying emerging issues for the reliability and adequacy of the bulk

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[33] *Improvements on Long-term and Seasonal Reliability Assessment*, issued October 2008, (http://www.nerc.com/docs/pc/drdtf/NERC_DSMTF_Report_040308.pdf)

power system, (2) issuing recommendations and actions that may need to be taken or considered by policymakers, regulators, and industry to address these issues, and (3) reporting on progress in responding to emerging issues. In addition, NERC continues to identify and study, with engaged industry experts, emerging issues that can affect bulk power system reliability. These Special Reliability Assessments develop an understanding of changing characteristics of the bulk power system, establish changes in planning, design, and operations, identify reliability standards gaps or needs, and proactively provide industry recommendations, all to ensure the industry is prepared to maintain bulk power system reliability.

Issues Identified by Stakeholders Concerning Reliability Assessments

Commenters raised a number of concerns with the Reliability Assessment Program, including:

- NERC should avoid taking policy advocacy positions in its reliability assessments.
- Some NERC conclusions presented in its reliability assessments are not based on well-researched information or on data provided by the Regional Entities but rather on unfounded assumptions.
- The amount of data being collected or proposed to be collected by NERC or by regulatory agencies through NERC is excessive and burdensome.
- NERC continues to assume that vertically-integrated utilities can provide data for all generation entities within their service areas, including merchant generators, which leaves holes in the data-gathering process for reliability and adequacy assessments.
- There is a lack of a clear and transparent process to incorporate NERC comments into the Regional Entity assessments, which results in a disconnect between Regional Entity assessments and the NERC assessments.
- The assessment data should be presented by Interconnection.
- NERC and the Regional Entities should evaluate expanding the LTRAs beyond the present 10-year horizon, which would support long-term planning of a backbone transmission system.

These and other issues raised in the stakeholder comments, and NERC's analyses, responses and specific actions are discussed in detail in **Attachment 2**.

H. NERC Has Developed and Provided Useful Metrics and Benchmarks for Measuring Reliability Performance

Historically, collection, analysis, and dissemination of industry performance data, and analysis and dissemination of performance metrics and benchmarks, was one of NERC's significant activities, predating its certification as the ERO. Since being certified as the ERO, NERC has taken on the role of being an independent source of reliability performance information, thereby fulfilling one of the recommendations in the April 2004 U.S.–Canada Power System Outage Task Force report on the August 2003 Northeast blackout.[34] As the ERO, NERC has worked to expand its programs and activities in this area and to bring greater attention to the value of performance metrics and benchmarks for the reliable performance of the bulk power system for owners, operators and users and other interested entities. The purpose of NERC's performance metrics and benchmarking activities is to identify, understand, and wherever possible facilitate, adoption of best practices or techniques that will help improve reliability performance over time. NERC's performance metrics and benchmarking activities are the responsibility of its Reliability Assessment and Performance Analysis Program.

For many years, and continuing today, NERC has maintained the Generating Availability Data System (GADS) to collect and make available data on power plant and generating equipment availability and outage causes. The GADS program provides an independent source of generating availability performance information for the generation sector of the bulk power system. Since being certified as the ERO, NERC has commenced development of the Transmission Availability Data System (TADS) to collect data from all transmission owners on the Compliance Registry. The data will be used to measure and track the historical availability

[34] U.S.-Canada Power System Outage Task Force, *Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*, April 2004, at 147-48 (Recommendation 10).

performance of transmission circuits and equipment in order to provide a comparable, independent source of transmission availability performance information for the transmission sector of the bulk power system, similar to the information GADS provides for the generation sector. TADS data will be used for outage cause and event analysis, and thereby help to improve planning and operations, resulting in improved transmission system performance. Ultimately, GADS and TADS data and information may be used in conducting combined generation-transmission probability reliability analyses.

Going forward, as more data can be collected for the period following NERC's certification as ERO and the adoption of mandatory reliability standards, NERC intends to use performance metrics and benchmarking to measure the effectiveness of mandatory reliability standards and of the compliance enforcement program. NERC has developed three major indices as reliability performance metrics[35] to judge the performance of the bulk power system:

- Reliability Performance Gap: designed to measure how far the system is from expected performance under contingencies (dynamic conditions).
- Adequacy Gap: designed to measure the capacity and energy shortage from expected adequacy level under steady state conditions.
- Violation Index: designed to measure the reliability improvement from compliance with mandatory reliability standards.

These three indices are intended to capture and represent many complex reliability parameters in easy-to-understand reliability performance metrics.[36]

In a letter to industry stakeholders dated March 31, 2009, the President of NERC highlighted important bulk power system reliability performance data obtained from NERC's

[35] NERC Staff White Paper, *Towards Ensuring Reliability: Reliability Performance Metrics*, December 2007, available at http://www.nerc.com/docs/pc/rmwg/Reliability_Metrics_white_paper.pdf.

[36] The trends of Reliability Performance Gap and Adequacy Gap can be viewed at http://www.nerc.com/page.php?cid=4|37. The Violation Index is currently at data validation stage.

metrics and benchmarking activities over the 2002–2008 period.[37] This letter reported the numbers of disturbance events of different severities occurring each year on the bulk power system, and identified significant causes including misoperations of protection systems and controls, equipment failures, vegetation contact with transmission lines, and human error. The letter also provided information on numbers of energy emergency alerts and transmission loading relief requests.[38]

Improvement to the Reliability of the Bulk Power System

NERC's performance metrics and benchmarking activities have helped and will continue to help to maintain and improve the reliability of the bulk power system by focusing attention on reliability trends and causes of unreliability. The metrics and benchmarking program is a performance-oriented, results-driven reliability enhancement activity that enables bulk power system owners, operators, and users to identify and address existing and emerging reliability issues. By defining, collecting data for, and disseminating performance metrics and indices, NERC uses (and will continue to use) historic performance data to identify trends in and root causes of unreliable bulk power system performance.

Issues Identified by Stakeholders Concerning Performance Metrics and Benchmarking

Issues raised in stakeholders' comments concerning NERC's metrics and benchmarking activities included the following:

- A defined process is needed for implementation of Section 1600 of the Rules of Procedure addressing data collection, including the role of owners, operators, and users in determining need.
- Metrics (for which data must be collected from entities) should be justified based on being benchmarks critical to bulk power system reliability (rather than just "good to have) before data collection starts.

[37] http://www.nerc.com/fileUploads/File/News/benchmarking-letter_31Mar09.pdf

[38] http://www.nerc.com/fileUploads/File/News/benchmarking_letter_31Mar09.pdf.

- Before starting data collection for new metrics/benchmarks, NERC should see if existing Regional Entity, ISO, or RTO metrics satisfy the need for the proposed new NERC metric.
- NERC can do a better job of disseminating metrics information so that meaningful metrics can be used for benchmarking performance and improving the reliability of the bulk power system.

The stakeholders' comments, and NERC's responses and specific actions, are discussed in **Attachment 2**.

I. NERC is Taking an Industry Leadership Role in Critical Infrastructure Protection

Prior to certification as the ERO, NERC played an important role in critical infrastructure protection (CIP) activities for the electric industry, including serving as the coordinator of the Electricity Sector Information Sharing and Analysis Center (ES-ISAC) established pursuant to Presidential Decision Directive 63. NERC was designated coordinator of the ES-ISAC by the U.S. DOE, and continues to perform this responsibility. As the ERO, NERC's objective is to perform a leadership role in CIP for the electricity sector, and to coordinate electric industry activities to promote critical infrastructure protection of the bulk power system in North America, so as to reduce vulnerability and improve mitigation and protection of the electricity sector's critical infrastructure. In recognition of the increased importance and urgency of CIP to the bulk power system in particular, in 2008 NERC concentrated its CIP activities into a dedicated, core program area within Situational Awareness and Infrastructure Security, headed by a Chief Security Officer (CSO) reporting directly to the NERC CEO. The CSO is a Vice President of NERC responsible for the overall Situational Awareness Program and is a recognized CIP expert. Additionally, NERC has created and staffed the position of Manager of Critical Infrastructure Protection.

NERC's CIP activities include facilitating the industry's development and revision of CIP standards, overseeing the Regional Entities' CIP compliance and enforcement activities, working (through the NERC Critical Infrastructure Protection Committee) on the creation of security guidelines, and coordination with governmental authorities. Eight CIP standards (CIP-002 through CIP-009) were developed through NERC's standards development process, submitted to FERC, and approved by FERC in Order No. 706 issued in January 2008. The eight CIP standards are being implemented by registered entities pursuant to a phased implementation schedule with specified dates by which registered entities must reach the compliance stages of "Begun Work," "Substantially Compliant," "Compliant," and "Auditably Compliant." There are four different sets of milestone implementation dates that are applicable to four identified segments of registered entities. By December 31, 2009, most registered entities to which the CIP standards apply must have reached at least the "Compliant" stage. Beginning in 2008, registered entities are required to self-certify to their Regional Entities, every six months, their compliance status under the implementation schedule applicable to the registered entity. Compliance audits conducted by Regional Entities after June 30, 2009, will include the CIP standards in the standards covered in the audits. The NERC Compliance Monitoring and Enforcement Program and Situation Awareness and Infrastructure Security Program are working together to provide training to compliance program staffs on the specialized knowledge needed to assess, investigate, audit, and evaluate compliance with the CIP standards.

Order No. 706 specified a number of revisions and improvements to the CIP standards, which are being developed by standard drafting teams as projects in NERC's 2009–2011 Reliability Standards Development Plan. The Version 2 CIP Standards (CIP-002 through CIP-009) were successfully balloted in April 2009 and approved by the NERC Board of Trustees on

May 6; the revised standards were filed with FERC on May 22, 2009, and are now awaiting FERC approval. The Version 2 CIP Standards address a number of the directives FERC gave in Order No. 706.

NERC's activities as ES-ISAC coordinator are part of NERC's Situation Awareness and Infrastructure Security Program. The ES-ISAC has the responsibility to promptly disseminate threat indications, analyses, and warnings, together with interpretations, to assist electricity sector participants in taking protective actions. As the ES-ISAC coordinator, NERC gathers, disseminates, and interprets security-related information for the electricity sector. The ES-ISAC also works closely with the U.S. DHS and Public Safety Canada to ensure the critical infrastructure protection functions are coordinated with the United States and Canadian governments. The NERC board has created the Electricity Sector Steering Group (ESSG) to provide executive-level guidance and strategic direction for the ES-ISAC.

NERC has begun other initiatives to improve its ability to lead CIP efforts for the electricity sector. For example, during 2009 NERC is initiating a cyber risk preparedness assessment program and comprehensive and continuous risk assessments for the bulk power system. The cyber risk preparedness assessments will focus on investigating existing capabilities to prevent, detect, respond to, and limit the potential damage from, existing and emerging cyber attack techniques, with the objective of understanding the preparedness of both individual entities and existing processes and mechanisms to ensure reliability of the bulk power system while under a cyber attack. It will provide a benchmark and identify both valuable practices and gaps to be addressed. The foundation provided by the cyber risk preparedness assessments will be built upon by the commencement of formal, re-occurring assessments of cyber security threats facing the bulk power system. NERC will establish a protocol with DHS, DOE, FERC, and their

Canadian counterparts to ensure comprehensive cyber security threat analysis and risk assessment is available to NERC from a consolidated government voice, with bulk power system owners, operators, and users able to participate directly.

At present, no department or agency in the United States Federal government has the authority to order emergency action for the bulk power system in the face of an imminent cyber security threat. NERC believes legislative changes are needed to provide that authority. NERC's standards and communications protocols can go only so far. NERC will make use of industry expertise and go as far as it can in dealing with such potential threats, but NERC does not believe it has the tools to completely close the gap. For this reason, NERC is supporting legislative changes that would provide the federal United States Federal government authority to act in the face of imminent cyber security threats.[39]

Improvement to the Reliability of the Bulk Power System

NERC's CIP activities are improving, and will continue to improve, the reliability of the bulk power system. As the CIP standards implementation schedule is completed, the industry's compliance with, and NERC and the Regional Entities' monitoring and enforcement of, the CIP standards will improve the security of the bulk power system against both malicious cyber attacks and unintended breakdowns and other occurrences. By continuing to serve as coordinator of the ES-ISAC, to develop and use its industry alerts program to disseminate important cyber security information to the relevant industry recipients, and to act as the interface with United States and Canadian governmental authorities responsible for cyber security, NERC is providing, and will continue to provide, a single point of information,

[39] *See, e.g.*, the testimony presented by NERC CEO Rick Sergel before the Senate Committee on Energy and Natural Resources on May 7, 2009, concerning draft legislation that would add new §224, "Critical Energy Infrastructure," to the FPA (available at http://www.nerc.com/fileUploads/File/News/Testimony_050709.pdf)

assessment and analysis for owners, operators, and users of the bulk power system to assist them in recognizing emerging cyber threats and maintaining state-of-the-art cyber security protections.

Issues Identified by Stakeholders Concerning Critical Infrastructure Protection

Stakeholders identified a number of issues and recommendations concerning NERC's CIP activities, including the following:

- Direction for implementation of CIP standards should be centralized at NERC. A NERC-sponsored nationwide approach will be more efficient and ensure consistency. Allowing the Regional Entities to engage in their own efforts without stronger direction can result in an inconsistent set of approaches to enforcing the CIP standards.
- More timely development of guidance on implementation of CIP standards is needed, with greater reliance placed on NERC technical committees and working groups. Information provided to date has not been as helpful as it could be. Among other concerns, NERC has not produced guidelines for an appropriate risk-based methodology for identifying Critical Assets/Critical Cyber Assets (CIP-002).
- There should be a fast-track process for interpretation requests relating to CIP standards.
- Cyber security advisories are insufficiently targeted to functional elements of the industry and lack detail.

The stakeholder comments concerning NERC's CIP activities, and NERC's responses and specific actions, are discussed in **Attachment 2**.

J. NERC Continues to Play an Important Role in Situation Awareness and Infrastructure Security as Coordinator of the ES-ISAC and Through Other Programs and Initiatives

Through its Situation Awareness and Infrastructure Security Program, NERC monitors conditions on the bulk power system and provides leadership, coordination, technical expertise and assistance to the electric industry in responding to system events. While the immediately preceding section of this report summarized the important role of Situation Awareness and Infrastructure Security as the NERC program responsible for CIP activities, the scope of the

Situation Awareness and Infrastructure Security Program is not limited to CIP. Other activities of the Situation Awareness Program include maintaining real-time situation awareness of conditions on the bulk power system, notifying the industry of major bulk power system events that have occurred in one area and have the potential to impact reliability in other areas, maintaining and strengthening high-level communications, coordination and cooperation with governmental authorities regarding real-time conditions, and facilitating information exchange and coordination among reliability service organizations.

Similarly, the activities of the ES-ISAC, for which (as described above) NERC serves as coordinator, are not limited to CIP and cyber security issues and events, but rather extend to all events threatening the security of the bulk power system, including events such as hurricanes, floods, earthquakes, and wildfires. As noted earlier, it is the job of the ES-ISAC to promptly disseminate threat indications, analyses, and warnings, together with interpretations, so electricity sector participants have the information necessary to take appropriate protective actions. The ES-ISAC also provides relevant information to government agencies for their use in analyzing potential threats and patterns of suspicious activity. This includes sharing information with the Nuclear Regulatory Commission regarding events or situations on the bulk power system that have the potential to affect the reliability of off-site power to nuclear plants.

NERC also provides and/or manages a number of situation awareness tools that are used by, or provide information to, bulk power system owners, operators, and users. These tools, which are described in detail in **Attachment 1**, are generally regarded as valuable and informative by industry participants. NERC continues to support, enhance and develop next-generation bulk power system reliability tools. A principal ongoing project of the Situation Awareness and Infrastructure Security Program is the North American SynchroPhasor Initiative

(NASPI), initiated in early 2008. The installation and use of synchrophasors and phasor measurement units throughout the North American bulk power system will improve monitoring of the bulk power system and provide system operators with greater situation awareness, allow for earlier detection of disturbances on the Interconnections and more rapid investigation of disturbances after they have occurred, and provide operators with tools to better ensure the reliability of the bulk power system.[40]

Improvement to the Reliability of the Bulk Power System

NERC's Situation Awareness and Infrastructure Security Program activities have improved, and will continue to improve, the reliability of the North American bulk power system. The Situation Awareness Program, including the ES-ISAC, serves as a critical focal point for maintaining real-time situation awareness of conditions on the bulk power system and for collecting and disseminating to owners, operators and users information on events threatening the reliability of the bulk power system, as well as providing communications and coordination with relevant governmental authorities. NERC's existing reliability tools are valuable resources employed by operators of the bulk power system, and NERC continues to research, analyze, and support the development of new reliability tools through projects such as the NASPI. NERC recognizes the importance of the reliability tools available today and strongly believes that new technology will provide even better ways to monitor and manage the reliable operation of the bulk power system in the future.

[40] There are already significant numbers of PMUs in place in North America, which report in real time to their local networks. In some areas, such as those served by Bonneville Power Administration, Pacific Gas & Electric, Southern California Edison, the Western Area Power Administration, and the CAL-ISO, the real-time networks of these entities are linked to allow them to use the WECC Operations Network to transfer real-time phasor data.

Issues Identified by Stakeholders Concerning Situation Awareness/Infrastructure Security

Issues raised by stakeholder comments concerning NERC's Situation Awareness and Infrastructure Security Program included the following:

- Real-time situation awareness is outside of NERC's scope. It is duplicative of the activities of Reliability Coordinators, which provide useful and timely information on system conditions to owners, operators, and users during normal and off-normal or emergency conditions; adds expense; and may actually interfere with system reliability; and is not helpful or appropriate.
- Adequate processes and procedures have not been established to define acceptable communications protocols during system events.
- The legacy NERC Reliability Toolbox (IDC, ISN, electronic tagging, SDX, RCIS, book of flowgates, NERC factor viewer, and RC hotline) are strongly supported by bulk power system owners, operators, and users and should be continued.

The stakeholder comments and NERC's responses and specific actions are discussed in detail in **Attachment 2**.

III. NERC CONTINUES TO MEET THE CERTIFICATION CRITERIA OF 18 C.F.R. §39.3(b)

A. NERC Has the Ability to Develop and Enforce, Pursuant to 18 C.F.R. §39.7, Reliability Standards that Provide for an Adequate Level of Reliability of the Bulk Power System

Since being certified as the ERO, NERC has developed, and FERC has approved, 95 continent-wide reliability standards, 94 of which are currently in effect. Mandatory reliability standards are developed through NERC's American National Standards Institute-accredited, FERC-approved, and stakeholder-driven reliability standards development process. Reliability standards are developed by teams of industry technical experts and, after public comment and revision, must be approved by a ballot pool comprising interested entities, adopted by the NERC board, and approved by FERC. The NERC Rules of Procedure, including the NERC *Reliability Standards Development Procedure*, establish a rigorous set of technical, content, and format requirements that are designed to produce technically excellent, consensus-based reliability

standards. The mandatory standards NERC has developed and FERC has approved encompass a broad range of reliability topics. NERC continues to identify the need for new standards and revisions to existing standards, and to prioritize the development of new and revised standards, through its annual three-year Reliability Standards Development Plans.

NERC and the Regional Entities have developed and implemented a comprehensive program for monitoring and enforcing compliance with the mandatory reliability standards. NERC and the Regional Entities have identified and registered over 1,800 bulk power system owners, operators, and users, according to the reliability function(s) for which each such entity is responsible, in the NERC Compliance Registry. Monitoring and enforcement of compliance with mandatory reliability standards is conducted by NERC and the Regional Entities pursuant to the provisions of the uniform Compliance Monitoring and Enforcement Program (CMEP) and the individual Regional Entity programs. Registered entities' compliance with applicable reliability standards is monitored through eight compliance processes, including compliance audits, spot checks, self-certifications, and compliance violation investigations.

NERC and the Regional Entities identify alleged violations of reliability standards, notify the registered entity of the alleged violation, and process the alleged violation to final resolution, through the due process procedures established in the uniform CMEP. Submission and completion by the registered entity of an acceptable mitigation plan, to remedy the violation and prevent its recurrence, are essential steps in the compliance process. NERC and the Regional Entities have developed substantial compliance program staffs, and a significant portion of their staffing and resources is devoted to compliance monitoring and enforcement.

B. NERC Has Established Rules that Assure its Independence of Users, Owners and Operators of the Bulk Power System While Assuring Fair Stakeholder Representation in the Selection of its Directors and Balanced Decision-Making in Any ERO Committee or Subordinate Organizational Structure

NERC's Bylaws provide for governance by a Board of Trustees comprising ten independent trustees plus the President of NERC.[41] Pursuant to the Bylaws, trustees are elected by a two-thirds vote of the Member Representatives Committee,[42] which is a committee of representatives of the members of NERC who are selected by the members in the respective membership sectors established by the Bylaws.[43] NERC's Bylaws and Rules of Procedure require the board to appoint, in a manner that is open, inclusive, and fair, NERC committees that are representative of members, other interested parties, and the public, that provide for balanced decision making, and that include persons with outstanding technical knowledge and experience.[44]

Appointments to NERC committees are to provide the opportunity for an equitable number of members from the United States and Canada on each committee in approximate proportion to each country's percentage of total Net Energy for Load (NEL).[45] Further, except for those committees and other subgroups organized on other than a membership-sector basis (in cases where sector representation will not bring together the necessary diversity of opinions, technical knowledge, and experience in the relevant subject area), the composition of committees

[41] NERC Bylaws, Article III, §1.

[42] NERC Bylaws, Article III, § 6.

[43] NERC Bylaws, Article VIII, §§ 2 and 3.

[44] NERC Bylaws, Article VII, §1; NERC Rules of Procedure §1300.

[45] NERC Rules of Procedure §1302.

must ensure that no two stakeholder sectors are able to control the vote on any matter, and no single sector is able to defeat a matter.[46] The NERC Rules of Procedure provide that NERC standing committees may establish and appoint persons to subgroups based on the principles just described.[47]

C. NERC Has Established Rules That Allocate Equitably Reasonable Dues, Fees and Charges Among End-Users for All Statutory Activities

In accordance with the NERC Bylaws, Section 1100 of the Rules of Procedure, and the delegation agreements between NERC and the Regional Entities, and as approved by FERC, the annual funding requirements for the statutory activities of NERC and the Regional Entities are allocated on the basis of NEL among, and collected through assessments to, load-serving entities (LSEs) and their designees in the U.S., Canada, and Mexico. NEL is used to allocate NERC's statutory funding requirement (i) among the eight Regions, (ii) among the United States, Canada, and Mexico within each Region where applicable, and (iii) among LSEs and designees within each Region. The statutory funding requirements of the Regional Entities are allocated based on NEL, and collected through assessments on, the LSEs and designees within each Region.[48]

D. NERC Has Established Rules that Provide Fair and Impartial Procedures for Enforcement of Reliability Standards Through Imposition of Penalties in Accordance with 18 C.F.R. §39.7, Including Limitations on Activities, Operations, or Other Appropriate Sanctions or Penalties

The compliance monitoring and enforcement program that NERC and the Regional Entities have developed and implemented, as discussed under the first criterion above, provides

[46] NERC Rules of Procedure §1302.

[47] NERC Rules of Procedure §1305.

[48] As noted in **Attachment 1** and discussed in NERC's 2008 and 2009 Business Plan and Budget filings, a different procedure is used with respect to the allocation of certain NERC and NPCC compliance program costs to Ontario and Québec. *See North American Electric Reliability Corporation, Order on Compliance Filing*, 128 FERC ¶ 61,025 (2009) (July 16, 2009 Order), at PP 32-42.

fair and impartial procedures for the enforcement of reliability standards. The compliance program is embodied in Section 400 of the NERC Rules of Procedure and Appendix 4C, the uniform CMEP. These rules include provisions for avoidance of conflicts of interest on the part of compliance personnel conducting compliance monitoring processes, provisions for notice to registered entities and opportunities to respond to compliance monitoring processes, and provisions allowing registered entities to engage in settlement discussions with NERC or the Regional Entity concerning notices of alleged violations, proposed penalties or sanctions, and mitigation plans. In addition, Attachment 2, Hearing Procedures, to the uniform CMEP contains detailed due process procedures for hearings before the Regional Entity hearing body, when requested by the registered entity, concerning a disputed notice of alleged violation and/or proposed penalty or sanction, disputed mitigation plan provisions, or disputed Remedial Action Directive. Appeals from adverse decisions of the Regional Entity hearing body may be taken to NERC, to be heard and decided by the NERC Board of Trustees Compliance Committee.

NERC has also established rules for the imposition and determination of financial penalties to be imposed on registered entities for violations of reliability standards. The uniform CMEP sets forth provisions for the issuance of notices of alleged violations and notices of proposed penalty or sanction, including the required content of the notice, and for the processing of the alleged violation through confirmation or settlement and imposition of any penalty, concluding with the filing of the notice of confirmed violation and penalty or sanction, or the settlement entered into by the registered entity, with FERC, in accordance with §39.7(d), (e) and (g) of the FERC's ERO regulations.

NERC's rules for determining the amount of penalties are set forth in Appendix 4B, *Sanction Guidelines*, to the Rules of Procedure. The NERC *Sanction Guidelines* have been

approved by FERC in accordance with 18 C.F.R. §39.7(g). The *Sanction Guidelines* provide for the setting of a base-penalty amount range for a violation, based on the VRF associated with the requirement violated and the VSL associated with the violation. The final penalty amount is then determined based on the presence of one or more additional circumstances listed in the *Sanction Guidelines*, such as the registered entity's compliance history, whether the violation was self-reported by the registered entity, whether the violation was intentional or represented an economic choice to violate, the presence (or absence) and quality of the registered entity's internal compliance program, the time horizon of the violation, the registered entity's ability to pay, and other factors. The penalty determination provisions of the *Sanction Guidelines* satisfy the requirement of §215(e)(6) of the FPA and 18 C.F.R. §39.7(g) that any penalty imposed for a violation of a reliability standards shall bear a reasonable relation to the seriousness of the violation and shall take into consideration the efforts of the owner, operator, or user to remedy the violation in a timely manner.

E. NERC Has Established Rules That Provide Reasonable Notice and Opportunity for Public Comment, Due Process, Openness, and Balance of Interests in Developing Reliability Standards and Otherwise Exercising its Duties

NERC has established and follows rules that provide for reasonable notice and opportunity for public comment, due process, openness, and balance of interests in developing reliability standards. These requirements are embodied in Article IX, §2 of the NERC Bylaws, in Section 300 of the NERC Rules of Procedure, and in the *Reliability Standards Development Procedure*. The standards development process is overseen by the NERC Standards Committee, which comprises two members from each of the ten industry segments in the Registered Ballot Body. If a proposal for a new or revised standard, which may be submitted by an industry stakeholder, generates sufficient industry interest based on a public comment period, the

proposed new or revised standard is developed by a standard drafting team comprising industry volunteers with applicable subject matter expertise. Drafts of new or revised standards are posted for public comments, which must be addressed by the drafting team. After completing the drafting and public comment processes, a proposed new or revised standard is balloted by the ballot pool organized for that standard. Approval of a proposed standard or revision to a standard requires both (i) a quorum, which is established by at least 75 percent of the members of the ballot pool submitting a response with an affirmative vote, a negative vote, or an abstention, and (ii) affirmative votes by a two-thirds majority of the weighted-segment votes.

Further, as described in §II.B above, each of the eight Regional Entities has developed and adopted a Regional reliability standards development procedure, which in each case has been approved by NERC and by FERC. NERC approved each Regional reliability standards development procedure only after determining it met a comprehensive set of 34 essential attributes for standards development procedures.

Other rules of NERC, including its Bylaws, provide for reasonable notice and opportunity for public comment, due process, openness, and balance of interests in the exercise of NERC's other duties, including election of trustees; proposal and adoption of amendments to the Bylaws; meetings and calls for action without a meeting of the board and of the MRC; preparation of NERC's annual business plan and budget; and selection and appointment of members of NERC standing committees and other committees and subgroups.

F. NERC Has Established Rules That Provide Appropriate Steps to Gain Recognition in Canada and Mexico

NERC's Certificate of Incorporation states that one of NERC's corporate purposes is "to act as the electric reliability organization for the United States as certified by the [Commission] and for Canada and Mexico as recognized by applicable governmental and regulatory authorities

in such countries, all pursuant to law." NERC, working with the applicable cross-border Regional Entities, has made significant progress in obtaining recognition in Canada, and its efforts in this regard are continuing. Unlike the United States, Canada does not have a "FERC-equivalent" at the federal level with plenary jurisdiction over electricity matters. Under the Canadian Constitution, regulation of electricity is primarily within the jurisdiction of each province. The Canadian National Energy Board (NEB) has jurisdiction only over international power lines (i.e., those extending across the Canada-United States border). Therefore, it has been necessary for NERC to devote significant efforts to developing relationships with and, where possible under provincial law, to obtain recognition as the ERO by, the relevant authorities in each of the eight Canadian provinces that include the interconnected North American bulk power system.[49] In some provinces, there is no legislative basis for imposition of mandatory reliability standards and/or recognition or designation of an "ERO." In these provinces, NERC and the applicable cross-border Regional Entity are working to obtain recognition of mandatory reliability standards and/or recognition as the ERO through memoranda of understanding (MOU) with the appropriate provincial authorities.

As of July 1, 2009, NERC has been recognized as the ERO in the provinces of Alberta, Manitoba, New Brunswick, and Ontario, and has entered into agreements or memoranda of understanding with the appropriate provincial authorities in New Brunswick, Nova Scotia, Québec, and Saskatchewan defining the role of NERC and the Regional Entity in the province with respect to reliability matters. NERC has also signed a memorandum of understanding with the NEB. Reliability standards have been made mandatory in Alberta, British Columbia, Manitoba, New Brunswick, Ontario, and Saskatchewan. Statutory bases for mandatory

[49] Alberta, British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario, Québec, and Saskatchewan.

reliability standards exist in Nova Scotia and Québec, and NERC expects reliability standards to become mandatory and enforceable in these jurisdictions over the course of the next several months. NERC and the applicable cross-border Regional Entities continue to work with the appropriate entities and authorities in these latter two provinces to secure adoption of mandatory reliability standards, to be enforceable either by NERC or an appropriate local authority or entity. The NEB also is pursuing a change to its transmission regulation that would make reliability standards mandatory for holders of permits for international power lines.

No legislative authority currently exists in Mexico for a regulatory authority to recognize NERC as the "ERO" or exercise regulatory authority over reliability matters. However, the Comisión Federal de Electricidad (CFE) has responsibility for the reliable operation of the electric system in Mexico. CFE is a signatory to the WECC Reliability Management System agreement with respect to the portion of the grid in Baja California Norte that is part of the Western Interconnection.

IV. NERC HAS ESTABLISHED APPROPRIATE STRUCTURAL AND ORGANIZATIONAL PROCESSES, PROCEDURES, AND RELATIONSHIPS CONSISTENT WITH ITS ROLE AS THE ERO

A. NERC Has Established and Maintained an Appropriate and Effective Independent Governance Structure

As required by §215(c)(2)(B)(i) of the FPA and §39(b)(2)(i) of FERC's regulations, NERC has established and maintained a governance structure that is independent of owners, operators, and users of the bulk power system while assuring fair stakeholder representation in the selection of its directors (trustees). NERC's predecessor organization, the North American Electric Reliability Council, had moved to a fully independent Board of Trustees several years prior to passage of the Energy Policy Act of 2005. Continuing this governance structure, NERC's Bylaws provide that its independent trustees shall not be officers or employees of

NERC, members of or officers, directors, or employees of members of NERC, or officers, directors, or employees of any entity that would reasonably be perceived as having a direct financial interest in the outcome of board decisions; and shall not have any other relationships that would interfere with the exercise of independent judgment in carrying out the responsibilities of a trustee.[50]

Candidates for election as trustees are nominated by a nominating committee consisting of trustees whose terms are not currently expiring, at least three members of the MRC, and other members as selected by the board.[51] Trustees are elected by a two-thirds vote of the MRC, which comprises representatives of the members of NERC chosen by the respective membership sectors.[52] In each election of trustees, the nominated candidates have been elected by the required two-thirds vote of the MRC; in no case was a negative vote cast.

NERC has been successful in attracting high quality trustees to serve on its board. The backgrounds of NERC trustees have included service as senior officials in the United States and Canadian federal governments; service as a state regulatory commission chair, consumer advocate and President of NARUC; leadership positions in the military; leadership positions with Regional reliability organizations; academic and research positions in the United States and Canada; and senior management positions with investor- and government-owned utilities, financial services firms, engineering firms, consulting firms, and other infrastructure-oriented companies, in both the United States and Canada. Four of the ten current independent trustees hold doctorates. Five other current independent trustees hold a M.B.A. or other Master's

[50] NERC Bylaws, Article III, §2a. In addition to the 10 independent trustees, the NERC Board also includes the President of NERC. Bylaws, Article III, §1.

[51] NERC Bylaws, Article III, §5.

[52] NERC Bylaws, Article III, §6 and Article VIII, §2.

degrees, and two current independent trustees hold law degrees. The composition of the board has consistently satisfied the objective stated in the Bylaws "that the board as an entity reflects expertise in the areas of technical electric operations and reliability, legal, market, financial, and regulatory matters, and familiarity with regional system operation issues; and reflects geographic diversity."[53]

Further, many of NERC's independent trustees have been willing to serve multiple terms, thereby enhancing the overall experience and expertise of the board with respect to the issues NERC faces. At this time, the NERC board includes eight independent trustees who have served since prior to NERC's certification as the ERO. The Chairman of NERC's Board at the time NERC was certified as the ERO served in this position for NERC and its predecessor from 1999 until electing not to stand for re-election upon expiration of his term in 2009. Upon the retirement of the former Chairman, a smooth transition in leadership occurred to the current Chairman, who has served as a trustee of NERC and its predecessor since 1999.

B. NERC and the Regional Entities Have Developed Effective Business Planning and Budgeting, Accounting and Financial Reporting, and Assessment Processes

NERC and the Regional Entities have developed a comprehensive process for developing their annual business plans and budgets, which must be submitted to FERC in late August of each year for approval for the following year. While the business planning and budgeting processes, and the format and content of the annual business plans and budgets that are submitted to FERC, have evolved (with the FERC's guidance) over the period since ERO certification in 2006, the NERC and Regional Entity business plans and budgets now present information in a consistent format that enables comparison of each entity's proposed budget to its prior year

[53] NERC Bylaws, Article III, §5.

budget and its actual results. The business plans and budgets also facilitate comparisons among the Regional Entities, as well as explaining the activities and initiatives planned for each direct statutory program area and indirect (overhead) function of NERC and each Regional Entity. The business planning and budgeting processes include opportunities for review and input by the members of NERC and the Regional Entities.[54]

NERC and the Regional Entities have found the development and refinement of the annual business planning and budgeting process to its current state to be extremely useful activities, not just to satisfy a FERC requirement, but as a rigorous exercise that forces the organizations to develop plans and objectives, focus priorities, examine uses of resources, and make hard decisions about emphasis or de-emphasis of programs and the most efficient and effective allocation of resources. The annual business planning and budgeting process focuses management attention on the programs and initiatives of NERC and the Regional Entities that are succeeding to meet their purposes and objectives and those that are not. The process drives the managements of NERC and the Regional Entities to make important decisions as to what programs and initiatives are effective and should be continued, what programs and initiatives are less effective and require greater resources and attention to be effective, and what programs and initiatives may warrant reduced levels of resources.

NERC has also developed a chart of NERC accounts and, working in cooperation with the Regional Entities, has developed processes and procedures by which the Regional Entities report, and NERC tracks, the Regional Entity's actual expenditures against their approved budgets. Each Regional Entity submits an interim financial report to NERC each quarter,

[54] *See, e.g.*, Article XIII, §4 of the NERC Bylaws, requiring consultation with the MRC in the preparation of the NERC budget as well as posting of the proposed budget for a 30-day period to allow for comment by the members and standing committees of NERC.

thereby enabling NERC to monitor the Regional Entity's actual expenses against budget throughout the year. The Regional Entities also submit audited financial statements to NERC for each year. Further, each Regional Entity that engages in programs and functions in addition to its statutory functions delegated from NERC has been required to develop systems and procedures for separating and accounting for statutory and non-statutory funding and expenses, to ensure that statutory funds (i.e., funds obtained through the assessments to LSEs) are not used to pay for non-statutory activities.[55] Finally, NERC and the Regional Entities have also adopted a consistent set of records retention policies, in accordance with FERC directives.[56]

A further benefit of the development of the NERC and Regional Entity business planning and budgeting processes (and of their accounting and financial reporting systems) has been the growth of the finance and accounting staffs at these entities. NERC and the Regional Entities have increased the staffing levels and expertise of their finance and accounting staffs since NERC was certified as the ERO in 2006 and it and the Regional Entities developed their first business plans and budgets for submission to FERC.

NERC and the Regional Entities obtain the funding for their statutory activities in the United States through assessments to LSEs and their designees in the United States With the exception of certain compliance program costs applicable to Canadian provinces in the NPCC

[55] To date, NERC and two of the Regional Entities (SERC and Reliability*First*) have not engaged in any non-statutory activities. MRO had engaged, to a limited extent, in non-statutory activities for which it was compensated by a third party on a full cost-reimbursement basis as part of a transition plan through December 31, 2008. Beginning January 1, 2009, MRO has no non-statutory activities.

[56] *See North American Electric Reliability Corporation, Order Conditionally Accepting 2008 Business Plan and Budget of the North American Electric Reliability Corporation and Ordering Compliance Filings*, 121 FERC ¶61,057, at PP 81-82; *North American Electric Reliability Corporation, Order Conditionally Accepting Compliance Filing*, 123 FERC ¶61,282, at PP 14-17; *North American Electric Reliability Corporation, Order Conditionally Accepting 2009 Business Plan and Budget of the North American Electric Reliability Corporation and Ordering Compliance Filings*, 125 FERC ¶ 61,056 (2008) (*2009 ERO Budget Order*), at PP 63-64.

region, NERC's statutory funding requirement, as approved by FERC, is allocated on the basis of NEL (i) between the United States, Canadian and Mexican jurisdictions, (ii) among Regional Entities in the United States, and (iii) to LSEs or their designees within each Regional Entity.

Each Regional Entity's approved statutory funding requirement is also allocated to LSEs in the Region, based on NEL.[57] The specific proposed assessments for the year to each LSE or designee, to cover NERC and Regional Entity statutory funding requirements, are presented to FERC in the annual business plan and budget filing, and are approved by FERC as part of its approval of the business plans and budgets. To date, NERC and the Regional Entities have had only a very limited number of instances of LSEs failing or being unable to pay their assessments in a timely manner (i.e., uncollectible accounts). That is, to date NERC and the Regional Entities have been able to collect almost 100 percent of their approved assessments to cover their statutory funding requirements, for each of the years 2007, 2008, and 2009. No party has filed a petition for judicial review of a FERC order approving the business plans and budgets for NERC and the eight Regional Entities in any of the three years [58]

Comments received in the stakeholder survey included a number of comments concerning the NERC and Regional Entity budgeting process, such as the following:

- More information should be provided on the reasons for cost and headcount increases and how they provide value for members.
- Stakeholder concerns and recommendations do not appear to be considered in the NERC budget process.
- NERC should develop multi-year business plans so entities can get insight into future programs and cost and resource changes in future years.

[57] The Commission has recently directed that the portion of NPCC's funding requirement that is not allocated to Ontario and Québec must be allocated on the basis of NEL within the United States portion of NPCC. July 16, 2009 Order at PP 38–41.

[58] One party did file a petition for review in the United States Court of Appeals for the D.C. Circuit challenging one aspect of the cost allocation decision in Order No. 672. However, on May 8, 2009, the D.C. Circuit denied that appeal. *Alcoa, Inc. v. FERC*, Case No. 06-1426.

- NERC should consider a cost allocation based on net generation, NEL, and transmission kV-miles; under this approach IPPs and transmission-only companies would help pay for NERC as well as load-serving entities.
- Canadian entities expressed concern about paying for programs that are driven exclusively by FERC.

Additionally, the Regional Entities have made a number of recommendations concerning the schedule and processes for preparation of the annual business plan and budget, the presentation of information in the annual business plans and budgets and related filings, the definition and recording of indirect costs, and other budget, accounting and finance matters. All of these comments and recommendations, and NERC's responses and specific actions, are discussed in detail in **Attachment 2**.

C. NERC Has Developed an Effective Set of Rules of Procedure

NERC's predecessor organization had rules of procedure in place covering a number of areas of its activities. For purposes of its ERO certification application, NERC organized these rules into a comprehensive set of Rules of Procedure and Appendices that were submitted with the application. Since being certified as the ERO, NERC has continued to modify and add to its Rules of Procedure, both in response to FERC directives and on NERC's own initiative consistent with the modification of existing activities and the development of new activities. As required by §215(f) of the FPA and §39.10 of FERC's ERO regulations, all amendments to NERC's Rules of Procedure have been submitted to FERC for approval and, as currently effective, have been approved by FERC. NERC's currently effective Rules of Procedure cover the entire spectrum of NERC's statutory activities:

- Reliability standards development (§300 and Appendices 3A, 3B and 3C);
- Compliance monitoring and enforcement (§400 and Appendices 4A, 4B and 4C);
- Organization registration and certification (§500 and Appendix 5):
- Personnel certification (§600 and Appendix 6);

- Reliability readiness evaluation and improvement (§700 and Appendix 7);[59]
- Reliability assessment and performance analysis (§800 and Appendix 8);
- Training and education (§900); and
- Situation awareness and infrastructure security (§1000).

The Rules of Procedure also cover important administrative and organizational activities:

- Annual NERC business plans and budgets (§1100);
- Regional delegation agreements (§1200);
- Establishment of, membership in and appointments to, and procedures for conducting business of, NERC committees (§1300);
- Amendments to the NERC Rules of Procedure (§1400);
- Processes for handling and protecting confidential information including critical energy infrastructure information (§1500); and
- NERC and Regional Entity requests for information to owners, operators and users of the bulk power system (§1600).

Sections 1500 and 1600 have been added to the Rules of the Procedure, and several other sections have been amended, in all cases with FERC approval, subsequent to NERC's certification as the ERO. Each of the Appendices either was developed, or has been modified, and in each case approved by FERC, subsequent to NERC's certification as the ERO.

D. NERC Has Negotiated and Modified Delegation Agreements with the Regional Entities Governing their Delegated Statutory Functions

NERC has negotiated and has in place a set of delegation agreements with the eight Regional Entities pursuant to which the Regional Entities are delegated authorities to carry out their statutory functions. In accordance with §215(e) of the FPA and §39.8 of FERC's ERO regulations, the original set of delegation agreements and subsequent amendments have been submitted to and approved by FERC. The delegation agreements have been modified on several

[59] NERC intends to make a filing with the Commission proposing the elimination of substantially all of Section 700, consistent with the termination of the Reliability Readiness Evaluation and Improvement Program in 2009.

occasions since the original set of agreements were approved by FERC, both in response to FERC directives and to reflect changes in the parties' regulatory and business practices. The delegation agreements cover all aspects of the relationships between NERC and the Regional Entities, and provide an effective tool for managing those relationships. The delegation agreements cover, among other topics:

- NERC's delegation of authority to the Regional Entity to develop Regional standards and monitor and enforce compliance with all approved NERC Reliability Standards (§4);
- The Regional Entity's geographic boundaries (Exhibit A);
- The Regional Entity's governance structure as embodied in its Bylaws, and its conformance to five governance criteria (Exhibit B);
- The Regional Entity's Regional standards development process and its conformance to 34 essential attributes of an acceptable Regional standards development process (§5 and Exhibit C);
- The components of the Regional Entity's compliance monitoring and enforcement program, including the Regional Entity's use of the NERC uniform CMEP and *pro forma* Hearing Procedures, and any deviations therefrom (§6 and Exhibit D); and
- The allocation, determination, collection, and payment to the Regional Entity of funding for the delegated statutory functions it performs, including the requirements that the Regional Entity (i) submit annual business plans and budgets to NERC, and the contents of those submissions; (ii) use the NERC system of accounts; (iii) provide for reasonable funding reserves; (iv) submit quarterly interim financial reports and an annual audited financial report to NERC; and (v) adopt and use appropriate procedures for the separation of funding and costs for the Regional Entity's statutory activities from the funding and costs of its non-statutory activities (§8 and Exhibit E).

APPENDIX A

LIST OF SPECIFIC NERC ACTIONS

IN RESPONSE TO

STAKEHOLDER AND REGIONAL ENTITY

COMMENTS AND RECOMMENDATIONS

(Available on the NERC Website at http://www.nerc.com/fileUploads/File/Filings/3-year_Assessment_attachments.pdf**)**