

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

## Reliability Standards Development Plan: 2011–2013

**DRAFT**

to ensure  
the reliability of the  
bulk power system

August 11, 2010

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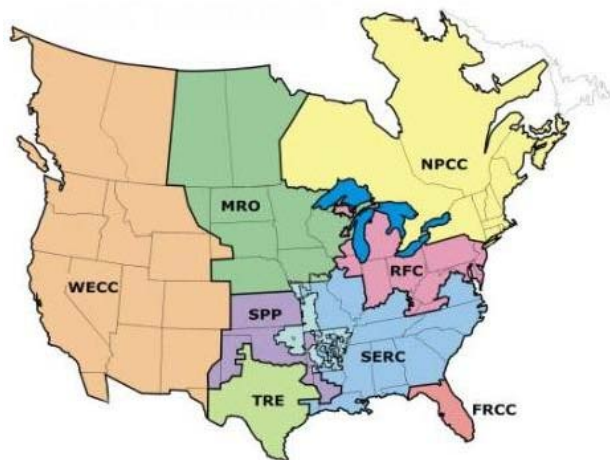
## Acknowledgement

NERC would like to thank all the individuals who invest their time, energy, expertise, and resources in the development of NERC Reliability Standards and in the annual revision of this *Reliability Standards Development Plan*. The plan reflects comments and input from stakeholders, staff, the NERC technical community, and government agencies with oversight for North American electric reliability. Through collaboration and industry consensus, we expect to develop NERC Reliability Standards that are technically accurate, clear, enforceable, and ensure the reliability of the North American bulk power system.

## NERC's Mission

The North American Electric Reliability Corporation (NERC) is an international regulatory authority to evaluate reliability of the bulk power system in North America. NERC develops and enforces Reliability Standards; assesses adequacy annually via a 10-year forecast and winter and summer forecasts; monitors the bulk power system; and educates, trains, and certifies industry personnel. NERC is the electric reliability organization in North America, subject to oversight by the U.S. Federal Energy Regulatory Commission (FERC) and governmental authorities in Canada.<sup>1</sup>

NERC assesses and reports on the reliability and adequacy of the North American bulk power system divided into the eight Regional Areas as shown on the map below (see Table A). The users, owners, and operators of the bulk power system within these areas account for virtually all the electricity supplied in the U.S., Canada, and a portion of Baja California Norte, México.



**Note:** The highlighted area between SPP and SERC denotes overlapping regional area boundaries: For example, some load serving entities participate in one region and their associated transmission owner/operators in another.

<b>FRCC</b> Florida Reliability Coordinating Council	<b>SERC</b> SERC Reliability Corporation
<b>MRO</b> Midwest Reliability Organization	<b>SPP</b> Southwest Power Pool, Incorporated
<b>NPCC</b> Northeast Power Coordinating Council	<b>TRE</b> Texas Reliability Entity
<b>RFC</b> ReliabilityFirst Corporation	<b>WECC</b> Western Electricity Coordinating Council

<sup>1</sup> As of June 18, 2007, the U.S. Federal Energy Regulatory Commission (FERC) granted NERC the legal authority to enforce Reliability Standards with all U.S. users, owners, and operators of the BPS, and made compliance with those standards mandatory and enforceable. In Canada, NERC presently has memorandums of understanding in place with provincial authorities in Ontario, New Brunswick, Nova Scotia, Québec, and Saskatchewan, and with the Canadian National Energy Board. NERC standards are mandatory and enforceable in Ontario and New Brunswick as a matter of provincial law. NERC has an agreement with Manitoba Hydro, making reliability standards mandatory for that entity, and Manitoba has recently adopted legislation setting out a framework for standards to become mandatory for users, owners, and operators in the province. In addition, NERC has been designated as the “electric reliability organization” under Alberta’s Transportation Regulation, and certain reliability standards have been approved in that jurisdiction; others are pending. NERC and NPCC have been recognized as standards setting bodies by the *Régie de l’énergie* of Québec, and Québec has the framework in place for reliability standards to become mandatory. Nova Scotia and British Columbia also have a framework in place for reliability standards to become mandatory and enforceable. NERC is working with the other governmental authorities in Canada to achieve equivalent recognition.

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## Summary

### **Purpose**

The North American Electric Reliability Corporation (NERC) is committed to developing reliability standards that deliver an Adequate Level of Reliability for the North American bulk power system. The NERC *Reliability Standards Development Plan* is the foundation for reliability standards development efforts. The plan serves as the management tool and blue print that guides, prioritizes, and coordinates revision or retirement of existing reliability standards and the development of new reliability standards for the immediate 3-year time horizon.

The initial 3-year plan was developed in 2006 and has been updated annually since. In updating the plan, NERC seeks input from the other program areas within NERC, as well as from NERC's technical committees and industry groups, and from those governmental authorities with responsibility for approving reliability standards in the United States and Canada on the need for, and prioritization of, new or revised reliability standards. The objectives of the plan include but are not limited to:

- Addressing the recommendations for new or revised reliability standards identified in the *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*.
- Addressing comments from industry, the Federal Energy Regulatory Commission (FERC), and others suggesting improvements to each reliability standard, including those comments received from industry stakeholders during public comment periods.
- Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has results-based requirements that are clear and measurable.
- Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.
- Incorporating feedback from other NERC program areas such as Compliance Operations, Operations and Engineering, Reliability Assessments, and Event Analysis.
- Satisfying the requirement in Section 300 of the Rules of Procedure of the North American Electric Reliability Corporation for a five-year review of all reliability standards.

Developing excellent reliability standards is a long-term effort. This plan best supports the effort in that it is flexible and can be continuously adapted to circumstances and changing priorities. The plan is reviewed and maintained by the NERC Standards Committee and Standards staff, and is updated on an annual basis or more frequently if necessary.

On July 6, 2010 FERC held a Commissioner-led Technical Conference to address industry perspectives on issues pertaining to the development and enforcement of mandatory Reliability Standards for the Bulk-Power System. The conference focused on the Electric Reliability Organization's (ERO) standards development process; communication and interactions between the Commission, the ERO and Regional Entities; and ERO and Regional Entity monitoring and enforcement. Conference participants uniformly and strongly supported the standard-setting

approach of the ERO model outlined in Section 215 of the Federal Power Act. The ERO model provides the opportunity to engage and draw on the unmatched technical expertise of many hundreds of industry subject matter experts, along with other stakeholders such as large and small customers and governmental authorities with expertise on the “receiving” end of reliability (i.e., those who depend upon and pay for that level of reliability), in developing standards that best serve the reliability of the bulk power system in North America.

The need to establish priorities for NERC’s standards development projects was a recurrent theme during the technical conference. This *Reliability Standards Development Plan: 2011-2013* advances a concept for prioritization of standards development projects with the expectation that NERC staff will continue to coordinate with the NERC Standards Committee, applicable regulatory authorities, and industry participants in further advancing the prioritization process.

### **2011-2013 Projects**

This revised *Reliability Standards Development Plan: 2011-2013* identifies a total of 36 continent-wide standards development projects either active or planned as of August 1, 2010. These projects have been categorized in Table 1 as “High Priority Projects Under Development,” “Additional Priority Projects in Final Balloting,” and “Additional Projects to be Initiated in Order of Priority.” NERC anticipates that several High Priority Projects will move to final balloting stage, followed by Board and regulatory approval in the near future, which will free up staff and industry resources that can be devoted to the “Additional Projects to be Initiated in Order of Priority.” However, past experience indicates that FERC may issue a notice of proposed rulemaking that proposes additional modifications to each of these NERC-approved reliability standards and where they fall in these various queues. Also, FERC Orders may also create new regulatory deadlines that inject new High Priority Projects into Table 1.

**Table 1**

High Priority Projects Under Development	
1	Project 2006-02 Assess Transmission and Future Needs
2	Project 2006-06 Reliability Coordination
3	Project 2007-01 Underfrequency Load Shedding
4	Project 2007-02 Operating Personnel Communications Protocols
5	Project 2007-03 Real-time Transmission Operations
6	Project 2007-07 Vegetation Management
7	Project 2007-09 Generator Verification
8	Project 2007-12 Frequency Response
9	Project 2007-17 Protection System Maintenance & Testing
10	Project 2008-01 Voltage and Reactive Planning and Control
11	Project 2008-06 Cyber Security - Order 706
12	Project 2009-01 Disturbance and Sabotage Reporting
13	Project 2009-02 Real-time Reliability Monitoring and Analysis Capabilities
14	Project 2009-03 Emergency Operations
15	Project 2010-10 FAC Order 729
16	Project 2010-11 TPL Table 1 Order

17	Project 2010-13 Relay Loadability Order
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Additional Priority Projects (near completion)	
1	Project 2006-08 Transmission Loading Relief
2	Project 2007-04 Certifying System Operators

Additional Projects to be Initiated in Order of Priority	
1	Project 2010-05 Protection Systems
2	Project 2007-11 Disturbance Monitoring
3	Project 2010-07 Transmission Requirements at the Generator Interface
4	Project 2007-06 System Protection Coordination
5	Project 2010-14 Balancing Authority Reliability-based Control
6	Project 2008-02 Undervoltage Load Shedding
7	Project 2010-03 Modeling Data
8	Project 2010-04 Demand Data
9	Project 2010-02 Connecting New Facilities to the Grid
10	Project 2008-12 Coordinate Interchange Standards
11	Project 2010-08 Functional Model Glossary Revisions
12	Project 2009-04 Phasor Measurements
13	Project 2009-07 Reliability of Protection Systems
14	Project 2010-01 Support Personnel Training
15	Project 2012-02 Physical Protection
16	Project 2009-05 Resource Adequacy Assessments
17	Project 2012-01 Equipment Monitoring and Diagnostic Devices

### ***Changes to Plan***

While the number of projects proposed in this plan (36) is one less than the 37 projects listed in the 2010-2012 version of the plan, the composition of these projects has changed significantly since approval of the 2010-2012 plan:

- The following projects not identified in the 2010-2012 plan were initiated and completed since last year’s plan was approved:
  - Project 2009-08 Nuclear Plant Interface Coordination
  - Project 2010-09 NUC Implementation Plans for CIP Version 2 and Version 3 Standards
  - Project 2010-12 Order 693 Directives
  
- The following projects identified in the 2010-2012 plan were completed and removed from this revised plan:
  - Project 2006-04 Backup Facilities
  - Project 2009-06 Facility Ratings
  - Project 2009-18 Withdraw Three Midwest ISO Waivers

- Project 2010-06 Results-based Reliability Standards identified in the 2010-2012 plan was transitioned into an initiative, subsequently completed (more below), and removed from this revised plan.
- Project 2007-05 Balancing Authority Controls and Project 2007-18 Reliability-based Control were merged into Project 2010-14 Balancing Authority Reliability-based Control which is an addition to this plan.
- The following five projects initiated in 2010 were not anticipated when the 2010-2012 plan was drafted and are additions to this plan:
  - 2010-08 Functional Model Glossary Revisions
  - 2010-10 FAC Order 729
  - 2010-11 TPL Table 1 Order
  - 2010-12 Order 693 Directives
  - 2010-13 Relay Loadability Order

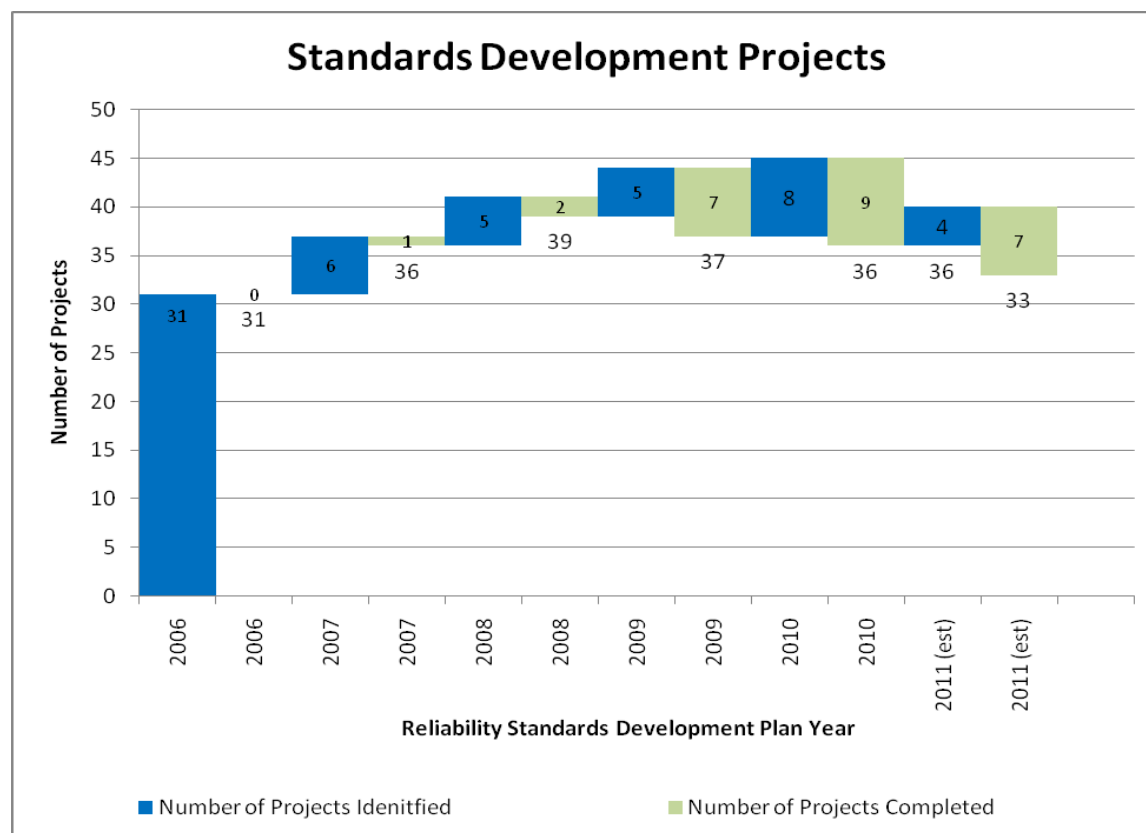
## Standards Development

NERC’s standards program develops and maintains standards designed to ensure the reliability of the bulk power system in North America. The set of NERC reliability standards define the reliability requirements for planning and operating the North American bulk power system. NERC staff facilitates standards drafting team activities, assists the drafting teams in adherence to the integrity of the development process, and ensures that the quality of documents produced meet the criteria for approval.

Each standard must be technically excellent, timely, just, reasonable, not unduly discriminatory or preferential, in the public interest, and consistent with other applicable standards or regulations to be approved by the US and Canadian regulatory authorities. A link to the document describing the quality attributes of an excellent reliability standard is provided [here](#).

NERC continues to make progress in improving the quality of the set of NERC reliability standards. Since the establishment of this plan in 2006 through August 1, 2010 NERC has identified 59 standards development projects, the vast majority of which involve the revision of multiple standards. Of those, 19 projects have been completed.

The following chart summarizes the number of newly identified projects in each revision of the Reliability Standards Development Plan as well as the number of projects completed between revisions to the plan from 2006 through 2010 along with an estimate for 2011:



Short summaries of all the currently opened or planned standards development projects as of August 1, 2010 are provided [here](#). The summaries contain the project name, project number, a short description of the project, and the standards associated with the project.

More expansive overviews of each of the currently opened or planned reliability standards development projects as of August 1, 2010 are provided [here](#). Each project overview includes the project number, title, list of affected reliability standards, and hyperlinks to associated portions of the NERC standards web pages along with a brief description of the project. In prior plans, these overviews also included a list of “Issues to be Considered by the Standard Drafting Team” which was populated with information contained in the “NERC Standards Issues Database (Issues Database).” The Issues Database is used by the NERC standards program staff to track the issues and concerns identified with a particular standard, including a complete list of applicable regulatory directives. As the list is a dynamic list and is updated periodically independent of this plan, the following link is being provided to ensure that stakeholders have access to the current [Issues Database](#).

Cross reference guides between standards development project numbers and standards are also provided here for convenience:

- [Sorted by project number](#) and identifies the standards associated with each project.
- [Sorted by standard number](#) and lists identifies the associated project.

### ***Standards Development Process***

NERC uses a formal process for refining, developing, and approving reliability standards that has received national, formal accreditation from the American National Standards Institute (ANSI) and approval by the Federal Energy Regulatory Commission (FERC) in the United States. A key element of this plan is to review and upgrade all the existing standards based on the directives in the FERC’s final rules on standards, previous industry comments, and actual experience gathered from using the standards.

The [Reliability Standards Development Procedure](#) provides a consensus-building process to confirm the need for a proposed new or revised standard, and then for developing and approving a new or revised standard. This standards development process, or its successor<sup>2</sup>, will serve as the mechanism for achieving the improvements detailed in this plan. The standards development process includes active involvement of industry experts and stakeholders tasked with developing excellent standards.

The *Reliability Standards Development Procedure* is incorporated in Section 300 of the ERO [Rules of Procedure](#) as Appendix A. In its June 2006 ERO Certification Order, the Commission found that NERC’s proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing reliability standards. The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. NERC considers the comments of all stakeholders, and a

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<sup>2</sup> The Standard Processes Manual will replace the Reliability Standard Development Procedure once approved by FERC.

vote of stakeholders is required to approve a reliability standard before it is submitted for NERC Board action and regulatory approval.

On June 10, 2010, NERC filed with the Commission a series of improvements to the reliability standards development process. The following is a summary of the changes proposed in the June 10 filing as compared to the existing *Reliability Standards Development Procedure*.

- (1) Improved control on timing for initiation of new projects by giving the Standards Committee the authority to prioritize standards development activity so that some projects may be deferred to focus on higher priority projects, to require technical justification and documentation when a standard request is submitted, and to evaluate unplanned project proposals to assign an appropriate priority relative to planned project activities.
- (2) More efficient processing of new project requests by allowing informal comment periods for project proposals where the need to modify or develop the identified standard(s) has already been established.
- (3) More extensive use of “informal” stakeholder feedback by allowing drafting teams to use a variety of means to collect feedback in the early stages of standards development.
- (4) Enhanced technical writing support during the drafting of standards to make better use of subject matter experts.
- (5) Ensuring a standard meets specific “quality” attributes by adding a step to the process for a formal “quality review” before the final draft of a standard is posted for formal stakeholder review.
- (6) Concurrent formal commenting and balloting to involve more participants in determining the final wording of a standard.
- (7) New process to expedite development of a new or revised standard where specific time constraints are associated with its completion.
- (8) Improved clarity in the description of the processes for developing definitions; conducting field tests and collecting and analyzing data; interpretations; appeals; variances; standards developed to address confidential issues; and process for approving supporting references.

Once the new Standards Processes Manual (SPM) is approved by the applicable regulatory authorities NERC staff will work with the Standards Committee and drafting teams to implement the tools provided in the SPM. Projects near completion or nearing ballot will not be impacted. However, all other projects will be reviewed on a case-by-case basis to determine the best method for implementing the new tools provided by the SPM.

### **Internal NERC Coordination Efforts**

NERC has developed specific initiatives related to compliance monitoring and enforcement, reliability assessment and performance analysis, and event analysis to identify possible “high impact” reliability standard development projects that may have significant impact on the reliability of the bulk power system. For example, lessons learned and trends identified from system events tracked for the last three years that have been causal or contributory to the severity of system disturbances are helping NERC focus efforts and provide the technical foundation for

standards development and modification efforts on issues that are most critical to bulk power system reliability. NERC has developed a broad-based reliability initiative that addresses issues in the area of system protection and control which is the basis for Project 2010-05 System Protection and a number of other ongoing standards development projects in the area of system protection and control. This initiative identified a compendium of system protection and control issues that have contributed to many system events. This ongoing collaborative effort between the Event Analysis program and Standards development will continue to be used to identify specific changes to reliability standards to ensure the reliability of the North American bulk power system.

In addition, the document [Risk-Informed Approach for Prioritizing Development of Standards](#) outlines one of the internal initiatives supported by reliability assessment and performance analysis that takes the form of a risk-informed approach for prioritizing new and enhancing existing reliability standards leading to the greatest improvement in reliability. Trend assessment from event, condition and regulatory driven measures can provide additional risk-informed prioritization to standard development as bulk power system performance can provide insights into potential gaps and areas for standard improvements. These trends will be weighed against other NERC standard development initiatives during the prioritization process used in the development of this plan.

### **Coordination Efforts with NERC Technical Committees**

NERC's technical committees, subcommittees, working groups, and task forces provide technical research and analysis used to justify the development of new standards and provide guidance, when requested by the Standards Committee, in overseeing field tests or collection and analysis of data. The technical committees, subcommittees, working groups, and task forces provide feedback to drafting teams during both informal and formal comment periods.

The technical committees, subcommittees, working groups, and task forces share their observations regarding the need for new or modified standards or requirements with the standards staff for use in identifying the need for new standards projects for the three-year *Reliability Standards Development Plan*.

### **Coordination with NAESB**

In addition, NERC also coordinates its reliability standards development activities with the business practices developed by the [North American Energy Standards Board](#) (NAESB). Many of the existing NERC standards are related to business practices, although their primary purpose is to support reliability. Reliability standards, business practices, and commercial interests are inextricably linked. An example of an existing standard that is both a reliability standard and a business practice is the Transmission Loading Relief (TLR) Procedure currently used as an interconnection-wide congestion management method in the Eastern Interconnection.

NERC has taken several steps to ensure its reliability standards do not have any undue, adverse impact on business practices or competition. First, NERC coordinates the development of its standards with the North American Energy Standards Board (NAESB). In addition to this formal process, drafting teams work with NAESB groups to ensure effective coordination of wholesale electric business practice standards and reliability standards. NERC and NAESB follow the [NERC NAESB Template Procedure for Joint Standards Development and](#)

[Coordination](#) and the associated [supplement](#) in areas that have both reliability and business practice elements. This procedure is being implemented for all standards in which the reliability and business practice elements are closely related, thereby making joint development a more efficient approach.

To ensure each reliability standard does not have an undue adverse effect on competition, NERC requires that each standard meet the following criteria:

- Competition — A reliability standard shall not give any market participant an unfair competitive advantage.
- Market Structures — A reliability standard shall neither mandate nor prohibit any specific market structure.
- Market Solutions — A reliability standard shall not preclude market solutions to achieve compliance with that standard.
- Commercially Sensitive Information — A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.

### ***Transition to Results-based Standards***

To improve the overall quality of its Reliability Standards, NERC has introduced “results-based” principles into the standards development process. These principles require the standard drafting teams to achieve a portfolio of performance, risk, and competency-based requirements within the set of NERC reliability standards that support an effective defense-in-depth strategy for ensuring the reliability of the bulk power system. This concept enhances development of an integrated set of standards that build on the core entity competencies verified during NERC’s entity certification processes.

The term “results-based” is sometimes confused with the term “performance-based” when combined with the terms “standards” and “requirements”. Performance-based standards can have the connotation of measuring only ultimate performance – no oil spills, no mine disasters, no plane crashes, etc. The problem with a purely performance-based approach is that if the system fails, the consequences are unacceptable. NERC is not implementing performance-based standards that focus only on ultimate outcomes for the main body of its standards. NERC is implementing a portfolio of result-based requirements, each of which identifies a clear and measurable expected outcome, such as: a) a stated level of reliability performance, b) a reduction in a specified reliability risk, or c) a necessary competency. The set of NERC’s reliability standards works collectively in support of NERC’s reliability principles to prevent instability, uncontrolled separation and cascading. To achieve any one of NERC’s reliability principles a ‘defense in depth’ strategy is being employed such that there is a network of requirements spanning several standards that involve a mix of performance-based, risk-based, and competency-based requirements that in combination achieve NERC’s reliability principles.

For the bulk power system, only a small percentage of NERC’s requirements will be performance-based. Performance-based requirements are useful in situations where tracking and managing the “results” are the only way to manage, incentivize and correct outcomes. Control

performance (BAL-001- Real Power Balancing Control Performance) is a good example of a standard that contains performance-based requirements. The goal of the standard is to maintain frequency within defined limits by balancing real power demand and supply in real-time and the requirements identify specific actions of a Balancing Authority must take to achieve that goal. Following these requirements alone will not result in the goal of maintaining frequency within defined limits – this standard is supported by the Balancing Authority certification process where NERC verifies that prospective Balancing Authorities have the processes, procedures and tools needed to monitor and act to meet the requirements in BAL-001 and is also supported by many other standards.

A majority of NERC’s requirements are, and will continue to be risk-based, or preventative requirements that if followed, reduce the risk of instability, uncontrolled separation, and cascading failures. The performance-based requirements in the BAL-001 standard are supported by several risk-based standards such as EOP-001 – Emergency Operations Planning. EOP-001 requires the Balancing Authority to have action plans for mitigating various energy emergencies.

Another portion of NERC’s standards are ‘competency-based’, meaning they are requirements to have things such as tools, training, communications, and backup facilities. The performance-based requirements in the BAL-001 standard are supported by capability-based requirements in standards such as PER-003- Operating Personnel Credentials, where the Balancing Authority is required to staff its real-time operating positions with only certified system operators.

Results-based standards should not be associated with lax rules for industry. We are developing a strong portfolio of interdependent and overlapping requirements that work with the entity certification processes and address performance, risk mitigation, and competency. NERC is applying a defense in depth strategy that has proven successful in managing risks in the many other industries including the nuclear aerospace, and in other critical sectors.

A number of factors considered when developing the plan for transitioning the current set of NERC reliability Standards to results-based, including both the priority of projects as established by the Standards Committee as well as the then current status of each individual project. The goal of the plan is to smoothly transition existing standards to results-based based standards while respecting and considering the amount of work existing standard drafting teams have expended in their respective projects to date relative to the planned completion date of the project. For example, to a large degree projects that are expected to be completed by year-end 2010 were not good candidates for transition to results-based because doing so would require each affected drafting team to redraft work which is essentially complete and ready for industry ballot, thereby extending the project by as much as six months. Consequently, projects which were in the very early stages of development or which have not been initiated were identified as early candidates for results-based implementation.

Based upon the project status at the time the decision was made, Project 2007-07 Vegetation Management was designated as the proof-of-concept project for the results-based initiative. Furthermore, Project 2009-01 Disturbance and Sabotage Reporting was recently initiated as next in line for a results-based project formatting testing. In addition, drafting team training will build on this foundation for the transition to a complete set of results-based reliability standards.

### **Drafting Team Training**

To commence the rollout to the industry of the results-based initiative, NERC staff will provide a one-time training Webinar on the concepts of results-based reliability standards and what the ballot body should look for when examining and voting upon these new standards. This initial training effort will be generic in nature and based upon the training program developed by Compliance Automation Inc. More detailed training sessions will be provided to individual drafting teams by the NERC coordinator assigned to each team.

The Train-the-Trainer program requires that the NERC coordinator assigned to a drafting team will be responsible for training their specific drafting teams in the results-based concepts. The core program provides a structure for developing standards starting with explicitly identifying the “Needs”, “Goals”, and “Objectives” of the particular standard under development. Since the majority of active standards development projects are beyond the “Needs”, “Goals”, and “Objectives” phase of the process, portions of the program are not directly applicable to them but will be summarized in the one-time training Webinar. The initial Webinar training will be beneficial to existing drafting teams as it will provide them with the knowledge of the results-based principles that they can then apply to their respective projects on a prospective basis.

If a project is close to completion and is likely to reach industry consensus, then it would generally be an inefficient use of NERC and industry resources to recast the proposed standard to fully conform to Results Based Standards design principles. In contrast, if a proposed standard is early in the development stage or stakeholders indicate either substantial confusion about the reliability objectives to be accomplished or indicate significant changes will be required to gain industry consensus, then the particular standard becomes a more promising candidate for Results Based Standards.

The following projects will be permitted to reach completion without fully implementing the results-based concepts and format, since the full implementation of results-based principles would be too disruptive to the timely completion in these projects. However, the drafting teams associated with these projects should incorporate results-based concepts if the opportunity arises in the course of the project (for example between the last formal comment period and ballot or between ballots as permitted by the Standards Committee).

- Project 2006-02 Assess Transmission and Future Needs
- Project 2006-06 Reliability Coordination
- Project 2006-08 Transmission Loading Relief
- Project 2007-01 Underfrequency Load Shedding
- Project 2007-02 Operating Personnel Communications Protocols
- Project 2007-03 Real-time Transmission Operations
- Project 2007-04 Certifying System Operators
- Project 2007-09 Generator Verification
- Project 2007-11 Disturbance Monitoring
- Project 2007-12 Frequency Response
- Project 2007-17 Protection System Maintenance & Testing
- Project 2008-06 Cyber Security - Order 706

- Project 2008-12 Coordinate Interchange Standards
- Project 2010-10 FAC Order 729
- Project 2010-11 TPL Table 1 Order

The standards associated with these projects, along with any other standards currently not associated with any project, will be fully transferred to include the results-based principles the next time the standards are opened for review or revision.

### **Projects for Results-based Implementation**

The following projects will fully implement the results-based concepts. Leadership and training for this initiative is the responsibility of the NERC Coordinator for each specific project.

- Project 2007-06 System Protection Coordination
- Project 2007-07 Vegetation Management
- Project 2008-01 Voltage and Reactive Planning and Control
- Project 2008-02 Undervoltage Load Shedding
- Project 2009-01 Disturbance and Sabotage Reporting
- Project 2009-02 Real-time Reliability Monitoring and Analysis Capabilities
- Project 2009-03 Emergency Operations
- Project 2009-04 Phasor Measurements
- Project 2009-05 Resource Adequacy Assessments
- Project 2009-07 Reliability of Protection Systems
- Project 2010-01 Support Personnel Training
- Project 2010-02 Connecting New Facilities to the Grid
- Project 2010-03 Modeling Data
- Project 2010-04 Demand Data
- Project 2010-05 Protection Systems
- Project 2010-07 Transmission Requirements at the Generator Interface
- Project 2010-08 Functional Model Glossary Revisions
- Project 2010-13 Relay Loadability Order
- Project 2010-14 Balancing Authority Reliability-based Control
- Project 2012-01 Equipment Monitoring and Diagnostic Devices
- Project 2012-02 Physical Protection

All future projects not identified in this plan will be required to be developed following the results-based principles and formats. It will be the responsibility of the NERC Standards Committee to ensure that this plan is implemented accordingly.

The complete [\*Results-based Reliability Standards Transition Plan\*](#) is posted on the Standards portion of the [NERC Website](#).

### **Priority of Projects**

As of August 1, 2010 NERC had 36 separate active or planned standards development projects. That is too high a number for NERC and stakeholders to address efficiently unless careful efforts are taken to sequence projects over time. Further, NERC, stakeholders and regulatory authorities

are coming to the recognition that certain standards projects need to be completed on a priority basis – implying that other projects may need to be deferred until resources become available. An Executive lead process is being considered by NERC’s Board of Directors at this time to assist in this triage.

During their meeting of June 10, 2010 the NERC Standards Committee approved the following list of high priority standards development projects:

- Project 2006-02 Assess Transmission and Future Needs
- Project 2006-06 Reliability Coordination
- Project 2007-01 Underfrequency Load Shedding
- Project 2007-02 Operating Personnel Communications Protocols Project
- Project 2007-03 Real-time Transmission Operations
- Project 2007-07 Vegetation Management
- Project 2007-09 Generator Verification
- Project 2007-12 Frequency Response
- Project 2007-17 Protection System Maintenance & Testing
- Project 2008-01 Voltage and Reactive Planning and Control
- Project 2008-06 Cyber Security - Order 706
- Project 2009-01 Disturbance and Sabotage Reporting
- Project 2009-02: Real-time Reliability Monitoring and Analysis Capabilities
- Project 2009-03 Emergency Operations
- Project 2010-10 FAC Order 729
- Project 2010-11 TPL Table 1 Order
- Project 2010-13 Relay Loadability Order

Informal consultation with FERC staff contributed to the content of this list.

The need to establish priorities for NERC’s standards development projects was a recurrent topic of discussion during the technical conference sponsored by FERC on July 6, 2010. As of this writing, discussions regarding possible approaches to further define the priority of standards development projects were underway and could result in modifications as to how standards development projects are prioritized in the future.

The Standards Committee and NERC staff are seeking input on the 2011-2013 Reliability Standards Development Plan and the project priorities identified herein. As a starting point, this draft utilizes a tool for prioritizing or ranking standards development projects that was developed by the Standards Committee’s Process Subcommittee (SCPS). The tool calculates a ranking for a project based on criteria including whether a specific project includes:

- a standard that is needed to be revised or created to fill an identified gap in reliability,
- standard modifications which will improve BPS reliability by a certain perceived level,
- a standard needing immediate attention due to a regulatory directive,
- standard modifications which need to be made in coordination with another project,
- a standard which requires reviewed based on the 5 year review requirement in the ERO Rules of Procedure,

- a standard needing modification due to input of compliance audit’s team experience with the standard, and
- a standard modifications necessary due to approved interpretation.

The tool was used to prioritize the projects identified in this plan excluding the 17 projects identified by the Standards Committee on June 10, 2010 as high priority projects and two other projects that are nearing completion. The results using the [SCPS’ prioritization tool](#) were:

Priority Number	Project Number and Name
1	Project 2010-05 Protection Systems
2	Project 2007-11 Disturbance Monitoring
3	Project 2007-06 System Protection Coordination
4	Project 2010-14 Balancing Authority Reliability-based Control
5	Project 2008-02 Undervoltage Load Shedding
6	Project 2010-03 Modeling Data
7	Project 2010-04 Demand Data
8	Project 2010-02 Connecting New Facilities to the Grid
9	Project 2008-12 Coordinate Interchange Standards
10	Project 2010-07 Transmission Requirements at the Generator Interface
11	Project 2009-04 Phasor Measurements
12	Project 2009-07 Reliability of Protection Systems
13	Project 2010-01 Support Personnel Training
14	Project 2012-02 Physical Protection
15	Project 2009-05 Resource Adequacy Assessments
16	Project 2012-01 Equipment Monitoring and Diagnostic Devices
17	Project 2010-08 Functional Model Glossary Revisions

When combined with the high priority projects as determined by the Standards Committee and two other projects that are currently nearing completion, the overall standards development project priorities are:

High Priority Projects Under Development	
1	Project 2006-02 Assess Transmission and Future Needs
2	Project 2006-06 Reliability Coordination
3	Project 2007-01 Underfrequency Load Shedding
4	Project 2007-02 Operating Personnel Communications Protocols
5	Project 2007-03 Real-time Transmission Operations
6	Project 2007-07 Vegetation Management
7	Project 2007-09 Generator Verification
8	Project 2007-12 Frequency Response
9	Project 2007-17 Protection System Maintenance & Testing
10	Project 2008-01 Voltage and Reactive Planning and Control

11	Project 2008-06 Cyber Security - Order 706
12	Project 2009-01 Disturbance and Sabotage Reporting
13	Project 2009-02 Real-time Reliability Monitoring and Analysis Capabilities
14	Project 2009-03 Emergency Operations
15	Project 2010-10 FAC Order 729
16	Project 2010-11 TPL Table 1 Order
17	Project 2010-13 Relay Loadability Order

Additional Priority Projects (near completion)	
1	Project 2006-08 Transmission Loading Relief
2	Project 2007-04 Certifying System Operators

Additional Projects to be Initiated in Order of Priority	
1	Project 2010-05 Protection Systems
2	Project 2007-11 Disturbance Monitoring
3	Project 2010-07 Transmission Requirements at the Generator Interface
4	Project 2007-06 System Protection Coordination
5	Project 2010-14 Balancing Authority Reliability-based Control
6	Project 2008-02 Undervoltage Load Shedding
7	Project 2010-03 Modeling Data
8	Project 2010-04 Demand Data
9	Project 2010-02 Connecting New Facilities to the Grid
10	Project 2008-12 Coordinate Interchange Standards
11	Project 2010-08 Functional Model Glossary Revisions
12	Project 2009-04 Phasor Measurements
13	Project 2009-07 Reliability of Protection Systems
14	Project 2010-01 Support Personnel Training
15	Project 2012-02 Physical Protection
16	Project 2009-05 Resource Adequacy Assessments
17	Project 2012-01 Equipment Monitoring and Diagnostic Devices

This project ranking is an initial proposed queue for discussion and consideration and is intended to ensure that the *Reliability Standards Development Plan: 2011-2013* is *comprehensive* in its inclusion of all projects that need to be initiated or completed during the next three years and *prioritizes* such development work based on all of the considerations and criteria discussed in this plan. The numerical rankings are based on the judgment of NERC staff and the Standards Committee – but they are only a starting point in the prioritization process. NERC and the Standards Committee encourage all affected entities to examine these proposed lists and articulate their respective views of the relative priority of these projects, the required resource commitments and development timelines, as well as the criteria that should be used to establish such priorities.

### ***Project Resources***

This *Reliability Standards Development Plan: 2011-2013* is designed recognizing there are limited available staff and industry resources to complete the projects immediately and concurrently. NERC staff continually coordinates with the Standards Committee in establishing the number and types of projects to devote resources to at any point in time based on the limited resources that are available.

## Regional Standards Development

NERC's Rules of Procedure Section 300 allows for a regional entity to develop regional reliability standards. A regional entity developing regional reliability standards must adhere to a NERC-approved regional reliability standards development procedure when developing its regional reliability standards. Each regional entity's regional standards development procedure is documented in Exhibit C of its regional delegation agreement with NERC.

No regional reliability standard shall be effective within a region unless approved and filed by NERC with the Commission and the applicable authorities in Canada and Mexico and approved by such regulatory authorities. Regional reliability standards, when approved by FERC and the applicable authorities in Canada and Mexico, shall be made part of the body of NERC reliability standards and shall be enforced upon all applicable bulk-power system owners, operators, and users within the applicable regional entity's region, regardless of membership in the region.

Regional reliability standards provide for as much uniformity as possible with reliability standards across the interconnected bulk power system of the North American continent. A regional reliability standard shall be:

- more stringent than a continent-wide reliability standard, including regional standards that address matters that continent-wide reliability standards do not; or
- necessitated by a physical difference in the bulk power system.

With the exception of regional standards developed in support of continent-wide standards, regional entities may independently initiate regional standards development and forward such standards to NERC for review and approval.

Regional entity standards are anticipated to be developed by the individual regions over the next three years. The [Regional Reliability Standards Development Projects](#) document provides an overview of each of the planned regional standards development projects for the immediate three year period.

## Resource Documents

Links to the following resource documents are provided here for convenience. These documents provide a portion of the historical perspective on the development of reliability standards since the inception of the ERO.

- [FERC NOPR on Reliability Standards, October 20, 2006.](#)
- [FERC Staff Preliminary Assessment of Proposed Reliability Standards, May 11, 2006.](#)
- [FERC Order No. 693 Mandatory Reliability Standards for the Bulk Power System, March 16, 2007.](#)
- [FERC Order No. 693-A Mandatory Reliability Standards for the Bulk Power System, July 19, 2007.](#)
- [FERC Order No. 890 Preventing Undue Discrimination and Preference in Transmission Service, February 16, 2007.](#)
- [Comments of the North American Electric Reliability Council and North American Electric Reliability Corporation on Staff Preliminary Assessment of Reliability Standards, June 26, 2006.](#)
- [Comments of the North American Electric Reliability Corporation on Staff Preliminary Assessment of NERC Standards CIP-002 through CIP-009, February 12, 2007.](#)
- [Comments of the North American Electric Reliability Corporation on the Notice of Proposed Rulemaking for Facilities Design, Connections and Maintenance Reliability standards, September 19, 2007.](#)
- [Comments received during the development of Version 0 reliability standards.](#)
- [Consideration of comments of the Missing Compliance Elements drafting team.](#)
- [Consideration of comments of the Violation Risk Factors drafting team.](#)
- [Consideration of comments in the Phase III–IV standards.](#)
- [Q&A for Standards and Compliance.](#)