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**BEFORE THE  
BRITISH COLUMBIA UTILITIES COMMISSION  
OF THE PROVINCE OF BRITISH COLUMBIA**

**NORTH AMERICAN ELECTRIC )  
RELIABILITY CORPORATION )**

**NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION RELIABILITY  
STANDARDS DEVELOPMENT PLAN 2011-2013 INFORMATIONAL FILING  
PURSUANT TO SECTION 310 OF THE NERC RULES OF PROCEDURE**

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April 13, 2011

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## ATTACHMENTS

EXHIBIT A: *Reliability Standards Development Plan: 2011–2013*

EXHIBIT B: Supporting Documents Referenced in *Reliability Standards Development Plan: 2011-2013*

EXHIBIT C: Industry Comments on the Draft *Reliability Standards Development Plan: 2011–2013*

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**I. INTRODUCTION**

The North American Electric Reliability Corporation (“NERC”) hereby submits for informational purposes its revised Reliability Standards Development Plan in accordance with Section 310 of the NERC Rules of Procedure. The *Reliability Standards Development Plan: 2011–2013* (“2011 Development Plan”), is included as **Exhibit A**. **Exhibit B** includes the supporting documents referenced in the 2011 Development Plan, which includes the prioritization tool. A summary of Stakeholder<sup>1</sup> comments received and the comments received regarding the draft 2011 Development Plan during the open comment period are included as **Exhibit C**. NERC will provide additional stakeholder comments received regarding the prioritization tool used in the development of this plan in a supplementary filing following the finalization of associated responses at NERC’s Standards Committee meeting, which occurred on April 13-14, 2011.

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<sup>1</sup> The NERC stakeholders comprise representatives of small and large end-use customers and governmental authorities as well as representatives of Transmission Owners; Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs); Load-Serving Entities (LSEs); Transmission Dependent Utilities (TDUs); Electric Generators; Electricity Brokers, Aggregators, and Marketers; Large Electricity End Users; Small Electricity Users; Federal, State, and Provincial Regulatory or other Government Entities; and Regional Entities.

## **II. NOTICES AND COMMUNICATIONS**

Notices and communications with respect to this filing may be addressed to the following:

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## **III. BACKGROUND**

In 2006, NERC developed an initial version of the plan for Reliability Standards development entitled the *Reliability Standards Development Plan: 2007–2009*. NERC has since updated the plan annually, and the 2011–2013 version of the plan is presented in this filing. The 2011 Development Plan serves as a management tool to guide and coordinate the development of Reliability Standards and provide benchmarks for assessing progress. The 2011 Development Plan also serves as a communications tool for coordinating standards development work with applicable governmental agencies in the United States and Canada and for engaging stakeholders in standards development activities. The 2011 Development Plan further provides a base for developing annual plans and budgets for the NERC standards program. Consistent with the four previous versions of the plan, the 2011 Development Plan is filed for informational purposes. No specific action is requested at this time. The 2011 Development Plan builds upon the foundation established by the previous plans and identifies the current plans and priorities for

development and modification of NERC Reliability Standards in the immediate three-year time horizon.

The 2011 Development Plan has benefited from a prioritization process developed within NERC's Standard Committee. The Standards Committee used a prioritization tool to assist in the determination of the relative priorities of projects within the NERC Standards Development portfolio. This tool considered various factors, including regulatory actions, overall reliability impact, stakeholder and staff experience, and project logistics. Assisted by that prioritization tool, the Standards Committee identified a set of projects to which the majority of NERC and industry resources are being assigned. Projects already in progress that are not within this set are being moved into an "informal development" phase, where the industry may continue to perform research and analysis expected to aid in future standards development. Additionally, several projects that have not yet started have had their initiation postponed.

NERC anticipates this prioritization of projects and resultant standards development work will be dynamic, and will be updated periodically as projects are completed or as new needs are identified and projects considered. NERC also recognizes that new priorities may be created as our experience grows, as new risks are identified, that will create an ongoing need to be flexible in work planning to ensure the activities most in the interest of bulk power system reliability are given appropriate resources and priority. The 2011 Development Plan is included as **Exhibit A**. **Exhibit B** includes the supporting documents referenced in the 2011 Development Plan, which includes the prioritization tool. A summary of Stakeholder comments received and the comments received regarding the draft 2011 Development Plan during the open comment period are included as **Exhibit C**. NERC will provide additional stakeholder comments received regarding the prioritization tool used in the development of this plan in a supplementary filing following the finalization of associated responses at NERC's Standards Committee meeting, which occurred on April 13-14, 2011.

By this filing, NERC informs interested parties of the significant changes to the content of the *Reliability Standards Development Plan: 2010–2012* (“2010 Development Plan”) that led to the creation of the 2011 Development Plan. NERC identifies changes in project timelines and completion dates that are reflected in the 2011 Development Plan and presents a summary of stakeholder comments that were considered during the development of the final 2011 Development Plan.

On July 6, 2010, the Federal Energy Regulatory Commission (“FERC”) led a 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 between FERC, the ERO and Regional Entities; and ERO and Regional Entity monitoring and enforcement. The need to establish priorities for NERC’s standards development projects was a recurrent theme during the technical conference. The 2011 Development Plan was developed with attention focused on prioritizing standards development projects as discussed during the technical conference. In addition, during the NERC Board of Trustees meeting on November 4, 2010, the NERC Board directed NERC staff to work with the Standards Committee and the newly formed NERC Board Standards Oversight and Technology Committee (“SOTC”) to review priority issues and develop a revised list of standards development project priorities to present to the NERC Board at its February 2011 meeting. NERC staff has worked with the SOTC, the NERC Standards Committee, and industry participants to further prioritize the standards projects identified in the 2011 Development Plan as directed. In February 2011, the NERC Board of Trustees endorsed the prioritization approach developed by the Standards Committee and subsequently approved the updated 2011 Development Plan on March 10, 2011.

## **A. Significant 2011 Development Plan Revisions**

### **i. Project Prioritization**

The 2011 Development Plan was developed in part in reliance on a prioritization tool created by the NERC's Standards Committee and its subcommittees. The tool calculates a ranking for a project based on the following criteria:

- Regulatory-imposed time constraints for delivery of standard assigned to the project;
- Regulatory directives (analyzed and weighted based on their impact to reliability, regulator initiatives, and overall operations or planning impact) assigned to the project;
- Whether or not the project's deliverables will fill an identified gap in reliability;
- The subjective magnitude of the improvements to existing standards expected from the project's completion;
- How the project coordinates with other parallel initiatives;
- The review status of the project's associated standards;
- Stakeholder and Staff compliance experiences with the subject standards;
- Interpretations related to the subject standards;
- Overall progress on projects that have already started; and
- Other factors, as deemed to be necessary by the Standards Committee.

Additional details regarding the prioritization tool can be found in Attachment 1 of the 2011 Development Plan.

NERC and the Standards Committee used the tool to assist in the prioritization of the projects identified in the 2011 Development Plan. Twelve projects were identified as "High Priority" projects:

- Project 2006-02 Assess Transmission and Future Needs;
- Project 2007-02 Operating Personnel Communication Protocols;
- Project 2007-03 Real-time Transmission Operations;
- Project 2007-06 System Protection Coordination;
- Project 2007-09 Generator Verification;
- Project 2007-12 Frequency Response;
- Project 2007-17 Protection System Maintenance & Testing;
- Project 2008-06 Cyber Security Order 706;
- Project 2009-01 Disturbance and Sabotage Reporting;
- Project 2010-05 Protection Systems;
- Project 2010-07: Generator Requirements at the Transmission Interface; and
- Project 2010-17 Definition of Bulk Electric System.

Five additional projects were identified for continuation because they were near completion.

- Project 2006-06 Reliability Coordination;
- Project 2007-07 Vegetation Management;
- Project 2009-06 Facility Ratings;
- Project 2010-13 Relay Loadability Order Phase 1; and
- Project 2010-15 Urgent Action.

The remaining projects will either not be started until the above projects are completed or are being moved into a phase of “Informal Development,” during which the industry may continue to perform research and analysis, but defer actual development of reliability standards to a later point in time.

The prioritization tool is intended to serve only as an aid in the prioritization effort. The Standards Committee has responsibility to establish standards development project prioritization



and make modifications as it sees appropriate to ensure the industry is allocating resources to achieve the most reliability benefit. The Standards Committee expects that the prioritization tool will be continually improved and refined to address those issues of greatest impact to bulk power system reliability, and is investigating other items to potentially include in the prioritization effort, such as cost/benefit, additional stakeholder participation, and various other concerns expressed during this year's development effort.

The project prioritization process is intended to be a dynamic effort that is reviewed and updated periodically to ensure NERC is utilizing industry resources effectively and achieving the most reliability benefit. As projects are completed and resources become available, a review of the prioritization process will help to ensure that the next project chosen for standards development will provide a high reliability benefit. NERC also recognizes that new priorities may be created as our experience grows and as new risks are identified, and that the need to be flexible in work allocation will be required to ensure the activities most in the interest of bulk power system reliability are given appropriate resources.

## **ii. General Revisions**

This section provides a summary of significant revisions to the 2011 Development Plan as compared to the 2010 Development Plan. The number of projects proposed in this plan (35) is less than the 37 projects listed in the 2010 Development Plan. The composition of these projects has changed significantly since approval of the 2010 Development Plan:

- The following five projects not identified in the 2010 Development 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 2010-10 FAC Order 729;
  - Project 2010-11 TPL Table 1 Order; and
  - Project 2010-12 Order 693 Directives.
- The following five projects identified in the 2010 Development Plan were completed and removed from this revised plan:
    - Project 2006-04 Backup Facilities;
    - Project 2006-08 Transmission Loading Relief;
    - Project 2007-01 Underfrequency Load Shedding;
    - Project 2007-04 Certifying System Operators; and
    - Project 2009-18 Withdraw Three Midwest ISO Waivers.
- Project 2010-06 Results-based Reliability Standards identified in the 2010 Development Plan was transitioned into an initiative, subsequently completed (more explanation 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 Development Plan was drafted, and are additions to this plan:
    - Project 2010-08 Functional Model Glossary Revisions;
    - Project 2010-13 Relay Loadability Order Phase 1 and 2;
    - Project 2010-15 Remote Access Urgent Action;
    - Project 2010-16 Definition of System Operator; and
    - Project 2010-17 Definition of Bulk Electric System.

It should be noted that the 2011 Development Plan identifies the standards development projects that are currently expected to be worked on in the immediate three-year time horizon. NERC will make every attempt to bring as many projects to completion as possible; however, NERC will not complete all of the projects identified in this plan in the immediate three-year time horizon.

### **iii. Project and Timeline Updates**

This section summarizes the progress made on the projects identified in the 2010 Development Plan, changes in project timelines and priority, and factors contributing to those changes.

#### **HIGH PRIORITY PROJECTS**

##### ***Project 2006-02 Assess Transmission and Future Needs***

The TPL standards require assessments and plans to determine if the bulk power system meets specified performance requirements under varied theoretical operating conditions and contingencies to meet present and future system needs. This project is intended to improve the clarity and overall quality of these standards, including:

- TPL-001 System Performance Under Normal Conditions;
- TPL-002 System Performance Following Loss of a Single BES Element;
- TPL-003 System Performance Following Loss of Two or More BES Elements;
- TPL-004 System Performance Following Extreme BES Events;
- TPL-005 Regional and Interregional Self-Assessment Reliability Reports; and
- TPL-006 Data From the Regional Reliability Organization Needed to Assess Reliability.

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the second quarter of 2010. However, both industry and regulator feedback has

resulted in debate and discussion continuing significantly longer than was originally expected. NERC currently estimates completing the project in the second quarter of 2012.

***Project 2007-02 Operating Personnel Communications Protocols***

This project is developing new requirements in support of blackout recommendation #26 to ensure that real-time system operators use standard communications protocols during normal and emergency operations, and involves creation of a new standard.

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the fourth quarter of 2010. However, on October 7, 2009 the Standards Committee directed that the drafting teams for Project 2007-02 Operating Personnel Communications Protocols, Project 2006-06 — Reliability Coordination, and Project 2007-03 — Real-time Transmission Operations coordinate their activities relative to the definition of a “directive” and a “reliability directive.” The team did not account for this additional project coordination in the original project schedule, which has delayed the project considerably. NERC currently estimates completing the project in the fourth quarter of 2012.

***Project 2007-03 Real-time Transmission Operations***

This project will upgrade and expand existing requirements that address Transmission Operator responsibilities to ensure the real-time operating reliability of the transmission assets within the Transmission Operator’s area, as well as those that address Balancing Authority responsibilities, to ensure a balance between load, interchange and generation within its Balancing Authority area in support of interconnection frequency. The project involves modification to the following standards:

- PER-001 Operating Personnel Responsibility and Authority;
- TOP-001 Reliability Responsibilities and Authorities;
- TOP-002 Normal Operations Planning;

- TOP-003 Planned Outage Coordination;
- TOP-004 Transmission Operations;
- TOP-005 Operational Reliability Information;
- TOP-006 Monitoring System Conditions;
- TOP-007 Reporting System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) Violations; and
- TOP-008 Response to Transmission Limit Violations.

When the 2010 Development Plan was drafted, NERC anticipated this project would be completed in the third quarter of 2010. However, regulator concerns with the draft standards have resulted in ongoing industry debate and discussion, extending the development schedule beyond what was originally expected. NERC currently estimates completing the project in the third quarter of 2012.

***Project 2007-06 System Protection Coordination***

NERC is revising PRC-001 to ensure that Protection System application and performance issues are coordinated among all related entities, as well as to correct the applicable entities within the standard to reflect the actual functional responsibilities, as described in the NERC Functional Model. The standard will identify criteria for determining where to install Protection System devices and for requiring the installation of those devices to protect the reliability of the bulk power system. This project involves modification to the following standard:

- PRC-001 System Protection Coordination.

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the third quarter of 2010. However, since that time, NERC has received industry feedback that this standard would be more effective if it were moved into the Results-Based format. Accordingly, NERC has extended the schedule for completion of this standard, and the project's estimated completion date is scheduled in 2013.



### ***Project 2007-09 Generator Verification***

This project requires generators to verify their capabilities to ensure that accurate data is used in the modeling of the bulk power system, and involves development of new standards, as well as modification to the following standards:

- MOD-024 Verification of Generator Gross and Net Real Power Capability; and
- MOD-025 Verification of Generator Gross and Net Reactive Power Capability.

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the first quarter of 2011. However, staff attrition has affected the delivery schedule for this project. NERC currently estimates completing this project in the fourth quarter of 2011.

### ***Project 2007-12 Frequency Response***

Frequency Response is a measure of an Interconnection's ability to stabilize frequency immediately following the sudden loss of generation or load, and is a critical component to the reliable operation of the bulk power system—particularly during disturbances and restoration. This project is intended to define for each Balancing Authority the amount of Frequency Responsive Reserves needed for reliable operation, as well as define how to measure the performance of Frequency Responsive Reserves. This project involves modification to the following standard:

- BAL-003 Frequency Response and Bias.

NERC currently estimates completing the project in the second quarter of 2012.

### ***Project 2007-17 Protection System Maintenance & Testing***

This project involves modification to the following standards:

- PRC-005 Transmission and Generation Protection System Maintenance and Testing;
- PRC-008 Implementation and Documentation of Underfrequency Load Shedding Equipment Maintenance Program;

- PRC-011 Undervoltage Load Shedding System Maintenance and Testing; and
- PRC-017 Special Protection System Maintenance and Testing.

These standards are intended to ensure that Transmission & Generation Protection Systems are maintained and tested to provide reliable performance when responding to abnormal system conditions. It is the responsibility of the Transmission Owner, Generation Owner, and Distribution Provider to ensure the Transmission & Generation Protection Systems are maintained and tested in such a manner that the protective systems operate to fulfill their functions. This project is intended to address the issues raised in FERC Order No. 693, as well as the those discussed in the System Protection and Controls (“SPCTF”) report titled “Assessment of PRC-005-1 – Transmission and Generation Protection System Maintenance and Testing; with implications for PRC-008-0, PRC-011-0, and PRC-017-0.”

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the third quarter of 2010. However, in November of 2009, the NERC Board directed the standard drafting team to develop a modification to the definition of Protection System in response to a request for interpretation. The Board directed this effort to be separate from the development of the draft standard, which temporarily withdrew resources from the standards development and extended the schedule. NERC currently estimates completing the project in the first quarter of 2012.

***Project 2008-06 Cyber Security - Order 706***

NERC initiated this project in 2008 to address the directives in FERC’s Order No. 706. This project involves modifications to standards CIP-002 through CIP-009 (CIP Cyber Security Reliability Standards):

- CIP-002 Critical Cyber Asset Identification;
- CIP-003 Security Management Controls;
- CIP-004 Personnel & Training;



- CIP-005 Electronic Security Perimeter(s);
- CIP-006 Physical Security of Critical Cyber Assets;
- CIP-007 Systems Security Management;
- CIP-008 Incident Reporting and Response Planning; and
- CIP-009 Recovery Plans for Critical Cyber Assets.

The CIP Cyber Security Reliability Standards provide a cyber security framework for the identification and protection of Critical Cyber Assets to support the reliable operation of the bulk power system. In Order No. 706, FERC approved the set of Critical Infrastructure Protection (CIP) Cyber Security Version 1 Reliability Standards and associated implementation plans, but also directed NERC to develop modifications to the CIP Reliability Standards to address specific concerns identified by FERC.

The scope and volume of the directives in Order No. 706 resulted in the adoption of a multi-phased approach to address those directives. NERC has filed Version 2, Version 3, and Version 4 of the CIP Cyber Security Reliability Standards with FERC, which addressed many of FERC's directives in Order No. 706. NERC continues to address the remaining directives identified in Order No. 706 in the next phase of the project, and anticipates this effort could require multiple cycles of postings and industry responses to reach a suitable understanding and industry agreement on the requirements.

The timeline for completion of this project was undergoing review and modification when NERC developed the 2010 Development Plan. NERC currently estimates completing this project in the second quarter of 2012.

***Project 2009-01 Disturbance and Sabotage Reporting***

This project involves modification to the following standards:

- CIP-001-1 – Sabotage Reporting; and
- EOP-004-1 – Disturbance Reporting.

Stakeholders have indicated that identifying potential acts of “sabotage” is difficult to do in real time, and additional clarity is needed to identify thresholds for reporting potential acts of sabotage in CIP-001-1. This project is intended to clarify the standards, as well as address related regulatory directives. The standards may be merged to eliminate redundancy and provide clarity on sabotage events.

NERC did not identify a timeline for this project in the 2010 Development Plan. NERC currently estimates completing this project in the first quarter of 2012.

#### ***Project 2010-05 Protection Systems***

This project will modify current PRC standards and definitions related to Protection System Misoperations, and will require modifications to the following standards:

- PRC-003 Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems;
- PRC-004 Analysis and Mitigation of Transmission and Generation Protection System Misoperations;
- PRC-012 Special Protection System Review Procedure;
- PRC-014 Special Protection System Assessment; and
- PRC-016 Special Protection System Misoperations.

The intent of the project is to develop an appropriate metric for the measurement of Protection System performance that will help ensure the reliability of the bulk power system.

NERC has not yet initiated this project, and at this time, currently estimates completion date of the project as occurring in 2013. NERC is currently evaluating options to initiate and complete this project on an accelerated basis.

#### ***Project 2010-07 Generator Requirements at the Transmission Interface***

This project proposes changes to the requirements and the addition of new requirements to add significant clarity to Generator Owners and Generator Operators regarding their reliability

standard obligations at the interface with the interconnected grid, and requires modification to the following standards:

- FAC-001 Facility Connection Requirements; and
- FAC-003 Transmission Vegetation Management Program.

The project may also involve modifications to the following additional standards:

- PRC-001 System Protection Coordination;
- TOP-001 Reliability Responsibilities and Authorities;
- TOP-002 Normal Operations Planning; and
- TOP-003 Planned Outage Coordination.

NERC did not identify a timeline for this project in the 2010 Development Plan. NERC currently estimates completing the project in 2013.

#### ***Project 2010-17 Definition of Bulk Electric System***

This project revises the definition of Bulk Electric System to address FERC's concerns identified in Order No. 693 and directives issued in Order No. 743.<sup>2</sup> The intent of the project is to ensure the definition encompasses all Elements and Facilities necessary for the reliable operation and planning of the interconnected bulk power system.

This is a new project, and NERC currently estimates completing the project in the first quarter of 2012.

#### **PROJECTS CONTINUING AND EXPECTED TO COMPLETE SHORTLY**

##### ***Project 2006-06 Reliability Coordination***

This project involves modification to the following standards:

- COM-001 Telecommunications;

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<sup>2</sup> Revision to Electric Reliability Organization Definition of Bulk Electric System, 133 FERC ¶ 61,150 (November 18, 2010).

- COM-002 Communications and Coordination;
- IRO-001 Reliability Coordination - Responsibilities and Authorities;
- IRO-002 Reliability Coordination – Facilities;
- IRO-003 Reliability Coordination - Wide-Area View;
- IRO-005 Reliability Coordination - Current-Day Operations;
- IRO-014 Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators;
- IRO-015 Notifications and Information Exchange Between Reliability Coordinators; and
- IRO-016 Coordination of Real-time Activities between Reliability Coordinators.

This project is intended to ensure that the reliability-related requirements applicable to the Reliability Coordinator are clear, measurable, unique, and enforceable and to ensure that this set of requirements is sufficient to maintain reliability of the bulk power system. The project will upgrade and expand existing requirements that address reliability coordinator actions to prevent instability, uncontrolled separation, and cascading outages.

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the fourth quarter of 2010. However, concerns regarding the quality of the standard have resulted in an extended schedule. NERC currently estimates completing the project in the fourth quarter of 2011.

***Project 2007-07 Vegetation Management***

This project involves modification to the following standard:

- FAC-003-1 Transmission Vegetation Management.

The goal of this project is to upgrade the existing requirements for entities to implement a vegetation management program to prevent transmission outages that would adversely affect the reliability of the bulk power system.

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the fourth quarter of 2010. On January 14, 2010, the Standards Committee directed the drafting team for Project 2007-07 — Vegetation Management to develop FAC-003-2 — Transmission Vegetation Management as a proof-of-concept Reliability Standard for NERC's results-based Reliability Standards development initiative. In addition, the quality review of FAC-003-2 — Transmission Vegetation Management Reliability Standard identified potential issues that the drafting team was directed to address before the draft standard was moved forward for industry comment and ballot. Because of the additional time taken to transition FAC-003-2 to a results-based standard and resolve the issues identified during the quality review process, the timeline for the project has been extended. NERC currently estimates completing this project in the second quarter of 2011.

***Project 2010-15 Remote Access Urgent Action***

This project involves modifications to the following standard:

- CIP-005 Cyber Security - Electronic Security Perimeter(s).

This project intends to provide requirements for Cyber Assets used to access Critical Cyber Assets (and other non-critical Cyber Assets within a defined Electronic Security Perimeter) from outside their Electronic Security Perimeter. NERC currently estimates completing this project in the third quarter of 2011; however, the project may be absorbed into Project 2008-06.

**ADDITIONAL PROJECTS**

***Project 2007-11 Disturbance Monitoring***

This project is intended to provide more detail and clarity regarding the installation of Disturbance Monitoring Equipment and reporting of disturbance data to facilitate analyses of

events and verification of system models. This project includes modification to the following standards:

- PRC-002 Define Regional Disturbance Monitoring and Reporting Requirements;  
and
- PRC-018 Disturbance Monitoring Equipment Installation and Data Reporting.

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the third quarter of 2011. The recent prioritization efforts of NERC's Standards Committee resulted in this project moving to "informal development." NERC has not prepared an estimated completion date for inclusion in this filing.

***Project 2008-01 Voltage and Reactive Planning and Control***

The project will revise the VAR standards to require that appropriate functional entities develop and coordinate voltage and reactive planning and operating criteria to ensure that there are sufficient reactive resources, and voltage and reactive margins, to manage the risk of voltage instability. This project includes modification to the following standards:

- VAR-001 Voltage and Reactive Control; and
- VAR-002 Generator Operation for Maintaining Network Voltage Schedules.

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the third quarter of 2012. The recent prioritization efforts of NERC's Standards Committee resulted in this project moving to "informal development." NERC has not prepared an estimated completion date for inclusion in this filing.

### ***Project 2008-02 Undervoltage Load Shedding***

This project will be based on the information contained in the Fault-Induced Delayed Voltage Recovery Technical Reference Paper,<sup>3</sup> and includes modifications to the following standards:

- PRC-010 Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program; and
- PRC-022 Under-Voltage Load Shedding Program Performance.

This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

### ***Project 2008-12 Coordinate Interchange Standards***

This project is intended to clarify the assignment of responsibilities for the Interchange standards, as well as to address the use of Dynamic Transfers and Pseudo-ties, and to provide details on back-up requirements for interchange coordination systems (such as e-Tag). This project includes modification to the following standards:

- INT-001 Interchange Information;
- INT-003 Interchange Transaction Implementation;
- INT-004 Dynamic Interchange Transaction Modifications;
- INT-005 Interchange Authority Distributes Arranged Interchange;
- INT-006 Response to Interchange Authority;
- INT-007 Interchange Confirmation;
- INT-008 Interchange Authority Distributes Status;
- INT-009 Implementation of Interchange; and
- INT-010 Interchange Coordination Exemptions.

When the 2010 Development Plan was drafted, NERC anticipated this project to be

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<sup>3</sup> Available at: [http://www.nerc.com/docs/pc/tis/FIDV\\_R\\_Tech\\_Ref\\_V1-1\\_PC\\_Approved.pdf](http://www.nerc.com/docs/pc/tis/FIDV_R_Tech_Ref_V1-1_PC_Approved.pdf).

completed in the second quarter of 2013. The recent prioritization efforts of NERC’s Standards Committee resulted in this project moving to “informal development.” However, NERC still estimates completing this project in 2013.

***Project 2009-02 Real-time Reliability Monitoring and Analysis Capabilities (formerly Project 2009-02 Real-time Tools)***

This project establishes requirements for the functionality, performance, and maintenance of Real-time Monitoring and Analysis capabilities for Reliability Coordinators, Transmission Operators, Generator Operators, and Balancing Authorities for use by their System Operators in support of reliable System operations. This project may include modification a number of standards or develop new standards.

A timeline for Project 2009-02 — Real-time Reliability Monitoring and Analysis Capabilities was not identified in the 2010 Development Plan. The recent prioritization efforts of NERC’s Standards Committee resulted in this project moving to “informal development.” NERC currently estimates completing this project in 2013.

***Project 2009-03 Emergency Operations Planning***

This project is intended to improve the overall quality of the EOP standards and to eliminate any associated redundancy. This project includes modification to the following standards:

- EOP-001-0 — Emergency Operations Planning;
- EOP-002-2 — Capacity and Energy Emergencies;
- EOP-003-1 — Load Shedding Plans; and
- IRO-001-1 — Reliability Coordination — Responsibilities and Authorities.

A timeline for this project was not identified in the 2010 Development Plan. The recent prioritization efforts of NERC’s Standards Committee resulted in this project moving to “informal development.” NERC currently estimates completing this project in 2013.



***Project 2009-04 Phasor Measurements***

This project will create requirements related to the use of Phasor Measurement Units. This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

***Project 2009-05 Resource Adequacy Assessments***

This project will implement recommendations from the Resource and Transmission Adequacy Task Force Report and the Electricity Interdependency Task Force Report. Because this project has yet to be initiated, NERC has not prepared an estimated completion date for inclusion in this filing.

***Project 2009-07 Reliability of Protection Systems***

This project will establish requirements related to the redundancy of protection systems to ensure that for critical facilities, protection systems can continue to function despite the failure of a component of the system. This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

***Project 2010-01 Support Personnel Training***

This project will require the use of a systematic approach to determining training needs of generator operators and operations planning and support staff with a direct impact on the reliable operations of the bulk power system. This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

***Project 2010-02 Connecting New Facilities to the Grid***

This project will develop standards regarding the elements to be addressed when a new facility is connected to the bulk power system. This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

### ***Project 2010-03 Modeling Data***

This project will merge, update, and expand existing requirements for entities to provide data used to model the bulk power system. This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

### ***Project 2010-04 Demand Data***

This project is intended to provide more detail and clarity to several of the MOD standards, including:

- MOD-016 Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management;
- MOD-017 Aggregated Actual and Forecast Demands and Net Energy for Load;
- MOD-018 Treatment of Nonmember Demand Data and How Uncertainties are Addressed in the Forecasts of Demand and Net Energy for Load;
- MOD-019 Reporting of Interruptible Demands and Direct Control Load Management;
- MOD-020 Providing Interruptible Demands and Direct Control Load Management Data to System Operators and Reliability Coordinators; and
- MOD-021 Documentation of the Accounting Methodology for the Effects of Demand-Side Management in Demand and Energy Forecasts.

This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

### ***Project 2010-08 Functional Model Glossary Revisions***

This project is intended to remedy any inconsistencies between the Functional Model and any associated terms used in the NERC Glossary. This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

### ***Project 2010-13 Relay Loadability Order Phase 2***

This project will establish standards regarding relay loadability for Generators. This project involves the drafting of a new standard.

The recent prioritization efforts of NERC's Standards Committee resulted in this project being identified to move to "informal development." However, it is possible that other factors will require that this project remain in formal development in the near term.

NERC currently estimates completing the project in 2013, but this may change when the project's ultimate status is determined.

### ***Project 2010-14 Balancing Authority Reliability-based Control***

NERC created this project by merging two former projects: 2007-05 — Balancing Authority Controls and 2007-18 — Reliability-based Controls. This project is working to improve the BAL family of standards to ensure that Balancing Authorities take actions to maintain interconnection frequency with each Balancing Authority contributing its fair share of frequency control. The project includes modification to the following standards:

- BAL-001 Real Power Balancing Control Performance;
- BAL-002 Disturbance Control Performance;
- BAL-004 Time Error Correction;
- BAL-005 Automatic Generation Control; and
- BAL-006 Inadvertent Interchange.

NERC did not identify a timeline for this project in the 2010 Development Plan. The recent prioritization efforts of NERC's Standards Committee resulted in this project moving to "informal development." NERC currently estimates completing the project in 2013.

***Project 2010-16 Definition of System Operator***

This project is intended to address ambiguity in the current definition of “System Operator” with regard to roles and responsibilities. This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

***Project 2012-01 Equipment Monitoring and Diagnostic Devices***

This project will address the application of major equipment monitoring and diagnostic devices and procedures. This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

***Project 2012-02 Physical Protection***

This project will address the physical protection of essential equipment, building, and personnel at generation, transmission, or distribution locations. This project has yet to be initiated, and at this time, NERC has not prepared an estimated completion date for inclusion in this filing.

**PROJECTS THAT HAVE BEEN ELIMINATED THROUGH ADMINISTRATIVE ACTIONS**

***Project 2007-05 Balancing Authority Controls***

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the fourth quarter of 2012. However, in 2010, this project was merged with Project 2007-18 Reliability-based Controls to create Project 2010-14 Balancing Authority Reliability-based Control. *See*, Project 2010-14 Balancing Authority Reliability-based Control for additional details.

***Project 2007-18 Reliability-Based Control***

When the 2010 Development Plan was drafted, NERC anticipated this project to be completed in the fourth quarter of 2011. However, in 2010, this project was merged with Project 2007-05 Balancing Authority Controls to create Project 2010-14 Balancing Authority

Reliability-based Control. *See*, Project 2010-14 Balancing Authority Reliability-based Control for additional details.

***Project 2010-06 Results-based Reliability Standards***

A timeline for Project 2010-06 Results-based Reliability Standards was not identified in the 2010 Development Plan. An Ad Hoc group representing the industry, NERC, and regional staffs was formed to develop recommendations to ensure that NERC's Reliability Standards have the greatest possible positive effect on the reliability of the bulk power system. The Ad Hoc group developed a recommendation that outlined a guiding set of principles based on performance and risk-based standards development methodologies and presented specific recommendations for improving the development and format of NERC's Reliability Standards. Those recommendations were endorsed by the NERC Board on November 4, 2009. On August 5, 2010, the NERC Board approved the transition plan for transitioning the set of NERC Reliability Standards to a results-based format. This project has been completed and has been removed from the 2011 Development Plan.

**PROJECTS THAT HAVE BEEN COMPLETED**

***Project 2006-04 — Backup Facilities***

This project was completed on August 5, 2010 when the NERC Board of Trustees approved EOP-008-1 — Loss of Control Center Functionality and its associated implementation plan. Accordingly, this project has been removed from the 2011 Development Plan.

***Project 2006-08 — Transmission Loading Relief***

This project was completed on November 4, 2010 when the NERC Board of Trustees approved IRO-006-5 Reliability Coordination – Transmission Loading Relief, IRO-006-EAST-1 TLR Procedure for the Eastern Interconnection, and their associated implementation plans. Accordingly, this project has been removed from the 2011 Development Plan.

***Project 2007-01 Underfrequency Load Shedding***

This project was completed on November 4, 2010 when the NERC Board of Trustees approved PRC-006-1 Automatic Underfrequency Load Shedding, EOP-003-2 Load Shedding Plans, and their associated implementation plans. Accordingly, this project has been removed from the 2011 Development Plan.

***Project 2007-04 Certifying System Operators***

This project was completed on February 17, 2010 when the NERC Board of Trustees approved PER-003-1 Operating Personnel Credentials Standard and its associated implementation plan. Accordingly, this project has been removed from the 2011 Development Plan.

***Project 2009-18 Withdraw Three Midwest ISO Waivers***

This project was completed on November 5, 2009 when the NERC Board of Trustees approved BAL-006-2 Inadvertent Interchange, INT-003-3 Interchange Transaction Implementation, and their associated implementation plans. Accordingly, this project has been removed from the 2011 Development Plan.

***Project 2010-13 Relay Loadability Order Phase 1***

This project was completed on March 10, 2011 when the NERC Board of Trustees approved PRC-021-2 Transmission Relay Loadability and its associated implementation plan. Accordingly, this project has been removed from the 2011 Development Plan.

**LATE ADDITIONS**

***Project 2009-06 Facility Ratings***

This project is intended to clarify the existing FAC standards, and includes modification to the following standards:

- FAC-008 Facility Ratings Methodology; and
- FAC-009 Establish and Communicate Facility Ratings.

Originally completed in March of 2010, additional modifications are being made to the standard in response to a FERC directive. As such, the project was not included in the prioritization effort. NERC currently estimates completing the project in the second quarter of 2011, consistent with regulatory directives.

## **B. NERC Stakeholders Input**

To support the development of the 2011 Development Plan, NERC sought stakeholder input during two open comment periods, which took place from May 24, 2010 through July 8, 2010 and from August 17, 2010 through September 16, 2010. In addition, NERC solicited input from the NERC technical committees, from additional subject matter experts on the NERC staff, and from FERC staff. NERC received a total of 34 sets of comments during the open stakeholder comment periods. Comments were received from the Midwest Reliability Organization, Georgia System Operations Corporation, Constellation Energy Group, Arizona Electric Power Cooperative, Arlington Valley Energy Facility, Covanta, Fountain Valley Power, Harbor Cogeneration Company, Las Vegas Cogeneration LP, SWG Colorado LLC, Valencia Power LLC, Electric Power Supply Association, Pinellas County Resource Recovery Facility, Union Power Partners, Competitive Power Ventures, Cogentrix Energy, New Harquahala Generating Co, Indeck Energy Services, Cowlitz County PUD No. 1 of Washington State, Tenaska, Wisconsin Electric, Forked River Power LLC, Independent Electricity System Operator, Bonneville Power Administration, North American Energy Standards Board, Midwest ISO, Dominion Resources Services, NERC Regional Reliability Standards Working Group, Western Electricity Coordinating Council, NERC Operating Committee, and Duke Energy Corporation.

Additionally, NERC sought additional stakeholder feedback regarding the prioritization process used by the Standards Committee to develop the list of projects for 2011. Stakeholders provided informal comments from January 21, 2011, to February 20, 2011. This additional feedback assisted the Standards Committee in further refining its prioritization efforts, which will be provided in a supplementary filing following the finalization of associated responses at NERC's Standards Committee meeting, which occurred on April 13-14, 2011.

A summary of Stakeholder comments received and the comments received regarding the draft 2011 Development Plan during the open comment period are included as **Exhibit C**. The major themes of the comments received are summarized below.

The need to establish priorities for NERC's standards development projects was a recurrent theme during the FERC-led technical conference of July 6, 2010 addressing industry perspectives on issues pertaining to the development and enforcement of mandatory Reliability Standards for the bulk power system. In line with this theme, a number of the comments received during the open comment periods for the 2011 Development Plan focused on the prioritization methodology used during the drafting of the 2011 Development Plan.

In particular, a number of comments indicated that the criteria used in the initial ranking process used to draft the 2011 Development Plan did not fully account for the special circumstances and significance of the new standards needed to clarify requirements for generator interconnection transmission facilities for Project 2010-07 — Generator Requirements at the Transmission Interface. The comments provided sound reasoning for modifying the ranking of Project 2010-07 — Transmission Requirements at the Generator Interface. This resulted in updated assumptions that the Standards Committee used in the prioritization of projects in the NERC Board-approved 2011 Development Plan.

Other comments supported the continued advancement of a concept for prioritization of standards development projects to accurately reflect the existence and priority of all projects that



are currently active or planned. A revised prioritization process was presented to and endorsed by the NERC Board at its February 2011 meeting.

Other comments recommended that the priority of specific projects be elevated for specific reasons. Each of the suggestions submitted with sound reasoning for elevating the priority of a specific project was incorporated into the prioritization methodology used to assist in determining the priority of projects in the NERC Board-approved 2011 Development Plan.

As in past years, a number of comments identified the burden and stress on the limited industry resources required to support the large number of standards development projects included in the 2011 Development Plan. NERC understands the commitment of resources required for the development of quality standards. In conjunction with the effort to coordinate with the NERC Board's Standards Oversight and Technology Committee, NERC Standards Committee, applicable regulatory authorities, and industry participants in further advancing the prioritization process identified in the 2011 Development Plan, additional efforts were made to identify a smaller set of active standards development projects to limit the focus of the limited industry resources. This has resulted in a plan that in 2011 will reduce the total number of projects in development over the course of the year.

A number of comments supported the transition to results-based Reliability Standards. The 2011 Development Plan was drafted consistent with the plan for transitioning the current set of NERC standards to results-based standards as proposed by the Ad Hoc Group.

Respectfully submitted,

/s/ Holly A. Hawkins

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## **Exhibits A - C**

(Available on the NERC Website at

[http://www.nerc.com/fileUploads/File/Filings/Attachments\\_RSDP\\_2011-2013.pdf](http://www.nerc.com/fileUploads/File/Filings/Attachments_RSDP_2011-2013.pdf)