BEFORE THE
MINISTRY OF ENERGY
OF THE PROVINCE OF NEW BRUNSWICK

NORTH AMERICAN ELECTRIC	**)**
RELIABILITY CORPORATION	**)**

NOTICE OF FILING OF THE NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION OF PROPOSED RELIABILITY STANDARDS IRO-001-3, IRO-002-3, IRO-005-4, and IRO-014-2

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The North American Electric Reliability Corporation ("NERC") hereby submits four revised Reliability Standards:

- IRO-001-3 — Reliability Coordination — Responsibilities and Authorities
- IRO-002-3 — Reliability Coordination – Analysis Tools
- IRO-005-4 — Reliability Coordination – Current Day Operations
- IRO-014-2 — Coordination Among Reliability Coordinators

These proposed Reliability Standards are referred to herein as the "IRO Reliability Standards."

NERC also provides notice of the implementation plan for the proposed IRO Reliability Standards, and the retirement of the following six Reliability Standards, effective as provided in the implementation plan:

- IRO-001-1.1 - Reliability Coordination - Responsibilities and Authorities
- IRO-002-2 - Reliability Coordination - Facilities
- IRO-005-3a - Reliability Coordination - Current Day Operations
- IRO-014-1 - Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators

- IRO-015-1 - Notifications and Information Exchange Between Reliability Coordinators
- IRO-016-1 - Coordination of Real-time Activities Between Reliability Coordinators.

On August 4, 2011 and August 16, 2012,[1] the NERC Board of Trustees approved the proposed IRO Reliability Standards and the associated implementation plans that were part of Project 2006-06 – Reliability Coordination.[2] Subsequently, on May 9, 2012, the NERC Board of Trustees approved the proposed TOP-001-2, TOP-002-3, and TOP-003-2 – Real-time Transmission Operations ("TOP Reliability Standards"). NERC is submitting the proposed TOP Reliability Standards in a separate filing that is being filed contemporaneously with this filing.[3] The standards presented in these filings should be approved simultaneously given that the proposed IRO Reliability Standards remove requirements from the currently-effective IRO standards for Transmission Operators that are added as requirements in proposed TOP Reliability Standards. Similarly, the proposed TOP Reliability Standards remove requirements for Reliability Coordinators from the currently-effective TOP standards and that are added as requirements in the proposed IRO Reliability Standards. Accordingly, simultaneous approval of both fiings will help ensure a smooth transition and implementation of the proposed Reliability

[1] The NERC Board of Trustees approved the proposed IRO-002-3, IRO-005-4, and IRO-014-2 on August 4, 2011. The Board also approved a proposed IRO-001-2 Reliability Standard on August 4, 2011, that was subsequently revised by the standard drafting team before it was filed with the applicable governmental authorities. The revision is designated as IRO-001-3, was approved by the Board on August 16, 2012, and is included in this filing.
[2] This filing addresses two directives associated with IRO-005-1 that were issued by the Federal Energy Regulatory Commission in FERC Order No. 693. A directive associated with IRO-002-1 was not addressed by the standard drafting team, as this directive falls under the scope of Real-Time Tools Best Practices Task Force.
[3] NERC notes that these proposed standards were delayed in being filed given that a separate analysis was performed by NERC staff after Board approval comparing the proposed TOP Reliability Standards to the events of the September 2011 Southwest Blackout Event. The details of this analysis are described in more detail in the filing of the proposed TOP Reliability Standards filed concurrently with this filing.

Standards for both the industry and the ERO. Together, these sets of Reliability Standards address actions required to prevent instability, uncontrolled separation, or cascading outages.

This filing presents the technical basis and purpose of the proposed IRO Reliability Standards, a summary of the development proceedings, and a demonstration that the proposed Reliability Standards meet the criteria identified for Reliability Standards.

I. Executive Summary

The proposed IRO Reliability Standards achieve two important overall reliability benefits. First, the proposed Reliability Standards delineate a clean division of responsibilities between the Reliability Coordinator and Transmission Operators. This division of responsibilities will help to ensure that the Reliability Coordinator is responsible for identifying and controlling operations associated with Interconnection Reliability Operating Limits ("IROLs") and the Transmission Operator is responsibility for identifying and controlling operations associated with System Operating Limits ("SOLs"). As demonstrated during the August 2003 blackout, having a clear division of responsibilities is essential in real-time operations[4] and will help to ensure that Reliability Coordinators and Transmission Operators are working together to ensure bulk power system reliability. The proposed IRO Reliability Standards give the Reliability Coordinator the authority to direct its Transmission Operators to take actions to prevent or mitigate instances of exceeding specific IROLs. Similarly the Transmission Operator may ask the Reliability Coordinator for assistance in preventing or mitigating instances of exceeding specific SOLs. This delineation of responsibilities between Reliability Coordinators and Transmission Operators is appropriate because the responsibility for monitoring and handling IROLs is primarily given to the Reliability Coordinator but the

[4] *See*, NERC August 14, 2003 Blackout Investigation, available at: http://www.nerc.com/filez/blackout.html.

Transmission Operator has the primary responsibility to designate any SOLs that require special attention.

The second significant reliability benefit of the proposed IRO Reliability Standards is in the improvement to system performance by raising the bar on monitoring of IROLs and SOLs in order to focus this monitoring on IROLs and SOLs that are important to reliability. Additionally, with the approval of the proposed TOP Reliability Standards filed concurrently with this filing, the proposed TOP-001-2, Requirement R8 will give Transmission Operators the ability to identify a sub-set of non-IROL SOLs that are identified as important for local areas. This will give Transmission Operators the authority to ensure that any non-IROL SOLs in which it is concerned to direct that they be monitored and local consequences managed.

The proposed IRO Reliability Standards also serve the following, additional reliability goals:

- Interconnected Bulk Electric Systems will be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Reliability Standards.

- Personnel responsible for planning and operating interconnected bulk electric systems will be trained, qualified, and have the responsibility and authority to implement actions.

- The security of the interconnected bulk electric systems will be assessed, monitored and maintained on a wide-area basis.

- Plans for emergency operation and system restoration of interconnected bulk electric systems will be developed, coordinated, maintained and implemented.

Each of the proposed IRO Reliability Standards has a clear purpose. Proposed IRO-001-3 gives Reliability Coordinators the authority to have plans and agreements in place to immediately direct reliability entities within their Reliability Coordinator Areas to re-dispatch generation, reconfigure transmission, or reduce load to mitigate critical conditions to return the

system to a reliable state. If a Reliability Coordinator delegates such tasks to others, the Reliability Coordinator retains its responsibilities for complying with NERC and regional Reliability Standards.

Proposed IRO-002-3 gives Reliability Coordinators the ability to provide their System Operators with authority to analyze tool outages and to have procedures to mitigate effects of tool outages. Proposed IRO-005-4 ensures that entities are notified when an expected or actual event with Adverse Reliability Impacts is identified. And proposed IRO-014-2 ensures that each Reliability Coordinator's operations are coordinated such that they will not have an Adverse Reliability Impact on other Reliability Coordinator Areas and to preserve the reliability benefits of interconnected operations.

The technical expertise of the ERO is derived from the standard drafting team. For this project, the standard drafting team consisted of eight industry experts with a wealth of diverse industry experience across North America, including both the continental United States and Canada. A roster of the standard drafting team is included in **Exhibit G.**

II. NOTICES AND COMMUNICATIONS

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

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III. BACKGROUND

A. Reliability Standards Development Procedure

NERC develops Reliability Standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure and the NERC *Reliability Standards Development Procedure*, which is incorporated into the Rules of Procedure as Appendix 3A. 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 and thus satisfies certain of the criteria for approving 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 vote of stakeholders and the NERC Board of Trustees is required to approve a Reliability Standard before its submission to the applicable governmental authorities.

The proposed Reliability Standards set out in **Exhibit B** have been developed and approved by industry stakeholders using NERC's *Reliability Standards Development Procedure*. They were approved by the NERC Board of Trustees on August 4, 2011 and August 16, 2012.

IV. JUSTIFICATION

A. Basis and Purpose of Proposed IRO Reliability Standards

The proposed Reliability Standards provide a set of coordinated Reliability Standards that Reliability Coordinators must utilize in their operations of the bulk power system. With the standards proposed herein and the proposed TOP Reliability Standards filed concurrently with this filing, the NERC Reliability Standards will help to ensure better coordination for Transmission Operators and Reliability Coordinators to plan and operate the interconnected Bulk Electric System in a synchronized manner to perform reliably under normal and abnormal conditions.

Each of the proposed IRO Reliability Standards are described briefly below and in more detail in **Exhibit C** which includes a complete mapping of changes to the currently-effective IRO standards to the proposed IRO Reliability Standards.

1. Improvements Reflected in Proposed IRO Reliability Standards

The proposed IRO Reliability Standards serve the following important reliability goals:

- Interconnected Bulk Electric Systems will be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Reliability Standards.

- Personnel responsible for planning and operating interconnected bulk electric systems will be trained, qualified, and have the responsibility and authority to implement actions.

- The security of the interconnected bulk electric systems will be assessed, monitored and maintained on a wide-area basis.

- Plans for emergency operation and system restoration of interconnected bulk electric systems will be developed, coordinated, maintained and implemented.

2. Requirements in Proposed IRO Reliability Standards

This section summarizes the development of the proposed IRO Reliability Standards and explains the reliability goal of the requirements proposed. All of the requirements from the currently-effective IRO Reliability Standards proposed for approval or retirement in this filing are addressed in the section below and are organized by type of requirement (***e.g.,*** Requirements Related to Reliability Coordinators' Authority, Plans, and Agreements; Requirements Related to System Operators' Authority to Analyze Tool Outages, ***etc.***). NERC, in its analysis of the proposed Reliability Standards, determined that the proposed standards are just, reasonable, not unduly discriminatory or preferential, and in the public interest.

Requirements Related to Reliability Coordinators' Authority, Plans, and Agreements

IRO-001-3

The primary purpose of Reliability Standard IRO-001-3 is to ensure that Reliability Coordinators have the authority to direct other entities to prevent an Emergency or Adverse Reliability Impact to the Bulk Electric System. The proposed standard achieves this goal by requiring the Reliability Coordinator to have the responsibility and authority to act or direct

others to act (which could include issuing Reliability Directives) to prevent identified events or mitigate the magnitude or duration of actual events that result in an Emergency or Adverse Reliability Impact.

Proposed Requirements

> **R1.** Each Reliability Coordinator shall have the authority to act or direct others to act (which could include issuing Reliability Directives) to prevent identified events or mitigate the magnitude or duration of actual events that result in an Emergency or Adverse Reliability Impact. *[Violation Risk Factor: High][Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]*
>
> **R2.** Each Transmission Operator, Balancing Authority, Generator Operator, and Distribution Provider shall comply with its Reliability Coordinator's direction unless compliance with the direction cannot be physically implemented or unless such actions would violate safety, equipment, regulatory, or statutory requirements. *[Violation Risk Factor: High] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]*
>
> **R3.** Each Transmission Operator, Balancing Authority, Generator Operator, and Distribution Provider shall inform its Reliability Coordinator upon recognition of its inability to perform as directed in accordance with Requirement R2. *[Violation Risk Factor: High] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]*

These proposed requirements provide a technically sound way to ensure that the responsibility and authority to act or direct others to act (which could include issuing Reliability Directives) to prevent identified events or mitigate the magnitude or duration of actual events that result in an Emergency or Adverse Reliability Impact is assigned to the Reliability Coordinator. Entities required to perform actions issued by the Reliability Coordinator must comply with its Reliability Coordinator's direction unless compliance with the direction cannot be physically implemented or unless such actions would violate safety, equipment, regulatory, or statutory requirements.

The changes to the proposed IRO-001-3 are a result of the retirement of the currently-effective IRO-001-1.1, Requirement R7, which states:

> **R7.** The Reliability Coordinator shall have clear, comprehensive coordination agreements with adjacent Reliability Coordinators to ensure that System Operating Limit or Interconnection Reliability Operating Limit violation mitigation requiring actions in adjacent Reliability Coordinator Areas are coordinated.

The reliability objective of IRO-001-1.1, Requirement R7, is now covered in proposed IRO-014-2, which addresses Operating Procedures, Operating Processes and Operating Plans.[5]

Both IRO-001-1.1 and IRO-014-2 require coordination between Reliability Coordinators. IRO-001-1.1, Requirement R7, requires specific agreements "to ensure that System Operating Limit or Interconnection Reliability Operating Limit violation mitigation requiring actions in adjacent Reliability Coordinator Areas are coordinated." Similarly, IRO-014-2, Requirement R1, Part 1.6 requires that the Operating Procedures, Operating Processes, or Operating Plans include authority to act to prevent and mitigate system conditions which could cause Adverse Reliability Impacts to other Reliability Coordinator Areas.[6] Therefore, these currently-effective requirements will ensure that both coordination agreements are in place to ensure that IROLs and SOLs are managed, and that system conditions which could cause Adverse Reliability Impacts are mitigated.

IRO-014-2, Requirement R1, and IRO-001-1.1, Requirement R7, both have the same reliability objective and would therefore create unnecessary overlap if both were in effect. Therefore, in order to eliminate the possibility of confusion for applicable entities, Requirement R7 of IRO-001-1.1 is proposed for retirement.

[5] Proposed IRO-014-2, Requirement R1, specifically requires each "Reliability Coordinator to have Operating Procedures, Operating Processes, or Operating Plans for activities that require notification, exchange of information or coordination of actions that may impact other Reliability Coordinator Areas to support Interconnection reliability."

[6] The term "Adverse Reliability Impact" is defined in the NERC Glossary of Terms as: "The impact of an event that results in Bulk Electric System instability or Cascading." This revised definition was approved by the NERC Board of Trustees on August 4, 2011, as a defined term used in Reliability Standard IRO-014-2.

Requirements Related to System Operators' Authority to Analyze Tool Outages

IRO-002-3

The primary purpose of proposed Reliability Standard IRO-002-3 is to ensure that Reliability Coordinators provide their System Operators with authority to analyze tool outages and to have procedures to mitigate effects of tool outages.

Proposed Requirements

- **R1.** Each Reliability Coordinator shall provide its System Operators with the authority to approve, deny or cancel planned outages of its own analysis tools. *[Violation Risk Factor: Medium] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]*
- **R2.** Each Reliability Coordinator shall have procedures in place to mitigate the effects of analysis tool outages. *[Violation Risk Factor: Medium] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]*

For the reasons explained below, the IRO-002-3 standard proposes to retire Requirements R1, R2, R3, R4, R5, R6, and R7 from the currently-effective IRO-002-2 to eliminate redundancies in the Reliability Standards.

Requirement R1 of currently-effective IRO-002-2 states that the Reliability Coordinator shall have adequate communications facilities (voice and data links) linked to appropriate entities within its Reliability Coordinator Area and that these facilities shall be staffed and available to act in addressing a real-time emergency condition. NERC is proposing that the first part of Requirement R1 of IRO-002-2, which provides that "Each Reliability Coordinator shall have adequate communications facilities (voice and data links) to appropriate entities within its Reliability Coordinator Area…" be retired because it is addressed in the facility requirements specified in COM-001-1, Requirement R1, which was filed on December 5, 2006. COM-001-1, Requirement R1 provides:

> **R1.** Each Reliability Coordinator, Transmission Operator and Balancing Authority shall provide adequate and reliable telecommunications facilities for the exchange of Interconnection and operating information:
>
> > **R1.1.** Internally.
> > **R1.2.** Between the Reliability Coordinator and its Transmission Operators and Balancing Authorities.
> > **R1.3.** With other Reliability Coordinators, Transmission Operators, and Balancing Authorities as necessary to maintain reliability.
> > **R1.4.** Where applicable, these facilities shall be redundant and diversely routed.[7]

The second part of IRO-002-2, Requirement R1, states that: "These communications facilities shall be staffed and available to act in addressing a real-time emergency condition." This part of the requirement is proposed to be retired because it is redundant with the currently-effective PER-004-2, Requirement R1, which was filed on November 2, 2009. PER-004-2, Requirement R1, provides:

> **R1.** Each Reliability Coordinator shall be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

NERC therefore proposes that IRO-002-2, Requirements R1 be retired.

Requirement R2 of the currently-effective IRO-002-2 calls for the Reliability Coordinator to provide, or arrange provisions for, data exchange to other Reliability Coordinators or Transmission Operators and Balancing Authorities via a secure network. NERC requests that this requirement be retired because it is now addressed in the proposed IRO-014-2, Requirement R1, which provides that the Reliability Coordinator shall have Operating Procedures, Operating Processes, or Operating Plans for activities that require notification, exchange of information or

[7] NERC is also preparing to file a proposed COM-001-2 Reliability Standard that was approved by the NERC Board of Trustees on November 7, 2012. Similar to the currently-effective COM-001-1 Reliability Standard, the proposed COM-001-2 Reliability Standard addresses the need for adequate communication facilities. Specifically, the proposed standard requires the need for communication among Transmission Operators, Balancing Authorities, Reliability Coordinators and Distribution Providers. The proposed standard is available at: http://www.nerc.com/files/COM-001-2.pdf.

coordination of actions that may impact other Reliability Coordinator Areas to support Interconnection reliability. Additionally, proposed IRO-014-2, Requirement R3, provides that:

> **R3.** Each Reliability Coordinator shall make notifications and exchange reliability–related information with other Reliability Coordinators in accordance with the Operating Procedures, Operating Processes, or Operating Plans identified in Requirement R1.

In addition, the provision in IRO-002-2, Requirement R2, stating that Reliability Coordinators provide information via a "secure network" is addressed in the NERC Rules of Procedure, Section 1002, which provides that:

> **1002. Reliability Support Services**
> NERC may assist in the development of tools and other support services for the benefit of Reliability Coordinators and other system operators to enhance reliability, operations and planning. NERC will work with the industry to identify new tools, collaboratively develop requirements, support development, provide an incubation period, and at the end of that period, transition the tool or service to another group or owner for long term operation of the tool or provision of the service. To accomplish this goal, NERC will:
>
> 1. Collaborate with industry to determine the necessity of new tools or services to enhance reliability;
> 2. For those tools that the collaborative process determines should proceed to a development phase, provide a start-up mechanism and development system;
> 3. Implement the tool either on its own or through an appropriate group or organization; and
> 4. Where NERC conducts the implementation phase of a new tool or service, develop a transition plan to turn maintenance and provision of the tool or service over to an organization identified in the development stage.
>
> In addition to tools developed as a result of a collaborative process with industry, NERC may develop reliability tools on its own, but will consult with industry concerning the need for the tool prior to proceeding to development.
>
> Tools and services being maintained by NERC as of January 1, 2012, will be reviewed and, as warranted, transitioned to an appropriate industry group or organization. NERC will develop and maintain a strategic reliability tools plan that will list the tools and services being maintained by NERC, and, where applicable, the plans for transition to an appropriate industry group or organization.

Because the currently-effective IRO-002-2, Requirement R2 is now addressed in the proposed IRO-014-2, Requirements R1, R2, R3, and Section 1002 of the NERC Rules of Procedure, NERC proposed that IRO-002-2, Requirement R2 be retired.

Requirement R3 of the currently-effective IRO-002-2 states that:

> **R3.** Each Reliability Coordinator shall have multi-directional communications capabilities with its Transmission Operators and Balancing Authorities, and with neighboring Reliability Coordinators, for both voice and data exchange as required to meet reliability needs of the Interconnection.

Requirement R3 is redundant with the facility requirements specified in COM-001-1, Requirement R1, which requires Reliability Coordinators, Transmission Operators, and Balancing Authorities to provide adequate and reliable telecommunications facilities for the exchange of Interconnection and operating information.[8] NERC therefore proposes that IRO-002-2, Requirements R3 be retired.

Additionally, the data exchange provisions of Requirement R3 of IRO-002-2 are addressed in the currently-effective standard IRO-010-1a, Requirement R1, which provides:

> **R1.** The Reliability Coordinator shall have a documented specification for data and information to build and maintain models to support Real-time monitoring, Operational Planning Analyses, and Real-time Assessments of its Reliability Coordinator Area to prevent instability, uncontrolled separation, and cascading outages.

Requirements Related to IROLs and SOLs

The requirements related to IROLs and SOLs in the proposed IRO Reliability Standards are proposed for modification or retirement in order to focus monitoring of IROLs and SOLs in the Reliability Standards on those IROLs and SOLs important to reliability. This refocus of the requirements also eliminates redundancies in the standards. The discussion below addresses these proposed changes.

[8] *See supra* note 21.

Requirement R4 of the currently-effective IRO-002-2 Reliability Standard addresses monitoring capability and systems, including Interconnection Reliability Operating Limits ("IROLs") and System Operating Limit ("SOLs") and provides:

> **R4.** Each Reliability Coordinator shall have detailed real-time monitoring capability of its Reliability Coordinator Area and sufficient monitoring capability of its surrounding Reliability Coordinator Areas to ensure that potential or actual System Operating Limit or Interconnection Reliability Operating Limit violations are identified. Each Reliability Coordinator shall have monitoring systems that provide information that can be easily understood and interpreted by the Reliability Coordinator's operating personnel, giving particular emphasis to alarm management and awareness systems, automated data transfers, and synchronized information systems, over a redundant and highly reliable infrastructure.

This requirement is proposed for retirement because, as explained below, an SOL would unlikely have an impact on the wide-area reliability of the bulk power system.

An SOL is defined in the NERC Glossary of Terms as:

> "The value (such as MW, MVar, Amperes, Frequency or Volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria. System Operating Limits are based upon certain operating criteria. These include, but are not limited to:
>
> - Facility Ratings (Applicable pre- and post-Contingency equipment or facility ratings)
> - Transient Stability Ratings (Applicable pre- and post-Contingency Stability Limits)
> - Voltage Stability Ratings (Applicable pre- and post-Contingency Voltage Stability)
> - System Voltage Limits (Applicable pre- and post-Contingency Voltage Limits)"

An SOL limit is derived from operating criteria to ensure the reliable and safe operation of a particular facility. If an SOL limit is exceeded, it will generally not have an impact outside of the affected Transmission Operator's area, and therefore will not have an impact on the wide-area reliability of the bulk power system.

Where an SOL has a wider impact it is considered and redefined as an IROL, which is defined in the NERC Glossary of Terms as: "A System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or Cascading Outages that adversely impact the reliability of the Bulk Electric System."[9] Therefore, because IROL limits that, if violated, would have an impact on bulk power system reliability, the proposed IRO Reliability Standards have been modified to focus on IROLs having a direct impact on reliability.

Additionally, Requirement R4 of currently-effective IRO-002-2 is redundant with the Requirements contained in IRO-010-1a and EOP-008-1, which were filed on January 21, 2010 and March 3, 2011, respectively. With respect to IROLs, Requirement IRO-010-1a states:

> **R1.** The Reliability Coordinator shall have a documented specification for data and information to build and maintain models to support Real-time monitoring, Operational Planning Analyses, and Real-time Assessments of its Reliability Coordinator Area to prevent instability, uncontrolled separation, and cascading outages. The specification shall include the following: (Violation Risk Factor: Low) (Time Horizon: Operations Planning)
>
> > **R1.1.** List of required data and information needed by the Reliability Coordinator to support Real-Time Monitoring, Operational Planning Analyses, and Real-Time Assessments.
> > **R1.2.** Mutually agreeable format.
> > **R1.3.** Timeframe and periodicity for providing data and information (based on its hardware and software requirements, and the time needed to do its Operational Planning Analyses).
> > **R1.4.** Process for data provision when automated Real-Time system operating data is unavailable.
>
> **R2.** The Reliability Coordinator shall distribute its data specification to entities that have Facilities monitored by the Reliability Coordinator and to entities that provide Facility status to the Reliability Coordinator. (Violation Risk Factor: Low) (Time Horizon: Operations Planning)
>
> **R3.** Each Balancing Authority, Generator Owner, Generator Operator, Interchange Authority, Load-serving Entity, Reliability Coordinator, Transmission Operator, and Transmission Owner shall provide data and information, as specified, to the Reliability Coordinator(s) with which it has a

[9] NERC Glossary of Terms at p. 36.

reliability relationship. (Violation Risk Factor: Medium) (Time Horizon: Operations Planning; Same-day Operations; Real-time Operations)

Requirement R1 of IRO-010-1a addresses IROLs by requiring the Reliability Coordinator to "have a documented specification for data and information to build and maintain models to support Real-time monitoring, Operational Planning Analyses, and Real-time Assessments of its Reliability Coordinator Area to prevent instability, uncontrolled separation, and cascading outages."[10] For this reason, Requirement R4 of currently-effective IRO-004-2 that requires Reliability Coordinators to have detailed, real-time monitoring capability of its Reliability Coordinator Area and sufficient monitoring capability of its surrounding Reliability Coordinator Areas to ensure that potential or actual SOL or IROL violations are identified is no longer needed.

Similarly, the proposed TOP-001-2, Requirements R8, R9, R10, and R11, which are being filed contemporaneously with this filing, address SOLs:

> **R8.** Each Transmission Operator shall inform its Reliability Coordinator of each SOL which, while not an IROL, has been identified by the Transmission Operator as supporting reliability internal to its Transmission Operator Area based on its assessment of its Operational Planning Analysis**.** *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*
>
> **R9.** Each Transmission Operator shall not operate outside any System Operating Limit (SOL) identified in Requirement R8 for a continuous duration that would cause a violation of the Facility Rating or Stability criteria upon which it is based. *[Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]*
>
> **R10.** Each Transmission Operator shall inform its Reliability Coordinator of its actions to return the system to within limits when an IROL, or an SOL identified in Requirement R8, has been exceeded. *[Violation Risk Factor: Medium] [Time Horizon: Real-Time Operations]*
>
> **R11.** Each Transmission Operator shall act or direct others to act, to mitigate both the magnitude and duration of exceeding an IROL within the IROL's Tv, or of an SOL identified in Requirement R8. *[Violation Risk Factor: High] [Time Horizon: Real-time Operations]*

[10] NERC Glossary of Terms at p. 24.

The proposed TOP-001-2, Requirement R8 includes a requirement for the Transmission Operator to identify a subset of SOLs that, based on the results of the Transmission Operator's Operational Planning Analysis, could adversely impact reliability in the Transmission Operator's area. The Transmission Operator is required to provide its Reliability Coordinator with those SOLs and is required to inform the Reliability Coordinator when it operates outside of those SOLs. With the proposed IRO Reliability Standards (and concurrently-filed TOP Reliability Standards), NERC believes that monitoring Bulk Electric System elements that could result in SOL or IROL violations will continue to be addressed in a manner that will ensure bulk power system reliability.

NERC notes that currently-effective Reliability Standard IRO-010-1a was approved by the Federal Energy Regulatory Commission ("FERC") in Order No. 748, in part, because monitoring of IROLs and SOLs was included in IRO-002-2.[11] However, in Order No. 748, FERC also acknowledged the on-going industry efforts to improve Reliability Standards pertaining to SOLs, and accepted NERC's commitment to revise applicable Reliability Standards in Projects 2007-03 and 2006-06.[12]

Further, FERC encouraged NERC to use the standard development process to develop appropriate modifications to applicable Reliability Standards as necessary:

> Because the study and monitoring of SOLs and IROLs is an issue at the very core of Bulk-Power System reliability, the Commission agrees with EEI that the NERC Reliability Coordinators Working Group should engage the issues raised in this proceeding with NERC stakeholders, including the NERC Planning and Operating committees, to determine whether a need exists to further refine the delineation of responsibilities between the reliability coordinator and transmission

[11] Order No. 748 at PP 40-41.

[12] *Mandatory Reliability Standards for Interconnection Reliability Operating Limits*, 134 FERC ¶ 61,213, Order No. 748, at P 43 (2011). Project 2007-03 resulted in the proposed TOP Reliability Standards being filed for approval concurrently with this petition. Project 2006-06 is the project that developed the proposed Reliability Standards included herein for approval.

> operator for analyzing a class of "grid-impactive" SOLs. Depending on the results of that review, we further encourage NERC, working through its standard development process, to develop appropriate modifications to these and any other related Reliability Standards as necessary.[13]

The standard drafting team that developed the proposed IRO Reliability Standards collaborated with the standard drafting team that developed the proposed TOP Reliability Standards being filed concurrently with this filing. As a result of this collaboration, the TOP Reliability Standards include requirements for Transmission Operators that work synchronously with the requirements for Reliability Coordinators in the proposed IRO Reliability Standards. Accordingly, Requirement R4 of currently-effective IRO-002-2 should be retired because it is redundant with the requirements in IRO-010-1a and the proposed TOP-001-2 Reliability Standards.

The backup functionality provisions in the second part of IRO-002-2, R4, which are proposed for retirement, are addressed in EOP-008-1, Requirement R4, which provides:

> **R4.** Each Balancing Authority and Transmission Operator shall have backup functionality (provided either through a facility or contracted services staffed by applicable certified operators when control has been transferred to the backup functionality location) that includes monitoring, control, logging, and alarming sufficient for maintaining compliance with all Reliability Standards that depend on a Balancing Authority and Transmission Operator's primary control center functionality respectively. To avoid requiring tertiary functionality, backup functionality is not required during: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
>
> - Planned outages of the primary or backup functionality of two weeks or less
> - Unplanned outages of the primary or backup functionality.

Accordingly, because EOP-008-1, Requirement R4, requires the Transmission Operator to have "back up functionality", IRO-002-2, Requirement R4, should be retired.

[13] *Id* at P. 44.

Currently-effective IRO-002-2, Requirement R5, which addresses monitoring Bulk Electric System elements that could result in SOL or IROL violations, is also proposed for retirement because Real-time monitoring is a supporting activity and is only one of several processes used to support operation within SOLs or IROLs. Currently-effective IRO-002-2, Requirement R5 provides:

> **R5.** Each Reliability Coordinator shall monitor Bulk Electric System elements (generators, transmission lines, buses, transformers, breakers, etc.) that could result in SOL or IROL violations within its Reliability Coordinator Area. Each Reliability Coordinator shall monitor both real and reactive power system flows, and operating reserves, and the status of Bulk Electric System elements that are or could be critical to SOLs and IROLs and system restoration requirements within its Reliability Coordinator Area.

The identified reliability objective of IRO-002-2, Requirement R5, is to operate within identified parameters, not to monitor. However, monitoring Bulk Electric System elements that could result in SOL or IROL violations is implicit in the obligation to control, as specified in the proposed TOP-001-2 Reliability Standard, Requirements R8, R9, R10, and R11, filed concurrently with this filing (*see*, discussion above). Therefore, NERC proposes to retire IRO-002-2, Requirement R5, because it is redundant with the requirement of the proposed TOP-001-2 Reliability Standards.

Requirements Related to Analysis Tools for Reliability Coordinators

Requirement R6 of IRO-002-2, which is proposed for retirement, involves analysis tools for the Reliability Coordinator and lists such tools as state estimation, pre- and post-contingency analysis and wide-area overview displays. The reliability objective of IRO-002-2, Requirement R6, is also addressed in IRO-008-1, which states:

> **R1.** Each Reliability Coordinator shall perform an Operational Planning Analysis to assess whether the planned operations for the next day within its Wide Area, will exceed any of its Interconnection Reliability Operating Limits (IROLs)

during anticipated normal and Contingency event conditions. (Violation Risk Factor: Medium) (Time Horizon: Operations Planning)

R2. Each Reliability Coordinator shall perform a Real-Time Assessment at least once every 30 minutes to determine if its Wide Area is exceeding any IROLs or is expected to exceed any IROLs. (Violation Risk Factor: High) (Time Horizon: Real-time Operations)

R3. When a Reliability Coordinator determines that the results of an Operational Planning Analysis or Real-Time Assessment indicates the need for specific operational actions to prevent or mitigate an instance of exceeding an IROL, the Reliability Coordinator shall share its results with those entities that are expected to take those actions. (Violation Risk Factor: Medium) (Time Horizon: Real-time Operations or Same Day Operations)

A Reliability Coordinator typically employs tools such as state estimation, pre- and post-contingency analysis, and wide-area overview displays to perform the analyses required under IRO-008-1, Requirements R1. However, a list of specific tools that may be used is not included in this requirement. Including a specific list may limit new technologies and analysis tools from being employed to enhance reliability and the wide area view of the Reliability Coordinator. Given that IRO-008-1, Requirement R1, achieves the reliability purpose of IRO-002-2, Requirement R6, NERC is proposing that Requirement R6 of IRO-002-2 be retired in order to avoid redundancy.

Requirements Related to Monitoring the Reliability Coordinators' Area

Requirement R7 of IRO-002-2, which has three parts, is also proposed for retirement:

R7. Each Reliability Coordinator shall continuously monitor its Reliability Coordinator Area. Each Reliability Coordinator shall have provisions for backup facilities that shall be exercised if the main monitoring system is unavailable. Each Reliability Coordinator shall ensure SOL and IROL monitoring and derivations continue if the main monitoring system is unavailable.

The first part of this requirement requires the Reliability Coordinator to "continuously monitor its Reliability Coordinator Area." The standard drafting team determined that real-time

monitoring is a supporting activity and is only one of several processes used to support operation within SOLs or IROLs. The identified reliability objective of the first sentence of Requirement R7 is to operate within identified parameters, not to monitor.

Experience in complying with the body of real-time requirements has shown that some requirements are onerous from the perspective of evidence retention. Retaining evidence to prove that an entity had its system operators actively monitoring all range of parameters 24/7 for 365 days a year for three years is onerous. These lower-level facilitating requirements are also already measured through other performance-based requirements and do not require retention of as much evidence to demonstrate compliance. Thus, since real-time performance-based requirements for the Reliability Coordinator rely on active monitoring, NERC proposes retiring the first sentence of Requirement R7.

The second part of Requirement R7 concerns backup facilities and capability. NERC also proposes to retire this portion of Requirement R7 as it is covered by the backup facility requirements of EOP-008-1, with an effective date of July 1, 2013. Specifically, EOP-008-1 provides:

> **R1.** Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have a current Operating Plan describing the manner in which it continues to meet its functional obligations with regard to the reliable operations of the BES in the event that its primary control center functionality is lost. This Operating Plan for backup functionality shall include the following, at a minimum: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
>
> **1.1.** The location and method of implementation for providing backup functionality for the time it takes to restore the primary control center functionality.
>
> **1.2.** A summary description of the elements required to support the backup functionality. These elements shall include, at a minimum:
>
> **1.2.1.** Tools and applications to ensure that System Operators have situational awareness of the BES.
>
> **1.2.2.** Data communications.
>
> **1.2.3.** Voice communications.

1.2.4. Power source(s).

1.2.5. Physical and cyber security.

1.3. An Operating Process for keeping the backup functionality consistent with the primary control center.

1.4. Operating Procedures, including decision authority, for use in determining when to implement the Operating Plan for backup functionality.

1.5. A transition period between the loss of primary control center functionality and the time to fully implement the backup functionality that is less than or equal to two hours.

1.6. An Operating Process describing the actions to be taken during the transition period between the loss of primary control center functionality and the time to fully implement backup functionality elements identified in Requirement R1, Part 1.2. The Operating Process shall include at a minimum:

1.6.1. A list of all entities to notify when there is a change in operating locations.

1.6.2. Actions to manage the risk to the BES during the transition from primary to backup functionality as well as during outages of the primary or backup functionality.

1.6.3. Identification of the roles for personnel involved during the initiation and implementation of the Operating Plan for backup functionality.

EOP-008-1 requires Reliability Coordinators to have specific backup capabilities sufficient to, among other things, provide visualization capabilities that ensure that operating personnel have situational awareness of the Bulk Electric System. This is stated in EOP-008-1, Requirement R1, Part 1.2.1: "Tools and applications to ensure that System Operators have situational awareness of the BES." To avoid unnecessary redundancy, NERC believes that the second sentence of IRO-002-2, Requirement R7 should be retired.

The third sentence of IRO-002-2, Requirement R7, proposed for retirement, addresses the ability "to ensure SOL and IROL monitoring and derivations continue if the main monitoring system is unavailable." The provisions relating to IROLs are addressed in IRO-010-1a, Requirement R1, Part R1.4 which states that the Reliability Coordinator's data specification shall have a "Process for data provision when automated Real-Time system operating data is

unavailable." As noted above, the provisions pertaining to SOLs are addressed in the proposed TOP-001-2, Requirements R8, R9, R10, and R11.

Requirement R8 of currently-effective IRO-002-2 was revised and incorporated into proposed Requirements R1 and R2 of IRO-002-3. Because this requirement contains two distinct reliability objectives, the standard drafting team created two separate requirements. The first part of Requirement R8 of IRO-002-2 originally stated "Each Reliability Coordinator shall control its Reliability Coordinator analysis tools, including approvals for planned maintenance." This has been revised in IRO-002-3, Requirement R1 to state, "Each Reliability Coordinator shall provide its System Operators with the authority to approve, deny or cancel planned outages of its own analysis tools."

NERC is also developing a set of Reliability Standards in Project 2009-02, which is expected to be completed in 2014, that will establish 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. According to the August 2003 Blackout Report,[14] a principal cause of the August 14, 2003 blackout was a lack of situational awareness, which was in turn the result of inadequate reliability tools. In addition, the failure of control computers and alarm systems, incomplete tool sets, and the failure to supply network analysis tools with correct System data on August 14, contributed directly to this lack of situational awareness. Also, the need for improved visualization capabilities over a wide geographic area has been a recurrent theme in blackout investigations.

[14] The *Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations Report*, dated April 5, 2004, is available at: http://www.nerc.com/filez/blackout.html.

There are two directives in FERC Order No. 693 relating to minimum tool capabilities. One directive pertains to IRO-002 and is described in Paragraphs 905 and 906. The second directive pertains to TOP-006 and is described in Paragraph 1660. Rather than addressing these directives in the proposed IRO Reliability Standards and concurrently-filed proposed TOP Reliability Standards, they were deliberately chosen to be addressed by the Project 2009-02 Standard Drafting Team. As noted above, these proposed Reliability Standards addressing Real-time tools are anticipated to be completed in 2014.

Requirements Related to Notification Requirements

IRO-005-4

The primary purpose of Reliability Standard IRO-005-4 is to ensure that entities are notified when an expected or actual event with Adverse Reliability Impacts is identified.

Proposed Requirements

- **R1.** When the results of an Operational Planning Analysis or Real-time Assessment indicate an anticipated or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area, each Reliability Coordinator shall notify all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area. *[Violation Risk Factor: High] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]*

- **R2.** Each Reliability Coordinator that identifies an anticipated or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area shall notify all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area when the problem has been mitigated. *[Violation Risk Factor: Medium] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]*

The proposed IRO-005-4 standard is a result of the standard drafting team reviewing the requirements of the currently-effective IRO-005-3a to eliminate redundancies between existing and proposed standards. As a result of these revisions, NERC is proposing to retire all or parts of Requirements R1, R2, R3, R4, R5, R6, R7, R8, R9, and R10 of IRO-005-3a.

Requirement R1 of IRO-005-3a states that: "Each Reliability Coordinator shall monitor its Reliability Coordinator Area parameters…." As noted above, monitoring capability is essential to real-time operations; however, real-time monitoring is a supporting activity and is only one of several processes used to support operation within defined parameters.

Requirement R2 of IRO-005-3a has three reliability objectives. The first objective requires the Reliability Coordinator to monitor its Balancing Authorities' parameters to "ensure that the required amount of operating reserves is provided and available as required to meet the Control Performance Standard (CPS) and Disturbance Control Standard (DCS) requirements." This reliability objective of Requirement R2 of IRO-005-3 should be retired because the Balancing Authority has its own requirements regarding compliance with CPS (Reliability Standard BAL-001-0.1a) and DCS (Reliability Standard BAL-002-0) Reliability Standards.[15] Further, BAL-002-1 provides requirements for the Balancing Authority to meet the Disturbance Control Standard.

The second objective states: "If necessary, the Reliability Coordinator shall direct the Balancing Authorities in the Reliability Coordinator Area to arrange for assistance from neighboring Balancing Authorities." The Balancing Authority has its own requirements regarding assistance. For example, EOP-002-3, Requirement R6, specifies the conditions under which a Balancing Authority is required to request assistance:

> **R6.** If the Balancing Authority cannot comply with the Control Performance and Disturbance Control Standards, then it shall immediately implement remedies to do so. These remedies include, but are not limited to:
>
> > **R6.1.** Loading all available generating capacity.
> > **R6.2.** Deploying all available operating reserve.
> > **R6.3.** Interrupting interruptible load and exports.
> > **R6.4.** Requesting emergency assistance from other Balancing Authorities.

[15] The Requirements of BAL-001-0.1a specify the Control Performance Standard 1 (CPS1) and Control Performance Standard 2 (CPS2) for which each Balancing Authority must comply.

> **R6.5.** Declaring an Energy Emergency through its Reliability Coordinator; and
> **R6.6.** Reducing load, through procedures such as public appeals, voltage reductions, curtailing interruptible loads and firm loads.

The third objective requires the Reliability Coordinator to "issue Energy Emergency Alerts as needed and at the request of its Balancing Authorities and Load-Serving Entities." This reliability objective is contained in the requirements of existing EOP-002-3, Requirements R1 and R8, which provide that the Reliability Coordinator shall alleviate capacity and energy emergencies and issue alerts:

> **R1.** Each Balancing Authority and Reliability Coordinator shall have the responsibility and clear decision-making authority to take whatever actions are needed to ensure the reliability of its respective area and shall exercise specific authority to alleviate capacity and energy emergencies.
>
> **R8.** A Reliability Coordinator that has any Balancing Authority within its Reliability Coordinator area experiencing a potential or actual Energy Emergency shall initiate an Energy Emergency Alert as detailed in Attachment 1-EOP-002-0 "Energy Emergency Alert Levels." The Reliability Coordinator shall act to mitigate the emergency condition, including a request for emergency assistance if required.

Given that the Balancing Authority has separate requirements that require compliance with the CPS and DCS standards, Requirement R2 is redundant and should be retired.

Requirement R3 of IRO-005-3a addresses notifying Transmission Operators and Balancing Authorities of Geo-Magnetic Disturbances ("GMD") and assisting with the development of response plans if needed. This requirement is proposed to be retired because the reporting of GMDs by a Reliability Coordinator to impact Transmission Operators and Balancing Authorities are addressed in the currently-effective IRO-005-4, Requirement R1, which provides:

> **R1.** When the results of an Operational Planning Analysis or Real-time Assessment indicate an anticipated or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area, each Reliability Coordinator shall

> notify all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area. *[Violation Risk Factor: High] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]* .

A GMD would be considered one of the "anticipated or actual condition[s] with Adverse Reliability Impacts" referenced in proposed IRO-005-4, Requirement R1. Thus, Requirement R3 of IRO-005-3a should be retired to eliminate the possibility of confusion for applicable entities with respect to compliance with the Reliability Standards.

Requirement R4 of IRO-005-3a states that: "The Reliability Coordinator shall disseminate information within its Reliability Coordinator Area, as required." This requirement should be retired because it is too vague and ambiguous to measure or prove compliance with the requirement. Additionally, the reliability objective of disseminating information by the Reliability Coordinator is also addressed in the proposed IRO-005-4, Requirement R1:

> **R1.** When the results of an Operational Planning Analysis or Real-time Assessment indicate an anticipated or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area, *each Reliability Coordinator shall notify* all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area. [Violation Risk Factor: High] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning] (*Emphasis added*).

Requirement R5 of IRO-005-3a has two reliability objectives. The first objective requires the Reliability Coordinator to monitor system frequency and its Balancing Authorities' performance with respect to CPS and DCS compliance. As previously noted, this part of the requirement should be retired because the Balancing Authority has its own requirements regarding compliance with CPS and DCS standards.

The second reliability objective of Requirement R5 states: "The Transmission Operators and Balancing Authorities shall utilize all resources, including firm load shedding, as directed by

its Reliability Coordinator to relieve the emergent condition." This is redundant with three Requirements in the currently-effective EOP-002-3, R1, R6, and R7:

> **R4.** A Balancing Authority anticipating an operating capacity or energy emergency shall perform all actions necessary including bringing on all available generation, postponing equipment maintenance, scheduling interchange purchases in advance, and being prepared to reduce firm load.
>
> **R6.** If the Balancing Authority cannot comply with the Control Performance and Disturbance Control Standards, then it shall immediately implement remedies to do so. These remedies include, but are not limited to:
>
> > **R6.1.** Loading all available generating capacity.
> > **R6.2.** Deploying all available operating reserve.
> > **R6.3.** Interrupting interruptible load and exports.
> > **R6.4.** Requesting emergency assistance from other Balancing Authorities.
> > **R6.5.** Declaring an Energy Emergency through its Reliability Coordinator; and
> > **R6.6.** Reducing load, through procedures such as public appeals, voltage reductions, curtailing interruptible loads and firm loads.
>
> **R7.** Once the Balancing Authority has exhausted the steps listed in Requirement 6, or if these steps cannot be completed in sufficient time to resolve the emergency condition, the Balancing Authority shall:
>
> > **R7.1.** Manually shed firm load without delay to return its ACE to zero; and
> > **R7.2.** Request the Reliability Coordinator to declare an Energy Emergency Alert in accordance with Attachment 1-EOP-002-0 "Energy Emergency Alert Levels.

Requirements R4, R6 and R7 specify that appropriate entities "utilize all resources, including firm load shedding" and the steps to be taken to ensure that the Balancing Authority returns to compliance with the CPS and DCS standards.[16] Based on the redundancy in the EOP-002-3 Reliability Standard with the IRO-005-3a, Requirement R5 Reliability Standard, IRO-005-3a, R5 should be retired.

Requirement R6 of IRO-005-3a, which is proposed for retirement, has two parts. The first part states "The Reliability Coordinator shall coordinate with Transmission Operators,

[16] BAL-001-0.1a addressed CPS performance and BAL-002-1 addresses DCS performance.

Balancing Authorities, and Generator Operators as needed to develop and implement action plans to mitigate potential or actual SOL, IROL, CPS or DCS violations." The portion of this sentence dealing with CPS or DCS violations is addressed in the currently-effective EOP-002-3, Requirements R6, R7 and R8:

> **R6.** If the Balancing Authority cannot comply with the *Control Performance and Disturbance Control Standards*, then it shall immediately implement remedies to do so. These remedies include, but are not limited to:
>
> > **R6.1.** Loading all available generating capacity.
> > **R6.2.** Deploying all available operating reserve.
> > **R6.3.** Interrupting interruptible load and exports.
> > R6.4. Requesting emergency assistance from other Balancing Authorities.
> > **R6.5.** Declaring an Energy Emergency through its Reliability Coordinator; and
> > **R6.6.** Reducing load, through procedures such as public appeals, voltage reductions, curtailing interruptible loads and firm loads.
>
> **R7.** Once the Balancing Authority has exhausted the steps listed in Requirement 6, or if these steps cannot be completed in sufficient time to resolve the emergency condition, the Balancing Authority shall:
>
> > **R7.1.** Manually shed firm load without delay to return its ACE to zero; and
> >
> > **R7.2.** Request the Reliability Coordinator to declare an Energy Emergency Alert in accordance with Attachment 1-EOP-002-0 "Energy Emergency Alert Levels.
>
> **R8.** A Reliability Coordinator that has any Balancing Authority within its Reliability Coordinator area experiencing a potential or actual Energy Emergency shall initiate an Energy Emergency Alert as detailed in Attachment 1-EOP-002-0 "Energy Emergency Alert Levels." The Reliability Coordinator shall act to mitigate the emergency condition, including a request for emergency assistance if required. (***Emphasis added***).

Based on the redundancies above, the first sentence of IRO-005-3a, Requirement R6 should be retired.

The second part of IRO-005-3a, Requirement R6 states: "The Reliability Coordinator shall coordinate pending generation and transmission maintenance outages with Transmission

Operators, Balancing Authorities, and Generator Operators as needed in both the real time and next-day reliability analysis timeframes." The coordination aspects of this part of Requirement R6 are addressed in the requirements of currently-effective IRO-008-1, Requirement R3, and IRO-010-1a, Requirement R3, which provide:

> **IRO-008-1, R3.** When a Reliability Coordinator determines that the results of an Operational Planning Analysis or Real-Time Assessment indicates the need for specific operational actions to prevent or mitigate an instance of exceeding an IROL, the ***Reliability Coordinator shall share*** its results with those entities that are expected to take those actions. (Violation Risk Factor: Medium) (Time Horizon: Real-time Operations or Same Day Operations)
>
> **IRO-010-1a, R3.** Each Balancing Authority, Generator Owner, Generator Operator, Interchange Authority, Load-serving Entity, Reliability Coordinator, Transmission Operator, and Transmission Owner ***shall provide data and information, as specified, to the Reliability Coordinator(s)*** with which it has a reliability relationship. (Violation Risk Factor: Medium) (Time Horizon: Operations Planning; Same-day Operations; Real-time Operations) (***emphasis added***).

Thus, based on the redundancies identified above, NERC proposes that IRO-005-3a, Requirement R6 be retired.

Requirement R7 of IRO-005-3a concerns the Reliability Coordinator assisting its Balancing Authorities in arranging assistance from neighboring Reliability Coordinator Areas. This requirement should be retired because it is redundant with the reliability objectives and provisions of currently-effective EOP-002-3, Requirements R7 and R8:

> **R7.** Once the Balancing Authority has exhausted the steps listed in Requirement 6, or if these steps cannot be completed in sufficient time to resolve the emergency condition, the Balancing Authority shall:
>
> > **R7.1.** Manually shed firm load without delay to return its ACE to zero; and
> > **R7.2.** Request the Reliability Coordinator to declare an Energy Emergency Alert in accordance with Attachment 1-EOP-002-0 "Energy Emergency Alert Levels."

> **R8.** A Reliability Coordinator that has any Balancing Authority within its Reliability Coordinator area experiencing a potential or actual Energy Emergency shall initiate an Energy Emergency Alert as detailed in Attachment 1-EOP-002-0 "Energy Emergency Alert Levels." The Reliability Coordinator shall act to mitigate the emergency condition, including a request for emergency assistance if required.

Requirements R7 and R8 of EOP-002-3 above require the Reliability Coordinator to issue alerts as requested to assist a deficient Balancing Authority as well as to act to mitigate an emergency condition. Such action may include a request for emergency assistance if required.

IRO-005-3a, Requirement R8 requires the Reliability Coordinator to identify Large Area Control Errors that may be contributing to potential reliability issues. NERC proposes to retire the requirement because its reliability objective is superseded by the proposed IRO-001-3, Requirement R1:

> **R1.** Each Reliability Coordinator shall have the authority to act or direct others to act (which could include issuing Reliability Directives) to prevent identified events or mitigate the magnitude or duration of actual events that result in an Emergency or Adverse Reliability Impact. *[Violation Risk Factor: High][Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]*

While Large Area Control Errors are a potential threat to the integrity and reliability of the Bulk Electric System, the Reliability Coordinator has the authority and obligation to address any potential reliability concerns under IRO-001-3, Requirement R1.

Currently-effective IRO-005-3a, Requirement R9, addresses Special Protection Systems ("SPS"):

> **R9.** Whenever a Special Protection System that may have an inter-Balancing Authority, or inter-Transmission Operator impact (e.g., could potentially affect transmission flows resulting in a SOL or IROL violation) is armed, the Reliability Coordinators shall be aware of the impact of the operation of that Special Protection System on inter-area flows. The Transmission Operator shall immediately inform the Reliability Coordinator of the status of the Special Protection System including any degradation or potential failure to operate as expected.

The reliability objective of this requirement is to make the Reliability Coordinator aware of the potential impact of the SPS should it fail or suffer a degradation. NERC proposes to retire Requirement R9 as it is redundant with the requirements of currently-effective IRO-010-1a.

> **R1.** The Reliability Coordinator shall have a documented data specification for data and information to build and maintain models to support Real-Time monitoring, Operational Planning Analyses, and Real-time Assessments. The specification shall include the following: (Violation Risk Factor: Low) (Time Horizon: Operations Planning)
>
> > **R1.1.** List of required data and information.
> > **R1.2.** Mutually agreeable format.
> > **R1.3.** Timeframe and periodicity for providing data and information (based on its hardware and software requirements, and the time needed to do its Operational Planning Analyses).
> > **R1.4.** Process for data provision when automated Real-Time system operating data is unavailable.
>
> **R2.** The Reliability Coordinator shall distribute its data specification to entities that have Facilities monitored by the Reliability Coordinator and to entities that provide Facility status to the Reliability Coordinator. (Violation Risk Factor: Low) (Time Horizon: Operations Planning)
>
> **R3.** Each Balancing Authority, Generator Owner, Generator Operator, Interchange Authority, Load-serving Entity, Reliability Coordinator, Transmission Operator, and Transmission Owner shall provide data and information, as specified, to the Reliability Coordinator(s) with which it has a reliability relationship. The data and information is limited to data needed by the Reliability Coordinator to support Real-Time Monitoring, Operational Planning Analyses, and Real-Time Assessments. (Violation Risk Factor: Medium) (Time Horizon: Operations Planning; Same-day Operations; Real-time Operations).

These requirements call for the Reliability Coordinator to develop a "specification for data and information to build and maintain models to support Real-Time monitoring, Operational Planning Analyses, and Real-time Assessments." This would include SPS information. The Reliability Coordinator is required to distribute the specification and entities (Balancing Authorities, Generator Owners, Generator Operators, Interchange Authorities, Load-Serving Entities, Reliability Coordinators, Transmission Operators, and Transmission Owners) that are

required to provide the data to the Reliability Coordinator. Thus, Requirement R9 of IRO-005-3a should be retired based on this redundancy.

Currently-effective IRO-005-3a, Requirement R10 requires operating entities to operate to the most limiting parameter in instances where there is a difference in derived limits. NERC recommends retiring the requirement as it is a facet of the SOL/IROL methodology required in FAC-011-2 and FAC-014-1. In FAC-011-2, the requirements specify how the limit methodology is to be developed and what it must contain:[17]

> **R1**. The Reliability Coordinator shall have a documented methodology for use in developing SOLs (SOL Methodology) within its Reliability Coordinator Area. This SOL Methodology shall:
>
> > **R1.1.** Be applicable for developing SOLs used in the operations horizon.
> > **R1.2.** State that SOLs shall not exceed associated Facility Ratings.
> > **R1.3.** Include a description of how to identify the subset of SOLs that qualify as IROLs.
>
> **R2.** The Reliability Coordinator's SOL Methodology shall include a requirement that SOLs provide BES performance consistent with the following:
>
> > **R2.1.** In the pre-contingency state, the BES shall demonstrate transient, dynamic and voltage stability; all Facilities shall be within their Facility Ratings and within their thermal, voltage and stability limits. In the determination of SOLs, the BES condition
> > used shall reflect current or expected system conditions and shall reflect changes to system topology such as Facility outages.
> > **R2.2.** Following the single Contingencies1 identified in Requirement 2.2.1 through Requirement 2.2.3, the system shall demonstrate transient, dynamic and voltage stability; all Facilities shall be operating within their Facility Ratings and within their
> > thermal, voltage and stability limits; and Cascading or uncontrolled separation shall not occur.
> > **R2.2.1.** Single line to ground or 3-phase Fault (whichever is more severe), with Normal Clearing, on any Faulted generator, line, transformer, or shunt device.
> >
> > > **R2.2.2.** Loss of any generator, line, transformer, or shunt device without a Fault.

[17] NERC Reliability Standard FAC-011-2, available at: http://www.nerc.com/files/FAC-011-2.pdf.

R2.2.3. Single pole block, with Normal Clearing, in a monopolar or bipolar high voltage direct current system.
R2.3. In determining the system's response to a single Contingency, the following shall be acceptable:

R2.3.1. Planned or controlled interruption of electric supply to radial customers or some local network customers connected to or supplied by the Faulted Facility or by the affected area.
R2.3.2. Interruption of other network customers, (a) only if the system has already been adjusted, or is being adjusted, following at least one prior outage, or (b) if the real-time operating conditions are more adverse than anticipated in the corresponding studies

R2.3.3. System reconfiguration through manual or automatic control or protection actions.
R2.4. To prepare for the next Contingency, system adjustments may be made, including changes to generation, uses of the transmission system, and the transmission system topology.

R3. The Reliability Coordinator's methodology for determining SOLs, shall include, as a minimum, a description of the following, along with any reliability margins applied for each:

R3.1. Study model (must include at least the entire Reliability Coordinator Area as well as the critical modeling details from other Reliability Coordinator Areas that would impact the Facility or Facilities under study.)
R3.2. Selection of applicable Contingencies
R3.3. A process for determining which of the stability limits associated with the list of multiple contingencies (provided by the Planning Authority in accordance with FAC-014 Requirement 6) are applicable for use in the operating horizon given the actual or expected system conditions.
R3.3.1. This process shall address the need to modify these limits, to modify the list of limits, and to modify the list of associated multiple contingencies.
R3.4. Level of detail of system models used to determine SOLs.
R3.5. Allowed uses of Special Protection Systems or Remedial Action Plans.
R3.6. Anticipated transmission system configuration, generation dispatch and Load level
R3.7. Criteria for determining when violating a SOL qualifies as an Interconnection Reliability Operating Limit (IROL) and criteria for developing any associated IROL Tv.

> **R4.** The Reliability Coordinator shall issue its SOL Methodology and any changes to that methodology, prior to the effectiveness of the Methodology or of a change to the Methodology, to all of the following:
>
> > **R4.1**. Each adjacent Reliability Coordinator and each Reliability Coordinator that indicated it has a reliability-related need for the methodology.
> > **R4.2**. Each Planning Authority and Transmission Planner that models any portion of the Reliability Coordinator's Reliability Coordinator Area.
> > **R4.3.** Each Transmission Operator that operates in the Reliability Coordinator Area.

The requirements of FAC-014-2 specify that the Reliability Coordinator and the Transmission Operator shall establish SOLs consistent with the Reliability Coordinator SOL methodology:

> **R1.** The Reliability Coordinator shall ensure that SOLs, including Interconnection Reliability Operating Limits (IROLs), for its Reliability Coordinator Area are established and that the SOLs (including Interconnection Reliability Operating Limits) are consistent with its SOL Methodology.
>
> **R2.** The Transmission Operator shall establish SOLs (as directed by its Reliability Coordinator) for its portion of the Reliability Coordinator Area that are consistent with its Reliability Coordinator's SOL Methodology.

NERC proposes to retire IRO-005-3a, Requirement R10, because of the overlap with the above requirements. In addition, resolution of real-time conflicts is addressed in IRO-014-2, Requirements R6, R7, and R8:

> **R6.** During each instance where Reliability Coordinators disagree on the existence of an Adverse Reliability Impact each impacted Reliability Coordinator shall operate as though the problem exists. [Violation Risk Factor: High] [Time Horizon: Operations Planning, Same Day Operations and Real-time Operations]
>
> **R7.** During those instances where Reliability Coordinators disagree on the existence of an Adverse Reliability Impact, the Reliability Coordinator that identified the Adverse Reliability Impact shall develop an action plan to resolve the Adverse Reliability Impact. [Violation Risk Factor: High][Time Horizon: Operations Planning, Same Day Operations and Real-time Operations]
>
> **R8.** During those instances where Reliability Coordinators disagree on the existence of an Adverse Reliability Impact, each Reliability Coordinator shall

> implement the action plan developed by the Reliability Coordinator that identified the Adverse Reliability Impact unless such actions would violate safety, equipment, regulatory or statutory requirements. [Violation Risk Factor: High][Time Horizon: Operations Planning, Same Day Operations and Real-time Operations]

Currently-effective IRO-005-3a, Requirement R11, requires Transmission Service Providers to "respect these SOLs or IROLs in accordance with filed tariffs and regional Total Transfer Calculation and Available Transfer Calculation process." MOD-001-1a has requirements that address the reliability objective of this requirement. Specifically, requirements R1 and R2 state:

> **R1.** Each Transmission Operator shall select one of the methodologies listed below for calculating Available Transfer Capability (ATC) or Available Flowgate Capability (AFC) for each ATC Path per time period identified in R2 for those Facilities within its Transmission operating area: [Violation Risk Factor: Lower] [Time Horizon: Operations Planning]
>
> - The Area Interchange Methodology, as described in MOD-028
> - The Rated System Path Methodology, as described in MOD-029
> - The Flowgate Methodology, as described in MOD-030
>
> **R2.** Each Transmission Service Provider shall calculate ATC or AFC values as listed below using the methodology or methodologies selected by its Transmission Operator(s): [Violation Risk Factor: Lower [Time Horizon: Operations Planning]
>
> **R2.1.** Hourly values for at least the next 48 hours.
> **R2.2.** Daily values for at least the next 31 calendar days.
> **R2.3.** Monthly values for at least the next 12 months (months 2-13)."

Based on the ATC and AFC calculation requirements in MOD-001-1a, Requirement R11 of IRO-005-3a should be retired to eliminate redundancy and unnecessary overlap.

Currently-effective IRO-005-3a Requirement R12 was revised and separated into two requirements. The new requirements call for notifications when issues are identified and when they are mitigated:

R1. When the results of an Operational Planning Analysis or Real-time Assessment indicate an anticipated or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area, each Reliability Coordinator shall notify all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area. [Violation Risk Factor: High] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]

R2. Each Reliability Coordinator that identifies an anticipated or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area shall notify all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area when the problem has been mitigated. [Violation Risk Factor: Medium] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]

Requirements Related to Coordination of Reliability Coordinator's Operations

IRO-014-2

The primary purpose of proposed Reliability Standard IRO-014-2 is to ensure that each Reliability Coordinator's operations are coordinated such that they will not have an Adverse Reliability Impact on other Reliability Coordinator Areas and to preserve the reliability benefits of interconnected operations. IRO-014-2, Requirement R1 provides:

R1. Each Reliability Coordinator shall have Operating Procedures, Operating Processes, or Operating Plans for activities that require notification, exchange of information or coordination of actions that may impact other Reliability Coordinator Areas to support Interconnection reliability. These Operating Procedures, Processes, or Plans shall collectively address the following: *[Violation Risk Factor: Medium] [Time Horizon: Same Day Operations and Operations Planning]*

1.1. Communications and notifications, including the mutually agreed to conditions under which one Reliability Coordinator notifies other Reliability Coordinators; the process to follow in making those notifications; and the data and information to be exchanged with other Reliability Coordinators.

1.2. Energy and capacity shortages.

1.3. Planned or unplanned outage information.

1.4. Control of voltage, including the coordination of reactive resources.

1.5. Coordination of information exchange to support reliability assessments.

1.6. Authority to act to prevent and mitigate system conditions which could cause Adverse Reliability Impacts to other Reliability Coordinator Areas.

1.7. Weekly conference calls

R2. Each Reliability Coordinator shall maintain its Operating Procedures, Operating Processes, or Operating Plans identified in Requirement R1 as follows: *[Violation Risk Factor: Lower] [Time Horizon: Same Day Operations and Operations Planning]*

2.1. Review and update annually with no more that 15 months between reviews.

2.2. Obtain written agreement from all of the Reliability Coordinators required to take the indicated action(s) for each update.

2.3. Distribute to all Reliability Coordinators that are required to take the indicated action(s) within 30 days of an update.

R3. Each Reliability Coordinator shall make notifications and exchange reliability–related information with other Reliability Coordinators in accordance with the Operating Procedures, Operating Processes, or Operating Plans identified in Requirement R1. *[Violation Risk Factor: Medium][Time Horizon: Real-time Operations and Operations Planning]*

R4. Each Reliability Coordinator shall participate in agreed upon conference calls, at least weekly (per Requirement 1, Part 1.7) with other Reliability Coordinators within the same Interconnection. *[Violation Risk Factor: Lower][Time Horizon: Real-time Operations]*

R5. Each Reliability Coordinator, upon identification of an Adverse Reliability Impact, shall notify all other Reliability Coordinators. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning, Same Day Operations and Real-time Operations]*

R6. During each instance where Reliability Coordinators disagree on the existence of an Adverse Reliability Impact each impacted Reliability Coordinator shall operate as though the problem exists. *[Violation Risk Factor: High] [Time Horizon: Operations Planning, Same Day Operations and Real-time Operations]*

R7. During those instances where Reliability Coordinators disagree on the existence of an Adverse Reliability Impact, the Reliability Coordinator that identified the Adverse Reliability Impact shall develop an action plan to resolve the Adverse Reliability Impact. *[Violation Risk Factor: High][Time Horizon: Operations Planning, Same Day Operations and Real-time Operations]*

R8. During those instances where Reliability Coordinators disagree on the existence of an Adverse Reliability Impact, each Reliability Coordinator shall implement the action plan developed by the Reliability Coordinator that identified the Adverse Reliability Impact unless such actions would violate safety, equipment, regulatory or statutory requirements. *[Violation Risk Factor: High][Time Horizon: Operations Planning, Same Day Operations and Real-time Operations]*

The proposed standard IRO-014-2 is a result of the standard drafting team reviewing the requirements of IRO-014-1, IRO-015-1 and IRO-016-1. The standard drafting team revised the Reliability Standards and incorporated them into a single Reliability Standard with eight (8) requirements. Accordingly, NERC is proposing to retire four (4) requirements of IRO-014-1, as discussed below.

The standard drafting team included Requirement R1 of IRO-014-1 in the proposed IRO-014-2 and added Part 1.7, which requires Reliability Coordinators to have weekly conference calls. Additionally, while Requirement R1 of IRO-014-1 addresses "Operating Procedures, Operating Processes, or Operating Plans for activities that require notification, exchange of information or coordination of actions that may impact other Reliability Coordinator Areas to support Interconnection reliability," proposed IRO-014-2, Requirement R1 defines specific information that is to be included in these Operating Procedures, Operating Processes, or Operating Plans. Thus, with the exception of the addition of Part 1.7, the proposed IRO-014-2, Requirement R1 achieves the same or greater reliability objective as the IRO-014-1 Reliability Standard.

Requirement R2 of currently-effective IRO-014-1 addresses agreement by others as well as distribution of the Operating Procedures, Operating Processes, or Operating Plans. The standard drafting team revised this requirement to include these same items with the addition of provisions for an annual update of the Operating Procedures, Operating Processes, or Operating Plans with no more than 15 months between updates.

Requirement R3 of IRO-014-1, which is proposed to be retired, states:

> **R3.** A Reliability Coordinator's Operating Procedures, Processes, or Plans developed to support a Reliability Coordinator-to-Reliability Coordinator Operating Procedure, Process, or Plan shall include:

> **R3.1.** A reference to the associated Reliability Coordinator-to-Reliability Coordinator Operating Procedure, Process, or Plan.
> **R3.2.** The agreed-upon actions from the associated Reliability Coordinator-to-Reliability Coordinator Operating Procedure, Process, or Plan.

Requirement R3 of IRO-014-1 is administrative in nature, describing the administrative contents of the plans rather than the reliability situations that should be addressed in the plans. Accordingly, IRO-014-1, Requirement R3 is proposed for retirement.

Requirement R4 of currently-effective IRO-014-1, states:

> **R4.** Each of the Operating Procedures, Processes, and Plans addressed in Reliability Standard IRO-014 Requirement 1 and Requirement 3 shall:
>
> > **R4.1.** Include version control number or date.
> > **R4.2.** Include a distribution list.
> > **R4.3.** Be reviewed, at least once every three years, and updated if needed

This requirement is also administrative in nature, describing document management best practices and direction as to "how" to implement other requirements (*i.e.*, through a distribution list). Requirement R3 of IRO-014-1 and its subparts are good utility practices to be used as a guideline for use in developing the Operating Procedures, Processes or Plans. The provisions of IRO-014-1, Requirement R4.3 have been revised and incorporated into Requirement R2 of proposed IRO-014-2, which requires an annual review rather than every three year review.

The requirements contained in currently-effective IRO-015-1 have been incorporated into proposed IRO-014-2, with the exception of proposed Requirement R3. The standard drafting team combined IRO-014-1 and its sub-requirements into a single requirement –now proposed as Requirement R3 of IRO-014-2 – which states:

> **R3.** Each Reliability Coordinator shall make notifications and exchange reliability–related information with other Reliability Coordinators in accordance with the Operating Procedures, Operating Processes, or Operating Plans identified in Requirement R1.

The standard drafting team revised currently-effective IRO-015-1, Requirement R2 by combining the main requirement and sub-requirement into a single requirement – now proposed as Requirement R4 of IRO-014-2 – which states:

> **R4.** Each Reliability Coordinator shall participate in agreed upon conference calls, at least weekly (per Requirement 1, Part 1.7) with other Reliability Coordinators within the same Interconnection.

Requirement R3 in IRO-015-1 is proposed to be retired because it is redundant with proposed Requirement R3 of IRO-014-2. Specifically, Requirement R3 of IRO-015-1 requires that each "Reliability Coordinator shall provide reliability-related information as requested by other Reliability Coordinators." However, Reliability Coordinators have a requirement to share information as they try to confirm the existence of operating issues as part of IRO-014-2, Requirement R3. Therefore, there is unnecessary overlap with Requirement R3 of IRO-015-1 and proposed Requirement R3 of IRO-014-2, and Requirement R3 of IRO-015-1 should therefore be retired.

The Requirements contained in currently-effective IRO-016-1 have been incorporated into proposed IRO-014-2, with the exception of Requirement R2. The standard drafting team revised IRO-016-1, Requirement R1 by separating the reliability objectives of the Requirement and its sub-requirements into distinct, measurable requirements. The main Requirement R1 and sub-requirement R1.1 have been simplified and are included in proposed IRO-014-2, Requirement R5, which states: "Each Reliability Coordinator, upon identification of an Adverse Reliability Impact, shall notify all other Reliability Coordinators."

The reliability objective of IRO-106-1, Parts R1.2, R1.2.1, and R1.2.2 are incorporated as proposed Requirements R6 and R7 of IRO-014-2. The original language in IRO-016-1 states:

> **R1.2.** If the involved Reliability Coordinators cannot agree on the problem(s) each Reliability Coordinator shall re-evaluate the causes of the disagreement (bad data, status, study results, tools, etc.). [Violation Risk Factor: Medium]
>
> **R1.2.1** If time permits, this re-evaluation shall be done before taking corrective actions. [Violation Risk Factor: Medium]
>
> **R1.2.2** If time does not permit, then each Reliability Coordinator shall operate as though the problem(s) exist(s) until the conflicting system status is resolved. [Violation Risk Factor: Medium]

The proposed IRO-014-2, Requirements R6 and R7 provide:

> **R6.** During each instance where Reliability Coordinators disagree on the existence of an Adverse Reliability Impact each impacted Reliability Coordinator shall operate as though the problem exists. [Violation Risk Factor: High] [Time Horizon: Operations Planning, Same Day Operations and Real-time Operations]
>
> **R7.** During those instances where Reliability Coordinators disagree on the existence of an Adverse Reliability Impact, the Reliability Coordinator that identified the Adverse Reliability Impact shall develop an action plan to resolve the Adverse Reliability Impact. [Violation Risk Factor: High][Time Horizon: Operations Planning, Same Day Operations and Real-time Operations]"

For sub requirement R1.3, the standard drafting team removed the language relating to the "most conservative solution" because it cannot be measured. The requirement was revised and is included in proposed IRO-014-2, Requirement R8:

> **R8.** During those instances where Reliability Coordinators disagree on the existence of an Adverse Reliability Impact, each Reliability Coordinator shall implement the action plan developed by the Reliability Coordinator that identified the Adverse Reliability Impact unless such actions would violate safety, equipment, regulatory or statutory requirements. [Violation Risk Factor: High][Time Horizon: Operations Planning, Same Day Operations and Real-time Operations]"

NERC is proposing, in Requirement R8, to use the mitigation plan of the Reliability Coordinator to implement the action plan developed by the Reliability Coordinator that identified the Adverse Reliability Impact, in cases where an agreed to mitigation plan cannot be developed. This ensures that there is an action plan developed and implemented. There may be cases where

one Reliability Coordinator identifies a potential problem in another Reliability Coordinator Area and that Reliability Coordinator does not see the same problem.

IRO-016-1, Requirement R2, is proposed for retirement:

> **R2.** The Reliability Coordinator shall document (via operator logs or other data sources) its actions taken for either the event or for the disagreement on the problem(s) or for both.

This requirement is a measure of Requirement R1 of IRO-016-1 and should not be included in the Requirements.

B. Enforceability of Proposed IRO Reliability Standards

The proposed IRO Reliability Standards contain Measures that support each Requirement by clearly identifying what is required and how the Requirements will be enforced. The measures are included in the proposed standards attached as **Exhibit B.** Additionally, each of the proposed IRO Reliability Standards is assigned a Violation Risk Factor ("VRF") and a Violation Severity Level ("VSL") which supports the determination of a base penalty amount for violations of the requirements as required by NERC Sanction Guidelines. The VSLs provide further guidance on the way that NERC will enforce the Requirements of the proposed IRO Reliability Standards. The VRFs and VSLs for the proposed IRO Reliability Standards comport with NERC guidelines related to their assignments. For a detailed review of the VRFs, the VSLs, and the analysis of how the VRFs and VSLs were determined using these guidelines, see **Exhibit D**. The VSLs have been developed based on the situations an auditor may encounter during a compliance audit.

C. Response to FERC Order No. 693 Directives

There were three directives issued in FERC Order No. 693 related to the proposed IRO Reliability Standards. A summary of each of these directives and analysis of how each directive was addressed or is being addressed is included below.

In Order No. 693 (at P 896), FERC issued one directive related to IRO-001-1 to "eliminate the regional reliability organization as an applicable entity." The proposed IRO-001-3 Reliability Standard completes this directive by eliminating the regional reliability organization from the proposed Reliability Standard.

In Order No. 693 (at P 905), FERC issued one directive related to the IRO-002-1 Reliability Standard:

> Further, consistent with the NOPR, the Commission directs the ERO to modify IRO-002-1 to require a minimum set of tools that must be made available to the reliability coordinator. We believe that this requirement will ensure that a reliability coordinator has the tools it needs to perform its functions. Further, as noted by Dominion, such a requirement promotes a more proactive approach to maintaining reliability.

The standard drafting team recognized that the development of a minimum set of tools should be addressed through the work of the Real-Time Tools Best Practices Task Force, which was charged with developing a list of tools required to perform real time operations functions and submit proposed Standard Authorization Requests ("SARs") based on their work. As requirements for these tools are developed, appropriate standards projects will be initiated to incorporate the tools within the NERC Organization Registration and Certification Process, and the applicable Reliability Standards. NERC is therefore addressing this directive in that effort.

In Order No. 693 (at P 951), FERC also issued the following directives related to the IRO-005-1 Reliability Standard:

> Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results.

In response to this directive, the standard drafting team developed VRFs, Time Horizons, and VSLs for each requirement in the proposed IRO-005-4 Reliability Standard. A detailed analysis of the proposed VRFs and VSLs for the proposed IRO Reliability Standards is included as **Exhibit D**. Additionally, NERC conducted a year-long survey of IROL practices and actual operating experience, the results of which were filed with FERC on October 31, 2008, in Docket number RM06-16-000.[18]

FERC issued no directives related to the IRO-014-1 Reliability Standard in Order No. 693.

D. Requested Effective Dates

The proposed IRO Reliability Standards will become effective in accordance with the effective date provisions contained therein. Additionally, NERC provides notice of the

[18] *Compliance Filing of The North American Electric Reliability Corporation in Response to Paragraph 951 of Order No. 693*, Docket No. RM06-16-000, available at: http://www.nerc.com/files/PublicFinalFiled-IROL-Data-Request-10312008.pdf.

implementation plan for the proposed IRO Reliability Standards, and the retirement of the following six Reliability Standards, effective as provided in the implementation plan:

- IRO-001-1.1 - Reliability Coordination - Responsibilities and Authorities
- IRO-002-2 - Reliability Coordination - Facilities
- IRO-005-3a - Reliability Coordination - Current Day Operations
- IRO-014-1 - Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators
- IRO-015-1 - Notifications and Information Exchange Between Reliability Coordinators
- IRO-016-1 - Coordination of Real-time Activities Between Reliability Coordinators.

The proposed effective dates are just and reasonable and appropriately balance the urgency in the need to implement the proposed standards against the reasonableness of the time allowed for those who must comply to develop the necessary procedures and take the necessary actions to reflect the requirements and processes identified in the proposed standards. The proposed effective dates will allow affected entities adequate time to ensure compliance with the proposed standards.

V. SUMMARY OF THE RELIABILITY STANDARD DEVELOPMENT

The highlights of the development process for the proposed IRO Reliability Standards are summarized below. **Exhibit F** contains a Summary of the Development Authorization, Posting, and Balloting History of the proposed IRO Reliability Standards. **Exhibit E** contains the Consideration of Comments Reports created during the development of the Proposed IRO Standards. **Exhibit F** contains the complete record of development for the proposed IRO Reliability Standards.

A. Overview of the Standards Drafting Team

The technical expertise of the ERO is derived from the standard drafting team. For this project, the standard drafting team consisted of eight industry experts with a wealth of diverse industry experience across North America, including both the continental United States and Canada. A standard drafting team roster and member biographical information is included as **Exhibit G.**

B. Procedural History of the Proposed IRO Reliability Standards

The project to revise the proposed IRO Reliability Standards, Project 2006-06, was initiated in January of 2007 for the purpose of revising IRO-001-1, IRO-002-2, IRO-005-3a, IRO-014-1, IRO-015-1, IRO-016-1, COM-001-2, and COM-002-3. The SAR for this project described the purpose of the project "[t]o 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 Electric System."[19] Given that the draft COM-001-2 and COM-002-3 standards focused on communication protocols rather than responsibilities for Reliability Coordinator actions to prevent instability, uncontrolled separation, or cascading outages, the COM-001-2 and COM-002-3 standards were completed on a separate track from the proposed IRO Reliability Standards, and will be filed by NERC in a separate filing.

The SAR was posted for two industry comment periods and then approved by the Standards Committee on May 1, 2007 for standard development to begin. The draft IRO-002-3, IRO-005-4, and IRO-014-1 standards were posted for five comment periods, with one initial

[19] NERC Standards Authorization Request for Project 2006-06, Reliability Coordination at p. 2, available at: http://www.nerc.com/docs/standards/sar/RC%20_SAR_Draft%202_clean_050107.pdf.

ballot, one successive ballot, and a final recirculation ballot. The balloting of these standards concluded with a recirculation ballot achieving a quorum of 94.13 percent with weighted stakeholder segment approval of 76.99 percent for IRO-002-3—Reliability Coordination-Analysis tool, weighted stakeholder segment approval of 75.17 percent for IRO-005-4—Reliability Coordination-Current Day Operations, and weighted stakeholder segment approval of 76.27 percent for IRO-014-2—Coordination Among Reliability Coordinators.

The draft IRO-001-3 Reliability Standard was posted for seven comment periods, with one initial ballot, two successive ballots, and a final recirculation ballot. The balloting of the proposed IRO-001-3—Reliability Coordination, Responsibilities and Authorities Reliability Standard concluded with a recirculation ballot achieving a quorum of 85.04 percent and weighted stakeholder segment approval of 81.72 percent.

C. Board of Trustees Approval

The final drafts of the proposed IRO Reliability Standards, a NERC staff summary of the revisions, underlying history, minority issues and associated standard drafting team responses, and additional background information, were presented to NERC's Board of Trustees for approval on August 4, 2011 and August 16, 2012.[20] The Board of Trustees approved the revisions to the proposed IRO Reliability Standards and directed NERC staff to make the requisite filings with applicable regulatory authorities.

[20] The NERC Board of Trustees approved the proposed IRO-002-3, IRO-005-4, and IRO-014-2 on August 4, 2011. The Board also approved a proposed IRO-001-2 Reliability Standard on August 4, 2011, that was subsequently revised by the standard drafting team before it was filed with the applicable governmental authorities. The revision is designated as IRO-001-3, was approved by the Board on August 16, 2012, and is included in this filing.

Respectfully submitted,

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EXHIBIT A

Demonstration that the proposed Reliability Standards are just, reasonable, not unduly discriminatory or preferential and in the public interest

1. Proposed Reliability Standards must be designed to achieve a specified reliability goal and must contain a technically sound method to achieve that goal.

The proposed IRO-001-3 Reliability Standard achieves the specific reliability goal of establishing the authority of a Reliability Coordinator to direct other entities to prevent an Emergency or Adverse Reliability Impact to the Bulk Electric System. The proposed standard achieves this goal by requiring the Reliability Coordinator to have the responsibility and authority to act or direct others to act (which could include issuing Reliability Directives) to prevent identified events or mitigate the magnitude or duration of actual events that result in an Emergency or Adverse Reliability Impact. The goal is further achieved by requiring those entities that would receive direction (which could include Reliability Directives) from the Reliability Coordinator to comply with its Reliability Coordinator's direction unless compliance with the direction cannot be physically implemented or unless such actions would violate safety, equipment, regulatory, or statutory requirements. These reliability entities include the Balancing Authority, Distribution Provider, Generator Operator, and Transmission Operator, which are required to inform its Reliability Coordinator upon recognition of its inability to comply with its Reliability Coordinator's direction. Because the Reliability Coordinator is the functional entity charged with maintaining the Real-time operating reliability of the Bulk Electric System within a Reliability Coordinator Area, it must have the authority necessary to direct others to prevent an Emergency or Adverse Reliability Impact. The Reliability Coordinator, who has complete visibility with its Reliability Coordinator area, enhances Real-time operation of the Bulk Electric

System by ensuring that direction is being administered by a single functional entity that has the wide-area awareness necessary to mitigate an Emergency or Adverse Reliability Impact.

Proposed IRO-002-3 achieves the specific reliability goal of ensuring that analysis tools are available to the Reliability Coordinator and having a mitigation plan in the event that the analysis tools are unavailable. The requirements provide the system operator with the authority to approve, deny or cancel planned outages to the analysis tools, and specify that the responsible entity have procedures in place to mitigate the effects of analysis tool outages.

Proposed IRO-005-4 achieves the specific reliability goal of ensuring that entities are notified when an expected or actual event with Adverse Reliability Impacts is identified and when the event has ended or been mitigated. The requirements apply to the Reliability Coordinator and specify when such notifications are required.

The purpose of Proposed IRO-014-2 is to ensure that each Reliability Coordinator's operations are coordinated such that they will not have an Adverse Reliability Impact on other Reliability Coordinator Areas and to preserve the reliability benefits of interconnected operations. The Requirements of the Reliability Standard achieve this reliability goal by requiring the Reliability Coordinator to have Operating Processes, Operating Procedures or Operating Plans in place to coordinate operations with other Reliability Coordinators.

2. Proposed Reliability Standards must be applicable only to users, owners and operators of the bulk power system, and must be clear and unambiguous as to what is required and who is required to comply.

The proposed IRO-001-3 Reliability Standard is applicable only to users, owners and operators of the North American bulk power system, and not others. The proposed IRO-001-3 standard applies to Balancing Authorities, Distribution Providers, Generator Operators,

Transmission Operators, and Reliability Coordinators, and is clear and unambiguous as to what is required and who is required to comply.

The proposed IRO-002-3, IRO-005-4, and IRO-014-2 Reliability Standards are applicable only to Reliability Coordinators. No other registered entities are required to comply with these requirements.

Additionally, the requirements are structured to set out who shall do what and under what conditions by identifying a Functional Entity that is obligated to comply with each requirement. The requirements also include a statement that identifies the specific expectations for those Functional Entities. Measures are also provided for each requirement and include examples of evidence that are acceptable to demonstrate compliance with the requirement.

3. A proposed Reliability Standard must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation.

The proposed Reliability Standards include clear and understandable consequences. A Time Horizon, VRF and VSL is provided for each main requirement. The range of penalties for violations will be based on the applicable Time Horizon, VRF and VSL and will be administered based on the sanctions table and supporting penalty determination process described in the NERC Sanction Guidelines, Appendix 4B in NERC's Rules of Procedure. Therefore, responsible entities understand the potential impacts of non-compliance to the proposed requirements.

4. A proposed Reliability Standard must identify clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner.

The proposed Reliability Standards contain measures that support each standard requirement and that clearly identifies what is required and how the requirements will be

enforced. These measures help ensure that the requirements will be enforced in a clear, consistent, and non-preferential manner and without prejudice to any party.

5. Proposed Reliability Standards should achieve a reliability goal effectively and efficiently — but do not necessarily have to reflect "best practices" without regard to implementation cost.

The proposed IRO-001-3 Reliability Standard includes requirements to provide authority to the Reliability Coordinator and guidance on the delegation of tasks. These requirements will be mandatory and effective and do not impose an undue cost for implementation. The proposed standard is effective in that it removed unnecessary requirements on the Load-Serving Entity, Purchase-Selling Entity, Transmission Service Provider, and Regional Reliability Organization and retains the focus on the key functional entities responsible for Real-time operations. Those entities are the Balancing Authority, Distribution Provider, Generator Operator, and Reliability Coordinator. Clearly identifying the role of the Reliability Coordinator is effective and efficient because it clearly gives the Reliability Coordinator authority to take action when it identifies actions required to mitigate the magnitude or duration of actual events that result in an Emergency or Adverse Reliability Impact.

The proposed IRO-002-3 Reliability Standard provides the system operator with the authority to approve, deny or cancel planned outages of its own analysis tools. The standard further requires that the Reliability Coordinator have procedures in place to mitigate the effects of analysis tool outages. These requirements are procedural in nature and are not burdensome or costly for an entity to comply with.

The proposed Reliability Standard IRO-005-4 achieves the specific reliability goal of ensuring that entities are notified when an expected or actual event with Adverse Reliability Impacts is identified and when the event has ended or been mitigated. The requirements apply to

the Reliability Coordinator and specify when such notifications are required. Because entities are required to comply with similar standards, the cost to implement is negligible.

The proposed Reliability Standard IRO-014-2 achieves the specific reliability goal of ensuring that operations are coordinated among Reliability Coordinators by having Operating Processes, Operating Plans and Operating Procedures that address notifications and information exchange as well as actions to be taken by each party. The requirements apply to the Reliability Coordinator and specify when such notifications, information exchange and action are required. Because entities are required to comply with similar standards, the cost to implement is negligible.

6. Proposed Reliability Standards cannot be "lowest common denominator," i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability. Proposed Reliability Standards can consider costs to implement for smaller entities, but not at consequences of less than excellence in operating system reliability.

The proposed Reliability Standards do not reflect a "lowest common denominator" approach. To the contrary, the proposed standards represent a direct improvement over the currently-effective versions of the Reliability Standards. Additionally, the proposed Reliability Standards were not developed or adopted with the intent of protecting against the imposition of reasonable expenses. The standard drafting team considered and evaluated the effect these standards would have on the applicable entities and determined that no entities would be unduly burdened by the cost to implement its requirements. No special accommodation was made for smaller entities, and the proposed standards will apply equally to all applicable entities in a consistent manner.

7. ***Proposed Reliability Standards must be designed to apply throughout North America to the maximum extent achievable with a single Reliability Standard while not favoring one area or approach.***

The proposed Reliability Standard applies throughout North America and does not favor one area or approach. There is no regional variation in the organization and corporate structures of Transmission Owners and Operators, variations in generation fuel type and ownership patterns, and regional variations in market design that affect the proposed Requirements in this Reliability Standard.

8. ***Proposed Reliability Standards should cause no undue negative effect on competition or restriction of the grid.***

The proposed Reliability Standard does not restrict the available transmission capability or limit use of the BES in a preferential manner. Proposed IRO-001-3 achieves the specific reliability goal of establishing Reliability Coordinators and defining their authority to act to preserve the integrity of the BES. The requirements in the other proposed standards should cause no restriction of the grid because having clear responsibilities and authorities assure that the Bulk Electric System operates in a safe and reliable manner in all conditions.

9. ***The implementation time for the proposed Reliability Standards must be reasonable.***

The proposed effective date for IRO-001-3, included in the corresponding implementation plan, is the first day of the second calendar quarter beyond the date that this standard is approved. This will allow applicable entities adequate time to develop the documentation and other evidence necessary to exhibit compliance with the requirements.

The proposed effective date for IRO-002-3 is the first day of the first calendar quarter following the effective date of approval. Because this is a revision to an existing mandatory and enforceable standard, applicable entities are already complying with the existing standard.

The proposed effective date for IRO-005-4 is the first day of the first calendar quarter following the effective date of approval. Because this is a revision to an existing mandatory and enforceable standard, applicable entities are already in compliance with a similar requirement.

The proposed effective date for IRO-014-2 is the first day of the first calendar quarter that is 12 months following the effective date of approval. Because this is a revision to existing mandatory and enforceable standards, applicable entities should only have to make minor revisions to their Operating Plans, Operating Processes or Operating Procedures to show compliance.

10. The Reliability Standard development process must be open and fair.

The proposed Reliability Standards were developed in accordance with NERC's ANSI-accredited process for developing and approving Reliability Standards. This process included, among other things, multiple comment periods, pre-ballot review periods, and balloting periods. In addition, all standard drafting team meetings were noticed and open to the public. The initial and recirculation ballots both achieved a quorum and the required ballot pool approvals. NERC considers the comments of all stakeholders and a vote of stakeholders and the NERC Board of Trustees is required to approve a proposed Reliability Standard for submission to the Commission. Therefore, NERC developed the proposed standards in a manner that is open and fair.

11. Proposed Reliability Standards must balance with other vital public interests.

NERC has identified no competing public interests regarding the request for approval of these proposed Reliability Standards. No comments were received that indicated the proposed standards conflict with other vital public interests.

12. Proposed Reliability Standards must consider any other relevant factors.

No other factors relevant to whether the proposed Reliability Standards are just and reasonable were identified.

EXHIBITS B – E and G

(Available on the NERC Website at
http://www.nerc.com/fileUploads/File/Filings/Attachments_IRO_filing)

Exhibit F

Summary of Development
Authorization, Posting, and Balloting History

Project 2006-06 was initiated in January of 2007 for the purpose of revising IRO-001-1, IRO-002-2, IRO-005-3a, IRO-014-1, IRO-015-1, and IRO-016-1. The SAR for this project described the purpose of the project: "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 Electric System."[21] Given that the draft COM-001-2 and COM-002-3 standards focused on communication protocols rather than responsibilities for Reliability Coordinator actions to prevent instability, uncontrolled separation, or cascading outages, the COM-001-2 and COM-002-3 standards were complete on a separate track from the proposed IRO Reliability Standards, and will be filed by NERC in a separate filing.

Specifically, the standard drafting team worked with industry stakeholders to review applicable standards as follows:

- For each existing requirement, the drafting team will work with stakeholders and:
    - Eliminate redundancy in the requirements.
    - Identify requirements that should be moved into other SARs
    - Eliminate requirements that do not support bulk power system reliability
    - Transfer requirements that need to be in place before an entity begins operation as an RC to certification.
- Ensure they are enforceable as mandatory Reliability Standards with financial penalties — the applicability to bulk power system owners, operators, and users, and as appropriate particular classes of facilities, is clearly defined; the purpose, requirements, and measures are results-focused and unambiguous; the consequences of violating the requirements are clear.

[21] NERC SAR for Project 2006-06, Reliability Coordination at p. 2, available at: http://www.nerc.com/docs/standards/sar/RC%20_SAR_Draft%202_clean_050107.pdf.

- Consider comments received during the initial development of the standards and other comments or directives received from ERO regulatory authorities and stakeholders.
- Bring the standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Rules of Procedure.
- Satisfy the standards procedure requirement for five-year review of the standards.

The first draft of the Reliability Coordination SAR and the proposed standards COM-001-2, COM-002-3, IRO-001-3, IRO-002-3, IRO-005-4, and IRO-014-2 were posted for a 45-day public comment period from August 5–September 16, 2008.[22] There were 29 sets of comments, including comments from more than 70 different people from more than 50 companies representing 8 of the 10 Industry Segments.

The standard drafting team received very few comments concerning IRO-002-2 and IRO-005-4 and no substantive revisions were made to the Requirements of those standards. Commenters suggested striking the term "as a minimum" in R1 and the standard drafting team modified R1 accordingly. Some commenters did not agree with the language of the two new requirements in IRO-014-2 that were formerly in IRO-016-1. The standard drafting team modified and subdivided the requirements into four requirements (R5 –R8).

Several commenters suggested that the High and Severe VSLs for R2 contradicted the requirement. As a result, the standard drafting team revised the VSLs to better reflect the content of the requirement. Several commenters also suggested revisions for the VSLs for R6, which was imported from IRO-016. VSLs were changed to support the revised requirements.

The second draft of the Reliability Standards was posted for a 30-day public comment period from July 10–August 9, 2009. There were 31 sets of comments, including comments

[22] The Standards Development Project 2006-06 addresses all of the mentioned Reliability Standards, however, only IRO-001-3, IRO-002-3, IRO-005-4 and IRO-014-02 are being submitted in this filing.

from 87 different people from more than 62 companies representing 8 of the 10 Industry Segments.

The standard drafting team made conforming revisions to IRO-014-2, based on the comments received. Stakeholders suggested revising R8 to include provisions for avoiding implementing actions that would violate safety, equipment or regulatory or statutory requirements. The standard drafting team agreed and added this to the requirement. Other stakeholders suggested adding the following language at the beginning of R1 and R3: "For conditions or activities that impact other Reliability Coordinator Areas…." The standard drafting team agreed with this comment and added the language to the requirements. The Time Horizons for R2 were revised as suggested to "Same Day Operations and Operations Planning." The Measures M1, M3 and M8 were revised to reflect revisions to their respective Requirements.

The third draft of the Reliability Standards were posted for a 45-day public comment period from January 4–February 18, 2011. There were 42 sets of comments, including comments from more than 150 different people from over 50 companies representing each of the 10 Industry Segments.

Stakeholders identified certain language modifications to provide clarity to the requirements. Each requirement was revised without substantively changing the intent or reliability objective of the requirement.

The proposed set of Reliability Standards, including COM-001-2, COM-002-3, IRO-001-3, IRO-002-3, IRO-005-4, and IRO-014-2, were posted as a single ballot item for the concurrent 45-day pre-ballot review and Initial Ballot from January 18–March 7, 2011, during which time members of the registered ballot body were registered for the ballot pool. The initial ballot was

conducted from February 25–March 7, 2011. The voting statistics are listed below, and the Ballot Results Web page provides a link to the detailed results:[23]

Quorum: 87.103 percent

Approval: 49.54 percent

Because at least one negative ballot included a comment, these results were not final. As part of the ballot process, the standard drafting team reviewed voter comments and determined that the majority of negative votes were related to the COM-001-2, COM-002-3 and IRO-001-3 Reliability Standards. The standard drafting team requested Standards Committee approval that IRO-001-3, IRO-002-3, IRO-005-4, and IRO-014-2 be allowed to proceed to the recirculation ballot. The standard drafting team developed responses to the negative ballot comments, and the recirculation ballot ensued with only minor clarifying edits to the Reliability Standards. Each Reliability Standard was balloted separately. The recirculation ballots were conducted from July 15-25, 2011. Voting statistics for the recirculation ballot are listed below, and the Ballot Results Web page provides a link to the detailed results:

IRO-002-3: Quorum: 94.13 percent

Approval: 76.99 percent

IRO-005-4: Quorum: 94.13 percent

Approval: 75.17 percent

IRO-014-1[24]: Quorum: 94.13 percent

Approval: 76.27 percent

[23] NERC Project 2006-06 Reliability Coordination, available at: http://www.nerc.com/filez/standards/Reliability_Coordination_Project_2006-6.html

[24] The ballot for IRO-014-2 included the revision to IRO-001-3 which involved retiring one requirement in IRO-001-3.

The NERC Board of Trustees approved the IRO-001-3, IRO-002-3, IRO-005-4, and IRO-014-2 Reliability Standards on August 4, 2011 and August 16, 2012.

b. Key Issues during Standard Development

Representatives of the standard drafting team met with FERC Staff on several occasions to discuss the merits of the proposed revisions to the set of Reliability Standards under Project 2006-06. FERC Staff also participated in standard drafting team meetings as an observer on a regular basis throughout the development process. There were two main concerns expressed by FERC Staff relating to IRO-002-3 and IRO-005-4 and the proposed retirement of Requirements from the Reliability Standards. The concerns of FERC Staff relate to:

- Retiring Requirements that relate to monitoring.
- Retiring Requirements related to SOLs.

As noted in this filing, real-time monitoring is a supporting activity and is only one of several processes used to support operation within SOLs or IROLs. The reliability objective is to operate within identified parameters, not to monitor.

As drafting teams work to refine the body of Version 0 Reliability Standards, these teams will support the division of responsibilities as specified in the NERC Functional Model. This division of responsibilities assigns the Reliability Coordinator responsibility for identifying and controlling operations associated with IROLs and assigns the Transmission Operator responsibility for identifying and controlling operations associated with SOLs. As demonstrated during the August 2003 blackout, having a clear division of responsibilities is essential in real-time operations.[25] Although there is a clear division of duties, this does not mean that the Reliability Coordinator and Transmission Operator cannot assist one another. Indeed, the

[25] *See generally*, NERC August 14, 2003 Blackout Investigation, available at: http://www.nerc.com/filez/blackout.html.

Reliability Coordinator may direct its Transmission Operators to take actions to prevent or mitigate instances of exceeding specific IROLs. Similarly the Transmission Operator may ask the Reliability Coordinator for assistance in preventing or mitigating instances of exceeding specific SOLs.

The proposed TOP Reliability Standards filed concurrently with this filing includes a set of requirements for Transmission Operators that work cooperatively with the requirements for Reliability Coordinators. The set of requirements proposed for the Transmission Operator includes a requirement for the Transmission Operator to identify a subset of SOLs that, based on the results of the Transmission Operator's Operational Planning Analysis, could adversely impact reliability in the Transmission Operator's area. The Transmission Operator is also required to provide its Reliability Coordinator with those SOLs and is required to inform the Reliability Coordinator when it operates outside those SOLs.