**NSRS Discussion Items**

**APPENDIX A**

**Additional Detail – Standards Under Development**

| **Project**  | **Standard(s)** | **Background** | **Latest Action(s)** |
| --- | --- | --- | --- |
| 2015-08 Emergency Operations | EOP-004EOP-005EOP-006EOP-008 | The Emergency Operations Periodic Review Team (Project 2015-02) performed a comprehensive review of a subset of Emergency Operations Standards (EOP-004, EOP-005, EOP-006 and EOP-008) that resulted in the following recommendations: * EOP-004-2 Event Reporting – (1) Revise the standard and attachment and (2) retire Requirement R3;
* EOP-005-2 System Restoration from Blackstart Resources – Revise the standard;
* EOP-006-2 System Restoration Coordination – (1) Revise the standard and (2) retire Requirements Parts R1.2, R1.3, and R1.4; and
* EOP-008-1 Loss of Control Center Functionality – Revise the standard.

The four NERC Reliability Standards in the Periodic Review project concerned methodologies for restoring, reporting, and communicating Emergencies. | 8/15/16Initial ballot and comments (EOP-005, EOP-006 and EOP-008)8/19/15SAR comments  |
| 2015-09 Establish and Communicate System Operating Limits | FAC-010-3FAC-011-3FAC-014-2 | The project will revise the requirements for determining and communicating SOLs and IROLs to address the issues identified in [Project 2015-03 Periodic Review of System Operating Limit Standards](http://www.nerc.com/pa/Stand/Pages/Project-2015-03-Periodic-Review-of-System-Operating-Limit-Standards.aspx).  The resulting standard(s) and definition(s) will benefit reliability by improving alignment with approved TPL and proposed TOP and IRO standards. The project may result in development of one or more proposed Reliability Standards and definitions. | 08/12/16Comments (FAC-011 and FAC-014)9/21/15SAR Comments  |
| 2016-01 [Modifications to TOP and IRO Standards](http://www.nerc.com/pa/Stand/Pages/Project-2016-01-Modifications-to-TOP-and-IRO-Standards.aspx) | Standards Authorization Request | TOP-001IRO-002 | On November 19, 2015, the Federal Energy Regulatory Commission (Commission) issued Order No. 817 approving nine TOP and IRO standards from Project 2014-03 and retiring or superseding 18 currently-enforceable standards. The proposed standards were developed in Project 2014-03 to address Commission concerns and reliability issues identified in the 2011 Southwest Outage Report, the Independent Experts Review Panel project, and stakeholder technical conferences. In approving the new TOP and IRO standards, the Commission issued three directives to modify the TOP and IRO standards to address additional reliability issues.Purpose/Industry Need* The modifications to TOP and IRO standards developed in this project will address the following reliability concerns identified in Order No. 817:
* Monitoring non-Bulk Electric System facilities. The Commission noted that "in some instances the absence of real-time monitoring of non-BES facilities by the transmission operator within and outside its TOP area as necessary for determining SOL exceedances in proposed TOP-001-3, Requirement R10 creates a reliability gap." (P.35)
* Redundancy and Diverse Routing of Data Exchange Capabilities. The Commission determined that, with respect to data exchange capabilities, the TOP and IRO standards requirements for Reliability Coordinators (RCs), Transmission Operators (TOPs), and Balancing Authorities (BAs) "do not clearly address redundancy and diverse routing so that registered entities will unambiguously recognize that they have an obligation to address redundancy and diverse routing as part of their TOP and IRO compliance obligations." (P. 47)
* Testing of the Alternate or Less Frequently Used Data Exchange Capability. The Commission determined that existing requirements do not establish a clear obligation for RCs, TOPs, and BAs to test alternative data exchange capabilities (P. 51).
 | 08/03/16Initial BallotComments2/22/16SAR Comments  |
| ​2016-02 Modifications to CIP Standards  | CIP-002, CIP-003, CIP-004, CIP-005, CIP-006, CIP-007, CIP-008, CIP-009, CIP-010, CIP-011 | The Version 5 Transition Advisory Group (V5 TAG) transferred issues to the Version 5 Standard Drafting Team (SDT) that were identified during the industry transition to implementation of the Version 5 CIP Standards. Specifically, the issues that the SDT will address are:* Cyber Asset and BES Cyber Asset Definitions
* Network and Externally Accessible Devices
* Transmission Owner (TO) Control Centers Performing Transmission Operator (TOP) Obligations
* Virtualization

Order No. 822 approved revisions to version 5 of the CIP standards but also directed that NERC develop modifications to requirements in the CIP standards as follows:* Develop modifications to the CIP Reliability Standards to provide mandatory protection for transient devices used at Low Impact BES Cyber Systems based on the risk posed to bulk electric system reliability.
* Develop modifications to the CIP Reliability Standards to require responsible entities to implement controls to protect, at a minimum, communication links and sensitive bulk electric system data communicated between bulk electric system Control Centers in a manner that is appropriately tailored to address the risks posed to the bulk electric system by the assets being protected (i.e., high, medium, or low impact).
* Develop a modification to provide the needed clarity, within one year, to the LERC definition consistent with the commentary in the Guidelines and Technical Basis section of CIP-003-6.

 Also the scope of this work will incorporate existing and future RFIs relating to the CIP-002 through CIP-011 family of standards. | 6/30/16SAR comments4/21/16Informal Comments |
| 2015-07 Internal Communications Capabilities | COM-001 | On April 16, 2015, FERC issued Order No. 808, Communications Reliability Standards. In this order, FERC approved COM-001-2 and also directed that NERC to either develop a new standard or make the following modification to the existing COM-001-2 standard: * [FERC] direct[s] NERC to develop modifications to COM-001-2, or to develop a new standard, to address our concerns regarding ensuring the adequacy of internal communications capability whenev er internal communications could directly affect the reliable operation of the Bulk-Power System. *See Order No. 808, at P 41.*
* [T]he Commission directs NERC to develop a modification to Reliability Standard COM-001-2 that addresses internal communications capabilities that could involve the issuance or receipt of Operating Instructions or other communications that could have an impact on reliability.

The standard must “address the adequacy of internal telecommunications (or other internal communication systems) that may have an adverse effect on reliability, even within a single functional entity, including: (1) communications between geographically separate control centers within the same functional entity; and (2) communications between a control center and field personnel. These scenarios present a gap in reliability of the Bulk-Power System that NERC should address.” *See Order No. 808, at P 41.* | 6/24/16Final Ballot83.25%5/6/16Additional Ballot84.85%11/16/15Initial Ballot 53.60% |
| 2015-10 Single Points of Failure | TPL-001 | The SPCS and the SAMS conducted an assessment of protection system single points of failure in response to FERC Order No. 754, including analysis of data from the NERC Section 1600 Request for Data or Information. The assessment confirms the existence of a reliability risk associated with single points of failure in protection systems that warrants further action. The proposed standard project will benefit reliability by providing clear, unambiguous and results-based reliability standard requirements to address the assessment’s recommendations for modifying NERC Reliability Standard TPL-001-4 (Transmission System Planning Performance Requirements) identified in the SPCS and SAMS report titled “Order No. 754 Assessment of Protection System Single Points of Failure Based on the Section 1600 Data Request.” | 6/24/16SAR comments  |
| 2007-06.2 Phase 2 of System Protection Coordination | TOP-009-1PRC-001 (retire)PER-006-1 | Protection System coordination among registered owners of the Protection Systems associated with Interconnected Elements is key to the reliability of the Bulk Electric System. The Phase 2 effort has resulted in the proposed standard TOP-009-1 – Knowledge of Composite Protection Systems and Remedial Action Schemes and Their Effects.* Phase 1 (2007-06) developed PRC-027-1
* Phase 2 (2007-06.2) Phase 2 is addressing the remaining Requirements R1, R2, R5, and R6 in PRC-001-1.1 that is proposed for complete retirement. See the Mapping Document for a complete explanation on how Requirement R1 is being addressed by TOP-009-1 and how the reliability objective of Requirements R2, R5, and R6 are addressed by TOP/IRO standards that are awaiting regulatory approval.

In conjunction with Phase 1, NERC is proposing the complete retirement of PRC-001-1.1(ii). Requirements R1, R2, R5, and R6 are proposed for retirement in Phase 2. The remaining two Requirements R3 and R4 of PRC-001-1.1(ii) are addressed by PRC-027-1. The complete retirement of PRC-001-1.1(ii) is contingent upon the approval of Reliability Standards PRC-027-1 and TOP-009-1. NERC is proposing the retirement of PRC-001-1.1(ii) in the implementation plans associated with both projects. | 4/25/16Initial Ballots PER-006 & Definitions80.57%78.39%11/19/15Additional Ballot TOP-009 and PRC-001: 57.29% |

**Recently Completed Standards**

| **Project**  | **Standard(s)** | **Background** | **Dates/Actions** |
| --- | --- | --- | --- |
| 2010-05.3 – Phase 3 of Special Protection Systems: Remedial Action Systems (RAS)  | PRC-012-2 | In early 2011, NERC staff decided to divide Project 2010-05: Protection Systems into phases. Phase 1 addressed the Misoperations of Protection Systems and was adopted by the NERC BOT on August 14, 2014. Phase 2 revised the definition of Remedial Action Scheme (RAS) and was adopted by the NERC BOT on November 13, 2014. Phase 3 is intended to address all aspects of RAS and Special Protection Systems (SPS) contained in the RAS/SPS-related Reliability Standards.Although there is no FERC directive associated with Phase 3; this project will consider recommendations from the joint report, Special Protection Systems (SPS) and Remedial Action Schemes (RAS): Assessment of Definition, Regional Practices, and Application of Related Standards, issued by the System Analysis and Modeling Subcommittee (SAMS) and System Protection and Control Subcommittee (SPCS), as well as from the joint FERC-NERC inquiry of the September 2011 Southwest Blackout Event.Standard(s) affected - PRC-012-1, PRC-013-1, PRC-014-1, PRC-015-1, PRC-016-1RAS/SPS are designed to detect predetermined System conditions and automatically take corrective actions to protect the reliability and integrity of the Bulk Electric System; consequently, the NERC Reliability Standards pertaining to these schemes should provide clear and unambiguous performance expectations and reliability benefits. To accomplish this, the Phase 3 drafting team will correct the applicability of the fill-in-the-blank standards by assigning the requirement responsibilities to the specific users, owners, and operators of the Bulk-Power System; and will revise the RAS/SPS-related standards that address the:• planning, coordination, and design of RAS/SPS,• review, assessment, and documentation of RAS/SPS,• operational considerations for monitoring, status notification, and response to failures,• analysis of RAS/SPS operations, and defining and reporting of SPS/RAS misoperations,• testing of RAS/SPS, and maintenance of any non-protection system components used.Additional resources: May 7, 2015 [project presentation](http://www.nerc.com/pa/Stand/WebinarLibrary/RAS_Industry_Webinar_Presentation_05_07_15_Final.pdf) slides and [streaming webinar](https://cc.readytalk.com/cc/playback/Playback.do?id=8x40dm) September 10, 2015 [project presentation](http://www.nerc.com/pa/Stand/Prjct201005_3RmdialActnSchmsPhase3ofPrtctnSystmsRF/RAS_Industry_Webinar_Presentation_09102015.pdf) slides and [streaming webinar](https://cc.readytalk.com/cc/playback/Playback.do?id=bjk4vf) | 5/5/16Approved by NERC Board4/29/16Final BallotPRC-012: 80.36%Defn: 93.43%3/18/16Additional Ballot for PRC-01278.87%1/8/16Additional BallotPRC-012-2: 60.39%Initial Ballot (defn): 92.94% |
| 2010-07.1 Vegetation Management | FAC-003-4 | In FERC Order No. 777, the Commission directed NERC to “conduct or contract testing to obtain empirical data and submit a report to the Commission providing the results of the testing.” NERC retained the Electric Power Research Institute (EPRI) to conduct testing to support appropriate Minimum Vegetation Clearance Distances (MVCDs) specified in NERC Reliability Standard FAC-003-3. The MVCDs in the Standard are calculated based on application of the Gallet equation which incorporates a gap factor. The preliminary test result findings determined that the gap factor applied in the Gallet equation requires adjustment. The resulting adjustment will increase MVCDs for all alternating current system voltages covered by Table 2 of the Standard. | 3/14/16Approved by NERC Board |
| 2010-14.2.1 Phase 2 of Balancing Authority Reliability-based Controls | BAL-005BAL-006FAC-001 | On September 19, 2013, the Standards Committee appointed a periodic review team to review three BAL standards (BAL-004-0, BAL-005-0.2b, and BAL-006-2) to assess how best to scope a project to address outstanding Order 693 directives, as well as Para 81 recommendations. The Balancing Authority Reliability Controls Phase 2 (BARC 2) PRT used background information on the standards and the questions set forth in the Periodic Review Template developed by NERC and approved by the Standards Committee, along with associated worksheets and reference documents, to determine whether BAL-004-0 should be: (1) affirmed as is (i.e., no changes needed); (2) revised (which may include revising or retiring one or more requirements); or (3) retired. During the development of the recommendation, the PRT also considered stakeholder recommendations for candidate Paragraph 81 requirements from Phase 1 of Paragraph 81, and applied the Paragraph 81 criteria to all of the requirements. The team also considered the Independent Expert Review Panel recommendations on the two standards.The objective of BAL-005 is to establish requirements for acquiring necessary data for the Balancing Authority to calculate Reporting ACE so that balancing of resources and demand can be achieved under Tie-Line Bias Control. The current objective of BAL-006 is to define a process for monitoring Balancing Authorities to ensure that, over the long term, Balancing Authority Areas do not excessively depend on other Balancing Authority Areas in the Interconnection for meeting their demand or Interchange obligations. As the revisions proposed for BAL-006 focus on the minimum requirements for Adjacent Balancing Authorities to agree upon the hourly MW amounts of scheduled and actual Interchange between them, which reinforces that errors in coordination or process will be identified. | 2/11/16Approved by NERC Board: BAL-005-1BAL-006-2 (retire)FAC-001-3 |
| 2010-14.1 – Phase 1 of Balancing Authority Reliability-based Controls: Reserves  | BAL-002-2 | On July 28, 2010, the NERC Standards Committee approved the merger of Project 2007-05 Balancing Authority Controls and Project 2007-18 Reliability-based Control as Project 2010-14 Balancing Authority Reliability-based Controls. On July 13, 2011, the NERC Standards Committee also approved the separation of Project 2010-14 Balancing Authority Reliability-based Controls into two phases and moving Phase 1 (Project 2010-14.1 Balancing Authority Reliability-based Controls - Reserves) into formal standards development. The Project 2010-14.1 Phase 1 proposes revisions to BAL-001-0.1a Real Power Balancing Control Performance and BAL-002-1 Disturbance Control Performance. The project also initially proposed two new standards, BAL-012-1 Operating Reserve Policy and BAL-013-1 Large Loss of Load Performance. BAL-012-1 was posted for a 45-day formal comment period with an initial ballot and non-binding poll through January 14, 2013. The initial ballot failed to achieve the required two-thirds industry approval. Based on industry comments received during this ballot period, the drafting team elected to cease any further development of the proposed BAL-012-1 standard. This project will address the FERC Order 693 Directive for development of a continent-wide Contingency Reserve standard. | 1/29/16Approved by NERC Board |
| 2010-14.2.2 Phase 2 of Balancing Authority Reliability-based Controls | BAL-004 | On September 19, 2013, the Standards Committee appointed a periodic review team to review three BAL standards (BAL-004-0, BAL-005-0.2b, and BAL-006-2) to assess how best to scope a project to address outstanding Order 693 directives, as well as Para 81 recommendations. The Balancing Authority Reliability Controls Phase 2 (BARC 2) PRT used background information on the standards and the questions set forth in the Periodic Review Template developed by NERC and approved by the Standards Committee, along with associated worksheets and reference documents, to determine whether BAL-004-0 should be: (1) affirmed as is (i.e., no changes needed); (2) revised (which may include revising or retiring one or more requirements); or (3) retired. During the development of the recommendation, the PRT also considered stakeholder recommendations for candidate Paragraph 81 requirements from Phase 1 of Paragraph 81, and applied the Paragraph 81 criteria to all of the requirements. The team also considered the Independent Expert Review Panel recommendations on the two standards.After an extensive review, the BARC 2 PRT is recommending that Reliability Standard BAL-004-0 be retired and that manual Time Error Correction (TEC) be eliminated as a continent-wide NERC requirement. | 12/17/15Final ballot:98.26% |
| 2007-06 System Protection Coordination Phase 1 | PRC-027-1 | The System Protection Coordination Standard Drafting Team (SPCSDT) created a new results-based standard, PRC-027-1, with the stated purpose: “To maintain the coordination of Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating those faulted Elements, such that the Protection Systems operate in the intended sequence during Faults.” Draft 4 of PRC-027-1 was posted for comment and ballot from 11/4/13 - 12/31/13. Following the posting, FERC staff from the Office of Electric Reliability raised concerns regarding the posted draft. The primary concern was that the proposed standard did not address the coordination of Protection Systems within a Transmission Owner’s footprint, referred to as “internal” or “intra-entity” Protection Systems. Following discussions with NERC and FERC staff, the SPCSDT prepared a preliminary draft 5 of PRC-027-1 and sought stakeholder input on the conceptual standard during a 21-day informal comment period. Based on stakeholder comments received during the informal comment period, the drafting team modified the proposed standard.Draft 5 of PRC-027-1 modifies the applicability of the standard to include “Protection Systems installed for the purpose of detecting Faults on BES Elements and isolating those faulted Elements,” whereas, prior drafts of the standard limited the applicability to “Protection Systems installed for the purpose of detecting Faults on Interconnecting Elements.” With this change to the applicability, the coordination of Protection Systems for all “internal” or “intra-entity” connections between BES Elements are addressed. PRC-027-1 clarifies the coordination aspects and incorporates the reliability objectives of Requirements R3 and R4 from PRC-001-1.1(ii); therefore, the SPCSDT is proposing the retirement of those Requirements from PRC-001-1.1(ii). The SPCSDT has included a redlined version of PRC-001-1.1(ii) and a clean PRC-001-3. PRC-001-3 contains the remaining Requirements R1, R2, R5, and R6 as well as updated pro forma language for the “Effective Date” and “Compliance” sections of the standard.Draft 5 of PRC-027-1 consists of two proposed requirements. Requirement R1 mandates that entities establish a process to develop settings for its BES Protection Systems to operate in the intended sequence during Faults; and stipulates certain attributes that must be included in the process. Because entities’ Protection System designs and philosophies vary greatly, the drafting team has included flexibility in developing the coordination processes. Requirement R2 mandates that entities implement the process established in accordance with Requirement R1. The drafting team asserts that implementing each of the elements of the process will facilitate a consistent approach in the development of accurate Protection System settings, minimize the possibility of introducing errors, and maximize the likelihood of maintaining a coordinated Protection System. | 11/5/15Approved by NERC Board |
| 2007-17.4 PRC-005 Order No. 803 Directive | PRC-005 | In Order No. 803, FERC approved Standard PRC-005-3 and, in Paragraph 31, directed NERC to: "...direct that, pursuant to section 215(d)(5) of the FPA, NERC develop modifications to PRC-005-3 to include supervisory devices associated with auto-reclosing relay schemes to which the Reliability Standard applies. Further, we clarify that NERC’s proposal regarding the scope of supervisory devices is an acceptable approach to satisfy the Commission directive. Specifically, NERC proposed in its NOPR comments, and we find acceptable, that the scope of the supervisory devices to be encompassed in the Reliability Standard are those providing voltage supervision, supervisory inputs associated with selective auto-reclosing, and sync-check relays that are part of a reclosing scheme covered by PRC-005-3." | 10/26/15Final Ballot96.38% |
| 2010-04.1 MOD-031 FERC Order No. 804 Directives | MOD-031 | An informal development ad hoc group is presenting a pro forma standard that consolidates the existing MOD-016-1.1, MOD-017-0.1, MOD-018-0, MOD-019-0.1 and MOD-021-1 into a single standard. The collection of demand projections requires coordination and collaboration between Planning Authorities (also referred to as “Planning Coordinators”), Transmission and Resource Planners, and Load-Serving Entities. Ensuring that planners and operators have access to complete and accurate load forecasts – as well as the supporting methods and assumptions used to develop these forecasts – will enhance the reliability of the BPS. Collection of actual demand and demand-side management performance during the prior year will allow for comparison to prior forecasts and further contribute to enhanced accuracy of load forecasting practices. This project is a continuation of Project 2010-04 MOD C and will modify the language in Requirement R3 to clarify certain obligations to provide data to the Regional Entity and will also address the directive to consider the compliance obligations of an applicable entity upon receipt of a data request that seeks confidential information. | 10/15/15Final Ballot90.01% |
| 2015-04 Alignment of NERC Glossary of Terms and Definitions Used in the Rules of Procedure (Appendix 2 of the Rules of Procedure)  |  | Project 2015-04 was identified in the 2015-2017 Reliability Standards Development Plan (RSDP) as a new project for 2015. The purpose of the project is to align the defined terms found in the NERC Glossary of Terms (Glossary) and Rules of Procedure (ROP); and, to provide recommendations to the SC and NERC regarding changes or improvements to the existing definition development process(es) to allow for future development of defined terms that are consistent and aligned. This project is necessary because currently there are defined terms that appear in both the Glossary and ROP that are inconsistent in substance and form. This causes industry confusion and may lead to inconsistent interpretation or application of the meaning of a term. Consistent definitions will enhance reliability because owners, users and operators of the BES, along with the ERO Enterprise, will have a clear and consistent understanding of the terminology used in the NERC Reliability Standards and ROP. | 9/14/15All approved |
| 2015-06 Interconnection Reliability Operations and Coordination | IRO-006-EastIRO-009 | Project 2015-06 continues the work done by the Project 2012-09 Interconnected Reliability Operations five-year review team. That review resulted in a recommended drafting effort, so a separate drafting team has been tasked with Project 2015-06. The Project 2012-09 IRO Five-Year Review Team reviewed IRO-003-2, IRO-004-2, IRO-005-4, IRO-006-5, IRO-006-East, IRO-008-1, IRO-009-1 and IRO-010-1a. All standards were recommended for revision except IRO-006-5, which was affirmed by the review team. A final set of recommendations and SAR were submitted to the Standards Committee for consideration in October 2013. Since then, Project 2014-03, Revisions to TOP and IRO Standards, retired IRO-003-2, IRO-004-2, IRO-005-4, IRO-008-1, and IRO-010-1a, leaving only IRO-006-East and IRO-009-1 in need of revision. Project 2015-06 standard drafting team will also consider elements of a periodic review in addition to industry comments as it implements the five-year review team’s recommendations. | 7/31/15Final BallotIRO-006-East: 88.23%IRO-009: 96.84% |
| 2009-02 Real-time Monitoring and Analysis Capabilities | IRO-018-1TOP-010-1 | This project was on hold for several years; however, a new SDT was seated in the spring of 2015 and recently released a new version of the SAR for comment. The goal of the project is to develop requirements and definition(s), as needed, for Real-time monitoring and analysis capabilities to ensure effective operator situational awareness. The project will address recommendations from the 2003 Blackout Report, the 2011 Southwest Outage Report, and the RTBPTF Report, as well as directives from FERC Order No. 693, that have not already been addressed in existing or proposed Reliability Standards. Situational awareness of Real-time system operations is enabled through monitoring and analysis tasks performed by operators. Existing and proposed TOP and IRO standards and definitions developed in Project 2014-03 Revisions to TOP and IRO Standards require Reliability Coordinators (RCs), Transmission Operators (TOPs), and Balancing Authorities (BAs) to perform monitoring and analysis to prevent instability, uncontrolled separation, and Cascading outages that adversely impact the Interconnection. The proposed project will provide additional reliability benefits by addressing issues with the availability and information quality of Real-time monitoring and analysis capabilities. | 5/5/16Approved by NERC Board: IRO-018-1 TOP-010-1 |