**Standards Development Reference Document**

**December 9, 2016**

1. **Standards Under Development – Currently Posted**

*For additional detail about standards under development, see Appendix A.*

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| --- | --- | --- |
| **Project** | **Action** | **End Date** |
| 2015-08 [Emergency Operations](http://www.nerc.com/pa/Stand/Pages/Project-2015-08-Emergency-Operations.aspx) | EOP-005-3, EOP-006-3 | Additional Ballots/Comment Period | 12/9/2016 |
| 2015-08 [Emergency Operations](http://www.nerc.com/pa/Stand/Pages/Project-2015-08-Emergency-Operations.aspx) EOP-008-2 | Final Ballot | 12/9/2016 |
| 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) IRO-002-5, TOP-001-4 | Final Ballot | 12/12/2016 |
| 2015-08 [Emergency Operations](http://www.nerc.com/pa/Stand/Pages/Project-2015-08-Emergency-Operations.aspx) EOP-004-4 | Additional Ballot/Comment Period | 1/6/2016 |

1. **Recent/Relevant Ballot Results**

None since November 8, 2016.

1. **Standards Under Development - Additional Detail**

This section includes those projects that are in the SAR Phase to the Final Ballot Phase.

| **Project**  | **Standard(s)** | **Background** | **Latest Action(s)** |
| --- | --- | --- | --- |
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| 2015-08 [Emergency Operations](http://www.nerc.com/pa/Stand/Pages/Project-2015-08-Emergency-Operations.aspx) | 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. | 1/6/2016Additional BallotEOP-004-412/9/2016Final Ballot EOP-008-212/9/2016Additional BallotEOP-005-3EOP-006-39/8/2016Initial ballot EOP-004: 80.32%8/15/2016Initial ballot EOP-005: 52.90%EOP-006: 66.87%EOP-008: 84.13%08/19/15SAR comments |
| 2015-09 [Establish and Communicate System Operating Limits](http://www.nerc.com/pa/Stand/Pages/Project-2015-09-Establish-and-Communicate-System-Operating-Limits.aspx) | 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. | 8/12/2016Comments (FAC-011 and FAC-014)9/21/15SAR Comments |
| 2015-10 [Single Points of Failure](http://www.nerc.com/pa/Stand/Pages/Project-2015-10-Single-Points-of-Failure-TPL-001.aspx) | 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.” | 6/24/2016SAR 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) |  | TOP-001-4IRO-002-5 | 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). | 12/12/2016Final Ballot10/17/2016Additional Ballot:IRO-002-5: 70.77%TOP-001-4: 68.85%8/3/2016Initial BallotIRO-002: 67.25%TOP-001: 64.59%2/22/2016SAR Comments |
|  |  |  |  |
| ​2016-02 [Modifications to CIP Standards](http://www.nerc.com/pa/Stand/Pages/Project%202016-02%20Modifications%20to%20CIP%20Standards.aspx)  | 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

[FERC Order No. 822](http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order%20Approving%20Revised%20CIP%20Reliability%20Standards.pdf) 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. | 12/5/2016Additional ballots9/6/2016Initial Ballots CIP-003-7: 41.54%Impl. Plan: 41.77%LERC: 30.63%6/30/2016SAR comments4/21/2016Informal Comments |
| 2016-02 [Modifications to CIP Standards](http://www.nerc.com/pa/Stand/Pages/Project%202016-02%20Modifications%20to%20CIP%20Standards.aspx) – Transient Cyber Assets | CIP-003-TCA | In [FERC Order No. 822](http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order%20Approving%20Revised%20CIP%20Reliability%20Standards.pdf), FERC directed NERC to 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 BES reliability. | 11/18/2016Informal Comment Period |
| 2016-03 [Cyber Security Supply Chain Management](http://www.nerc.com/pa/Stand/Pages/Project201603CyberSecuritySupplyChainManagement.aspx) |  | The project will address directives from [Federal Energy Regulatory Commission (FERC) Order No. 829](http://www.ferc.gov/whats-new/comm-meet/2016/072116/E-8.pdf)to develop a new or modified standard to address “supply chain risk management for industrial control system hardware, software, and computing and networking services associated with bulk electric system operations.”  | 11/18/16Comments on SAR |
| 2016-04 [Modifications to PRC-025-1](http://www.nerc.com/pa/Stand/Pages/Project-2016-04-Modifications-to-PRC-025-1.aspx) | PRC-025 | Reliability Standard PRC-025-1 (Generator Relay Loadability), which was approved by the Federal Energy Regulatory Commission in [Order No. 799](http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Final%20Rule%20PRC-025-1%20and%20PRC-023-3.pdf) issued on July 17, 2014, became effective on October 1, 2014. Under the phased implementation plan, applicable entities have between five and seven years to become compliant with the standard depending on the scope of work required by the Generator Owner. In the course of implementing the standard, issues have been identified for specific Facility applications and load-responsive protective relays. | 10/18/16Comments on SAR |

**Standards Under Development - Approved by NERC Board of Directors**

This section includes those projects that have been approved by NERC but not yet by FERC.

| **Project**  | **Standard(s)** | **Background** | **Dates/Actions** |
| --- | --- | --- | --- |
| 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. | 9/2/2016NERC filed [Petition for Approval for PRC-027-1 and PER-006-1](http://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/Petition_Approval%20of%20PRC-027%20and%20PER-006.pdf)11/5/15NERC Board Approval |
| 2007-06.2 Phase 2 of System Protection Coordination | PER-006-1PRC-001 (retire) | 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. | 9/2/2016NERC filed [Petition for Approval for PRC-027-1 and PER-006-1](http://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/Petition_Approval%20of%20PRC-027%20and%20PER-006.pdf)08/11/16NERC Board Approval05/26/16Final Ballots PER-006 & Definitions82.52% & 83.37%04/25/16Initial Ballots PER-006 & Definitions80.57%78.39%11/19/15Additional Ballot TOP-009 and PRC-001: 57.29% |
|  |  |  |  |
| 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) | 08/05/2016NERC Filed [Petition](http://www.nerc.com/FilingsOrders/us/Lists/NERC%20Filings%20to%20FERC%202012%20CL/PRC-012-2_Final_08052016.pdf) for Approval with FERC05/5/16NERC Board Approval04/29/16Final BallotPRC-012: 80.36%Defn: 93.43%03/18/16Additional Ballot for PRC-01278.87%01/8/16Additional BallotPRC-012-2: 60.39%Initial Ballot (defn): 92.94% |
| 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. | 5/19/2016FERC issued a [NOPR to Approve BAL-002-2](http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/BAL-002-2%20NOPR.pdf)1/29/2016NERC filed its [Petition for Approval of BAL-002-2](http://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/BAL-002_%20Petition.pdf)11/5/2015NERC Board Approval |
| 2015-INT-01 [Interpretation of CIP-002-5.1 for Energy Sector Security Consortium (EnergySec)](http://www.nerc.com/pa/Stand/Pages/Project-2015-INT-01-Interpretation-of-CIP-002-5-1-for-EnergySec.aspx) | CIP-002-5.1 | EnergySec submitted a Request for Interpretation (RFI) seeking clarity regarding CIP-002-5.1, Requirement 1, Attachment 1, Part 2.1. The Standards Committee accepted the RFI of CIP-002-5.1 at the September 23, 2015 meeting. Thereafter, the Project Management and Oversight Subcommittee (PMOS) assigned the RFI a medium- to low- priority project. The RFI asks whether the language “shared BES Cyber Systems” refers to discrete BES Cyber Systems that are shared by multiple units, or whether instead it refers to groups of BES Cyber Systems that, collectively, could impact multiple units. | 11/28/2016NERC filed its [Petition for Approval of Interpretation of Reliability Standard CIP-002-5.1a](http://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/Petition%20for%20Interpretation%20of%20CIP-002-5.1a_.pdf)11/2/2016NERC Board Approval10/24/2016Final Ballot91.31%9/12/2016Initial ballot91.68% |

1. **Standards Approved by FERC**

None since November 8, 2016

1. **ERCOT Region Representatives on Standards Drafting Teams**

| **Project No.** | **Project Name** | **ERCOT Region Member(s)** |
| --- | --- | --- |
| 2007-6.2 | Phase 2: System Protection Coordination (PER-006-1, Retirement of PRC-001) | Michael Cruz-Montes, CenterPointVenona Greaff, Occidental Energy Ventures Corp.Yubaraj Sharma, Luminant Brenda Hampton, Luminant/EFH (PMOS liaison) |
| 2010-14*.*2.2 | Periodic Review of BAL Standards (BAL-004) | None |
| 2013-03 | Geomagnetic Disturbance Mitigation | TBD |
| 2015-04 | Alignment of NERC Glossary of Terms and Definitions Used in RoP | Heather Moreno, Luminant Energy |
| 2015-07 | Internal Communications Capabilities (COM-001-3) | Michael Cruz-Montes, CenterPointBrenda Hampton, Luminant/EFH (PMOS liaison) |
| 2015-08 | Emergency Operations | None |
| 2015-09 | Establish and Communicate System Operating Limits | David Bueche, CenterPointStephen Solis, ERCOT |
| 2015-10 | Single Points of Failure (TPL-001-5) | Prabhu Gnanam, ERCOT  |
| 2016-01 | Revisions to TOP and IRO Standards(TOP-001, IRO-002) | David Bueche, CenterPoint (Vice chair)Rod Kinard, Oncor (PMOS liaison) |
| 2016-02 | Modifications to CIP Standards | Christine Hasha, ERCOT (Vice chair)Brian Murphy, NextEra Energy (PMOS liaison) |
| 2016-EPR-01 | Enhanced Periodic Review of Personnel Performance, Training, and Qualification Standards | Heather Morgan, EDP Renewables |
| 2016-EPR-02 | Enhanced Periodic Review of Voltage and Reactive Standards | Stephen Solis, ERCOTDennis Sauriol, AEPMichael Scott, NextEra Energy |
| 2016-03 | Cyber Security Supply Chain Management | Thruston J. Griffin (CPS Energy)Brenda Hampton, Luminant/EFH (PMOS liaison) |
| 2016-04 | Modifications to PRC-025-1 | TBD |

1. **NERC and Texas RE Postings**
* Violations: Visit NERC’s Enforcement page at <http://www.nerc.com/pa/comp/CE/Pages/Enforcement-and-Mitigation.aspx> for information on the latest Public Violations (CIP and Non-CIP), Spreadsheet NOP filing and FFT informational spreadsheet
* Projected Postings: <http://www.nerc.com/pa/Stand/Pages/Default.aspx>. Click on “Projected Posting Schedule”
* NERC Standards - One Stop Shop: <http://www.nerc.com/pa/Stand/Pages/Default.aspx>. Click on “One-Stop-Shop (Status, Purpose, Implementation Plans, FERC Orders, RSAWs)”
* NERC filings at FERC: <http://www.nerc.com/FilingsOrders/us/Pages/default.aspx>.
* TRE’s NERC standards links and summaries of newly approved standards: <http://www.texasre.org/Pages/standards.aspx>.