

**Standards Development Reference Document**  
**As of March 12, 2017**

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

*For additional detail about standards under development, see Section III.*

Project	Action	End Date
2015-10 <a href="#">Single Points of Failure</a>   TPL-001-5	Additional Ballot and Comment Period	4/9/2018

**II. Recent/Relevant Comment Periods and Ballots**

*Since February 13, 2018*

Project	Action	End Date
2017-04 <a href="#">INT Periodic Review</a>	Comment Period	2/23/2018
2017-07 <a href="#">Standards Alignment with Registration</a>   SAR	Comment Period	3/2/2018
2017-02 <a href="#">Modifications to PER Standards</a>   PER-003-2	Initial Ballot and Comment Period	3/7/2018

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

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

Project	Background	Dates/Actions
<p>2015-09  <a href="#">Establish and Communicate System Operating Limits</a>     FAC-010-3  FAC-011-3  FAC-014-2  FAC-015-1</p>	<p>The project will revise the requirements for determining and communicating SOLs and IROLs to address the issues identified in <a href="#">Project 2015-03 Periodic Review of System Operating Limit Standards</a>. 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.</p>	<p>11/13/2017 Initial Ballot  FAC-011-4: 58.12%  FAC-014-3: 63.17%  FAC-015-1: 56.55%  IP: 76.40%  System Voltage Limit Definition: 68.59%</p> <p>10/30/2017 Informal Comment Period on definitions (SOL and SOL Exceedance)</p> <p>8/12/2016 Comments (FAC-011 and FAC-014)</p> <p>9/21/15 SAR Comments</p>

Project	Background	Dates/Actions
2015-10 <a href="#">Single Points of Failure</a>   TPL-001-5	<p>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."</p>	4/9/2018 Additional Ballot  10/23/2017: Initial Ballot TPL-001-5: 30.50%  5/24/2014 Informal Comment Period  6/24/2016 SAR comments
2016-02 <a href="#">Modifications to CIP Standards</a>   Communication Networks	<p>On January 21, 2016, the Commission issued <a href="#">Order No. 822</a> approving seven CIP Reliability Standards and new or modified definitions and issuing certain directives requesting modifications to the CIP Reliability Standards. The focus of this informal comment period is on the directive from the Commission requesting NERC to "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)." (Order 822, Paragraph 53) From the experience and knowledge gained in the on-going efforts to implement the CIP Version 5 standards, stakeholders requested in the SAR that the CIP Modifications Standard Drafting Team (SDT) review the entire suite of CIP standards to determine whether there are any additional requirements that could be impacted during a declared CEC, and if so, to recommend revisions to those requirements. The SDT reviewed the CIP Version 5 suite of standards and identified several more instances where including the phrase "except during CIP Exceptional Circumstances" is deemed appropriate. The SDT is proposing to retain the existing language in the currently approved CEC-related Requirements and add the same language to additional selected Requirements/Parts.</p>	3/13/2017 Informal Comment Period

Project	Background	Dates/Actions
2016-02 <a href="#">Modifications to CIP Standards</a>   CIP Exceptional Circumstances	<p>From the experience and knowledge gained in the on-going efforts to implement the CIP Version 5 standards, stakeholders requested in the SAR that the CIP Modifications Standard Drafting Team (SDT) review the entire suite of CIP standards to determine whether there are any additional requirements that could be impacted during a declared CEC, and if so, to recommend revisions to those requirements. The SDT reviewed the CIP Version 5 suite of standards and identified several more instances where including the phrase “except during CIP Exceptional Circumstances” is deemed appropriate. The SDT is proposing to retain the existing language in the currently approved CEC-related Requirements and add the same language to additional selected Requirements/Parts.</p>	3/13/2017 Informal Comment Period
2016-02 <a href="#">Modifications to CIP Standards</a>   TOCC	<p>Among other things, due to the confusion of the application of the phrase “used to perform the functional obligation of” in CIP-002-5.1a, Attachment 1, criterion 2.12, the V5TAG recommended clarification of:</p> <ul style="list-style-type: none"> <li>• The applicability of requirements on a TO Control Center that performs the functional obligations of a TOP, particularly if the TO has the ability to operate switches, breakers and relays in the BES.</li> <li>• The definition of Control Center.</li> <li>• The language scope of “perform the functional obligations of” throughout the Attachment 1 criteria.</li> </ul> <p>This issue was included in the SAR for Project 2016-02 as follows:</p> <ul style="list-style-type: none"> <li>• Identify items to be addressed to provide additional clarity and revisions to CIP-002-5.1a Attachment 1. TO Control Centers, specifically around performing the functional obligations of a TOP for small or lower-risk entities should be addressed.</li> <li>• Clarify the applicability of requirements on a TO Control Center that perform the functional obligations of a TOP, particularly if the TO has the ability to operate switches, breakers and relays in the BES. CIP-002-5.1a indicates that any Control Center performing the actions noted above is to be considered a medium risk asset if not already identified as a high. There is no allowance for an entity performing such functions to identify their BES Cyber System(s) as low impact.</li> <li>• If necessary and appropriate, the definition of Control Center may need to be revised to provide the additional clarity needed.</li> </ul>	4/11/2017 Informal Comment Period

<p>2016-02  <a href="#">Modifications to CIP Standards</a>    Virtualization</p>	<p>The CIP standards are based primarily on concepts dating back to Version 1 and as technology has evolved, issues have begun to arise as entities attempt to take new concepts and fit them into some of the Version 1 paradigms. These issues revolve around topics such as:</p> <ul style="list-style-type: none"> <li>• Hypervisor – the virtualization component that manages the guest operating systems (OSs) on a host and controls the flow instructions between the guest OSs and the physical hardware.</li> <li>• Virtual machines – With virtualization technologies, a single physical Cyber Asset can be used as an execution platform for numerous virtualized operating systems, micro-service containerized applications, and virtual network functions of all classifications. A single physical Cyber Asset can appear to an external network as many complete Cyber Assets. Virtual switches and networks can be defined so these virtual machines can communicate with each other as if they are separate physical nodes on the network. Virtual machines and functions can also migrate around a physically clustered cyber system such that the singular physical Cyber Asset where an application resides can change at any moment.</li> </ul> <p>The virtualization of Cyber Assets provides advantages for the availability, resiliency, and reliability of applications and functions hosted in such an environment and the CIP standards must not stand in the way of these benefits as long as they are implemented in a secure manner. Virtualization affords enhanced security in some cases as the security controls themselves can be virtualized and placed within the virtual environment closer to the workloads they are protecting. However, there are also different security risks introduced by these environments. The management systems or consoles for these environments allow for the complete control of numerous components of the infrastructure. Virtual machines or networks can be added, modified, or deleted from one central management system. For example, rogue virtual components can starve legitimate workloads of the shared resources (processor, memory, etc.) they need to reliably perform their function. In summary, changes to the CIP Requirements may be needed to account for virtualization.</p> <ul style="list-style-type: none"> <li>• Virtual Networks – Electronic Security Perimeter (ESP) constructs within the current CIP standard are limited to defining security zones at Open Systems Interconnection (OSI) Layer 3 and do not support security zones defined at layers other than OSI Layer 3. With current, widely deployed technology, networks are no longer solely defined by the arrangement of physical hardware and cables <i>inside</i> or <i>outside</i> of a <i>perimeter</i>. Networks can exist as a mixture of physical and virtual segments or purely in a virtual state within one device. Virtual firewalls and other security tools are also available to help secure these environments. Typical hardware network switches can be configured with internal logical isolation to implement multiple virtual networks within them. Accordingly, the SDT is reviewing the CIP standards to validate that definitions, requirements, and guidance regarding ESPs and Electronic Access Points (EAPs) continue to provide for secure and reliable operations.</li> </ul>	<p>11/2/2017  Informal  Comment Period</p> <p>4/11/2017  Informal  Comment Period</p>
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Project	Background	Dates/Actions
	<ul style="list-style-type: none"> <li>Virtual Storage – Historically, servers were limited to dedicated storage within the device. Typically, the operating system and the applications resided in the server on hard drives. Virtual storage technologies such as Storage Area Networks (SANs) present virtualized logical drive storage units to all attached servers. These types of environments then become a shared resource among many physical and virtual hosts.</li> </ul>	
2016-02 <a href="#">Modifications to CIP Standards</a>   CIP-012-2	<p>On January 21, 2016, the Commission issued Order No. 822, approving seven CIP Reliability Standards and new or modified definitions, and directing modifications to the CIP Reliability Standards. Among others, the Commission directed NERC to “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).” (Order 822, Paragraph 53)</p> <p>The Project 2016-02 Standard Drafting Team (SDT) drafted Reliability Standard CIP-012-1 to require Responsible Entities to implement controls to protect sensitive Bulk Electric System (BES) data and communications links between BES Control Centers. Due to the sensitivity of the data being communicated between the Control Centers, as defined in the NERC Glossary of Terms Used in Reliability Standards, the standard applies to all impact levels (i.e., high, medium, or low impact).</p> <p>The SDT drafted requirements allowing Responsible Entities to apply protection to the links, the data, or both, to satisfy the security objective consistent with the capabilities of the Responsible Entity’s operational environment. Requirement R1 requires Responsible Entities to document one or more plans that protect Operational Planning Analysis, Real-time Assessment, and Real-time monitoring data while being transmitted between Control Centers. The plan(s) must address how the Responsible Entity will mitigate the risk of unauthorized disclosure or modification of the applicable data. Requirement R2 covers implementation of the plan developed according to Requirement R1.</p>	12/11/2017 Additional Ballot CIP-012-2 63.91%  9/11/2017 Initial Ballot CIP-012-2: 42.74%

Project	Background	Dates/Actions
2016-02 <a href="#">Modifications to CIP Standards</a>   CIP-002-6	<p>Among other issues, the V5TAG recommended clarification of the phrase “used to perform the functional obligations of the Transmission Operator” in CIP-002-5.1a, Attachment 1, Criterion 2.12.</p> <p>Accordingly, the Project 2016-02 SDT proposes the following modifications to CIP-002-5.1a, Attachment 1, Criterion 2.12 to clarify the applicability of requirements to a TO Control Center that performs the functional obligations of a TOP.</p> <p>The proposed criterion establishes an average MVA line loading, based on voltage class, for BES Transmission Lines operated between 100 and 499 kV. The aggregate weighted value for applicable BES Cyber Systems must exceed 6000 to meet the minimum threshold established in Criterion 2.12 and can be calculated by summing the "weight value per line" shown in the associated table for each BES Transmission Line monitored and controlled by the Control Center or backup Control Center. If the aggregate weight value of lines exceed 6000, the Control Center’s associated BES Cyber System(s) must be identified as medium impact. If the aggregate weight value of lines does not exceed 6000, the Control Center’s associated BES Cyber System(s) must be evaluated for classification as low impact pursuant to Criterion 3.1.</p>	10/30/2017 Initial Ballot CIP-002-6: 66.78%
2016-04 <a href="#">Modifications to PRC-025-1</a>   PRC-025	Reliability Standard PRC-025-1 (Generator Relay Loadability), which was approved by the Federal Energy Regulatory Commission in <a href="#">Order No. 799</a> 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.	1/18/2018 Final Ballot 89.46%  12/13/2017 Additional Ballot PRC-025-2 88.25%  9/7/2017 Initial Ballot PRC-025-2: 80.99%  4/3/2017 Comments on 2 <sup>nd</sup> draft SAR  10/18/16 Comments on SAR

Project	Background	Dates/Actions
2016-EPR-01 <a href="#">Enhanced Periodic Review of PER Standards</a>   PER-003-1, PER-004-2	The purpose of this project is to conduct a periodic review of a subset of Personnel Performance, Training, and Qualifications (PER) Reliability Standards. The periodic review comprehensively reviews standards to evaluate, for example, whether the requirements are clear and unambiguous. The periodic review will include background information, along with any associated worksheets or reference documents, to guide a comprehensive review that results in a recommendation that the Reliability Standard should be: (1) reaffirmed as is (i.e., no changes needed); (2) revised (which may include revising or retiring one or more requirements); or (3) withdrawn.	2/23/2017 Comment Period
2016-EPR-02 <a href="#">Enhanced Periodic Review of VAR Standards</a>   VAR-001-4.1, VAR-002-4	The purpose of this project is to conduct a periodic review of a subset of the Voltage and Reactive (VAR) Reliability Standards. The periodic review comprehensively reviews standards to evaluate, for example, whether the requirements are clear and unambiguous. The periodic review will include background information, along with any associated worksheets or reference documents, to guide a comprehensive review that results in a recommendation that the Reliability Standard should be: (1) reaffirmed as is (i.e., no changes needed); (2) revised (which may include revising or retiring one or more requirements); or (3) withdrawn.	4/13/2017 Comment Period
<a href="#">Revisions to the Standards Processes Manual</a> (Sections 2.1, 3.7, 6.0, 7.0, 8.0, and 11.0)	The Field Test language in Section 6.0 is revised to increase coordination between the Standards Committee and the technical committees when field tests are conducted. Revisions are proposed to Section 7.0 to clarify language and streamline the process for posting and balloting Interpretations. Revisions to Section 8.0 are proposed to allow an entity to withdraw its appeal by providing written notice. Revisions are proposed to Section 11.0 to clarify the scope of this section, define supporting documents, and incorporate a detailed process for vetting proposed supporting documents. Additionally, non-process related revisions are made to Sections 2.1 and 3.7 to update language.	5/3/2017 Ballot: 64.72%
2017-01 <a href="#">Modifications to BAL-003-1.1</a>	Revise the BAL-003-1 standard and process documents to address: (1) the inconsistencies in calculation of IFROs due to interconnection Frequency Response performance changes of Point C and/or Value B; (2) the Eastern Interconnection Resource Contingency Protection Criteria; (3) the frequency nadir point limitations (currently limited to t0 to t+12), (4) clarification of language in Attachment A, i.e. related to Frequency Response Reserve Sharing Groups (FRSG) and the timeline for Frequency Response and Frequency Bias Setting activities. (5) The BAL-003-1 FRS Forms need enhancements that include, but may not be limited to, the ability to collect and submit FRSG performance data. Additionally, the supporting procedural and process steps may be removed from Attachment A and captured in an ERO and NERC Operating Committee approved Reference Document such that timely process improvements can be made as future lessons are learned.	12/1/2017 2 <sup>nd</sup> SAR, Informal Comments  7/18/2017 SAR



Project	Background	Dates/Actions
2017-02 <a href="#">Modifications to PER Standards</a>	<p>A clarifying footnote needs to be added to PER-003-1 Requirement R1, R2 and R3 to ensure that stakeholders (now and in the future) understand (i) the connection between the Standard and the Program Manual; and (ii) that the certifications referenced under PER-003-1 are those under the NERC System Operator Certification Program.</p> <p>The PER-004-2 standard falls within Paragraph 81 Criterion B7 and should be retired. All of its requirements are redundant with requirements in other FERC-approved reliability standards that are in effect or soon to be effective. It is not necessary or efficient to maintain such duplicative requirements.</p>	3/7/2018 Initial Ballot PER-003-2: 97.50% IP: 98.91%  7/24/2017 SAR
2017-03 <a href="#">FAC-008-3 Periodic Review</a>	<p>The Review Team completed a comprehensive review of FAC-008-3 – Facility Ratings. The team found the standard is sufficient to protect reliability and meets its reliability objectives; however, there may be future opportunity to improve minor clarity and consistency issues. The team seeks industry comment which will be used to make a final recommendation.</p>	12/13/2017 Comment Period
2017-04 <a href="#">INT Periodic Review</a>	<p>The Subject Matter Expert (SME) stakeholder team completed an initial comprehensive review of INT-004-3.1 – Dynamic Transfers. The SME stakeholder team finds the opportunity exists to retire INT-004-3.1 and its requirements.</p> <p>The Subject Matter Expert (SME) stakeholder team completed an initial comprehensive review of INT-006-4 – Evaluation of Interchange Transactions. The team recommends retirement of INT-006-4 Requirement R3, part 3.1, Requirement R4, and Requirement R5.</p> <p>The Subject Matter Expert (SME) stakeholder team completed an initial comprehensive review of INT-009-2.1 – Implementation of Interchange. The team recommends retirement of INT-009-2.1 Requirement R1 and Requirement R2.</p> <p>The Subject Matter Expert (SME) stakeholder team completed an initial comprehensive review of INT-010-2.1 – Interchange Initiation and Modification for Reliability. The SME stakeholder team finds the opportunity exists to retire INT-010-2.1 and its requirements.</p>	2/23/2018 Comment Period
2017-05 <a href="#">NUC-001-3 Periodic Review</a>	<p>The periodic review team (PRT) completed a comprehensive review of Reliability Standard NUC-001-3 – Nuclear Plant Interface Coordination. The PRT found the standard is sufficient to protect reliability, meets the reliability objective, and no <i>immediate</i> revisions are necessary. The PRT, however, identified certain non-substantive or minor improvements to the quality and content of the standard that should be considered in the future.</p>	1/29/2018 Comment Period

Project	Background	Dates/Actions
2017-06 <a href="#">Modifications to BAL-002-2</a>	<p>On January 19, 2017, FERC issued an order approving Reliability Standard BAL-002-2. FERC Order also directed NERC to make two modifications to the BAL-002-2 standard and revise two VRFs. The revision for the VRFs will be handled outside of this SAR.</p> <p>With regard to FERC's directed modifications to BAL-002-2, the order stated:</p> <p>"Accordingly, we direct NERC to develop modifications to Reliability Standard BAL-002-2, Requirement R1 to require Balancing Authorities (BA) or Reserve Sharing Groups (RSG): (1) to notify the reliability coordinator of the conditions set forth in Requirement R1, Part 1.3.1 preventing it from complying with the 15-minute ACE recovery period; and (2) to provide the reliability coordinator with its ACE recovery plan, including a target recovery time. NERC may also propose an equally efficient and effective alternative."</p>	7/20/2017 SAR

Project	Background	Dates/Actions
<p>2017-07  <a href="#">Standards Alignment with Registration</a></p>	<p>On March 19, 2015, the Federal Energy Regulatory Commission (FERC) approved the North American Electric Reliability Corporation (NERC) Risk-Based Registration (RBR) Initiative in Docket No. RR15-4-000. FERC approved the removal of two functional categories, Purchasing-Selling Entity (PSE) and Interchange Authority (IA), from the NERC Compliance Registry due to the commercial nature of these categories posing little or no risk to the reliability of the bulk power system.</p> <p>FERC also approved the creation of a new registration category, Underfrequency Load Shedding (UFLS)-only Distribution Provider (DP), for PRC-005 and its progeny standards. FERC subsequently approved on compliance filing the removal of Load-Serving Entities (LSEs) from the NERC registry criteria. Several projects have addressed standards impacted by the RBR initiative since FERC approval; however, there remain some Reliability Standards that require minor revisions so that they align with the post-RBR registration impacts.</p> <p>Project 2017-07 Standards Alignment with Registration is focused on making the tailored Reliability Standards updates necessary to reflect the retirement of PSEs, IAs, and LSEs (as well as all of their applicable references). This alignment includes three categories:</p> <ol style="list-style-type: none"> <li>1. <u>Modifications to existing standards where the removal of the retired function may need replacement by another function.</u> Specifically, Reliability Standard MOD-032-1 specifies certain data from LSEs that may need to be provided by other functional entities going forward.</li> <li>2. <u>Modifications where the applicable entity and references may be removed.</u> These updates may be able to follow a similar process to the Paragraph 81 initiatives where standards are redlined and posted for industry comment and ballot. A majority of the edits would simply remove deregistered functional entities and their applicable requirements/references. Additionally PRC-005 will be updated to replace Distribution Providers (DP) with the more-limited UFLS-only DP to align with the post-RBR registration impacts.</li> <li>3. <u>Initiatives that can address RBR updates through the periodic review process.</u> This would include the INT-004 and NUC-001 standards. In other words, rather than making the revisions immediately, this information would be provided to the periodic review teams currently reviewing INT-004 and NUC-001 so that any changes resulting from those periodic reviews, if any, may be proposed at the same time after completion of each periodic review.</li> </ol>	<p>3/2/2018 SAR Posting</p> <p>1/9/2018 2<sup>nd</sup> SAR Posting</p> <p>8/30/2017 SAR</p>

Project	Background	Dates/Actions
<p>2017-07  <a href="#">Standards Alignment with Registration</a>    MOD-032</p>	<p>On March 19, 2015, the Federal Energy Regulatory Commission (FERC) approved the North American Electric Reliability Corporation (NERC) Risk-Based Registration (RBR) Initiative in Docket No. RR15-4-000. FERC approved the removal of two functional categories, Purchasing-Selling Entity (PSE) and Interchange Authority (IA), from the NERC Compliance Registry due to the commercial nature of these categories posing little or no risk to the reliability of the bulk power system.</p> <p>FERC also approved the creation of a new registration category, Underfrequency Load Shedding (UFLS)-only Distribution Provider (DP), for PRC-005 and its progeny standards. FERC subsequently approved on compliance filing the removal of Load-Serving Entities (LSEs) from the NERC registry criteria. Several projects have addressed standards impacted by the RBR initiative since FERC approval; however, there remain some Reliability Standards that require minor revisions so that they align with the post-RBR registration impacts.</p> <p>Project 2017-07 Standards Alignment with Registration is focused on making the tailored Reliability Standards updates necessary to reflect the retirement of PSEs, IAs, and LSEs (as well as all of their applicable references). This alignment includes three categories:</p> <ol style="list-style-type: none"> <li>1. <u>Modifications to existing standards where the removal of the retired function may need replacement by another function.</u> Specifically, Reliability Standard MOD-032-1 specifies certain data from LSEs that may need to be provided by other functional entities going forward.</li> </ol>	<p>8/30/2017 SAR</p>
<p><a href="#">Standards Efficiency Review</a></p>	<p>The scope of this project is to evaluate NERC Reliability Standards using a risk-based approach to identify potential efficiencies through retirement or modification of Reliability Standard Requirements. Considering that many Reliability Standards have been mandatory and enforceable for 10+ years in North America, this project seeks to identify potential candidate requirements that are not essential for reliability, could be simplified or consolidated, and could thereby reduce regulatory obligations and/or compliance burden.</p>	<p>2/2/2018  Comment Period</p>

### 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. Projects are removed from this list when FERC issues a Final Rule.

Project	Background	Dates/Actions
2007-06 System Protection Coordination Phase 1   PRC-027-1	<p>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.</p> <p>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.</p> <p>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.</p>	<p>11/16/2017 FERC issued a <a href="#">NOPR</a> proposing to approve PRC-027-1 and PER-006-1</p> <p>9/2/2016 NERC filed <a href="#">Petition for Approval for PRC-027-1 and PER-006-1</a></p> <p>11/5/15 NERC Board Approval</p>

Project	Background	Dates/Actions
2007-06.2 Phase 2 of System Protection Coordination   PER-006-1 PRC-001 (retire)	<p>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.</p> <ul style="list-style-type: none"> <li>Phase 1 (2007-06) developed PRC-027-1</li> <li>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.</li> </ul> <p>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.</p>	<p>11/16/2017 FERC issued a <a href="#">NOPR</a> proposing to approve PRC-027-1 and PER-006-1</p> <p>9/2/2016 NERC filed <a href="#">Petition for Approval for PRC-027-1 and PER-006-1</a></p> <p>08/11/16 NERC Board Approval</p> <p>05/26/16 Final Ballots PER-006 &amp; Definitions 82.52% &amp; 83.37%</p> <p>04/25/16 Initial Ballots PER-006 &amp; Definitions 80.57% 78.39%</p> <p>11/19/15 Additional Ballot TOP-009 and PRC-001: 57.29%</p>

Project	Background	Dates/Actions
2013-03 <a href="#">Geomagnetic Disturbance Mitigation</a>   TPL-007	<ul style="list-style-type: none"> <li>• On September 22, 2016, FERC issued <a href="#">Order No. 830</a> approving Reliability Standard TPL-007-1               <ul style="list-style-type: none"> <li>○ FERC issued the following directives:                   <ul style="list-style-type: none"> <li>▪ 1. To revise the benchmark GMD event definition set forth in Attachment 1 of TPL-007-1, as it pertains to the required GMD Vulnerability Assessment and transformer thermal impact assessments, so that the definition is not based solely on spatially averaged data</li> <li>▪ 2. To require the collection of necessary geomagnetically induced current (GIC) monitoring and magnetometer data and to make such data publicly available;</li> </ul> </li> </ul> </li> <li>3. To include a one-year deadline for the completion of corrective action plans and two and four year deadlines to complete mitigation actions involving non-hardware and hardware mitigation, respectively.</li> </ul>	1/22/2018 NERC filed its <a href="#">Petition for Approval of TPL-007-2</a>  11/9/2017 NERC Board adopted TPL-007-2  10/30/2017 Final Ballot TPL-007-2: 73.35%  8/11/2017 Initial Ballot TPL-007-2: 72.67%  1/20/2017 SAR

<p>2016-02  <a href="#">Modifications to CIP Standards</a>    CIP-003 LERC  Definition  Changes</p>	<p>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:</p> <ul style="list-style-type: none"> <li>• Cyber Asset and BES Cyber Asset Definitions</li> <li>• Network and Externally Accessible Devices</li> <li>• Transmission Owner (TO) Control Centers Performing Transmission Operator (TOP) Obligations</li> <li>• Virtualization</li> </ul> <p><a href="#">FERC Order No. 822</a> approved revisions to version 5 of the CIP standards but also directed that NERC develop modifications to requirements in the CIP standards as follows:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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).</li> <li>• 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.</li> </ul> <p>Also the scope of this work will incorporate existing and future RFIs relating to the CIP-002 through CIP-011 family of standards.</p>	<p>10/19/2017 FERC issued a <a href="#">NOPR to Approve CIP-003-7</a></p> <p>3/3/2017 NERC submitted its <a href="#">Petition for Approval of Proposed Reliability Standard CIP-003-7</a></p> <p>2/9/2017 Approved by NERC Board</p> <p>12/19/16 Final Ballots CIP-003-7: 87.95% IP: 83.03%</p> <p>12/5/2016 Additional Ballots CIP-003-7: 85.56% IP: 75.54%</p> <p>9/6/2016 Initial Ballots CIP-003-7: 41.54% IP: 41.77% LERC: 30.63%</p> <p>6/30/2016 SAR comments</p>
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Project	Background	Dates/Actions
		4/21/2016 Informal Comments

<p>2016-02  <a href="#">Modifications to CIP Standards</a>    CIP-003-7(i)  Transient Cyber Assets</p>	<p>In <a href="#">FERC Order No. 822</a>, 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.</p> <p>For the Initial ballot/comment period that ends on 1/25/2017, this standard is CIP-003-7(i). Also for ballot is the definition of Transient Cyber Asset and Removable Media.</p>	<p>10/19/2017 FERC issued a <a href="#">NOPR to Approve CIP-003-7</a></p> <p>3/3/2017 NERC submitted its <a href="#">Petition for Approval of Proposed Reliability Standard CIP-003-7</a></p> <p>2/8/2017  Final Ballot  Additional Ballot  CIP-003-7(i):  78.55%  IP: 86%  TCA Definition: 85.81%  Removable Media Definition: 85.54%</p> <p>1/25/2017  Additional Ballot  CIP-003-7:  81.30%  IP: 87.87%  TCA Definition: 86.75%  Removable Media Definition: 86.47%</p> <p>1/25/2017</p>
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Project	Background	Dates/Actions
		<p>Initial Ballot CIP-003-7(i)</p> <p>11/18/2016 Informal Comment Period</p>
<p>2016-03 <a href="#">Cyber Security Supply Chain Management</a>   CIP-013-1, CIP-005-6, CIP-010-3</p>	<p>The project will address directives from <a href="#">Federal Energy Regulatory Commission (FERC) Order No. 829</a> 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.”</p>	<p>9/26/2017 NERC filed its <a href="#">Petition for Approval</a> of CIP-013-1, CIP-005-6, and CIP-010-3</p> <p>8/10/2017 – NERC Board adopts CIP-013-1, CIP-005-6, CIP-010-3</p> <p>6/15/2017 Additional Ballot CIP-013-1: 88.64%</p> <p>Initial Ballot CIP-005-6: 89.84% CIP-010-3: 82.92</p> <p>3/6/2017 Initial Ballot CIP-013-1: 10.36%</p> <p>11/18/16 Comments on SAR</p>

#### IV. FERC Actions

On January 18, 2018, FERC issued a Noticed of Proposed Rulemaking regarding Supply Chain Risk Management Reliability Standards.

- The Commission proposed to direct NERC to develop modifications to the CIP Reliability Standards to include EACMS associated with medium and high BES Cyber Systems within the scope of the supply chain risk management Reliability Standards. (Paragraph 39)
- The Commission proposes to direct NERC to include PACS and PCAs in the BOT-requested study and to await the finding of the study's final report before considering further action. (Paragraph 42)
- The Commission proposes to direct NERC to file the BOT-requested study's interim and final reports with the Commission upon their completion. (Paragraph 43)
- The Commission proposes that the proposed Reliability Standards become effective the first day of the first calendar quarter that is 12 months following the effective date of a Commission order approving the Reliability Standards. The Commission seeks comment on this proposal. (Paragraph 44)

On January 18, 2018, FERC issued [Order No. 840](#) regarding Emergency Preparedness and Operations Reliability Standards.

- In the Order, FERC approves Reliability Standards EOP-004-4, EOP-005-3, EOP-006-3, and EOP-008-2.

#### V. NERC Actions

On January 22, 2018, NERC filed its [Petition for Approval of Proposed Reliability Standard TPL-007-2](#).

On January 29, 2018, NERC filed [Comments in Response to the NOPR](#) to approve Reliability Standards PRC-027-1 and PER-006-1.

#### VI. ERCOT Region Representatives on Standards Drafting Teams

*Projects are removed from this list when FERC issues a Final Rule.*

Project	ERCOT Region Representation
2007-06 System Protection Coordination Phase 1   PRC-027-1	<b>Member(s):</b> None <b>Observer(s):</b> Mike, Armin - CP
2007-06.2 Phase 2 of System Protection Coordination   PER-006-1 PRC-001 (retire)	<b>Member(s):</b> Michael Cruz-Montes – CenterPoint, Venona Greaff - Occidental Energy Ventures Corp., Yubaraj Sharma - Luminant <b>Observer(s):</b> <b>PMOS Liaison:</b> Brenda Hampton, Vistra
2013-03 <a href="#">Geomagnetic Disturbance Mitigation</a>   TPL-007	<b>Member(s):</b> <b>Observer(s):</b> Ben Richardson – ERCOT

	Mike Juireck, Oncor <b>PMOS Liaison:</b>
2015-09 <a href="#">Establish and Communicate System Operating Limits</a>   FAC-010-3 FAC-011-3 FAC-014-2 FAC-015-1	<b>Member(s):</b> David Bueche – CenterPoint, Stephen Solis – ERCOT <b>Observer(s):</b> Michael Cruz-Montes - CenterPoint <b>PMOS Liaison:</b>
2015-10 <a href="#">Single Points of Failure</a>   TPL-001	<b>Member(s):</b> Prabhu Gnanam - ERCOT <b>Observer(s):</b> <b>PMOS Liaison:</b>
2016-02 <a href="#">Modifications to CIP Standards</a>   CIP-003 LERC Definition Changes	<b>Member(s):</b> Christine Hasha - ERCOT (Vice chair) <b>Observer(s):</b> Don Hunt - CenterPoint <b>PMOS Liaison:</b> Brian Murphy - NextEra Energy, Andrew Gallo – Austin Energy
2016-02 <a href="#">Modifications to CIP Standards</a>   CIP-003 Transient Cyber Assets	<b>Member(s):</b> Christine Hasha - ERCOT (Vice chair) <b>Observer(s):</b> Don Hunt - CenterPoint <b>PMOS Liaison:</b>
2016-03 <a href="#">Cyber Security Supply Chain Management</a>	<b>Member(s):</b> Thruston J. Griffin - CPS Energy <b>Observer(s):</b> Jamie Schue – ERCOT, Tony Bruton – Oncor; Tim Mann, CenterPoint <b>PMOS Liaison:</b> Brenda Hampton - Vistra
2016-04 <a href="#">Modifications to PRC-025-1</a>   PRC-025	<b>Member(s):</b> John Schmall (Chair) - ERCOT <b>Observer(s):</b> <b>PMOS Liaison:</b>
Project 2016-EPR-01 <a href="#">Enhanced Periodic Review of Personnel Performance, Training, and Qualifications Standards</a>   PER-003-1, PER-004-2	<b>Member(s):</b> <b>Observer(s):</b> Michael Cruz-Montes - CenterPoint <b>PMOS Liaison:</b>
2016-EPR-02 <a href="#">Enhanced Periodic Review of VAR Standards</a>   VAR-001-4.1, VAR-002-4	<b>Member(s):</b> Stephen Solis (Chair) - ERCOT <b>Observer(s):</b> Michael Cruz-Montes – CenterPoint <b>PMOS Liaison:</b>
2017-01 <a href="#">Modifications to BAL-003-1.1</a>	<b>Member(s):</b> <b>Observer(s):</b> <b>PMOS Liaison:</b>
2017-02 <a href="#">Modifications to PER Standards</a>	<b>Member(s):</b> <b>Observer(s):</b> Michael Cruz-Montes – CenterPoint <b>PMOS Liaison:</b>

2017-06 <a href="#">Modifications to BAL-002-2</a>	<b>Member(s):</b> <b>Observer(s):</b> <b>PMOS Liaison:</b>
2017-07 <a href="#">Standards Alignment with Registration</a>	<b>Member(s):</b> <b>Observer(s):</b> <b>PMOS Liaison:</b>
<a href="#">Standards Efficiency Review</a>	<b>Long Term Planning:</b> Sandeep Borkar - ERCOT, Larisa Loyferman - CenterPoint <b>Operations Planning:</b> Shirley Mathew – Austin Energy <b>Real-time Operations:</b> Michael Cruz-Montes – CenterPoint, Laura Zotter – Austin Energy

## VII. 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>.
- Texas RE's NERC standards links and summaries of newly approved standards: <http://www.texasre.org/Pages/standards.aspx>.