Standards Development Reference Document

I. Standards Under Development – Currently Posted

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

Project	Action	End Date
2016-02 Modifications to CIP Standards | Virtualization	Additional Ballots and Comment Period	10/07/2022

II. Recent/Relevant Comment Periods and Ballots

Project	Action	End Date
2021-07 Extreme Cold Weather Gride Operations, Preparedness, and Coordination	Additional Ballot and Comment Period	9/1/2021
2017-01 Modifications to BAL-003 – Phase II	Initial Ballots and Comment Period	9/7/2022
2022-04 EMT Modeling	SAR Comment Period	9/13/2022

III. Standards Under Development - Additional Detail

This section includes those projects that are in the SAR Phase to NERC filing the petition with FERC. Once FERC issues a final rule, the project is removed from this table.

Project	Background	Dates/Actions

2016-02 Modifications to CIP Standards | Virtualization	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: • 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. • 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. 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. • 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 *inside* or *outside* of a *perimeter*. 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. • 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	10/7/2022 Additional Ballots 4/11/2022 Additional Ballots CIP-002-7: 79.90% CIP-003-Y: 73.43% CIP-004-8: 77.03% CIP-005-8: 60.83% CIP-006-7: 76.13% CIP-007-7: 61.45% CIP-008-7: 78.67% CIP-009-7: 78.42% CIP-010-5: 56.81% CIP-011-4: 79.08% CIP-013-3: 78.67% 9/1/2021 Additional Ballots CIP-002-7: 36.22% CIP-003-9: 41.55% CIP-004-7: 38.09% CIP-005-8: 20.25% CIP-006-7: 42.19% CIP-007-7: 29.40%

	logical drive storage units to all attached servers. These types of environments then become a shared resource among many physical and virtual hosts.	CIP-008-7: 49.48% CIP-009-7: 49.73% CIP-010-5: 33.22% CIP-011-3: 40.16% CIP-013-3: 41.43% 3/22/2021 Initial Ballots CIP-002-7: 38.87% CIP-003-9: 48.30% CIP-004-7: 51.17% CIP-005-8: 26.30% CIP-006-7: 42.81% CIP-007-7: 42.32% CIP-008-7: 52.87% CIP-009-7: 53.26% CIP-010-5: 32.43% CIP-011-3: 47.25% CIP-013-3: 51.23% 9/26/2019 CIP-005 Comment Period

		6/28/2019 White Paper Informal Comment Period 12/18/2018 Informal Comment Period 11/2/2017 Informal Comment Period 4/11/2017 Informal Comment Period
2017-01 Modifications to BAL-003-1.1 (Phase II)	The second phase will address the Phase II recommendations in the SAR: Make the Interconnection Frequency Response Obligation (IFRO) calculations and associated allocations: 1) more reflective of current conditions; 2) consider all characteristics affecting Frequency Response (e.g., load response, mix and type of generation); 3) include all applicable entities; and 4) be as equitable as possible; and Frequency Response Measure (FRM): 1) ensure that over-performance by one entity does not negatively impact the evaluation of performance by another; 2) measure types/periods of response in addition to secondary Frequency Response, particularly primary Frequency Response; 3) include all applicable entities; and 4) make allocations as equitable as possible.	9/7/2022 Initial Ballot BAL-003-3: 43.84% 4/27/2021 Informal White Paper Comments
2019-04 Modifications to PRC-005-6	The SAR proposes revisions to PRC-005-6 that provide clear, unambiguous guidance on the scope of applicability to AVR protective functions. Without clear applicability, the industry is struggling with how to implement PRC-005-6 and what testing is acceptable to meet the required maintenance activities prescribed by PRC-005-6. This topic is only applicable to a Generator Owner that owns a synchronous generating unit with an installed digital AVR. The SAR also proposes revising PRC-005-6 to add a new section under Facilities to clearly delineate the applicability of Protection Systems associated with AVR protective functions, limiting the scope of the AVR protective functions to those elements that open a breaker directly or via lockout or tripping auxiliary relays.	8/25/2021 SAR Comment Period 2/12/2021 SAR Comment Period 7/8/2020 SAR Comment Period 8/28/2019 SAR Comment Period

2020-02 Modifications to PRC-024 (Generator Ride-through)	The potential risk of increasing amounts of reactive power being supplied by nonsynchronous sources was identified in *NERC's 2017 Long-term Reliability Assessment*. In response to the concern, the Planning Committee (PC) assigned the System Analysis and Modeling Subcommittee (SAMS) to study the issue. The SAMS developed the *Applicability of Transmission-Connected Reactive Devices* white paper, which was approved by the PC at its December 2019 meeting. The PC Executive Committee reviewed the draft SAR from SAMS at its January meeting and subsequently approved the SAR by email vote ending on February 11, 2020. The SAR was later accepted by the Standards Committee at its March 2020 meeting. **Standards Affected**: MOD-025, MOD-026, MOD-027, PRC-019, and PRC-024	7/14/2022 SAR Comment Period 5/13/2020 SAR Comment Period
2020-03 Supply Chain Low Impact Revisions	**Background** In its final report accepted by the NERC Board in May 2019, NERC documented the results of the evaluation of supply chain risks associated with certain categories of assets not currently subject to the Supply Chain Standards and recommended actions to address those risks. NERC staff recommended further study to determine whether new information supports modifying the standards to include low impact BES Cyber Systems with external connectivity by issuing a request for data or information pursuant to Section 1600 of the NERC Rules of Procedure. The Board approved the formal issuance of this data request on August 15, 2019. NERC collected the data from August 19 through October 3, 2019. A final report, *Supply Chain Risk Assessment*, was published in December 2019. The report recommended the modification of the Supply Chain Standards to include low impact BES Cyber Systems with remote electronic access connectivity. Further, industry feedback was received regarding this recommendation at the February 2020 NERC Board meeting through MRC Policy Input. After considering policy input, the NERC Board adopted a resolution to initiate a project to modify Reliability Standard CIP-003-8 to include policies for low impact BES Cyber Systems to: (1) detect known or suspected malicious communications for both inbound and outbound communications; (2) determine when active vendor remote access sessions are initiated; and (3) disable active vendor remote access when necessary. **Standard Affected** – CIP-003-8	8/19/2022 Additional Ballot CIP-003-X: 66.81% 4/15/2022 Additional Ballot CIP-003-X 52.81% 10/11/2021 Initial Ballot CIP-003-x: 29.09% 6/3/2020 SAR Comment Period

2020-04 Modifications to CIP-012	**Background** In Order No. 866, FERC stated that “maintaining the availability of communication networks and data should include provisions for incident recovery and continuity of operations in a responsible entity's compliance plan." FERC recognized that the redundancy of communication links cannot always be guaranteed, and acknowledged there should be plans for both recovery of compromised communication links and use of backup communication capability. The proposed scope of this project would entail modifications to CIP-012 – Communications between Control Centers. **Standard(s) Affected** – CIP-012 - Cyber Security – Communications between Control Centers	1/24/2022 Additional Ballot CIP-012-2: 34.64% 6/9/2021 Initial Ballot CIP-012-2: 37.31% 6/11/2020 SAR Comment Period
2020-05 Modifications to FAC-001-3 and FAC-002-2	**Background** The NERC Inverter-based Resource Performance Task Force (IRPTF) undertook an effort to perform a comprehensive review of all NERC Reliability Standards to determine if there were any potential gaps or improvements. The IRPTF identified several issues as part of this effort and documented its findings and recommendations in the “IRPTF Review of NERC Reliability Standards White Paper,” which was approved by the Operating Committee and the Planning Committee (now part of the Reliability and Security Technical Committee (RSTC)) in March 2020. Among the findings noted in the white paper, the IRPTF identified issues with FAC-001-3 and FAC-002-2 that should be addressed. Consistent with the IRPTF recommendations, the scope of the proposed SAR includes revisions to FAC-001-3 and FAC-002-2 to clarify requirements related to material modifications of Facilities. The purpose of FAC-001-3 is to ensure that Facility interconnection requirements exist for Transmission Owners and Generator Owners when connecting new or materially modified facilities. The purpose of FAC-002-2 is to ensure studies are performed to analyze the impact of interconnecting new or materially modified facilities on the Bulk Electric System (BES). The IRPTF identified an opportunity to clarify the term “materially modified” within these standards and to specify which entity is responsible for determining what is considered a material modification. The RSTC endorsed the SAR on June 10, 2020.	6/14/2022 NERC Petition for Approval 4/22/2022 Final Ballots FAC-001-4 and FAC-002-4 85.64% 1/31/2022 Initial Ballots 85.19% 12/11/2020 SAR Comment Period

2020-06 Verification of Models and Data for Generators	**Background** The NERC Inverter-based Resource (IBR) Performance Task Force (IRPTF) undertook an effort to perform a comprehensive review of all NERC Reliability Standards to determine if there were any potential gaps or improvements. The IRPTF identified several issues as part of this effort and documented its findings and recommendations in the "IRPTF Review of NERC Reliability Standards White Paper," which was approved in March 2020 by the Operating Committee and the Planning Committee (now part of the Reliability and Security Technical Committee (RSTC)). Among the findings noted in the white paper, the IRPTF identified issues with MOD-026-1 and MOD-027-1 that should be addressed. The RSTC endorsed the SAR on June 10, 2020. Consistent with the IRPTF recommendations, the scope of the proposed SAR includes revisions to NERC Reliability Standards MOD-026-1 and MOD-027-1. Standards MOD-026-1 and MOD-027- 1 require, among other things, Generator Owners to provide verified dynamic models to their Transmission Planner for the purposes of power system planning studies. Both standards contain language that is specific to synchronous generators that is not applicable to IBRs. The IRPTF recommended revisions to clarify the applicable requirements for synchronous generators and IBRs. As such, the SAR proposes revisions to MOD-026-1 and MOD-027-1 to clarify requirements related to IBRs and to require sufficient model verification to ensure accurate generator representation in dynamic simulations. The Standards Committee accepted the IRPTF SAR and authorized posting at its September 24, 2020 meeting. Project 2020-02 Transmission-connected Dynamic Reactive Resources SAR was posted from March 30 to May 13, 2020, and members of a SAR DT were solicited. However, Project 2020-02 was paused indefinitely, and a SAR DT was not appointed. Subsequently, a second SAR involving similar standards, namely MOD-026 and MOD-027, was being drafted by the IRPTF and approved for posting in September 2020 by the Standards Committee. The Project 2020-06 Verifications of Models and Data for Generators SAR will be posted for industry comment, and additional nominees with MOD-026/027 background will be sought. A single SAR DT will be charged with determining whether to combine the two projects and drafting a combined SAR.	7/6/2022 Initial Ballot MOD-026-2: 27.85% 1/14/2021 SAR Comment Period

2021-01 Modifications to MOD-025 and PRC-019	**Background** The PPMVTF developed this SAR to revise MOD-025-2 to address issues regarding verification and data reporting of generator active and reactive power capability. As stated in the SAR, implementation of the standard has rarely produced data that is suitable for planning models (i.e., the stated purpose of the standard). The current MOD-025-2 verification testing activities require significant time, expertise, and coordination; however, they do not result in data that should be used by planners for modeling purposes. The SAR aims to retain testing activities are useful and focus on more effective means of collecting useful data for planning models. The Reliability, Security, and Technology Committee (RSTC) endorsed the SAR on October 19, 2020. PRC-019-2 addresses the reliability issue of miscoordination between generator capability, control systems, and protection functions. However, PRC-019-2 was developed with a bias toward synchronous generation and does not sufficiently outline the requirements for all generation resource types. The proposed Standard Authorization Request (SAR) aims to address a number of issues identified by the SPCS and revise the standard to be inclusive of all types of generation resources. The SAR was endorsed by the NERC Planning Committee (PC) on March 4, 2020. The MOD-025-2 and PRC-019-2 SARs were accepted and authorized for informal posting at the January 20, 2021 SC meeting. The appointed SAR DT will also determine how to addresses the applicable scope of Project 2020-02 Transmission-connected Dynamic Reactive Resources, which also seeks to modify MOD-025-2 and PRC-019-2. See Project 2020-02 Transmission-connected Dynamic Reactive Resources for additional background.	4/2/2021 SAR Comment Period

2021-02 Modifications to VAR-002	**Background** Reliability Standard VAR-002-4.1 requires, among other things, Generator Operators (GOP) to ensure generators provide reactive support and voltage control, within generating Facility capabilities, in order to protect equipment and maintain reliable operation of the Interconnection. For dispersed power producing resources, it is not clear if a GOP is required to notify the Transmission Operator (TOP) for the status change of a voltage controlling device on an individual generating unit within a Facility comprised of numerous resources. NERC Project 2014-01 Standards Applicability for Dispersed Generation Resources revised VAR-002, Requirement R4, to clarify that it is not applicable to individual generating units of dispersed power producing resources. At the time, the IRPTF did not identify any reason why Requirement R3 (i.e., "status change") should be treated differently than Requirement R4. The NERC IRPTF undertook an effort to perform a comprehensive review of all NERC Reliability Standards to determine if there were any potential gaps or improvements. The IRPTF identified several issues as part of this effort and documented its findings and recommendations in a white paper (see supporting documents) approved by the Operating Committee. Among the findings noted in the white paper, the IRPTF identified issues with VAR-002-4.1 that should be addressed through the standards development process. The SAR was endorsed by the Reliability, Security, and Technology Committee (RSTC) on June 10, 2020 and accepted by the SC on January 20, 2021.	4/6/2022 SAR Comment Period 5/13/2021 SAR Comment Period
2020-03 CIP-002 Transmission Owner Control Centers	**Background** On May 14, 2020, the NERC Board of Trustees (Board) adopted proposed Reliability Standard CIP-002-6. The proposed standard revised Criterion 2.12 to categorize certain Transmission Owner Control Centers (TOCCs) performing Transmission Operator functions as medium impact based on an aggregate weighted value of their Bulk Electric System (BES) Transmission Lines. The Project 2016-02 SAR was accepted by the Standards Committee on July 20, 2016, which includes the scope for addressing the TOCC obligations. On June 12, 2020, NERC staff filed with the Federal Energy Regulatory Commission (FERC) a petition for approval of proposed CIP-002-6. On June 23, 2020, the proposed standard was filed with the applicable regulatory authorities in Canada. At its February 4, 2021 meeting, the Board withdrew proposed Reliability Standard CIP-002-6. In addition, the Board issued a resolution stating "that NERC Staff, working with stakeholders, is directed to promptly conduct further study of the need to readdress the applicability of the CIP Reliability Standards to such Control Centers[1] to safeguard reliability, for the purpose of recommending further action to the Board." On February 5, 2021, NERC filed a notice of withdrawal for CIP-002-6 with FERC.	

2021-04 Modifications to PRC-002-2	**Background** The NERC Inverter-based Resource Performance Task Force (IRPTF) undertook an effort to perform a comprehensive review of all NERC Reliability Standards to determine if there were any potential gaps or improvements based on the work and findings of the IRPTF. The IRPTF identified several issues as part of this effort and documented its findings and recommendations in a white paper. The "IRPTF Review of NERC Reliability Standards White Paper" was approved by the Operating Committee and the Planning Committee in March 2020. Among the findings noted in the white paper, the IRPTF identified issues with PRC-002-2 that should be addressed.	7/25/2022 Initial Ballot 7/13/2021 SAR Comment Period
2021-05 Modifications to PRC-023	**Background** Requirement R2, in PRC-023-4, requires applicable functional entities to set their Out of Step Blocking[1] (OOSB) elements to allow tripping for faults during the loading conditions prescribed by Requirement R1. A requirement to allow tripping in a Standard whose intent is to block tripping, has led to some entities disabling their OOSB relays. Disabling of these relays could lead to tripping during stable power swings causing an increased reliability risk. OOSB relays provide increased security by preventing relays from tripping for stable power swings. Preventing the tripping of transmission lines during these types of disturbances increases the reliability of the BES. Requirement R2 should be removed because it has been interpreted to restrict the setting of OOSB elements making compliance with PRC-026 more difficult. Attachment A exclusion 2.3 should also be removed. This exclusion is no longer needed and that exclusion has contributed to the confusion surrounding R2. Attachment A exclusion 2.3 has been interpreted as being in conflict with R2. Both R2 and Attachment A exclusion 2.3 are not needed in the Standard.	7/28/2021 SAR Comment Period
2021-06 Modifications to IRO-010 and TOP-003	**Background** The primary purpose of this project is to simplify administrative burdens identified by the SER Phase 2 Team associated with the current IR0-010-2 and TOP-003-3 standards and limit unnecessary data requirements that do not contribute to BES reliability and resiliency. As written the standards create a zero-defect expectation for each Registered Entity receiving a data specification to demonstrate perfect performance on every item in the data specification for an entire audit period. This can result in unnecessary administrative burdens for the Registered Entity to demonstrate compliance, including excessive data retention. If instead a risk-based approach was developed and performance was triggered upon an event or unresolved data conflicts between entities, then the purpose of the standards would be achieved in an effective and efficient manner. The secondary purpose of this project is to evaluate removing other data exchange requirements dispersed in other standards. The drafting team would need to evaluate those requirements after proposed changes to the IR0-010 and TOP-003 are developed to determine if they are within the scope of the four tasks and consequently within the scope of IRO-010 and TOP-003. This may require enhancing the standards to allow each Registered Entity with responsibilities to perform the tasks identified in IRO-010-2 and TOP-003-3 the ability to request and receive any information it needs from other Registered Entities to perform those tasks.	2/9/2022 Second SAR Comment Period 8/6/2021 SAR Comment Period

2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination	**Background** From February 8 - 20, 2021, extreme cold weather and precipitation affected the south central United States. Large numbers of generating units experienced outages, derates, or failures to start, resulting in energy and transmission emergencies (referred to as “the Event"). The total Event firm load shed was the largest controlled firm load shed event in U.S. history and was the third largest in quantity of outaged megawatts (MW) of load after the August 2003 northeast blackout and the August 1996 west coast blackout. **Standard(s) Affected**: BAL, EOP, IRO, TOP, or Other Standards as Identified in the SAR	9/1/2022 Additional Ballot EOP-012-1: 69.43% 6/17/2022 Initial Ballots EOP-011-3 69.66% EOP-012-1 21.94% 12/21/2021 SAR Comment Period
2021-08 Modifications to FAC-008	**Background** As currently written, the FAC-008 Reliability Standard and associated defined terms “Facility" and “Element" have been interpreted by some to mean that only electrical components may be considered when developing Generator Facility Ratings under R1. This could lead to planning and operational entities being provided Generator Facility Ratings that are higher than the actual output the plant is capable of, which could be detrimental to reliability during actual system emergencies. Explicitly allowing the inclusion of mechanical elements in the development of Facility Ratings will ensure Generators are rated to their most limiting element. Further, the FAC-008-3 non-formal use of the term “jointly owned" is ambiguous when compared with the industry legacy use of “jointly owned" as a purely financial and contractual obligation. This lack of clarity of intent of the standard could cause risk of facility rating gaps, misunderstanding of rating overlap requirements or gaps in facility rating coordination that could be resolved by clearly defining the technical expectations of the term “jointly owned". **Standard(s) Affected:** FAC-008-5	1/27/2022 SAR Comments
2022-01 Reporting ACE Definition and Associated Terms	**Background** The SAR states that the current definition of Reporting Area Control Error (ACE) presents a conflict with the Western Interconnection's Automatic Time Error Correction (ATEC) process and does not allow other Interconnections to pursue ATEC. Additionally, there is confusion in that the terms ACE and Reporting ACE are both used throughout the standards. A revised definition should provide improve long-term average frequency performance as well as give other Interconnections the ability to pursue automatic correction approaches. **Standard(s) Affected:** Multiple standards reference the Reporting ACE definition, including BAL.	3/10/2022 SAR Comment Period

2022-02 Modifications to TPL-001-5.1 and MOD-032-1	**Background** Many areas of the North American bulk power system (BPS) continue to experience an increase in BPS-connected inverter-based resources (e.g., wind, solar photovoltaic (PV), battery energy storage systems (BESS), and hybrid power plants). NERC Reliability Standard TPL-001-5.1 is a foundational standard used for "establishing transmission system performance requirements within the planning horizon to develop a bulk electric system (BES) that will operate reliably over a broad spectrum of system conditions and following a wide range of probable contingencies." Transmission Planners (TPs) and Planning Coordinators (PCs) develop and use models of the electrical grid to perform planning assessments (e.g., steady-state, dynamic, and short-circuit) to develop corrective action plans for future reliability issues identified. Ensuring that the TPL-001 standard is reflective of the evolving nature of the BPS and its resource mix is paramount to ensuring reliable operation and resilience of the BPS moving forward. The NERC Inverter-Based Resource Performance Task Force (IRPTF)[1] undertook a complete review of the NERC Reliability Standards in the context of increasing levels of BPS-connected inverter-based resources and published a white paper on the outcomes and recommendations of this review in March 2020.[2] Based on the outcome of the review, it was determined that the TPL-001-4/5[3] needed clarifications "to address terminology throughout the standard that is unclear with regards to inverter-based resources" the next time the standard is revised. Considering current trends, the NERC SPIDERWG undertook a review of the TPL-001 standard considering the potential impact of distributed energy resources (DERs). This review is captured in the following RSTC-approved white paper and serves as the technical justification for the revisions suggested in this SAR: • SPIDERWG: Assessment of DER impacts on NERC Reliability Standard TPL-001 (here) This SAR proposes to update TPL-001-5.1 to address some of the issues identified in the white paper. TPL-001-5.1 does not currently require Planning Coordinators and Transmission Planners to complete Planning Assessments with adequate representation of the dynamic behavior of DERs. As the penetration of DERs increases, and based on the DER data and models available, Planning Assessments should include DERs that can potentially impact Transmission System performance assessment. NERC's "Lesson Learned: Single Phase Fault Precipitates Loss of Generation and Load", evaluating a 2019 frequency event in Southern England exacerbated by the unexpected reduction of 725 MW of IBR output and the unexpected loss of 350 MW of DER, highlights the critical importance of accurate Transmission System Planning Assessments. In July 2020, a significant quantity of solar PV facilities across a large geographic area in Southern CA reduced about 1000 MW output due to a disturbance on the bulk power system. Subsequent event analysis revealed that it was the consequence of momentary cessation and slow recovery of power. Standards enhancement has been one of the recommendations after the event analysis to ensure reliable operation of the bulk power system. As the penetration of DERs continues to increase across the North American bulk power system (BPS), it is necessary to account for the potential impacts of DERs on reliability in the planning, operation, and design of the BES. The NERC System Planning Impacts of Distributed Energy Resources Working Group (SPIDERWG) has identified the need for improved modeling of aggregate DER for planning studies (including both utility-scale and retail-scale DER) conducted by Transmission Planners (TPs) and Planning Coordinators (PCs). MOD-032-1 addresses the gathering of modeling data to perform planning	3/2/022 SARs Comment Period

	assessments but the standard currently has no specific reference to DER data. This SAR proposes to update MOD-032-1 to: (1) include “data requirements and reporting procedures"[4] for DER that are necessary to support the development of accurate interconnection-wide models, (2) replace Load-Serving Entity (LSE) with Distribution Provider (DP) because of the removal of LSEs from the NERC registry criteria, and (3) enable the SDT to review any additional gaps in DER data collection with the de-registration of LSE. **Standard(s) Affected:** TPL-001-5.1 and MOD-032-1	
2022-03 Energy Assurance with Energy-Constrained Resources	**Background** Energy assurance is an increasingly important aspect of a reliable Bulk Electric System (BES), but has been inconsistently defined and measured without explicit standards. The project scope will address several energy assurance concerns related to the operations, operations planning, and mid- to long-term planning time horizons which was first identified in the NERC white paper entitled *Ensuring Energy Adequacy with Energy-Constrained Resources*[1]. Today, the transition from coal and nuclear generation to wind, solar, natural gas (with and without oil back up), distributed energy resources, and hybrid (renewables plus energy storage) resources is creating a more complex scenario and highlighting the need for energy assurance. Installed generating capacity analysis alone is not sufficient to ensure a reliable supply of energy for the BES. The proliferation of intermittent renewable generation in the resource mix increases the importance of having precisely controllable resources with sufficient fuel available, ready to respond when needed. The increasing prevalence of distribution-level resources and flexible load programs introduces added volatility into energy forecasts, further complicating operations energy reliability assessments. This project will address two SARs. **Standard(s) Affected:** TPL-001-5.1, EOP, and TOP	7/21/2022 SARs Comment Period
2022-04 EMT Modeling	**Background** The bulk power system (BPS) in North America is undergoing a rapid transformation towards high penetrations of inverter-based resources. Transmission Planners (TP) and Planning Coordinators (PC) are concerned about the lack of accurate modeling data and the need to perform electromagnetic transient (EMT) studies during the interconnection process and long-term planning horizon. The growth of inverter technology has pushed conventional planning tools to their limits in many ways, and TPs and PCs are now faced with the need to conduct more detailed studies using EMT models for issues related to inverter-based resource integration issues. This SAR proposes including EMT models and studies in planning-related NERC Standards to ensure reliable operation of the BPS moving forward. **Standard(s) Affected: FAC-002, MOD-032, and TPL-001**	9/13/2022 SAR Comment Period

CIP Standards Efficiency Review	Using a risk-based approach, evaluate NERC CIP Reliability Standards in order to identify potential efficiencies through retirement or modification of Reliability Standard Requirements.	8/26/2019 CIP SER Matrix Comment Period
SER Phase II	**SER Phase 2 Scope and Approach** Evaluate NERC Reliability Standards (O&P and CIP), as informed by implementation experiences and compliance practices, to develop and recommend standards-based solutions intended to reduce inefficiencies and unnecessary regulatory burdens for the purpose of supporting continued safe, secure and reliable operations. The Phase 2 Team will focus on the following activities: • Identify areas of inefficiency in the current framework of Reliability Standards. • Collaborate and communicate with industry to ensure all areas of inefficiency and potential solutions are considered. • Potential solutions may include, but are not limited to: ○ SARs to remove inefficiencies in the Reliability Standards. ○ Policy recommendations to appropriate ERO staff or committee. • A sub-team, consisting of a few members from SER Phase 1 and Phase 2, are reviewing information from the SER Matrix input from the early stages of Phase 1, in order to identify efficiency opportunities not covered by Project 2018-03 SER Retirements or SER Phase 2. This sub-team is tasked with developing a SAR to summarize a consolidated list modification recommendations.	5/27/2020 Operational Data Exchange Simplification SAR Survey 9/23/2019 Evidence Retention Report Spreadsheet Comment Period

Technical Rationale for Reliability Standards	The current Reliability Standards template includes a Guidelines and Technical Basis (GTB) section to provide standard drafting teams a mechanism to: (i) explain the technical basis for the associated Reliability Standard (and Requirements therein); and (ii) provide technical guidance for the associated Reliability Standard (and Requirements therein). The ERO Enterprise recognizes that these sections help industry to understand the technology and technical elements in the Reliability Standard. The ERO continues to assess compliance based on the language of the Reliability Standard and the facts and circumstances presented. With the enactment of the Compliance Guidance Policy, it appears helpful to further clarify the distinction between Implementation Guidance and GTB (or Technical Rationale, as explained below). GTB should focus on technical rationale that assists technical understanding of a requirement and/or Reliability Standard. GTB should not include compliance examples or compliance language, as such information, if needed, should be developed as Implementation Guidance under the Compliance Guidance Policy.	4/20/2020 Non-binding Polls BAL-005-1 86.%47 EOP-008-2 87.77% NUC-001-3 87.12% TOP-002-4 85.48% TOP-003-3 85.71% TOP-010-1(i) 87.1% PRC-005-6 86.93% PRC-006-3 85.8% PRC-006-SERC-02 76.19% VAR-501-WECC-3.1 79.25% 12/18/2019 Non-binding Polls IRO-001-4: 84.91% IRO-002-6: 88.89% IRO-008-2: 86.57% IRO-009-2: 86.57% IRO-010-2: 86.79% IRO-014-3: 89.55% IRO-017-1: 88.75% IRO-018-1(i): 77.78%

		5/25/2018 Nomination Period

IV. FERC Actions

On August 25, 2022, FERC issued an order approving revisions to the Rules of Procedure regarding Reliability Standards. Specifically, FERC approved revisions to section 300 of the NERC Rules of Procedure, Appendix 3B (Procedure for Election of Members of the Standards Committee), and Appendix 3D (Development of the Registered Ballot Body).

On September 9, 2022, FERC issued a letter order accepting NERC's July 18, 2022 compliance filing regarding revisions to the CMEP in NERC's Rules of Procedure (ROP). The letter order accepts the compliance filing as satisfying the directives in FERC's May 19, 2022 Order.

V. NERC Actions

On August 15, 2022, NERC submitted a compliance filing in Response to January 2013 Order. This is included NERC's budget-to-actual variance information for the second quarter 2022. This is in compliance with FERC's January 16, 2022 Order.

On August 17, 2022, NERC and the Regional Entities submitted comments on the FERC Notice of Proposed Rulemaking (NOPR) regarding Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection.

On August 23, 2022, NERC submitted this filing requesting acceptance of the 2023 Business Plans and Budget of NERC, the six Regional Entities, and the Western Interconnection Regional Advisory Body, and approval of the proposed assessments to fund the 2023 budgets. 2023 Business Plan and Budget.

On August 26, 2022, NERC and the Regional Entities submitted comments on the FERC Notice of Proposed Rulemaking (NOPR) regarding Transmission System Planning Performance Requirements for Extreme Weather.

On August 30, 2022, NERC and the Regional Entities submitted comments on the FERC Notice of Proposed Rulemaking (NOPR) regarding Extreme Weather Vulnerability Assessments.

On September 12, 2022, NERC submitted an amendment to its August 23, 2022 Business Plan and Budget Filing with a corrected Attachment 3 - Proposed MRO 2023 Business Plan and Budget.

VI. ERCOT Region Representatives on Standards Drafting Teams

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

Project	ERCOT Region Representation

2016-02 Modifications to CIP Standards	**Member(s)**: Jake Brown – ERCOT, Heather Morgan – EDP Renewables **Observer(s)**: Don Hunt – CenterPoint, William Sanders – Texas RE **PMOS Liaison**: Kirk Rosener – CPS Energy
2017-01 Modifications to BAL-003-1.1	**Member(s):** James Fletcher - AEP **Observer(s):**
2019-04 Modifications to PRC-005-6	**Member(s):** Cesar Huerta - AEP **Observer(s):**
2019-05 Modifications to PER-003-2	**Member(s):** Dennis Sauriol - AEP **Observer(s):** Michael Cruz-Montes – CenterPoint **PMOS Liaison**: Kirk Rosener – CPS Energy
2020-02 Transmission-connected Resources	**Member(s):** **Observer(s):**
2020-03 Supply Chain Low Impact Revisions	**Member(s):** Jeffery Sweet – AEP, Ida Mauricio – CPS Energy **Observer(s):**
2020-04 Modifications to CIP-012	**Member(s):** **Observer(s):**
2020-05 Modifications to FAC-001-3 and FAC-002-2	**Member(s):** John Bernecker - ERCOT **Observer(s):**
2020-06 Verification of Models and Data for Generators	**Member(s):** Jonathan Rose - ERCOT **Observer(s):**
2021-01 Modifications to MOD-025 and PRC-019	**Member(s):** Sean McCormick – Cypress Creek Renewables **Observer(s):**
2021-02 Modifications to VAR-002	**Member(s):** David Daniels – AEP**,** Kristina Marriott – Miller Bros. Solar **Observer(s):**
2021-03 CIP-002 Transmission Owner Control Centers	**Member(s):** Megan Sauter - Oncor **Observer(s):**
2021-04 Modifications to PRC-002-2	**Member(s):** Bret Garner Burford - AEP **Observer(s):**
2021-05 Modifications to PRC-023	**Member(s):** **Observer(s):**
2021-06 Modifications to IRO-010 and TOP-003	**Member(s):** Dennis Sauriol – AEP, Stephen Solis - ERCOT **Observer(s):**
2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination	**Members:** Venona Greaff – Oxy, Keith Smith – Orsted Onshore North American, Collin Martin – Oncor, David Kezell - ERCOT **Observers:**

	PMOS Liaison: Kirk Rosener – CPS Energy
2021-08 Modifications to FAC-008	
2022-01 Reporting ACE Definition and Associated Terms	**Members:** Nitika Mago - ERCOT **Observers:** **PMOS Liaison:**
2022-02 Modifications to TPL-001-5.1 and MOD-032	**TBD**
2022-03 Energy Assurance with Energy-Constrained Resources	**TBD**
2022-04 EMT Modeling	**TBD**
Standards Efficiency Review	**Long Term Planning:** Larisa Loyferman - CenterPoint **Operations Planning:** Shirley Mathew – Austin Energy **Real-time Operations**: Michael Cruz-Montes – CenterPoint
CIP Standards Efficiency Review	**Member(s):** Nicholas Morton – AEP, Lan Nguyen – CenterPoint Energy **Observer(s):**
Technical Rationale for Reliability Standards	**Member(s):** **Observer(s)**: Michael Cruz-Montes - CenterPoint 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.