

Project 2021-01 Modifications to MOD-025 and PRC-019

Summary Response to SAR Comments | November 2021

Introduction

The Standard Authorization Request (SAR) drafting team (DT) thanks all who provided comments during the informal comment period. All comments received were reviewed and the identified common themes are addressed below. Some comments have been reserved for consideration during the standard drafting phase of the project. As the standard drafting phase begins, the financial impact question and risk will be considered.

(General) Having multiple SARs makes the project scope unclear, and a suggestion was made to consolidate the SARs as much as possible.

A change was made to the SARs based on this comment theme. The SAR DT agrees that having multiple SARs can lead to some confusion. The SAR DT plans to consolidate the scope of work of three SARs into two SARs, one for revising PRC-019-2 (PRC-019) and one for revising MOD-025-2 (MOD-025). The team felt combining all content into one SAR would be difficult to follow, since the industry need, purpose, and project scope are unique for PRC-019 and MOD-025.

(PRC-019) Question the need to revise Applicability section 4.2.3.1 as part of the SAR.

The SAR DT feels that the detailed applicability description in 4.2.3.1 should be reviewed, and potentially revised to include the individual inverter-based resource(s) (IBR) as well as the Power Plant Controller (PPC) regardless of what type of voltage control is implemented. SAR members have observed that some PPC's have limiter functions available, which if enabled should be coordinated with applicable protection functions. In addition, there have been misinterpretations that 4.2.3.1 excludes the individual IBR from PRC-019 in its entirety, because there was a PPC that regulated voltage at the POI.

(PRC-019) Question the need to review, and revise as necessary, BES Definition Inclusion I4.

The SAR DT feels BES Definition Inclusion I4 should be reviewed relative to PRC-019 by the SDT to understand if there are potential conflicts between the standard and Inclusion I4, including differences between Applicability section 4.2.3.1 and Inclusion I4. In addition, recently published *CMEP Practice Guide: Application of the Bulk Electric System Definition to Battery Energy Storage Systems and Hybrid Resources*, included reactive resources (static or dynamic devices) in the example figures for Inclusion I4. From these examples, it is unclear which generating resources and associated limiter/protective functions must be coordinated for an IBR or hybrid generating plant.

(PRC-019) Firmware updates, in general, made to inverter control systems and/or PPC should not be explicitly required as part of R2 unless the firmware update specifically impacts voltage regulation or a protection system function.

The SAR DT believes that inverter firmware updates should be discussed by the SDT, specifically the language in requirement R2. Currently, it is not clear in the standard whether a control system firmware update mandates a new coordination study to be performed. The SDT will review and revise PRC-019, as necessary, to clarify the language about firmware updates, potential impact to protective and/or limiter functions, and whether a new coordination study or verification would be required.

(PRC-019) A separate PRC standard should be drafted to address the reliability risk posed by coordination of protection systems for IBR, since PRC-019 was developed to address reliability risks related to synchronous generation.

The SAR DT acknowledges that a separate standard is an option. The existing SAR has the “New Standard” option checked, which would allow the SDT to draft a new standard if necessary.

(PRC-019) Momentary cessation is already addressed in PRC-019, so it does not need to be revisited by this project.

The SAR DT does not believe momentary cessation has been addressed by PRC-019. One of the purposes of PRC-019 is to verify coordination of voltage regulating controls with protection system settings. The SAR DT believes that all tripping functions that use voltage as an operating quantity should be discussed by the SDT¹. Revisions to the standard should consider methods or parameters to eliminate momentary cessation where possible; otherwise, when momentary cessation cannot be eliminated as with legacy equipment, ensure it is coordinated with equipment capabilities of the inverter.²

(PRC-019) The SAR lacks sufficient technical justification.

The SAR DT believes that there is sufficient technical justification outlined in the SAR for modifying PRC-019, and the SAR was endorsed by the Planning Committee on March 4, 2020 and accepted by the Standards Committee on January 20, 2021.

(PRC-019) Concerns about revising R2 language and timing, in order to clarify ambiguity about when the 90-day timeframe to perform coordination applies.

A change was made to the SAR based on this comment theme. The SDT will review and clarify R2 language for when a mis-coordination is identified or change has been made, including necessary actions and associated timeline to resolve the issue. The SAR DT acknowledges the challenges faced in implementing exciter changes performed by third parties that cause a mis-coordination.

(PRC-019) Remove or extend 5-year review cycle for PRC-019-2, since it is an administrative burden.

A change was made to the SAR based on this comment theme. The SDT team will evaluate why a 5-year review cycle is needed, and consider revising to better align with PRC-005 (6-year cycle) or other PRC standards. The SDT will also clarify when the coordination calendar is reset for R1 when a coordination study is completed for R2.

¹https://www.nerc.com/pa/comp/guidance/CMEPPPracticeGuidesDL/CMEP%20Practice%20Guide%20Information%20to%20be%20Considered%20by%20CMEP%20Staff%20Regarding%20Inverter-Based%20Resources_V1.1.pdf

²https://www.nerc.com/comm/OC_Reliability_Guidelines_DL/Inverter-Based_Resource_Performance_Guideline.pdf

(PRC-019) There could be a high implementation cost incurred by GOs, if proposed revisions were made.

The SAR DT agrees that implementation costs should be commensurate with the technical value they provide to the reliability of the BES. The SDT will keep this philosophy in mind when reviewing all revisions made to the Reliability Standard language and requirements.

(MOD-025) Retire MOD-025 in its entirety.

A change was made to the SAR based on this comment theme, by checking the option to withdraw/retire an Existing Standard. The SAR contemplates revision or retirement of MOD-025, or the creation of a separate standard or guidance document, and does not dictate a particular path for the SDT. The SDT will determine the best options for MOD-025 based on reliability risk and coverage with other NERC standards. If the retirement of MOD-025 is pursued, the SDT would also coordinate with Project 2020-06 (MOD-026/027 revisions) to ensure no reliability gaps remain with generating facility model verification.

(MOD-025) Make necessary changes to PRC-019 and retire MOD-025.

The SAR contemplates revision or retirement of MOD-025, or the creation of a separate standard or compliance guidance document, and does not dictate a particular path for the SDT. As currently written in PRC-019, the GO is not obligated to share detailed generator unit capability information to the TP. PRC-019 involves a coordination study of individual generating unit, while MOD-025 involves a generating facility/plant which includes auxiliary services, GSU, transmission system and plant controller limitations which may not be accounted for in a PRC-019 study. These considerations will need to be reviewed by the SDT.

(MOD-025) Modify MOD-025 to ensure test results are used for planning models only when deemed appropriate.

The intended purpose of MOD-025 is “to ensure that accurate information on generator gross and net Real and Reactive Power capability and synchronous condenser Reactive Power capability is available for planning models used to assess Bulk Electric System (BES) reliability.” As described in the SAR project scope, one of the goals is to ensure that data provided by the applicable GO/TO is analyzed and used appropriately by TP/PC. The SDT will determine the best approach to meet that goal by revising or retiring MOD-025.

(MOD-025) Add TP as an applicable entity in MOD-025, so the GO & TP collaborate in validating generator capability and finalizing data used for models. Other related comments include:

- **Recommend the TP be responsible for calculations when MOD-025 testing results are limited.**
- **Need feedback mechanism between TP/PC and GO.**
- **Project Scope 2 & 3 should be defined by the standard, not developed by each PC/TP.**

The SAR DT believes the goal and scope of the project are outlined appropriately, and allow for MOD-025 revisions to give the TP more responsibility in the process, if there is a reliability benefit. If the SDT retains staged testing as an activity in MOD-025 Attachment 1, they must also ensure that testing data is used by TP/PC in an appropriate manner, with a sufficient degree of analysis prior to use. The SAR also tasks the

SDT to explore alternative verification activities (other than staged testing), such as using a composite capability curve to verify the plant/machine capability. If an alternative verification activity is used, the TP's role to ensure the data is usable in its planning models would be different. The overall project goal is to ensure that data provided through verification activities performed by applicable GO/TO produce suitable data for the purposes of developing accurate planning models in TP/PC reliability studies. As such, the SDT will propose revisions/retirement of MOD-025 to improve the model verification process and associated reliability risk.

(MOD-025) Concerned that proposed changes to MOD-025 could be overreaching or excessive relative to the reliability risk. Other related comments include:

- **Implementation of corrective action plans (CAP) in Project Scope 8 is overreaching. Unless a unit is identified as a must-run unit for system security and stability, mandatory CAPs have no reliability benefit. Without a reliability benefit, CAPs are administrative.**
- **SAR is headed toward a complete plant design review.**

A change was made to the SAR based on this comment theme. The SAR DT's goal is to ensure that the intended purpose of MOD-025 ("to ensure that accurate information on generator gross and net Real and Reactive Power capability and synchronous condenser Reactive Power capability is available for planning models used to assess Bulk Electric System (BES) reliability") is capable of being met, if practical. The SDT will minimize extra responsibility placed on the GO or TP, and ensure added requirements are commensurate with reliability risk.

(2020-02) Majority of comments advocate the combination of scopes for Projects 2020-02 and 2021-01 under a single drafting team for the sake of efficiency and consistency.

Project 2021-01 SAR DT intends to maintain and address the scope outlined in two separate SAR's for revisions to PRC-019 and MOD-025. Revisions to the remaining standards MOD-026, MOD-027, and PRC-024 will be addressed by other drafting teams.

Resources

- [Project 2021-01 Modifications to MOD-025 and PRC-019 \(project website\)](#)
- [MOD-025-2 SAR](#)
- [PRC-019-2 SAR](#)
- [Project 2020-02 SAR](#)
- [Industry Comments](#)