

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Industry Webinar

Project 2021-02 Modifications to VAR-002-4.1

Industry Webinar  
October 24, 2023

**RELIABILITY | RESILIENCE | SECURITY**



## Administrative

- Review NERC Antitrust Compliance Guidelines and Public Announcement

## Agenda

- Project Background
- Reliability Standard VAR-002-4.1 Revisions
- Q&A

- North American Electric Reliability Corporation (NERC) Antitrust Guidelines
  - It is NERC's policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. This policy requires the avoidance of any conduct that violates, or that might appear to violate, the antitrust laws. Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that unreasonably restrains competition
- Notice of Open Meeting
  - Participants are reminded that this webinar is public. The access number was widely distributed. Speakers on the call should keep in mind that the listening audience may include members of the press and representatives of various governmental authorities, in addition to the expected participation by industry stakeholders.

- Participants are reminded that this webinar is being recorded. The purpose of the recording is to provide individuals an opportunity to review the content following the webinar. Questions can also be sent via the Q&A or chat features during the presentation.

Name	Entity
David Daniels	AEP
Adrian Raducea	DTE Electric
Mark Atkins	AESI
Hans de Boer	Utility Services
Freddy Garcia	ERCOT
C. Scott King	Southern Company Services, Inc.
Gabe Kurtz	TVA
Kristina Marriott	Miller Bros. Solar, LLC
David Plumb	TVA
Kimberly Turco	Constellation
Sean McCormick	ACT Power Services

- Background

- NERC Project 2021-02 proposed revisions address:
  - The NERC Inverter-based Resource Performance Task Force (IRPTF) Standard Authorization Request (SAR) concerning dispersed power producing resource ambiguities in VAR-002 Requirement 3. The IRPTF issued an [IRPTF White Paper, March 2020](#), evaluating today's current standards and requirements of Inverter Based Resources (IBRs) to determine whether current Standards sufficiently address the needs for IBRs.
  - VAR-002 Enhanced Periodic Review (EPR), NERC Project 2016-EPR-02, 19 recommendations for clarity and technical accuracy of the NERC requirements.
    - Recommendations from the EPR team are to be considered by a NERC SDT should the standard be opened for revision.

- IRPTF White Paper – Key Concepts

- For dispersed power producing resources, it is not clear if a Generator Operator (GOP) is required to notify the Transmission Operator (TOP) for status change of voltage control on an individual generating unit.
  - Project 2014-01 revised VAR-002 Standard applicability for Dispersed Generation Resources to Requirement R4 stating, “reporting of status or capability changes as stated in Requirement R4 is not applicable to the individual generating units of dispersed power producing resources identified through Inclusion I4 of the Bulk Electric System definition.”
  - IRPTF did not identify any reason Requirement R3 should be treated any differently than Requirement R4.
  - IRPTF recommended VAR-002-4.1 be revised for this clarification in Requirement R3.

- Project 2016-EPR-02 VAR-002 – Key Concepts
  - Attachment 5 Recommendations:
    - Clarity
    - Compliance elements
    - Terminology
    - Technical accuracy



- Purpose and Applicability Sections
  - Updated “Purpose” to show Bulk Electric Power (BES) inclusion to clarify the use of “GO/GOP resources as “generating resource(s)” in the current standard and to align to the Bulk Electric System inclusion terminology.
  - Updated “Applicability” Section 4.2 to remove due to no added reliability benefit to copy BES inclusion language from NERC Glossary of Terms when it could be referenced in the purpose statement.

- Requirements R1-R6
  - Added “generating resource(s)” in the requirements for BES inclusion of dispersed power producing resource and consistency of terminology used in other standards and NERC documentation, e.g., NERC Glossary of Terms.

- Requirement R1

- Added Footnote 1 to provide clarity of IBR inclusion of voltage control. (EPR Attachment 5 10.1)
- Measure M1 – Revised for clarity of exemption from automatic voltage control mode and not voltage schedule. (EPR Attachment 5 4.4)

- Requirement R2

- When a generating resource(s) AVR is out of service or does not have an AVR, the Generator Operator shall use an alternative method to control the generator resource(s) reactive output to meet the voltage or Reactive Power schedule provided by the Transmission Operator. If no other method of control is available, notify the Transmission Operator as soon as becoming aware of the condition. (EPR Attachment 5 10.2)
- When a generating resource(s) is to determine methodology of converting voltage to generation voltage measurement, removed “specified by the Transmission Operator” to clarify Generator Operator to specify. (EPR Attachment 5 2.1)

- Requirement R3

- Added “unexpected functionality change” for reporting of its AVR, PSS, or alternative voltage controlling devices are changes that are unexpected which inhibits its ability to control generating resource voltage at the point of interconnection. (IRPTF SAR, EPR Attachment 5 14.2, 16.1)
- Added “mutually-agreeable communication” to provide clarity of what form of communication is acceptable to the TOP such as binary or verbal or both. (EPR Attachment 5 2.4)
- Footnote added to clarify AVR applicable to IBRs and synchronous (EPR Attachment 5 10.1)

- Requirement R4
  - Added “where the Transmission Operator has specified a reactive capability threshold, the Generator Operator shall report changes that create degradation” allowing language that TOP should provide reporting threshold (VAR-001 R2) but not required and to report for changes that cause degradation. (IBR task group SAR, EPR Attachment 5 2.3, 2.5, 2.6, 2.7, 2.8, 2.9)
  - Added “mutually-agreeable communication” to provide clarity of what form of communication is acceptable to the TOP such as a GMS application or verbal or both. (EPR Attachment 5 2.4)

- Requirement R5
  - Changed the time horizon from Real-time to Operations Planning due to 30-day time provided in the requirement. (EPR Attachment 5 4.1)
  - Removed “fixed” to provide technology neutral language and to be inclusive of Load Tap Changing Transformers. (EPR Attachment 5 6.1)
  - A footnote has been added to clarify the Transformers in scope to be Generator Owner equipment. (EPR Attachment 5 14.1)

- Requirement R6
  - Capitalized “equipment rating” for NERC defined term. (EPR Attachment 5 2.2)
  - Changed the time horizon from “Real-time Operations” to “Operations Planning.” (EPR Attachment 5 4.2)

- Violation Severity Level (VSL) table - Requirement R2
  - VSL – added introductory phrase to the high VSL stating, “The Generator Operator did maintain voltage or Reactive Power schedule as instructed by the Transmission Operator and make notifications as required but the Generator Operator did not have a conversion methodology when it monitored voltage at a location different from the schedule provided by the Transmission Operator” to show partial compliance and performance to Requirement R2, but not Requirement R2, Part R2.3. (EPR Attachment 5 4.3)



- Implementation plan
  - The SDT suggests the 12-month Implementation Plan considering the current program would remain in place until any new or revised measurements are better defined. Any new or revised monitoring for reporting thresholds would be site specific scope and timeline not impacting following schedule or reporting under current obligations. The measure of VAR-002 requirements would remain unchanged going from VAR-002-4.1 to VAR-002-5 on following current instruction and reporting as instructed under current resource capabilities for maintaining reliable operation.

- SDT proposes to use the BES-defined generating resource(s) for inclusion to the scope of generating resources that would be applicable to VAR-002, unless exempted. As industry BES equipment is defined, the inclusions would be maintained in the NERC Glossary of Terms.
- Designation of controlling voltage specifically at the POI is not appropriate, as this could be interpreted to exclude devices/Facilities that directly control voltage at a different location.
- If dynamic and static reactive devices do not have a documented capability of providing voltage/reactive power support for the Facility, then they are not subject to VAR-002.
- A retirement of Requirements R5 and R6 would be outside the scope of this project's SAR.
- The 2014 VAR-002 SDT provided exemption to single IBR to allow for not reporting for normal startup/shutdown to changing reactive capability to provide desired facility real power output. 2021 VAR-002 SDT provides clarity that reporting for degradation only at defined threshold if provided by TOP, and if not, GOP would determine with current capabilities to maintain TOP instruction.

- Providing additional clarity to ambiguity in Requirements R3 and R4 reporting should be determined by TOP for system operation reliability impacts to support VAR-001, Requirements R2 and R5. The TOP should provide the threshold of notification for generating resource voltage control status changes and generating resource reactive changes, along with voltage or reactive schedule deviation notification criteria. If TOP does not provide the thresholds, the SDT suggest that GOP provide the reporting criteria based on changes that would impact the facility voltage and reactive support to follow TOP instruction in the voltage or reactive power schedule.
  - The SDT provides more context to the technical rationale document to bring more attention to the intent of the VAR-002 requirements. Specifically, for Requirements R3 and R4, the intent is not to report for normal expected changes in output and to report on degradation at a point that impacts facility following TOP instruction.

- Point of Contact
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- Additional ballots and non-binding poll: October 27-November 6, 2023
- Webinar Slides and Recording Posting
  - Within 24-72 hours of Webinar completion
  - Link will be available in the Standards, Compliance, and Enforcement Bulletin

- Informal Discussion
  - Via the Questions and Answers feature.
  - Respond to stakeholder questions.
- Other
  - Some questions may require future SDT consideration.
  - Please reference slide number, standard section, etc., if applicable.
  - SDT will address as many questions as possible.
  - Webinar and chat comments are not a part of the official project record.
  - Questions regarding compliance with existing Reliability Standards should be directed to ERO Enterprise compliance staff, not the SDT.



# Questions and Answers