

Comment Report

Project Name: 2021-02 Modifications to VAR-002 | Standard Authorization Request (Draft 2)
Comment Period Start Date: 3/7/2022
Comment Period End Date: 4/6/2022
Associated Ballots:

There were 32 sets of responses, including comments from approximately 88 different people from approximately 65 companies representing 10 of the Industry Segments as shown in the table on the following pages.

Questions

- 1. Do you agree with the proposed scope as described in the SAR? If you do not agree, or if you agree but have comments or suggestions for the project scope please provide your recommendation and explanation.**
- 2. Provide any additional comments for the SAR drafting team to consider, if desired.**

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
BC Hydro and Power Authority	Adrian Andreoiu	1,3,5	WECC	BC Hydro	Hootan Jarollahi	BC Hydro and Power Authority	3	WECC
					Helen Hamilton Harding	BC Hydro and Power Authority	5	WECC
					Adrian Andreoiu	BC Hydro and Power Authority	1	WECC
New York Independent System Operator	Gregory Campoli	2		ISO/RTO Standards Review Committee	Gregory Campoli	New York Independent System Operator	2	NPCC
					Helen Lainis	IESO	2	NPCC
					Michael Del Viscio	PJM	2	RF
					Charles Yeung	Southwest Power Pool, Inc. (RTO)	2	MRO
					Bobbi Welch	Midcontinent ISO, Inc.	2	RF
					Kathleen Goodman	ISO-NE	2	NPCC
					Dana Showalter	Electric Reliability Council of Texas, Inc.	2	Texas RE
Duke Energy	Kim Thomas	1,3,5,6	FRCC,RF,SERC,Texas RE	Duke Energy	Laura Lee	Duke Energy	1	SERC
					Dale Goodwine	Duke Energy	5	SERC
					Greg Cecil	Duke Energy	6	RF
Southern Company - Southern Company Services, Inc.	Pamela Frazier	1,3,5,6	MRO,NPCC,RF,SERC,Texas RE,WECC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC
					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC

					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
					James Howell	Southern Company - Southern Company Generation	5	SERC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC Regional Standards Committee	Gerry Dunbar	Northeast Power Coordinating Council	10	NPCC
					Randy MacDonald	New Brunswick Power	2	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Alan Adamson	New York State Reliability Council	7	NPCC
					David Burke	Orange & Rockland Utilities	3	NPCC
					Helen Lainis	IESO	2	NPCC
					David Kiguel	Independent	7	NPCC
					Nick Kowalczyk	Orange and Rockland	1	NPCC
					Joel Charlebois	AESI - Acumen Engineered Solutions International Inc.	5	NPCC
					Mike Cooke	Ontario Power Generation, Inc.	4	NPCC
					Salvatore Spagnolo	New York Power Authority	1	NPCC
					Shivaz Chopra	New York Power Authority	5	NPCC

Deidre Altobell	Con Ed - Consolidated Edison	4	NPCC
Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
Cristhian Godoy	Con Ed - Consolidated Edison Co. of New York	6	NPCC
Nurul Abser	NB Power Corporation	1	NPCC
Randy MacDonald	NB Power Corporation	2	NPCC
Michael Ridolfino	Central Hudson Gas and Electric	1	NPCC
Vijay Puran	NYSPPS	6	NPCC
ALAN ADAMSON	New York State Reliability Council	10	NPCC
Sean Cavote	PSEG - Public Service Electric and Gas Co.	1	NPCC
Brian Robinson	Utility Services	5	NPCC
Quintin Lee	Eversource Energy	1	NPCC
Jim Grant	NYISO	2	NPCC
John Pearson	ISONE	2	NPCC
Nicolas Turcotte	Hydro-Qu?bec TransEnergie	1	NPCC
Chantal Mazza	Hydro-Quebec	2	NPCC
Michele Tondalo	United Illuminating Co.	1	NPCC

					Paul Malozewski	Hydro One Networks, Inc.	3	NPCC
					Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC
					John Hastings	National Grid USA	1	NPCC
					Michael Jones	National Grid USA	1	NPCC
Western Electricity Coordinating Council	Steven Rueckert	10		WECC Entity Monitoring	Steve Rueckert	WECC	10	WECC
					Phil O'Donnell	WECC	10	WECC
FirstEnergy - FirstEnergy Corporation	Tricia Bynum	1,3,4,5,6		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF
					Mark Garza	FirstEnergy - FirstEnergy Corporation	4	RF
					Robert Loy	FirstEnergy - FirstEnergy Corporation	5	RF

1. Do you agree with the proposed scope as described in the SAR? If you do not agree, or if you agree but have comments or suggestions for the project scope please provide your recommendation and explanation.

Thomas Breene - WEC Energy Group, Inc. - 3,4,5,6

Answer No

Document Name

Comment

WEC Energy Group does not support the changes made to the Project 2021-02 VAR-002 SAR. It is our opinion that the original SAR was well written and focused on a narrow issue in VAR-002 which could be readily addressed. The Odessa report recommendations are very broad and complex. They touch on a number of standards and would be better addressed by a stand-alone project and SAR.

We also do not feel that it would be an efficient use of resources to address the historic periodic review comments given that they are not reliability related.

Likes 0

Dislikes 0

Response

Pamela Frazier - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name Southern Company

Answer No

Document Name

Comment

Southern Company Generation believes specifically excluding dispersed power resources from applicability to Requirement R3 is the appropriate path for the drafting team for the reasons discussed below.

- There is no “manual” voltage control mode for inverter-based resources – the voltage controller is in the plant (site) controller, and each inverter is merely a Var resource that responds to a Var production command from the voltage controller embedded within the plant controller. If a few inverters are out, the remainder of the inverters will pick up the slack and produce the Vars needed to satisfy the plant controller. If the number of inverters not available reaches the level where the var requirements of the plant controller cannot be met, the GO/GOP is obligated by Requirement R2 to notify the TOP of this inability to meet the voltage schedule.
- R3 relates to the notification of the unintentional “status change on the AVR, power system stabilizer, or alternative voltage controlling device” at a generating station. The operator can select voltage control, VAR control, or power factor control in the plant controller – those mode selections are part of Requirement R1, not Requirement R3.
- There is no PSS at any renewable site plant controllers, so this part of Requirement R3 is N/A to inverter-based resources.
- There are no other voltage controlling devices at these renewable stations. Static and dynamic var compensators, like individual inverters are inverter-based resources, are VAR producing resources and notifications of their status changes are part of Requirement R4 of this standard (items that affect reactive capability of the facility).
- If the plant controller embedded voltage controller, the AVR, is not available, the balance of the plant is also not controllable, and the plant cannot operate at all.

In conclusion, Southern Company does not feel it is appropriate to apply Requirement R3 of VAR-002 to inverter-based facilities.

With regards to delineating a magnitude for Reactive Power reductions associated with Requirement R4, we believe that introducing a magnitude at which GOPs shall notify the associated Transmission Operator may be appropriate only if the TOP desires to be notified. Transmission Operators have a different mix of voltage support services and should be responsible for outlining the magnitude at which they want notification of a status change of reactive capability. Additionally, for dispersed power resources, the reactive power capability of the aggregate of the individual generators often times makes up the majority, if not solely, amount of reactive power available. If an introduction of magnitude is applied, the GOP should report at the point of aggregation of >75MVA and not for the individual generating units of dispersed power producing resources as identified through Inclusion I4 of the BES definition. We recommend that the TOP specify if, and when, they desire to be notified with respect to Requirement R4 and dispersed power resource reactive capabilities.

Likes 0

Dislikes 0

Response

Amy Casuscelli - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC

Answer

No

Document Name

Comment

Xcel Energy does not support the proposed scope. We support the submitted comments of EEI.

Likes 0

Dislikes 0

Response

Alan Kloster - Evergy - 1,3,5,6 - MRO

Answer

No

Document Name

Comment

Evergy supports and incorporates by reference the comments of the Edison Electric Institute for question #1.

Likes 0

Dislikes 0

Response

Tricia Bynum - FirstEnergy - FirstEnergy Corporation - 1,3,4,5,6, Group Name FE Voter

Answer	No
Document Name	
Comment	
FirstEnergy supports the comments from EEI.	
Likes 0	
Dislikes 0	
Response	
Alison Mackellar - Constellation - 5,6	
Answer	No
Document Name	
Comment	
<p>Constellation does not agree with the proposed significant scope expansion in the described SAR and requests that a separate SAR be generated to address the proposed new changes.</p> <p>Project 2021-02, "Modifications to VAR-002," purpose/industry need clearly states that this project was intended to address "whether the GOP of a dispersed power resource must notify its associated TOP upon a status change of a voltage controlling device on an individual generating unit". The revised SAR expands the purpose of this project beyond that original scope and with such a significant expansion, the SAR needs to be presented first to the Standards Committee per the process outlined in the NERC Rules of Procedure Appendix 3A, "Standard Processes Manual." By expanding to this extent now, the SAR bypasses the review and approval by the NERC Standards Committee on the scope of work.</p> <p>Constellation is also concerned that the NERC Reliability Standards Under Development webpage for Project 2021-02 does not provide clear indication on the scope expansion beyond the original scope. We are concerned some entities are not focused on the impact the project may have and are unaware of the fact that the project is contemplating significant expansion beyond clarification in VAR-002-4.1 R3 to now include an evaluation of significant modifications to R2, R4 and R6. While Constellation is not necessarily against the observations proposed by the 2016-EPR-02 project, these changes would not be administrative in nature and will impact how all applicable registered entities will need to comply with the requirements of the Standard not just a GOP that owns a dispersed power resource.</p> <p>Finally, nominations and formation of this project's Drafting Team occurred prior to the scope expansion thereby limiting the interest to key stakeholders that will now be affected by this project.</p> <p>Constellation recommends that the SDT revise the SAR to the original scope and submit a new SAR to address the recommendations from 2016-EPR-02. Another option would be to submit a new SAR and incorporate the Project 2021-02 changes into the new project to address some of the visibility and process issues noted above.</p> <p>Alison Mackellar submitted on behalf of Constellation Segments 5 and 6</p>	
Likes 0	
Dislikes 0	
Response	

Kimberly Turco - Constellation - 5,6

Answer No

Document Name

Comment

Constellation does not agree with the proposed significant scope expansion in the described SAR and requests that a separate SAR be generated to address the proposed new changes.

Project 2021-02, "Modifications to VAR-002," purpose/industry need clearly states that this project was intended to address "whether the GOP of a dispersed power resource must notify its associated TOP upon a status change of a voltage controlling device on an individual generating unit". The revised SAR expands the purpose of this project beyond that original scope and with such a significant expansion, the SAR needs to be presented first to the Standards Committee per the process outlined in the NERC Rules of Procedure Appendix 3A, "Standard Processes Manual." By expanding to this extent now, the SAR bypasses the review and approval by the NERC Standards Committee on the scope of work.

Constellation is also concerned that the NERC Reliability Standards Under Development webpage for Project 2021-02 does not provide clear indication on the scope expansion beyond the original scope. We are concerned some entities are not focused on the impact the project may have and are unaware of the fact that the project is contemplating significant expansion beyond clarification in VAR-002-4.1 R3 to now include an evaluation of significant modifications to R2, R4 and R6. While Constellation is not necessarily against the observations proposed by the 2016-EPR-02 project, these changes would not be administrative in nature and will impact how all applicable registered entities will need to comply with the requirements of the Standard not just a GOP that owns a dispersed power resource.

Finally, nominations and formation of this project's Drafting Team occurred prior to the scope expansion thereby limiting the interest to key stakeholders that will now be affected by this project.

Constellation recommends that the SDT revise the SAR to the original scope and submit a new SAR to address the recommendations from 2016-EPR-02. Another option would be to submit a new SAR and incorporate the Project 2021-02 changes into the new project to address some of the visibility and process issues noted above.

Alison Mackellar submitted on behalf of Constellation Segments 5 and 6

Likes 0

Dislikes 0

Response

David Jendras - Ameren - Ameren Services - 1,3,6

Answer No

Document Name

Comment

The scope of the SAR has been drastically expanded without citing specific reliability events or issues as justification. We believe adding the Project 2016-EPR-02 scope is unnecessary. If this Draft 2 SAR goes forward, we are concerned that the next Standard Drafting Team may have to propose changes to a wide variety of Standards. Considering the Odessa Disturbance Report recommendations for modifications or additions to existing

requirements, without specific clarifications and clearly defined boundaries would cause the scope to grow and would not address ambiguities within the existing VAR-002 standard.

Likes 0

Dislikes 0

Response

Michelle Olson - MRO - 1,2,3,4,5,6 - MRO

Answer

No

Document Name

Comment

The Midwest Reliability Organization NERC Standards Review Forum (MRO NSRF) understands the SAR wants address several objectives, it notes that NERC standards are to address reliability gaps. Pursuant to the Periodic Review Recommendation Report: VAR-002-4, published May 19, 2017, the periodic review team graded the standard as 'Yellow'. Yellow is defined as "The standard is sufficient to protect reliability and meet the reliability objective of the standard; however, there may be future opportunity to improve a non-substantive or insignificant quality and content issue.)". Inasmuch, unless a reliability gap or prominent ambiguity is cited, the MRO NSRF cannot in good conscience support a scope expansion or change. In addition, the SAR's scope has increased well past its original intention of addressing the IRPTF Review of NERC Reliability Standards White Paper, published March 2020, recommendations. This scope expansion draws in all generators not just inverter based resources, which will be a larger undertaking for a standard that has not been identified to contain any reliability gaps.

The MRO NSRF provides the following comments in regards to the proposed SAR scope:

- Clarify VAR-002-4.1 Requirement R3 in regards to whether the GOP of a dispersed power resource must notify its associated TOP of a status change of a voltage controlling device on an individual generating unit, for example if a single inverter goes offline in a solar PV resource.

The MRO NSRF understands that this Project Scope point was the original catalyst for this SAR and comes from the IRPTF Review of NERC Reliability Standards White Paper, published March 2020. The MRO NSRF still believes that clarity may needed, as provided in our comments on May 13, 2021. It should be noted that industry already clearly understands voltage control for large synchronous generators and even combined controllers for multiple units. Similarly, industry understands asynchronous plant level controllers take inputs for multiple individual generators and coordinate a combined plant level response typically at the Point of Interconnection (or high side of the GSU. If the combined plant controller is lost, many times individual generator controllers either hold their last known position or revert to unity voltage / power factor. If Requirement R3 were to be revised it should be done so to state the voltage controlling device controlling voltage an aggregate of 75 MVA or greater, as specified in Inclusion I4 of the BES definition, unless previously exempted by the Transmission Operator.

- Project 2016-EPR-02 Enhanced Periodic Review of Voltage and Reactive Standards recommendations (Attachment 5) should be considered within the Project 2021-02 Modifications to VAR-002-4.1 SAR. Recommendations provide a review of VAR-002 Requirements R1-R6 for consideration of IBR Voltage/VAR control and operation.

The MRO NSRF cannot support this Project Scope point addition as written. The language used in the Periodic Review Recommendation Report: VAR-002-4, published May 19, 2017 report is very specific and as such, this language needs to be added to the SAR to ensure proper scoping.

- Clarify the requirements for VAR-002 Standard in regard to dispersed power producing resources and make appropriate changes, as necessary.

The MRO NSRF cannot support this Project Scope point addition. Neither the Periodic Review Recommendation Report: VAR-002-4, published May 19, 2017 or the IRPTF Review of NERC Reliability Standards White Paper, published March 2020 identify this as a reliability gap. In addition, the MRO NSRF believes that Project 2014-01 Standards Applicability for Dispersed Generation Resources has already completed this scope item.

- Consider specific power system stabilizer (PSS) requirements, as recommended from Project 2016-EPR-02.

The MRO NSRF cannot support this Project Scope point addition as written. The Periodic Review Recommendation Report: VAR-002-4, published May 19, 2017 (2016-EPR-2), did not identify PSS requirements as a reliability gap, but rather as a possible Technical Quality enhancement. The language used in the 2016-EPR-2 report is very specific and as such, this language needs to be added to the SAR to ensure proper scoping. Please note that a PSS are about local power angle stability and damping, not maintaining voltage and reactive power schedules.

- Consider and revise as necessary for an exception to be included in the Applicability section of the Reliability Standard for Requirement R4 reference to the Bulk Electric System (BES) definition that brings in applicability (exception) component of certain Generator Operators, as recommended from Project 2016-EPR-02.

The MRO NSRF cannot support this Project Scope point addition. The MRO NSRF believes that Project 2014-01 Standards Applicability for Dispersed Generation Resources has already completed this scope item.

- Consider and revise as necessary Requirement R4 as recommended from Project 2016-EPR-02: "Requirement R4 is silent on the magnitude or quantity of 'change in reactive capability' (e.g. 1 MVAR or 100 MVAR). Requirement R4 should be reviewed for potential improvements in establishing the level of change that triggers "change in reactive capability" or where that level of change would be identified."

In regards to delineating a magnitude for Reactive Power reductions, MRO NSRF agrees with the purpose of introducing a magnitude at which GOPs shall notify the associated Transmission Operator. However, MRO NSRF questions whether VAR-002 R4 is the appropriate Standard and Requirement for this magnitude delineation. Transmission Operators have different voltage support services mix and should be responsible for outlining the magnitude at which they want notification of a status change of reactive capability. As VAR-002 is not applicable to the Transmission Operator, this objective may be best suited for either VAR-001 or TOP-003.

Additionally, for dispersed power resources, the reactive power capability of the aggregate of the individual generators oftentimes makes up the majority, if not sole, amount of reactive power available. If an introduction of magnitude is introduced, the GOP should report at the point of aggregation of >75MVA and not for the individual generating units of dispersed power producing resources as identified through Inclusion I4 of the BES definition.

- Consider and revise as necessary the Measures, Time Horizons, and Violation Severity Levels (VSLs), as recommended from Project 2016-EPR-02.

The MRO NSRF cannot support this Project Scope point addition as written. The Periodic Review Recommendation Report: VAR-002-4, published May 19, 2017 (2016-EPR-2), did not list these Project Scope items as a reliability gaps, but rather as possible Clarity or Compliance Elements enhancements. The language used in the 2016-EPR-2 report is very specific and as such, this language needs to be added to the SAR to ensure proper scoping.

- Correct capitalization, punctuation, and syntax as necessary and as recommended from Project 2016-EPR-02.

The MRO NSRF cannot support this Project Scope point addition as written. The Periodic Review Recommendation Report: VAR-002-4, published May 19, 2017 (2016-EPR-2), did not list these Project Scope items as a reliability gaps. The language used in the 2016-EPR-2 report is very specific and as such, this language needs to be added to the SAR to ensure proper scoping.

- Consider NERC Odessa Disturbance Report recommendations for modifications or additions to existing requirements.

The MRO NSRF cannot support this Project Scope point addition. The NERC Odessa report does not cite any NERC Reliability Standard VAR-002 reliability gaps.

Likes 0

Dislikes 0

Response

Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable

Answer

No

Document Name

Comment

EI supported the previous draft of this SAR and agreed with the IRPTF white paper dated March 2020 that identified the concern with the ambiguity of VAR-002-4.1. The white paper indicates a single issue associated with Requirement R3 being out of alignment with Requirement R4. In Requirement R4, there is a sub-bullet that states, "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." Since posting the previous draft, the SDT has expanded the SAR to include new items that we do not support Please see our response below on the additional items:

- EEI recommends that the Odessa Disturbance report recommendations be addressed in a separate SAR. Contained in the Odessa Disturbance Follow-up white paper dated October 2021 developed by the IRPWG (see https://www.nerc.com/comm/RSTC_Reliability_Guidelines/White_Paper_Odessa_Disturbance_Follow-Up.pdf) it recommended that separate SARs be developed to address the issues identified in the report. We further note that VAR-002 was not among the Reliability Standards identified in either report. If the SAR Drafting Teams continues to believe that the Odessa Disturbance recommendations should be included in this SAR, then the Project Scope/Detailed Description needs to be revised to have clear deliverables with the associated technical justification(s).
- EEI does not support the inclusion of the "Miscellaneous Corrections/Revisions" in Attachment 5 from the Enhanced Periodic Review for the Project 2016-EPR-02 Report because the recommendations were considered non-substantive or insignificant quality. We further note the report is likely stale at nearly 5 years old.

Likes 0

Dislikes 0

Response

Jessica Lopez - APS - Arizona Public Service Co. - 1,3,5,6

Answer No

Document Name

Comment

AZPS does not agree with the revised proposed scope of SAR Draft 2 as written. AZPS supports EEI's comments, such that the expansive revisions and added scope to the SAR Draft 2, include a significant number of new items that were not submitted to the SC for approval, does not contain technical justification reports and would expand the scope of applicable NERC standards beyond VAR-002-4 (e.g. FAC-001, FAC-002, PRC-004, PRC-019, PRC-024, MOD-025, MOD-026, MOD-027, and MOD-032).

AZPS supports the following comments submitted by EEI:

EEI supported the previous draft of this SAR and agreed with the IRPTF white paper dated March 2020 that identified the concern with the ambiguity of VAR-002-4.1. The white paper indicates a single issue associated with Requirement R3 being out of alignment with Requirement R4. In Requirement R4, there is a sub-bullet that states, "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." Since posting the previous draft, the SDT has expanded the SAR to include many new items in the scope that were never considered when this SAR was submitted to the SC for approval (see below):

- The inclusion of the Odessa Disturbance Report recommendations is a substantial and inappropriate change to this SAR. The recommendations in this Report focus on many other standards beyond VAR-002. We further note that VAR-002 is not cited in this report but FAC-001, FAC-002, PRC-004, PRC-019, PRC-024, MOD-025, MOD-026, MOD-027, and MOD-032 have all been identified in the report recommendations creating confusion why this scope has been added to this project. While there may be a need to address the Odessa Disturbance Report recommendations within a NERC Reliability Standards Project, a separate SAR would be more appropriate for such a change.

- EEI additionally questions the need to include the "Miscellaneous Corrections/Revisions" in Attachment 5 from the Enhanced Periodic Review for the Project 2016-EPR-02 Report because none of the identified issues were considered to be a reliability gap, and the report is likely stale at nearly 5 years old. None of the proposed changes represent a reliability gap or provide technical justification for expanding the current scope of this project.

Likes 0

Dislikes 0

Response

Daniel Gacek - Exelon - 1,3

Answer No

Document Name

Comment

Exelon does not support the changes made to this second draft of the project SAR.

Exelon supports the comments posted by the EEI.

Likes 0

Dislikes 0

Response

Joseph Amato - Berkshire Hathaway Energy - MidAmerican Energy Co. - 1 - MRO

Answer

No

Document Name

Comment

MidAmerican supports the MRO NSRF comments.

Likes 0

Dislikes 0

Response

Anna Todd - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer

No

Document Name

Comment

Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South (SIGE) does not agree with the proposed scope as described in the SAR. While pieces of the SAR are appropriate, many aspects are unnecessary. The original scope of the SAR "Clarify VAR-002-4.1 Requirement R3 in regards to whether the GOP of a dispersed power resource must notify its associated TOP of a status change of a voltage controlling device on an individual generating unit, for example if a single inverter goes offline in a solar PV resource" is appropriate and we agree that this piece should be included in the scope.

In regards to Project 2016-EPR-02 inclusions, we only agree with one piece of attachment 5, section 2.3, "Requirement R4 is silent on the magnitude or quantity of 'change in reactive capability' (e.g. 1 MVAR or 100 MVAR). Requirement R4 should be reviewed for potential improvements in establishing the level of change that triggers 'change in reactive capability' or where that level of change would be identified." We agree that this should be reviewed and specified, although the 1 MVAR or 100 MVAR does not seem to be an appropriate example of change, as this is not a universal statement. The rest of the "Miscellaneous Corrections/Revisions" should not be included in the SAR because they are unnecessary. Many of these additional clarifications are redundant or are already correctly written in the standard. Other sections such as 2.5 and 2.6 are not accurate statements and would only add additional confusion.

SIGE supports the inclusion the considerations for Power System Stabilizers requirements and suggestions in the Odessa Disturbance Report, although clarification of which suggestions should be included would be beneficial.

Likes 0

Dislikes 0

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer No

Document Name

Comment

The NAGF does not support the changes made to the proposed scope for the Project 2021-02 VAR-002 SAR. The NAGF supports the comments submitted by the Midwest Reliability Organization NERC Standards Review Forum (MRO NSRF).

Likes 0

Dislikes 0

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer No

Document Name

Comment

In the SAR section titled "Project Scope (Define the parameters of the proposed project)" on page 2, the 3rd bulleted item states "Clarify the requirements for VAR-002 Standard in regard to dispersed power producing resources and make appropriate changes, as necessary." We suggest the SAR Drafting Team identify the basis or reference source for the proposed clarification in order to set appropriate boundaries on this proposed scope item. Every other proposed project scope addition in this section has an appropriate basis or reference source that bounds and limits the respective scope item (e.g., Project 2016-EPR-02, NERC Odessa Disturbance Report, IRPTF Review of NERC Reliability Standards White Paper). To follow this format and logical basis for the proposed scope items, a basis or reference source is needed for the 3rd bulleted item.

We recommend that the first use of 'IBR' and 'PV' within the SAR be spelled out.

Likes 0

Dislikes 0

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC Regional Standards Committee

Answer No

Document Name

Comment

Please consider removing the NERC Odessa Disturbance Report from the SAR. VAR-002 is not referenced in the disturbance report and it is anticipated that the NERC Inverter-Based Resource Performance Working Group (IRPWG) will be writing SARs to address the issues identified in the

disturbance report. If the NERC Odessa Disturbance Report remains in the project scope, please consider adding clear deliverables to the “Detailed Description.” 2.) Please consider that the Standard Drafting Team should have flexibility in regard to addressing, or not addressing, specific items identified in Project 2016-02 Enhanced Periodic Review since the periodic review items were referenced as being non-substantive. Please consider that the “Detailed Description” section of the SAR has less information than the “Project Scope” section of the SAR. We suggest that the Project Scope should be a higher level overview and the “Detailed Description” section should contain the specific items to be addressed. 3.) In the section regarding, “To assist the NERC Standards Committee in appointing a drafting team with appropriate members, please indicate to which Functional Entities the proposed standard(s) should apply...”, please consider referencing Transmission Operators as a Functional Entity that would be helpful have on the drafting team, but the standard should not apply to Transmission Operators.

Likes 0

Dislikes 0

Response

Jennifer Malon - Black Hills Corporation - 1,3,5,6 - MRO,WECC

Answer

Yes

Document Name

Comment

As noted by the SDT, within the cost impact statement of “...this is purely to propose clarity that only impacts communication procedures...” and the adding of Inverter Based Resources (IBR), BHC is ok with the proposed scope of this SAR and the additional impact to TOP-003 as it relates to information necessary for their needs for planning & operation.

Likes 0

Dislikes 0

Response

Kim Thomas - Duke Energy - 1,3,5,6 - SERC,RF, Group Name Duke Energy

Answer

Yes

Document Name

Comment

None.

Likes 0

Dislikes 0

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer	Yes
Document Name	
Comment	
WECC supports a review of the Standard in accordance with the SAR scope.	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 3,5,6	
Answer	Yes
Document Name	
Comment	
<p>AEP would like to thank the SAR Standards Drafting Team for their affirmation of our previously submitted comments and suggested approach in revising R3 and R4 in terms of overall voltage control status of the wind, solar, or other dispersed generation facility. We believe this approach would be preferable to merely excluding individual wind machines or solar inverters from being reported on, while also eliminating potential reporting loopholes as previously described. We also appreciate the SAR SDT's willingness, in lieu of AEP's suggestion to remove references to the Transmission Operator from VAR-002's obligations, to instead consider direct linkage to VAR-001's obligations from within VAR-002. We believe this is a suitable alternative, and appreciate the SDT's willingness in considering it. As stated in their recent response to AEP, we thank the SAR SDT for their willingness to share their agreement on all these suggestions with the future SDT tasked with revising the standard(s). We will not re-state the detail of those suggestions in this current comment period, and will instead defer to our comments as previously submitted in May of 2021.</p> <p>It may prove difficult for entities to mutually agree on the value of an established, minimum threshold of percent reactive capability reduction that would serve as the driver for requiring reporting to the TOP. Perhaps rather than an established threshold (percentage or otherwise), it may be worth considering an alternative approach where the driver to report to the TOP is the GOP's own determination that they are unable to meet their voltage schedule. This could allow the GOP to use sound engineering judgement to determine when reporting is actually necessary, rather than an established threshold that all entities might not agree on.</p> <p>AEP would like to again suggest adding VAR-001 to the scope of this draft SAR. While VAR-002 R4 requires that "Each Generator Operator shall notify its associated Transmission Operator within 30 minutes of becoming aware of a change in reactive capability", there is no corresponding obligation within VAR-001 which obligates the Transmission Operator to provide notification requirements for a change in reactive capability. AEP recommends that consideration be given to expand the scope of the Project 2021-02 SAR to develop this obligation within VAR-001.</p> <p>Driven by the subject matter and uniqueness of the recommendations provided in the Odessa document, AEP believes they would be best served and addressed within their own unique SAR and project (i.e. separate and distinct from Project 2021-02). If the Odessa report recommendations do remain within Project 2021-02's scope however, we recommend that the SDT supplement the SAR with direct references to the recommendations within the report that the team believes should be considered, as well as the justifications and reliability benefits for doing so.</p>	
Likes 0	
Dislikes 0	
Response	

Jamie Monette - Allete - Minnesota Power, Inc. - 1

Answer Yes

Document Name

Comment

Minnesota Power agrees with MRO's NERC Standards Review Forum's (NSRF) comments.

Likes 0

Dislikes 0

Response

Gregory Campoli - New York Independent System Operator - 2, Group Name ISO/RTO Standards Review Committee

Answer Yes

Document Name

Comment

The SRC supports the direction and need of this project and the addition of the drafting team to consider recommendations from Project 2016-EPR-02, but would like to provide a few comments for the SAR and, ultimately, the Standard Drafting Team's consideration.

The SRC agrees that it is not efficient to report the reactive capability and status of every voltage control device on single dispersed generating units. However, this standard, in part, is to ensure generators provide reactive support and voltage control to maintain reliable operation of the Interconnection. As such, the TOPs and RCs need visibility to the dispersed generator capabilities in aggregate at the point of interconnection. Changes to this standard's requirements should consider providing partial (available) capability of reactive power in real-time, rather than after 30 minutes, for voltage support. This may require collaboration with Project 2021-06, Modifications to IRO-010 and TOP-003.

The SRC also believes that in addition to adding TOP-003 to related standards, this project should consider IRO-010 as a related standard for the Reliability Coordinator. Both of these standards are part of 2021-06.

In addition to including the NERC Odessa Disturbance Report recommendations for modifications or additions to existing requirements, The SRC also recommends that the drafting team consider the Reliability Guideline on BPS-Connected Inverter-Based Resource Performance.

Likes 0

Dislikes 0

Response

Carl Pineault - Hydro-Quebec Production - 1,5

Answer Yes

Document Name

Comment

Likes 0

Dislikes 0

Response

Adrian Andreoiu - BC Hydro and Power Authority - 1,3,5, Group Name BC Hydro

Answer

Yes

Document Name

Comment

Likes 0

Dislikes 0

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer

Yes

Document Name

Comment

Likes 0

Dislikes 0

Response

Adrian Raducea - DTE Energy - Detroit Edison Company - 3,5

Answer

Yes

Document Name

Comment

Likes 0

Dislikes 0

Response

Cain Braveheart - Bonneville Power Administration - 1,3,5,6 - WECC

Answer Yes

Document Name

Comment

Likes 0

Dislikes 0

Response

Jeanne Kurzynowski - CMS Energy - Consumers Energy Company - 1,3,5 - RF

Answer Yes

Document Name

Comment

Likes 0

Dislikes 0

Response

Brian Lindsey - Entergy - 1,3,6

Answer Yes

Document Name

Comment

Likes 0

Dislikes 0

Response

Casey Perry - PNM Resources - Public Service Company of New Mexico - NA - Not Applicable - WECC

Answer Yes

Document Name

Comment

Likes 0

Dislikes 0

Response

Israel Perez - Salt River Project - 1,3,5,6 - WECC

Answer

Document Name

Comment

No comments.

Likes 0

Dislikes 0

Response

2. Provide any additional comments for the SAR drafting team to consider, if desired.

Gregory Campoli - New York Independent System Operator - 2, Group Name ISO/RTO Standards Review Committee

Answer

Document Name

Comment

In the first round of comments in May 2021, the IRC requested that the drafting team include Transmission Operator representatives. The SAR redlines added the TOP functional entity to the section related to appointing an appropriate drafting team and, in response to IRC SRC comments, the SAR drafting team stated that there are team members with TOP and RC expertise. However, with the impact to TOP and RC regarding visibility of voltage support capabilities and with the expanded scope from Project 2016-EPR-02, The SRC requests that the Standard Drafting Team, when formed, be expanded to include TOPs and RCs, as entities who receive and apply this information to its respective Real-Time Assessment and Real-Time Monitoring activities.

In addition, with the changing resource mix and growing number of Distributed Energy Resources (DER), the ISOs and RTOs are facing more challenges under more stressful grid conditions. As more and more DER, including inverter-based resources (IBR), are added to the grid, it is becoming increasingly important for system operators to be aware of accurate amounts of reactive resources available as well as voltage control device status. Reliability Standards not only need to support reliability for the grid under the more typical and expected conditions – but they must also recognize the information and data required to operate at low load and low energy conditions. The SDT should review the proposed changes to ensure they do not degrade reliability under all grid conditions, normal and emergency.

Likes 0

Dislikes 0

Response

Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer

Document Name

Comment

With respect to the Project 2016-EPR-02 Enhanced Periodic Review of Voltage and Reactive Standards recommendations document, Attachment 5 - Other Miscellaneous Corrections/Revisions, item 10.2 (page 25) states that *"In Requirement R2 **typical** dispersed generation resources (DGR) have a site automatic voltage regulator (AVR) that coordinates the voltage of all generators to a common regulation point. If this site AVR fails each generator will **typically** either continue to regulate at the last known set point or revert to unity power factor. If the site AVR fails the Generator Owner should report a change per Requirement R3. Augment the requirement to accommodate these circumstances without a violation."*

"Typical" is not a defined term in the NERC Glossary of Terms and can be open to individual interpretation. A drafting team acting on this recommendation should avoid introducing 'typical' into a revised requirement's wording and instead incorporate guidance to address situations when a site AVR is not functioning -- perhaps defining a percentage threshold of the site's Real-time VAR output / overall VAR capability that would trigger reporting to the TOP that the site AVR is not functioning if the percentage is exceeded.

Likes 0

Dislikes 0

Response

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer

Document Name

Comment

The NAGF has no additional comments.

Likes 0

Dislikes 0

Response

Jamie Monette - Allete - Minnesota Power, Inc. - 1

Answer

Document Name

Comment

Minnesota Power agrees with MRO's NERC Standards Review Forum's (NSRF) comments.

Likes 0

Dislikes 0

Response

Anna Todd - Southern Indiana Gas and Electric Co. - 3,5,6 - RF

Answer

Document Name

Comment

N/A

Likes 0

Dislikes 0

Response

Joseph Amato - Berkshire Hathaway Energy - MidAmerican Energy Co. - 1 - MRO

Answer

Document Name

Comment

MidAmerican supports the MRO NSRF comments.

Likes 0

Dislikes 0

Response

Jessica Lopez - APS - Arizona Public Service Co. - 1,3,5,6

Answer

Document Name

Comment

Understanding the insignificance of the impact of any one inverter, APS supports adding clarification in R3 written as "Reporting of status or capability changes as stated in Requirement R3 is not applicable to the individual generating units of dispersed power producing resources identified through Inclusion I4 of the Bulk Electric System definition" as defined in Requirement 4, with the revision identifying R3 instead of R4.

AZPS recognizes the need to add clarification in VAR-002-4 R3 however questions that if the voltage controlling device is not impactful to the BES and is looked to as having the same impact as a distribution component, then AZPS respectfully suggests that it be removed as a BES asset component. If these components are considered a BES asset, then the inclusion of "Reporting of status or capability changes as stated in Requirement R3 is not applicable to the individual generating units of dispersed power producing resources identified through Inclusion I4 of the Bulk Electric System definition" should be included.

Likes 0

Dislikes 0

Response

Michelle Olson - MRO - 1,2,3,4,5,6 - MRO

Answer

Document Name

Comment

The MRO NSRF has no additional comments.

Likes 0

Dislikes 0

Response

Casey Perry - PNM Resources - Public Service Company of New Mexico - NA - Not Applicable - WECC

Answer

Document Name

Comment

None

Likes 0

Dislikes 0

Response

Kimberly Turco - Constellation - 5,6

Answer

Document Name

Comment

None

Alison Mackellar submitted on behalf of Constellation Segments 5 and 6

Likes 0

Dislikes 0

Response

Alison Mackellar - Constellation - 5,6

Answer

Document Name

Comment

None

Alison Mackellar submitted on behalf of Constellation Segments 5 and 6

Likes 0

Dislikes 0

Response

Tricia Bynum - FirstEnergy - FirstEnergy Corporation - 1,3,4,5,6, Group Name FE Voter

Answer

Document Name

Comment

FirstEnergy is asking the SAR drafting team consider the following item:

“Requirement R4 is silent on the magnitude or quantity of ‘change in reactive capability’ (e.g., 1 MVAR or 100 MVAR). Requirement R4 should be reviewed for potential improvements in establishing the level of change that triggers “change in reactive capability” or where that level of change would be identified.”

Likes 0

Dislikes 0

Response

Pamela Frazier - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name Southern Company

Answer

Document Name

Comment

Significant scope creep has occurred in the scope of the SAR which is not justified based on the comments received from the previous posting. Please see the comments below related to the “Project Scope” section of the SAR:

- *Clarify VAR-002-4.1 Requirement R3 in regards to whether the GOP of a dispersed power resource must notify its associated TOP of a status change of a voltage controlling device on an individual generating unit, for example if a single inverter goes offline in a solar PV resource.*

The voltage controlling device at these sites is the plant controller, not the individual generating unit. Individual generating unit (inverter) unavailability may impact the reactive capability of the facility (this is the subject of Requirement R4, not R3).

- *Project 2016-EPR-02 Enhanced Periodic Review of Voltage and Reactive Standards recommendations (Attachment 5) should be considered within the Project 2021-02 Modifications to VAR-002-4.1 SAR. Recommendations provide a review of VAR-002 Requirements R1-R6 for consideration of IBR Voltage/VAR control and operation.*

Adding this item to the scope is not justified. This comment is not a widespread opinion found within the comment report as only a single entity (NPCC Regional Standards Committee) mentioned . 33 comment paragraphs were submitted, and only 1 mentions the 2016-EPR-02 Project. Significant system operational issues, problems, or events often trigger requests for standard modifications. If recommendations

from the 2016 project provide possible resolution to current problems being experienced today in the operation and control of the BES, they should be formally proposed and justified as needed in a separate proceeding.

- Clarify the requirements for VAR-002 Standard in regard to dispersed power producing resources and make appropriate changes, as necessary.

This statement is vague and unclear regarding the purpose and need for a change consideration. Clarification of the applicability of Requirement R3 to individual generating units of dispersed power producing resources should be the main scope of this SAR.

- Consider specific power system stabilizer (PSS) requirements, as recommended from Project 2016-EPR-02.

See the comment to the second bullet item above. Also, dispersed power resources do not have power system stabilizers programmed into the plant controller, so this scope item is N/A to these facilities.

Likes 0

Dislikes 0

Response

Brian Lindsey - Entergy - 1,3,6

Answer

Document Name

Comment

We do not have any additional comments.

Likes 0

Dislikes 0

Response

Jeanne Kurzynowski - CMS Energy - Consumers Energy Company - 1,3,5 - RF

Answer

Document Name

Comment

Agree with other submitted comments for including the exemption in R3 similar to R4.

Likes 0

Dislikes 0

Response

Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring

Answer

Document Name

Comment

None

Likes 0

Dislikes 0

Response

Adrian Raducea - DTE Energy - Detroit Edison Company - 3,5

Answer

Document Name

Comment

Similar to bullet point in R4 - It should clarify that R3 is not applicable to individual generating units of dispersed power producing resources.

Likes 0

Dislikes 0

Response

Kim Thomas - Duke Energy - 1,3,5,6 - SERC,RF, Group Name Duke Energy

Answer

Document Name

Comment

None.

Likes 0

Dislikes 0

Response	
Jennifer Malon - Black Hills Corporation - 1,3,5,6 - MRO,WECC	
Answer	
Document Name	
Comment	
BHC has no additional comments.	
Likes 0	
Dislikes 0	
Response	