NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments

Project Name:	2021-02 Modifications to VAR-002-4.1 | Draft 2
Comment Period Start Date:	5/10/2023
Comment Period End Date:	6/23/2023
Associated Ballot(s):	2021-02 Modifications to VAR-002-4.1 Implementation Plan AB 2 OT 2021-02 Modifications to VAR-002-4.1 VAR-002-5 AB 2 ST

There were 57 sets of responses, including comments from approximately 151 different people from approximately 107 companies representing 10 of the Industry Segments as shown in the table on the following pages.

All comments submitted can be reviewed in their original format on the project page.

If you feel that your comment has been overlooked, let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, contact Director, Standards Development Latrice Harkness (via email) or at (404) 858-8088.

Questions

1. Do you agree the proposed changes in Draft Version II have provided additional clarity to the proposed Reliability Standard VAR-002, following the recommendations for the Enhanced Periodic Review (Project 2016-EPR-02) and NERC Inverter-based Resource Performance Task Force (IRPTF)? If no, please explain and provide recommendations.

2. Do you agree with the revised Purpose statement? If you do not agree, please provide an explanation.

3. The Project 2021-02 SDT proposes a one-year Implementation Plan. Do you agree with the proposed implementation plan timeframe? If you think an alternate timeframe is needed, please propose an alternate implementation plan with detailed explanation.

4. Provide any additional comments on proposed Reliability Standard VAR-002-5 and the technical rationale document for the SDT to consider, if desired.

The Industry Segments are:

1 — Transmission Owners
2 — RTOs, ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations, Regional Entities

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
DTE Energy - Detroit Edison Company	Adrian Raducea	5		DTE Energy - DTE Electric	Karie Barczak	DTE Energy - Detroit Edison Company	3	RF
					Adrian Raducea	DTE Energy - Detroit Edison	5	RF
					patricia ireland	DTE Energy	4	RF
WEC Energy Group, Inc.	Christine Kane	3		WEC Energy Group	Christine Kane	WEC Energy Group	3	RF
					Matthew Beilfuss	WEC Energy Group, Inc.	4	RF
					Clarice Zellmer	WEC Energy Group, Inc.	5	RF
					David Boeshaar	WEC Energy Group, Inc.	6	RF
Jennie Wike	Jennie Wike		WECC	Tacoma Power	Jennie Wike	Tacoma Public Utilities	1,3,4,5,6	WECC
					John Merrell	Tacoma Public Utilities (Tacoma, WA)	1	WECC
					John Nierenberg	Tacoma Public Utilities (Tacoma, WA)	3	WECC

					Hien Ho	Tacoma Public Utilities (Tacoma, WA)	4	WECC
					Terry Gifford	Tacoma Public Utilities (Tacoma, WA)	6	WECC
					Ozan Ferrin	Tacoma Public Utilities (Tacoma, WA)	5	WECC
ACES Power Marketing	Jodirah Green	1,3,4,5,6	MRO,RF,SERC,Texas RE,WECC	ACES Collaborators	Bob Soloman	Hoosier Energy Electric Cooperative	1	RF
					Kevin Lyons	Central Iowa Power Cooperative	1	MRO
					Amber Skillern	East Kentucky Power Cooperative	1	SERC
					Jeremy Johnson	Prairie Power, Inc.	1,3	SERC
					Jolly Hayden	East Texas Electric Cooperative, Inc.	NA - Not Applicable	Texas RE
MRO	Jou Yang	1,2,3,4,5,6	MRO	MRO NSRF	Bobbi Welch	Midcontinent ISO, Inc.	2	MRO

Chris Bills	City of Independence, Power and Light Department	5	MRO
Fred Meyer	Algonquin Power Co.	3	MRO
Christopher Bills	City of Independence Power & Light	3,5	MRO
Larry Heckert	Alliant Energy Corporation Services, Inc.	4	MRO
Marc Gomez	Southwestern Power Administration	1	MRO
Matthew Harward	Southwest Power Pool, Inc. (RTO)	2	MRO
Bryan Sherrow	Board of Public Utilities	1	MRO
Terry Harbour	Berkshire Hathaway Energy - MidAmerican Energy Co.	1	MRO

Terry Harbour	MidAmerican Energy Company	1,3	MRO
Jamison Cawley	Nebraska Public Power District	1,3,5	MRO
Seth Shoemaker	Muscatine Power & Water	1,3,5,6	MRO
Michael Brytowski	Great River Energy	1,3,5,6	MRO
Shonda McCain	Omaha Public Power District	6	MRO
George E Brown	Pattern Operators LP	5	MRO
George Brown	Acciona Energy USA	5	MRO
Jaimin Patel	Saskatchewan Power Cooperation	1	MRO
Kimberly Bentley	Western Area Power Administration	1,6	MRO
Jay Sethi	Manitoba Hydro	1,3,5,6	MRO
Michael Ayotte	ITC Holdings	1	MRO

Entergy	Julie Hall	6		Entergy	Oliver Burke	Entergy - Entergy Services, Inc.	1	SERC
					Jamie Prater	Entergy	5	SERC
FirstEnergy - FirstEnergy Corporation	Mark Garza	4		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF
					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF
					Mark Garza	FirstEnergy-FirstEnergy	1,3,4,5,6	RF
					Stacey Sheehan	FirstEnergy - FirstEnergy Corporation	6	RF
Michael Johnson	Michael Johnson		WECC	PG&E All Segments	Marco Rios	Pacific Gas and Electric Company	1	WECC
					Sandra Ellis	Pacific Gas and Electric Company	3	WECC
					Frank Lee	Pacific Gas and Electric Company	5	WECC

Southern Company - Southern Company Services, Inc.	Pamela Frazier	1,3,5,6	MRO,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
					Jim Howell, Jr.	Southern Company - Southern Company Generation	5	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC RSC	Gerry Dunbar	Northeast Power Coordinating Council	10	NPCC
					Alain Mukama	Hydro One Networks, Inc.	1	NPCC
					Deidre Altobell	Con Edison	1	NPCC

Jeffrey Streifling	NB Power Corporation	1	NPCC
Michele Tondalo	United Illuminating Co.	1	NPCC
Stephanie Ullah-Mazzuca	Orange and Rockland	1	NPCC
Michael Ridolfino	Central Hudson Gas & Electric Corp.	1	NPCC
Randy Buswell	Vermont Electric Power Company	1	NPCC
James Grant	NYISO	2	NPCC
John Pearson	ISO New England, Inc.	2	NPCC
Harishkumar Subramani Vijay Kumar	Independent Electricity System Operator	2	NPCC
Randy MacDonald	New Brunswick Power Corporation	2	NPCC
Dermot Smyth	Con Ed - Consolidated	1	NPCC

	Edison Co. of New York		
David Burke	Orange and Rockland	3	NPCC
Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
Salvatore Spagnolo	New York Power Authority	1	NPCC
Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC
David Kwan	Ontario Power Generation	4	NPCC
Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	1	NPCC
Glen Smith	Entergy Services	4	NPCC
Sean Cavote	PSEG	4	NPCC
Jason Chandler	Con Edison	5	NPCC

					Tracy MacNicoll	Utility Services	5	NPCC
					Shivaz Chopra	New York Power Authority	6	NPCC
					Vijay Puran	New York State Department of Public Service	6	NPCC
					ALAN ADAMSON	New York State Reliability Council	10	NPCC
					David Kiguel	Independent	7	NPCC
					Joel Charlebois	AESI	7	NPCC
					John Hastings	National Grid	1	NPCC
					Michael Jones	National Grid USA	1	NPCC
					Joshua London	Eversource Energy	1	NPCC
Stephen Whaite	Stephen Whaite			ReliabilityFirst Ballot Body Member and Proxies	Lindsey Mannion	ReliabilityFirst	10	RF
					Stephen Whaite	ReliabilityFirst	10	RF
Western Electricity	Steven Rueckert	10		WECC	Steve Rueckert	WECC	10	WECC

Coordinating Council					Phil O'Donnell	WECC	10	WECC
Lower Colorado River Authority	Teresa Krabe	5		LCRA Compliance	Michael Shaw	LCRA	6	Texas RE
					Dixie Wells	LCRA	5	Texas RE
					Teresa Cantwell	LCRA	1	Texas RE
Tim Kelley	Tim Kelley		WECC	SMUD and BANC	Nicole Looney	Sacramento Municipal Utility District	3	WECC
					Charles Norton	Sacramento Municipal Utility District	6	WECC
					Wei Shao	Sacramento Municipal Utility District	1	WECC
					Foung Mua	Sacramento Municipal Utility District	4	WECC
					Nicole Goi	Sacramento Municipal Utility District	5	WECC
					Kevin Smith	Balancing Authority of Northern California	1	WECC

1. Do you agree the proposed changes in Draft Version II have provided additional clarity to the proposed Reliability Standard VAR-002, following the recommendations for the Enhanced Periodic Review (Project 2016-EPR-02) and NERC Inverter-based Resource Performance Task Force (IRPTF)? If no, please explain and provide recommendations.	
Hillary Dobson - Colorado Springs Utilities - 3	
Answer	No
Document Name	
Comment	
Some term changes are unhelpful. For example, changing "generator" to "applicable Facility." §4.2 states that "applicable Facility" equals "generating Facility," which negates the value of making the change. The insertion of the phrase "a mutually-agreeable criteria," as applied to means of notification in this proposed revision (R3/M3; R4/M4), is confusing. Firstly, "criteria" is a plural and "a" implies singular. Also, "criterion" is defined as "a standard of judgment or criticism; a rule or principle for evaluating or testing something," which would render "shall notify, in a mutually-agreeable criteria" equivalent to "shall notify, in a mutually-agreeable standard(s) of judgement." In what appears to be the intent in the various locations it is used, "mutually-agreeable manner" (or similar - "method"/"means"?) would seem to make much more sense. This is corroborated by the language inserted in M3/M4 stating the intent of "a mutually-agreeable criteria" means selecting a communications methodology, such as emails, voltage schedules, reliability data specification" (or, presumably, another mutually agreed method). In short, "criteria" is the wrong word to use ... the language of the requirements is discussing a means of notification, not the standard by which the voltage control is judged. C 1.2, Evidence Retention, 1st paragraph, "full-time" should not be hyphenated and, in fact, the words "full time" or "full-time" are not necessary for understanding ("the period since the last audit" is adequate).	
Likes 0	
Dislikes 0	

Response	
Thank you for your comments. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability. Mutually agreed criteria has been struck and changed to mutually agreed communication to provide clarity of median to communicate. R3 should be a change in AVR control status or unexpected functionality change to capture other types of control that perform to standard functions of operation. Removing “full-time” in C1.2 is agreed and it has been removed.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
Talen supports the comments of the NAGF.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF’s comments.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	No
Document Name	
Comment	

(A) It appears R3, M3, R4 and M4 incorrectly uses - mutually-agreeable “criteria” instead of "format".

Note: Footnote 6 correctly uses the word “format”.

Comment: Suggest changing criteria to “format” in these applications.

(B) R4 reads: Each Generator Operator shall notify, in a mutually-agreeable criteria, its associated Transmission Operator within 30 minutes of becoming aware of a change in reactive capability that degrades or restores from degradation “and exceeds the threshold for notification” due to factors other than a status change described specified in Requirement R3. If the capability has been restored within 30 minutes of the Generator Operator becoming aware of such change, then the Generator Operator is not required to notify the Transmission Operator of the change in reactive capability. [Violation Risk Factor:Medium] [Time Horizon: Real-time Operations].

Comment: Please define the magnitude of threshold change needed for notification.

(C) R5 requires the GO to provide to its TOP and TP generator step-up and auxiliary transformer data in R5.1 (5.1.1, 5.1.2 and 5.1.3).

Comment: Suggest moving these requirement(s) to a more appropriate location in data collection standards such as TOP, TPL and/or MOD.

Likes 0	
Dislikes 0	

Response

Thank you for your comments.
The footnotes have been updated for clarity and purpose. Mutually agreed criteria has been struck and changed to mutually agreed communication to provide clarity of median to communicate. The rationale document has been updated to provide

additional context to intent of requirements. The TOP should provide notification threshold or criterion, otherwise the reporting status or changes would occur at the aggregated or single generating resource(s) BES MVA and kV threshold provided in NERC glossary. Furthermore, if TOP has no specification on reactive capability change reporting, the GOP would need to develop reporting for degradation of generating resource(s) reactive capability, and impacts to other Standards such as MOD-025 re-verificaton if 10% change in reactive capability reported to the TP for planning should be considered for reporting in real time operations. Moving R5 and R6 out of VAR-002 is outside the scope of this project's SAR.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Claudine Bates - Black Hills Corporation - 6	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports the NAGF comments.	

Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	

Thank you. Please see responses to NAGF's comments.	
Sing Tay - Sing Tay On Behalf of: Ruchi Shah, AES - AES Corporation, 5; - Sing Tay	
Answer	No
Document Name	
Comment	
The SAR had initially recommended that VAR-002-4.1 be modified to provide the same clarification to R3 as R4 currently has. The SDT has removed the the bulleted language in R4 - "*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.*" AESCE agrees with the recommendations in the SAR and recommends that the clarification in R4 of the current Standard also be applied to R3. It is not productive/worthwhile to require GOPs to notify a TOP about the status change of a voltage controlling device on an individual generating unit. AESCE also supports NAGF's comment on these changes.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. Mutually agreed criteria has been struck and changed to mutually agreed communication to provide clarity of median to communicate. The rationale document has been updated to provide additional context to intent of requirements. The TOP should provide notification threshold or criterion, otherwise the reporting status or changes would occur at the aggregated or single generating resource(s) BES MVA and kV threshold provided in NERC glossary. Furthermore, if TOP has no specification on reactive capability change reporting, the GOP would need to develop reporting for degradation of generating resource(s) reactive capability, and impacts to other Standards such as MOD-025 re-verificaton if 10% change in reactive capability reported to the TP for planning should be considered for reporting in real time operations. R3 should be a change in AVR control status or unexpected functionality change to capture other types of control that would perform with functionality to support voltage control.	

The original intent of the 2014 SDT to provide the exemption was to exclude capability changes of IBRs when adding or removing individual units during normal operations. The 2014 SDT felt that Requirement R3 may have individual control reporting.

As background, the Project 2014-01 SDT explicitly declined to modify Requirement R3. On Pages 3 and 4 of the Project 2014-01 Consideration of Comments, posted October 28, 2014, for recommended applicability changes to VAR-002-4, the SDT stated: "At least one commenter questions whether the exception that is being proposed for Requirement R4 also should be applied to Requirement R3, reasoning that otherwise, the Generator Operator will be required to report status changes for AVRs or other voltage controlling devices for each individual generating unit of a DGR.

The DGR SDT understands that the generation facilities subject to Inclusion I4 of the BES definition can be comprised of individual generating units that are typically controlled by centralized voltage/reactive controllers that can be considered alternative voltage control devices as listed in Requirement R4. Additionally, there are generation facilities that perform this voltage/reactive control at the individual power producing resource. The DGR SDT has determined that a status change of these controllers should be reported regardless of which voltage/reactive control design is used at a facility, which explains why the exclusion was not extended to Requirement R3. The exclusion in Requirement R4 was intended to exclude reporting of an individual generator at a dispersed generating facility coming offline as a change in reactive capability. For these reasons the DGR SDT respectfully declines to adopt the commenter's recommendation."

Further, on Page 2 of the Project 2014-01 Consideration of Comments, posted June 12, 2014 for the DGR Draft White Paper, the SDT had previously stated:

"The SDT understands that a GOP's voltage controlling equipment and Elements differ based on the type of generation facility, and that indeed system configurations vary. However, a "one size fits all" approach would not be appropriate due to the unique characteristics of dispersed generation. Each generation facility may have a different methodology to ensure the facility has an automatic and dynamic response to changes in voltage to ensure the voltage schedule is maintained. It is implied, for example, in NERC VAR-001-3 that each GOP and TOP should understand capabilities of the generation facility and the requirements of the transmission system to ensure a mutually agreeable solution and schedule is used."

This SDT considers philosophy outlined by the previous SDT in June 12, 2014 to be adequate, namely that the GOP/TOP should coordinate to understand the capabilities of the facility and the requirements of the transmission system. Simply copying the Requirement R4 applicability statement to Requirement R3 may be inappropriate since some facilities may rely solely on voltage

control at individual power producing resources. An alternative could be for GOPs of facilities containing I4 dispersed power-producing resources to be required to coordinate with the TOP to document what level of aggregation is selected for each facility's VAR-002 compliance.

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	No
Document Name	
Comment	

FirstEnegy supports EEI's comments which state:

While EEI supports and appreciates many of the changes to this second draft of VAR-002-5, additional changes are still needed. To address these concerns, we offer the following suggested changes to VAR-002-5:

Applicability Section

4.2. At a minimum, 4.2 should be edited to more clearly articulate that the applicable Facilities are those as defined by approved definition of the Bulk Electric System. However, it would be even clearer if the specific Facilities that are applicable were simply defined in Section 4.2.

Requirement R3 – EEI is concerned that combining of conventional generators and Inverter-based Resources and associated aggregated IBR Plants for Requirement R3 is unintentionally causing confusion. For this reason, the SDT should separate the requirements by resource type. EEI offers the following suggested changes to address R3 concerns:

R3: For conventional resources 3.1 applies, for IBRs and IBR aggregated Facilities 3.2 applies.

3.1 Each GOP shall notify its associated Transmission Operator of a status change on the AVR, power system stabilizer, or alternative voltage controlling device of each of its applicable conventional generating resources within 30 minutes of a change. If the status has been restored within 30 minutes of such change, then the Generator Operator is not required to notify the Transmission Operator of the status change. [Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]

3.2 Each GOP operating of an applicable Inverter-based resource (IBR) shall:

3.2.1 Develop mutually agreeable criteria with the responsible GO for reporting levels of degraded performance from their volt/VAR controller(s) on an applicable IBR or at an aggregate Facility (i.e., IBR plant).

3.2.2 Report within 30 minutes, when an applicable IBR or aggregate Facility (i.e., IBR Plant) reaches a point of degradation (per 3.2.1). If the status has been restored within 30 minutes of such change, then the Generator Operator is not required to notify the Transmission Operator of the status change. [Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]

Requirement R4 – EEI is concerned that combining of conventional generators and Inverter-based Resources and associated aggregated IBR Plants for Requirement R4 is unintentionally causing confusion. For this reason, the SDT should separate the requirements by resource type. EEI offers the following suggested changes to address R4 concerns:

R4: For conventional resources 4.1 applies, for IBRs and IBR aggregated Facilities 4.2 applies.

4.1 Each Generator Operator shall notify its associated Transmission Operator within 30 minutes of becoming aware of a change in reactive capability due to factors other than a status change described in Requirement R3. If the capability has been restored within 30 minutes of the Generator

Operator becoming aware of such change, then the Generator Operator is not required to notify the Transmission Operator of the change in reactive capability. [Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]

4.2 Each GOP operating of an applicable Inverter-based resource (IBR) or aggregated Facilities shall:

4.2.1 Develop mutually agreeable thresholds with the responsible GO that represents degraded performance of the reactive capability of an applicable IBR or aggregate Facility (i.e., IBR plant) due to factors other than those identified in Requirement R3.

4.2.2 Report within 30 minutes, when an applicable IBR or aggregate Facility (i.e., IBR Plant) reaches a point of degradation (per 4.2.1). If the status has been restored within 30 minutes of such change, then the Generator Operator is not required to notify the Transmission Operator of the status change. [Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]

Requirement R5 – In VAR-002-4.1 there was a clarifying footnote that made it clear that "For dispersed power producing resources identified through Inclusion I4 of the Bulk Electric System definition, this requirement" (5.1. and its subparts) "applies only to those transformers that have at least one winding at a voltage of 100kV or above." This footnote should be retained in VAR-002-5.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT reviewed and proposes to use the term "generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability. For conventional sites, the SDT feels the ambiguity in the standard applies to all types of generating resources and the same requirements can be used to address the clarity needed with voltage and reactive capability measurements from a system operation approach to provide TOP with data and reporting needed to maintain system voltage and reactive resources in accordance to VAR-001. The footnotes have been updated. Mutually agreed criteria has been struck and changed to mutually agreed communication to provide clarity of median to communicate. The rationale document has been updated to provide additional context to intent of requirements. The TOP should provide notification threshold or criterion, otherwise the reporting status or changes would occur at the aggregated or single generating resource(s) BES MVA and kV threshold provided in NERC glossary. Furthermore, if TOP has no specification on reactive capability change reporting, the GOP would need to develop reporting for degradation of generating resource(s) reactive capability, and impacts to other Standards such as MOD-025 re-verificaton if 10% change in reactive capability reported to the TP for planning should be considered for reporting in real time operations.	
Donna Wood - Tri-State G and T Association, Inc. - 1	

Answer	No
Document Name	
Comment	
Tri-State Generation and Transmission does not agree with replacing "generator" with "applicable Facility". The term "generator" covers all for present and future and does not need to be changed.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	No
Document Name	
Comment	
PG&E does not agree with the proposed changes and concurs with the input provided by the North American Generator Forum (NAGF) for their input noted in the “General”, “Requirement R3”, and “Requirement R4” sections, specifically the input on “Measure M4”.	
Likes 0	

Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
George E Brown - Pattern Operators LP - 5	
Answer	No
Document Name	
Comment	
• Pattern Energy does not feel the addition of "generating resources and dispersed power producing resources" is necessary addition. Pattern Energy recommends using only the term "generators" as it is broad enough to cover all generators without eliminating any type of technology in the present and future. • Pattern Energy, as general recommendation throughout the standard, is to replace "applicable Facility" with "generators". This will align terminology with the §3. Purpose terminology. • Pattern Energy supports Midwest Reliability Organization's NERC Standards Review Forum's (MRO NSRF) other comments on this question.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT reviewed and proposes to use the term "generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability. Please see responses to MRO NSRF's comments.	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	

Answer	No
Document Name	
Comment	

- The MRO NSRF suggests modifying Facilities under the Applicability section:

- Facilities: For the purpose of this standard, the term “applicable Facility” will mean any generating Facility as defined by the NERC Glossary of Terms definition for Bulk Electric System. Where the function exists at the aggregate plant level or the individual generating resource level, the GO has the sole discretion to specify either or both.

- Requirement 1. The MRO NSRF does not agree with the addition of ‘volt/VAR controller(s)’. The addition of this term further narrows the scope of equipment in which this Standard’s requirements are applicable too. The MRO NSRF suggests removing “volt/VAR controller(s)” for the Standard’s language. In addition, Requirement 1, footnote 1, is using undefined term “aggregate generating plant”. The MRO NSRF suggests the following language for footnote 1, “For dispersed power producing resources identified through inclusion I4 of the Bulk Electric System definition, the automatic voltage regulator (AVR) refers to the voltage & reactive power control system controlling and coordinating plant voltage.”

- Requirement 2. Related to Requirement 2, footnote 5, the terms “pull” & “push” can be interpreted to have specific meanings as it relates to voltage control and Reactive Power. The MRO NSRF suggests removing “pull” and replacing it with “capability”.

- Requirement 2.1. “notify the Transmission Operator as soon as becoming aware of the condition.” Wouldn’t this notification be made pursuant to Requirement R3? The MRO NSRF suggests changing the language to “notify the Transmission Operator pursuant to Requirement R3.”

- Requirement R3. The MRO NSRF does not agree with the following language "which degrades or restores from degradation its ability to automatically control voltage." The use the word 'degrades' without an actual magnitude or threshold, will be subjective and subject to interpretation. The MRO NSRF does not believe that this additional language was a part of the SAR's scope or any recommendation and suggests removing the language.

Requirement R4. The MRO NSRF does not agree with the following language "that degrades or restores from degradation and exceeds the threshold for notification." The use the word 'degrades' without an actual magnitude or threshold, will be subjective and subject to interpretation. Further, "exceeds the threshold for notification" without a requirement for the TOP to specify the Reactive Power magnitude required for coordination, adds no value. Finally, removing the I4 individual generator exception, the 30-minute reporting could apply to the "plant", the "aggregate plant" or the "individual generating resource". According to the SAR, "NERC Project 2014-01 revised VAR-002 Requirement R4 to clarify that it is not applicable to individual generating units of dispersed power producing resources. The IRPTF did not identify any reason why Requirement R3 should be treated differently than Requirement R4 in this respect and recommended VAR-002-4.1 be modified to make this same clarification to Requirement R3." The MRO NSRF suggests removing the statement "that degrades or restores from degradation and exceeds the threshold for notification" and reinstating the following language "Reporting of a 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." Please note "status" was removed from the statement as recommended by NERC Project 2016-EPR-02 Attachment V Recommendations.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT reviewed and proposes to use the term "generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator

but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.

Footnote 1 has been updated to: For dispersed power producing resources identified through inclusion I4 of the Bulk Electric System definition, the automatic voltage regulator (AVR) refers to the voltage & reactive power control system controlling and coordinating plant voltage.

Changing the word, “pull”, in Footnote 5 and replacing with the word, “capability,” does not read correctly. The SDT feels that the word “pull” is understood from industry.

Requirement 2, Part R2.1, for control that maintains last known set point or reverts to a default upon lose of site controller, and does not have an alternate method of control. RequirementR3 is for a status change that degrades but not totally absent of control as in R2.1 proposed language. Monitoring of status change in R3 is apparent whereas a setpoint for individual IBR may not be apparent initially to notify within 30 minutes.

NERC Project 2016-EPR-02 Attachment V Recommendation 2.5 addresses the language of degradation and not to report for additional capability, the clarity of voltage control and reactive capability that degrades the generating resource from following the voltage schedule is the intent.

Requirement R4 has been revised with your comments in consideration, the SDT provided updates.

As background, the Project 2014-01 SDT explicitly declined to modify Requirement R3. On Pages 3 and 4 of the Project 2014-01 Consideration of Comments, posted October 28, 2014, for recommended applicability changes to VAR-002-4, the SDT stated: “At least one commenter questions whether the exception that is being proposed for Requirement R4 also should be applied to Requirement R3, reasoning that otherwise, the Generator Operator will be required to report status changes for AVRs or other voltage controlling devices for each individual generating unit of a DGR.

The DGR SDT understands that the generation facilities subject to Inclusion I4 of the BES definition can be comprised of individual generating units that are typically controlled by centralized voltage/reactive controllers that can be considered alternative voltage control devices as listed in Requirement R4. Additionally, there are generation facilities that perform this voltage/reactive control at

the individual power producing resource. The DGR SDT has determined that a status change of these controllers should be reported regardless of which voltage/reactive control design is used at a facility, which explains why the exclusion was not extended to Requirement R3. The exclusion in Requirement R4 was intended to exclude reporting of an individual generator at a dispersed generating facility coming offline as a change in reactive capability. For these reasons the DGR SDT respectfully declines to adopt the commenter's recommendation."

Further, on Page 2 of the Project 2014-01 Consideration of Comments, posted June 12, 2014 for the DGR Draft White Paper, the SDT had previously stated:

"The SDT understands that a GOP's voltage controlling equipment and Elements differ based on the type of generation facility, and that indeed system configurations vary. However, a "one size fits all" approach would not be appropriate due to the unique characteristics of dispersed generation. Each generation facility may have a different methodology to ensure the facility has an automatic and dynamic response to changes in voltage to ensure the voltage schedule is maintained. It is implied, for example, in NERC VAR-001-3 that each GOP and TOP should understand capabilities of the generation facility and the requirements of the transmission system to ensure a mutually agreeable solution and schedule is used."

This SDT considers philosophy outlined by the previous SDT in June 12, 2014 to be adequate, namely that the GOP/TOP should coordinate to understand the capabilities of the facility and the requirements of the transmission system. Simply copying the Requirement R4 applicability statement to Requirement R3 may be inappropriate since some facilities may rely solely on voltage control at individual power producing resources. An alternative could be for GOPs of facilities containing I4 dispersed power-producing resources to be required to coordinate with the TOP to document what level of aggregation is selected for each facility's VAR-002 compliance.

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	No
Document Name	
Comment	
WEC Energy Group supports the MRO NSRF comments.	

Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to MRO NSRF's comments.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	No
Document Name	
Comment	
Ameren would like clarification on what constitutes a threshold of degradation. Also, do we need evidence of correspondence where we determine what the mutually-agreeable criteria is? Ameren would like clarification on the phrase "functionality change" and the difference between a functionality change and a status change.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Status change are control change such as automatic and manual control, whereas functionality change is a change in application such as PSS operating to accommodate the use of on/off operation of PSS during normal operations after parallel to only make notifications to Transmission Operator for abnormal PSS operation impacting voltage control to add clarity for when to report to Transmission Operator on PSS and other applicable voltage control equipment. Unexpected functionality change may also occur in control that support voltage control, not specifically the AVR, such as individual IBRs or communication link. The SDT reviewed comments and made updates to the draft to provide more clarificiaton and substance to the measure of compliance. Mutually agreed criteria has been struck and changed to mutually agreed communication to provide clarity of median to communicate. The rationale document has been updated to provide additional context to intent of requirements. The TOP should	

provide notification threshold or criterion, otherwise the reporting status or changes would occur at the aggregated or single generating resource(s) BES MVA and kV threshold provided in NERC glossary. Furthermore, if TOP has no specification on reactive capability change reporting, the GOP would need to develop reporting for degradation of generating resource(s) reactive capability, and impacts to other Standards such as MOD-025 re-verificaton if 10% change in reactive capability reported to the TP for planning should be considered for reporting in real time operations.

Richard Jackson - U.S. Bureau of Reclamation - 1,5	
Answer	No
Document Name	
Comment	
Reclamation does not agree with adding the term “applicable Facility” throughout the standard, including the VSL table. Reclamation recommends that identifying applicable functional entities in Section 4 is sufficient. For example, by changing to this terminology, it leads the reader to believe that the entire facility is controlled by one AVR, which is not true in all cases (applies to footnotes as well). It is well-understood that reliability standard requirements apply to NERC-qualifying Facilities, but it is the functional entity, not individual Facilities, who is responsible for compliance with reliability requirements. Reclamation does not support the addition of Section 4.2 as it is redundant. Reclamation recommends it is not necessary to state that which is already incorporated by reference, e.g., terms in the NERC Glossary, or the fact that reliability standards apply to BES Elements.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability. Section 4 has been updated to reflect your comments.	

Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	No
Document Name	
Comment	
PNM supports EEI Comments related to Section 4.2, the creation of sub requirements in R3 and R4, and the inclusion of footnote related to the BES definition for I4 as it relates to R5.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
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	
a. Southern Company Generation does not feel that the addition of "volt/VAR controller(s)" is a necessary addition. The Automatic Voltage Regulator (AVR) is broad enough to cover both terms. We recommend changing all terms for "volt/VAR controller(s)" back to "AVR" or "the AVR".	

b. Requirement R3:

Footnote 6 should be footnote 7. Footnote 6 is not necessary provided the addition of “volt/VAR controller(s)” is removed. For footnote 7, we recommend changing "notification should include the communication method" to "notification should occur using the communication as directed by the TOP."

c. Requirement R4:

Capability that “degrades or restores from degradation and exceeds the threshold for notification” is subjective and is not defined in terms of who decides or how it is decided. This clarification for R4 was accomplished in a previous revision and should not be removed. Changing the wording to "exceeds the threshold for notification" provides no additional clarity to the GOP of when to notify.

Recommend reinstating the VAR-002-4.1 R4 bullet language in and adding it to R3: “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.”

d. Requirement R5-R6:

Recommend removing R5 and M5 given that the TOP does not need this information, but is available to the TP through MOD-032.

Likes 0	
Dislikes 0	
Response	

Thank you for your comments. The SDT agrees that volt/VAR is not needed and Footnote 1 has been updated to: For dispersed power producing resources identified through inclusion I4 of the Bulk Electric System definition, the automatic voltage regulator (AVR) refers to the voltage & reactive power control system controlling and coordinating plant voltage.

The rewording of Requirement R4 is to provide clarity of reactive capability changes that degrades capability and meets threshold of notification when provided by the TOP. The SDT realize that VAR-002 is not applicable to TOP and cannot require the threshold of reporting be provided from TOP. The language has been revised to state reporting where a threshold is provided for degradation and not to report for routine cycling of equipment to intentionally change output. Furthermore, if TOP has no specification on reactive capability change reporting, the GOP would need to develop reporting for degradation of generating resource(s) reactive capability, and impacts to other Standards such as MOD-025 re-verificaton if 10% change in reactive capability reported to the TP for planning should be considered for reporting in real time operations.

The original intent of the 2014 SDT to provide the exemption was to exclude capability changes of IBRs when adding or removing individual units during normal operations. The 2014 SDT felt that Requirement R3 may have individual control reporting necessary. Mutually agreed is intended to provide a threshold of notification suitable to TOP with an understanding of Generating resource configurations that may impact system operations. The SDT has reviewed and revised to “communication method.”

As background, the Project 2014-01 SDT explicitly declined to modify Requirement R3. On Pages 3 and 4 of the Project 2014-01 Consideration of Comments, posted October 28, 2014, for recommended applicability changes to VAR-002-4, the SDT stated: “At least one commenter questions whether the exception that is being proposed for Requirement R4 also should be applied to Requirement R3, reasoning that otherwise, the Generator Operator will be required to report status changes for AVRs or other voltage controlling devices for each individual generating unit of a DGR.

The DGR SDT understands that the generation facilities subject to Inclusion I4 of the BES definition can be comprised of individual generating units that are typically controlled by centralized voltage/reactive controllers that can be considered alternative voltage control devices as listed in Requirement R4. Additionally, there are generation facilities that perform this voltage/reactive control at the individual power producing resource. The DGR SDT has determined that a status change of these controllers should be reported regardless of which voltage/reactive control design is used at a facility, which explains why the exclusion was not extended to Requirement R3. The exclusion in Requirement R4 was intended to exclude reporting of an individual generator at a dispersed generating facility coming offline as a change in reactive capability. For these reasons the DGR SDT respectfully declines to adopt the commenter’s recommendation.”

Further, on Page 2 of the Project 2014-01 Consideration of Comments, posted June 12, 2014 for the DGR Draft White Paper, the SDT had previously stated:

"The SDT understands that a GOP's voltage controlling equipment and Elements differ based on the type of generation facility, and that indeed system configurations vary. However, a "one size fits all" approach would not be appropriate due to the unique characteristics of dispersed generation. Each generation facility may have a different methodology to ensure the facility has an automatic and dynamic response to changes in voltage to ensure the voltage schedule is maintained. It is implied, for example, in NERC VAR-001-3 that each GOP and TOP should understand capabilities of the generation facility and the requirements of the transmission system to ensure a mutually agreeable solution and schedule is used."

This SDT considers philosophy outlined by the previous SDT in June 12, 2014 to be adequate, namely that the GOP/TOP should coordinate to understand the capabilities of the facility and the requirements of the transmission system. Simply copying the Requirement R4 applicability statement to Requirement R3 may be inappropriate since some facilities may rely solely on voltage control at individual power producing resources. An alternative could be for GOPs of facilities containing I4 dispersed power-producing resources to be required to coordinate with the TOP to document what level of aggregation is selected for each facility's VAR-002 compliance.

The removal of Requirement R5 is outside the scope of this project's SAR.

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	

The NAGF does not agree with the proposed VAR-002-5 Draft 2 based on the following concerns:

a. General:

i. The NAGF does not believe the addition of "generating resources and dispersed power producing resources" is necessary addition. The NAGF recommends using only the term "generators" as it is broad enough to cover all generators without eliminating any type of technology in the present and future.

b. Requirement 3:

i. Recommend replacing "mutually-agreeable criteria" with "mutually-agreeable criteria and format".

}c. Requirement R4:

i. The NAGF does not agree with the R4 language "that degrades or restores from degradation and exceeds the threshold for notification." The use the word 'degrades' without defining the actual magnitude or threshold, will be subjective and subject to interpretation. Therefore, the NAGF recommends removing the statement accordingly.

ii. The proposed VAR-002-5 Draft 2 standard does not require TOPs to define Requirement 4 Reactive Power capability "threshold for notification" and therefore lacks a key provision to ensure GO/GOPs provide meaningful reactive capability notifications.

iii. Recommend reinstating the following VAR-002-4.1 R4 bullet language in VAR-002-5 Draft 2 R4 and adding it to R3: "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."

d. Measure M4:

i. The NAGF does not agree that the GOP should be responsible for providing "evidence of coordination, as necessary, with the Transmission Operator to identify a mutually-agreeable criteria, such as any of the following: emails, voltage schedule documentation, or reliability data specification." The TOP should be responsible for providing such evidence as they own/manage the stakeholder process.

Likes 0	
Dislikes 0	
Response	

Thank you for your comments. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.

After reviewing comments, the SDT felt the word “criteria and format” should be changed to “method” for communication, the threshold of notification is not required for TOP to mutully agree and thus the Requirements 3 and 4 have been changed to show TOP should provide, if not provided report any changes in R3 and R4 that may have an impact to following TOP voltage and reactive power support instruction.. The reporting of degradation from reported capabilities is to provide clarity that reporting of increased capabilities are to reported from other Standard(s).

Measure M4 has been updated to show evidence of GOP notification.

Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	No
Document Name	
Comment	

While EEI supports and appreciates many of the changes to this second draft of VAR-002-5, additional changes are still needed. To address these concerns, we offer the following suggested changes to VAR-002-5:

Applicability Section

4.2. At a minimum, 4.2 should be edited to more clearly articulate that the applicable Facilities are those as defined by the currently approved Inclusions in the NERC Glossary of Terms definition of the Bulk Electric System. Alternatively, the Facilities section could be made even clearer if the specific Inclusions from the BES definition (e.g., I2, I3, I4) that are applicable were simply defined in Section 4.2.

Requirement R3 – EEI is concerned that combining of conventional generators and Inverter-based Resources and associated aggregated IBR Plants for Requirement R3 is unintentionally causing confusion. For this reason, the SDT should separate the requirements by resource type. EEI offers the following suggested changes to address R3 concerns:

R3: For conventional resources 3.1 applies, for IBRs and IBR aggregated Facilities 3.2 applies.

3.1 Each Generator Operator shall notify its associated Transmission Operator of a status change on the AVR, power system stabilizer, or alternative voltage controlling device of each of its applicable conventional generating resources within 30 minutes of a change. If the status has been restored within 30 minutes of such change, then the Generator Operator is not required to notify the Transmission Operator of the status change. [Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]

3.2 Each Generator Operator operating an applicable Inverter-based resource (IBR) and aggregate Facility (i.e., IBR plant) shall:

3.2.1 Develop mutually agreeable reporting criteria with the associated Transmission Operator that, at a minimum establish degradation thresholds and methods for reporting degraded performance from volt/VAR controller(s) on an applicable IBR or aggregate Facility level (i.e., IBR plant).

3.2.2 Notify the associated Transmission Operator within 30 minutes, when an applicable IBR or aggregate Facility (i.e., IBR Plant) reaches the mutually agreed upon point of degradation (per 3.2.1). If the status has been restored within 30 minutes of such change, then the Generator Operator is not required to notify the Transmission Operator of the status change. [Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]

Requirement R4 – EEI is concerned that combining of conventional generators with Inverter-based Resources and associated aggregated IBR Plants for Requirement R4 is unintentionally causing confusion. For this reason, the SDT should separate the requirements by resource type. EEI offers the following suggested changes to address R4 concerns:

R4: For conventional resources 4.1 applies, for IBRs and aggregate Facility (i.e., IBR plant) 4.2 applies.

4.1 Each Generator Operator shall notify its associated Transmission Operator within 30 minutes of becoming aware of a change in reactive capability due to factors other than a status change described in Requirement R3. If the capability has been restored within 30 minutes of the Generator Operator becoming aware of such change, then the Generator Operator is not required to

notify the Transmission Operator of the change in reactive capability. [Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]

4.2 Each Generator Operator operating an applicable Inverter-based resource (IBR) or aggregated Facilities shall:

4.2.1 Develop mutually agreeable reporting criteria with the associated Transmission Operator that, at a minimum establish degradation thresholds and methods for reporting of degraded performance of the reactive capability of an applicable IBR or aggregate Facility level (i.e., IBR plant) due to factors other than those identified in Requirement R3.

4.2.2 Notify the associated Transmission Operator within 30 minutes, when an applicable IBR or aggregate Facility (i.e., IBR Plant) reaches the mutually agreed to point of degradation (per 4.2.1). If the status has been restored within 30 minutes of such change, then the Generator Operator is not required to notify the Transmission Operator of the status change. [Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]

Additional Consideration for Requirements R3 & R4: In addition to the above suggested changes for R3 & R4, we ask that consideration be given to extending the reporting time for degraded performance from 30 minutes to 60 minutes. This proposed change would provide GOPs with a full 30 minutes to resolve any technical problems with their resource's reactive support and voltage control systems, while also providing a full 30 minutes to report, any problem not easily repaired, to the Transmission Operator. The benefit of this changes would be to minimize unnecessary reporting and should not have any reliability impact.

Requirement R5 – In VAR-002-4.1 there was a clarifying footnote that made it clear that "For dispersed power producing resources identified through Inclusion I4 of the Bulk Electric System definition, this requirement" (5.1. and its subparts) "applies only to those transformers that have at least one winding at a voltage of 100kV or above." This footnote should be retained in VAR-002-5.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT reviewed and proposes to use the term "generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator

but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability. For conventional sites, a defined threshold of notification needs defined for Requirement R4 and communication type also needs clarified in Requirements R3 and R4. The SDT feels the ambiguity in the standard applies to all types of generating resources and the same requirements can be used to address the clarity needed with voltage and reactive capability measurements from a system operation approach to provide TOP with data and reporting needed to maintain system voltage and reactive resources in accordance to VAR-001. Changing the reporting time in Requirement R3 and Requirement R4 from 30 to 60 minutes would need to be vetted with the TOP for possible impacts before a Standard change. With no impacts found from TOP perspective, extending time to an hour seems to be beneficial from a reporting standpoint. The SDT feel this is outside the scope of current SAR to make this change but warrants consideration in a new SAR. The footnote addressing the scope of equipment has been added.	
Adrian Raducea - DTE Energy - Detroit Edison Company - 5, Group Name DTE Energy - DTE Electric	
Answer	No
Document Name	
Comment	
R3 does not address changes in capability that are not a degradation as is noted in item 2.5 above. Also Applicable Facilities does not need to state it is applicable to BES facilities. Only useful if standard has specific requirements e.g. MOD-025, MVA	
Likes 0	
Dislikes 0	
Response	

Thank you for your comments. EPR recommendation 2.5 only applies to Requirement R4 for D curve. The technical rationale document has been updated to remove R3 from this EPR recommendation. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.	
Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster	
Answer	No
Document Name	
Comment	
Evergy supports and incorporates by reference the comments of the Edison Electric Institute (EEI) for question #1.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to EEI’s comments.	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	No
Document Name	
Comment	

In comments on Draft 1, RF noted that the “threshold for degradation” described in the footnote under requirements R3 and R4 is something that the TOP currently could specify unilaterally under VAR-001-5 R4, without a requirement to ensure this threshold for degradation is “mutually-agreeable” to the GOP.

In the Draft 1 consideration of comments, the SDT agreed that VAR-001 could be leveraged to gain the reporting criteria, but since VAR-001 does not specifically state that the TOP must provide the GOP a threshold of degradation, VAR-002 should provide the flexibility for the GOP to seek out mutually-agreeable criteria including the threshold.

RF concurs that where the TOP has not previously specified a threshold of degradation, the GOP should have a framework to seek out specification of such criteria from the TOP (either under VAR-002 or under VAR-001). However, RF recommends TOP-established notification criteria, including any notification threshold for status changes, functionality changes, or other changes in reactive capability, be enforceable without regard for whether such criteria are mutually-agreeable (i.e., also agreeable to the GOP). A possible way to implement this recommendation could be to remove “threshold of degradation” from footnote 6 and to add “unless such degradation does not meet a threshold for notification provided by the Transmission Operator,” to the main text of R3 and R4.

Apart from the recommendation above, RF also recommends revisions to address the following items for grammatical clarity in R3 and R4:

-Replace "in a mutually-agreeable criteria” with “in accordance with mutually-agreeable criteria” in R3 and R4

-Replace “that degrades or restores from degradation and exceeds the threshold for notification due to factors other than specified in Requirement R3” with “which degrades or restores from degradation its ability to automatically control voltage due to factors other than specified in Requirement R3” in R4 (to match R3).

-Replace “Mutually-agreeable format” with “Mutually-agreeable criteria” in footnote 6

-Reference footnote 6 in R4 as well as R3.

Likes 0	
Dislikes 0	

Response
Thank you for your comments. The SDT agrees that VAR-001, Requirement R4 would support VAR-002 Requirements R2 and R3, and this would require the TOP to provide information that exempts generators from making AVR notifications (Requirement R3) and voltage schedule deviation notifications (Requirement R2) and could be shown that TOP is required to provide notification criteria. The SDT agrees that VAR-001 should be leveraged to get the thresholds or exemptions. The thresholds of notification in Requirements R3 and R4 would ultimately be determined by TOP similar to Requirement R2 currenlty and this clarity should be stated in requirements of VAR-002. Mutually agreed criteria has been struck and changed to mutually agreed communication to provide clarity of median to communicate. The rationale document has been updated to provide additional context to intent of requirements. The TOP should provide notification threshold or criterion, otherwise the reporting status or changes would occur at the aggregated or single generating resource(s) BES MVA and kV threshold provided in NERC glossary. Furthermore, if TOP has no specification on reactive capability change reporting, the GOP would need to develop reporting for degradation of generating resource(s) reactive capability, and impacts to other Standards such as MOD-025 re-verificaton if 10% change in reactive capability reported to the TP for planning should be considered for reporting in real time operations. Footnote 6 has been updated.

Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	No
Document Name	
Comment	
Minnesota Power supports EEI’s comments.	
Likes 0	
Dislikes 0	
Response	

Thank you. Please see responses to EEI's comments.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	
Please see additional comments.	
Likes 0	
Dislikes 0	
Response	
Natalie Johnson - Enel Green Power - 5	
Answer	No
Document Name	
Comment	

Enel North America Inc. (Enel) disagrees with the proposed changes in Draft Version II of VAR-002, specifically in relation to the changes made to Requirement R4. First, the proposed language of "that degrades or restores from degradation and exceeds the threshold for notification" causes concerns for Enel for two reasons. First, the TOP does not have a requirement to specify the Reactive Power magnitude required for coordination and therefore the proposed language would not add to reliability or meet the intended purposes. Secondly, without a defined threshold, the phrase "degrades or restores from degradation" is subjective and would be up for interpretation.

In addition, Enel does not support the removal of the exlusion that states "[R]eporting 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".

Enel is also reiterating the comments of the proposed language of “degrades or restores from degradation” as used in Requirement R3 is subjective and would be up for interpretation. Enel also agrees with the MRO NSRF suggested language for Section 4.2 Facilities: “For the purpose of this standard, the term “applicable Facility” will mean any generating Facility as defined by the NERC Glossary of Terms definition for Bulk Electric System. Where the function exists at the aggregate plant level or the individual generating resource level, the GO has the sole discretion to specify either or both.”	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. Requirement R4 has been revised based on comments received for agreement to comments and provide clarity of intent. VAR-001, Requirement R2, requires the TOP to schedule sufficient reactive resources. In order for TOP to schedule sufficient reactive resources, it is suggested that the reporting of reactive capability changes in Real-time is needed in Real-time assessments. The Measure of VAR-001, Requirement R2, states the TOP shall have evidence of assessments used as the basis of how resources were scheduled. The SDT feel this threshold of notification is needed for TOP to conduct assessments but agrees that TOP would not be required to provide in VAR-002. IBRs having a possible partial outage or degradation of voltage control for the site would not need to be reported unless the degradation impacts the ability to automatically control voltage. This would be the threshold of notification rather than providing an exemption of individual IBR. Since IBR site control would be equivalent to AVR on conventional site, TOP would need to determine along with current AVR reporting what partial control reporting is needed for IBRs. The applicable Facility has been reviewed to provide the additional clarification to the intent. The SDT intent aligns to your recommendation. Footnotes have been updated to provide clarity to intent.	
Daniel Gacek - Exelon - 1	
Answer	No

Document Name	
Comment	
Exelon supports the comments submitted by the EEI.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to EEI's comments.	
Kinte Whitehead - Exelon - 3	
Answer	No
Document Name	
Comment	
Exelon supports the comments as submitted by EEI.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to EEI's comments.	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	No
Document Name	
Comment	

We appreciate the effort that the SDT put into clarifying which facilities are applicable for this standard; however, we question whether question 4.2 is required at all. Section 4.1 clearly delineates that this standard is applicable to the GO and GOP. Given that both the GO and GOP are already associated with a generating Facility(ies) and that this standard is applicable to all BES Facilities (i.e. there are no specific exemptions for unit size, etc.), we feel that this section is superfluous. For an example see FAC-008-5 Section 4 or MOD-032-1 Section 4.

We also have concerns about R4. We appreciate the attempt to provide additional clarity provided by removing the word "status" and adding the phrase "degrades or restores from degradation". However, we have issue with the verbiage of this particular Requirement. The wording does not make it clear what has been degraded nor what has been restored from degradation. Furthermore, this change does not satisfy the intent of Project 2016-EPR-02 recommendation 2.3. We recommend using the SDT response identified in the Technical Rationale with a few slight modifications identified below. We believe these changes will meet the intent of 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, and 2.9.

"Requirement R4 – "Each Generator Operator shall notify, in a mutually-agreeable criteria, its associated Transmission Operator within 30 minutes of becoming aware of a change in reactive capability that degrades or restores from degradation its ability to control voltage. If the reactive capabilty has been restored within 30 minutes of the Generator Operator becoming aware of such change, then the Generator Operator is not required to notify the Transmission Operator."

Lastly, we do not agree with the SDT choosing to not implement recommendation 14.1. We believe that leaving the Generator Owner solely responsible for providing information on transformers that could be owned by another entity is not a equitable requirement. We recommend that either the TO be added to VAR-002 R5 or an exception be made for those GO's who do not own the GSU and/or Aux Transformers associated with their generating resource.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. The SDT reviewed and proposes to use the term "generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator

but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability. The SDT feel that the terminology provided in the NERC glossary needs referenced for showing types of generating resources at this time and to reference going forward as the definitions are changed. The SDT feels that R5 does need additional context to applicability of GO and will consider the comments provided. Footnote have been updated to provide intent to R5.	
Jennie Wike - Jennie Wike On Behalf of: John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	No
Document Name	
Comment	
Tacoma Power supports the comments from SRP and EEI. Tacoma Power shared the concern that combining of conventional generators and Inverter-based Resources and associated aggregated IBR Plants is unintentionally causing confusion. For this reason, the SDT should separate the requirements by resource type.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to SRP's and EEI's comments.	
Patrick Wells - OGE Energy - Oklahoma Gas and Electric Co. - 1,3,5,6	
Answer	No
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	Yes
Document Name	
Comment	
AEP recommends that R3 and R4 be clarified to instead state “Each Generator Operator, based on a mutually agreeable threshold of degradation, shall notify, as directed, its associated Transmission Operator…” AEP also recommends that footnote 6 be changed to “The communication method (e.g., voice, data, email, etc.)”	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT has reviewed your suggested edits and other industry comments of similar edits for consideration, the draft has been updated to reflect and align to these recommendations.	
Anna Todd - Southern Indiana Gas and Electric Co. - 1,3,5,6 - RF	
Answer	Yes
Document Name	
Comment	

Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South (SIGE) would recommend similar language changes for R4 that are consistent with those made in R3 surrounding the removal of “becoming aware of a change.”	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. It should be noted that the reactive capability changes are not necessarily known until generating resource is on a limit that degrades its capability and therefore start time of 30 minute period would need to start when becoming aware and not as a binary or an instant change, e.g. on/off status, for Requirement R3.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation suggests adding to mutually agreeable criteria to state "mutually agreeable criteria and format" to provide clarity. Constellation also requests that the addition of the language "degrades or restores from degradation" in Requirement R3 be re-evaluated or removed as it introduces more ambiguity to the requirement. For an AVR it should either be considered functional and able to control voltage or not. Modern AVRs typically have two channels, if one channel fails it could be considered degraded since it has lost redundancy but is still functional. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. After reviewing comments, the SDT felt the word “criteria and format” should be changed to “method” for communication, the threshold of notification is not required for TOP to mutully agree and thus the Requirements 3 and 4 have been changed to show TOP should provide, if not provided report any changes in R3 and R4 that may have an impact to following TOP voltage and reactive power support instruction. Requirement R3 has been revised based on comments received for agreement to comments and provide clarity of intent.

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	2021-02_Modifications_to_VAR-002_Unofficial_Comment_Form - ERCOT Final.docx
Comment	

ERCOT ISO agrees that the proposed changes have provided additional clarity; however, ERCOT ISO believes that the following revisions to Requirements R3 and R4 would further clarify the draft Reliability Standard.

R3: ***When a mutually agreeable threshold of degradation is reached,*** each Generator Operator shall ***use a mutually agreeable communication method[1] to*** notify its associated Transmission Operator of a status or functionality change of applicable AVR, volt/VAR controller(s), power system stabilizer, or alternative voltage controlling device ***that*** degrades or restores from degradation ***in*** its ability to automatically control voltage. Status or functionality change notifications shall be made within 30 minutes of such change. If the status has been restored within 30 minutes, then the Generator Operator is not required to notify the Transmission Operator of the status change.

[1] Such as voice, automated data transfer, or email.

R4: Each Generator Operator shall ***use a mutually agreeable communication method[1] to*** notify its associated Transmission Operator within 30 minutes of becoming aware of a ***degradation or restoration from degradation*** in reactive capability that exceeds the ***mutually agreeable*** threshold for notification due to factors other than ***those*** specified in Requirement R3. If the capability has been restored within 30 minutes of the Generator Operator becoming aware of such change, then the Generator Operator is not required to notify the Transmission Operator of the change in reactive capability.

[1] Such as voice, automated data transfer, or email.

For further clarity, a redline of ERCOT ISO's proposed revisions is attached.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. Requirement R3 and R4 has been revised based on comments received for agreement to comments and provide clarity of intent. The SDT agrees that communication method is appropriate for mutually agreed, the threshold of notification is not required by the TOP to provide in VAR-002 so the language has been revised.

Kimberly Turco - Constellation - 6

Answer	Yes
Document Name	

Comment

Constellation suggests adding to mutually agreeable criteria to state "mutually agreeable criteria and format" to provide clarity. Constellation also requests that the addition of the language "degrades or restores from degradation" in Requirement R3 be re-evaluated or removed as it introduces more ambiguity to the requirement. For an AVR it should either be considered functional

and able to control voltage or not. Modern AVRs typically have two channels, if one channel fails it could be considered degraded since it has lost redundancy but is still functional. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. After reviewing comments, the SDT felt the word “criteria and format” should be changed to “method” for communication, the threshold of notification is not required for TOP to mutully agree and thus the Requirements 3 and 4 have been changed to show TOP should provide, if not provided report any changes in R3 and R4 that may have an impact to following TOP voltage and reactive power support instruction.	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 3 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jessica Lopez - APS - Arizona Public Service Co. - 3	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5, Group Name LCRA Compliance	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Pedro Juarez, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento	

Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Gregory Campoli - New York Independent System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	

Texas RE recommends adding definition at the end of the statement in section A 4.4: "…as defined by the Bulk Electric System definition."

Texas RE is concerned Requirements R3 and R4 do not explicitly require the dispersed power producing resources to notify the Transmission Operator (TOP) for the status change of voltage control on an individual generating unit. Texas RE recommends adding "applicable Facility" in the requirement language:

R3. Each Generator Operator shall notify, in a mutually-agreeable criteria6, its associated Transmission Operator of a status or functionality change on the of applicable AVR, volt/VAR controller(s), power system stabilizer, or alternative voltage controlling device which degrades or restores from degradation of its ability to automatically control voltage *at the applicable Facility*. Status or functionality change notifications shall be made within 30 minutes of thesuch change. If the status has been restored within 30 minutes of such change, then the Generator Operator is not required to notify the Transmission Operator of the status change.

Absent the reference to the applicable Facility, Texas RE is concerned that it will not be understood that notification to the TOP that a status change in the AVR occurred is required for an individual Facility, such as a wind turbine, rather than a change in status for multiple wind turbines, such as the entire wind farm.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability. Requirement R3 and R4 has been revised based on comments received for agreement to comments and provide clarity of intent.	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	
Document Name	
Comment	
See comments submitted by the Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to EEI’s comments.	

2. Do you agree with the revised Purpose statement? If you do not agree, please provide an explanation.	
Jennie Wike - Jennie Wike On Behalf of: John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	No
Document Name	
Comment	
Tacoma Power supports the comments from SRP and EEI. Tacoma Power shared the concern that combining of conventional generators and Inverter-based Resources and associated aggregated IBR Plants is unintentionally causing confusion. For this reason, the SDT should separate the requirements by resource type.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. For conventional sites, a defined threshold of notification needs defined for Requirement R4 and communication type also needs clarified in Requirements R3 and R4. The SDT feels the ambiguity in the standard applies to all types of generating resources and the same requirements can be used to address the clarity needed with voltage and reactive capability measurements from a system operation approach to provide TOP with data and reporting needed to maintain system voltage and reactive resources in accordance to VAR-001.	
Natalie Johnson - Enel Green Power - 5	
Answer	No

Document Name	
Comment	
Enel North America Inc. does not agree that the modification from “generators” to “generating resources and dispersed power producing resources” was necessary. Since the Functional Entities are defined as ‘Generator Operator’ and ‘Generator Owner’ with no exclusions, the term “generators” is sufficient in the Purpose statement.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	
OPG does not agree with changing “generators” with “generating resources and dispersed power producing resources”. The term “generators” is inclusive for all units that provides energy transformation into electrical energy for delivery to the grid. The proposed change “generating resources and dispersed power producing resources” triggers specificity to current technology and potential restrictions for future technology.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.	
Adrian Raducea - DTE Energy - Detroit Edison Company - 5, Group Name DTE Energy - DTE Electric	
Answer	No
Document Name	
Comment	
Purpose statement somewhat goes against FERC Order 827 for providing reactive power support. FERC Order 827 notes that generating facilities shall maintain 0.95 lead/lag power factor at all power outputs. What if the capability is greater than 827 such as 0.90 or 0.80? Then does the site comply with VAR-002 or limit var support to 827 limits, or do we focus on voltage control and 827 limits as we typically do not have a VAR schedule?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The VAR-002 standard is to provide requirements to maintain a voltage control and support reactive capabilities for generating resources in accordance to Transmission Operator instruction. The Generation Interconnection Agreement with Transmission provides the expected resource operating design characteristics when online and connected to the grid such as power factor range based on impact studies. These limits are to be followed when following the TOP provided voltage schedule and reported to TOP when Generating resource is unable to maintain specified voltage or power factor.	

Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
The NAGF does not feel the addition of "generating resources and dispersed power producing resources" is necessary addition. The NAGF recommends using only the term "generators" as it is broad enough to cover all generators without eliminating any type of technology in the present and future.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT reviewed and proposes to use the term "generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.	

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 does not believe that the addition of "Dispersed power producing resources" is needed. Since dispersed power producing resource are generating resources, the term, "generators" is broad enough for present and future resource technologies.	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	No
Document Name	
Comment	
Ameren would like a definition of dispersed power-producing resources.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	No

Document Name	
Comment	
WEC Energy Group supports the MRO NSRF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to MRO NSRF's comments.	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	
The MRO NSRF does not feel the addition of "generating resources and dispersed power producing resources" is necessary addition. The MRO NSRF recommends using only the term "generators" as it is broad enough to cover all generators without eliminating any type of technology in the present and future.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. The SDT reviewed and proposes to use the term "generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.	

George E Brown - Pattern Operators LP - 5	
Answer	No
Document Name	
Comment	
Pattern Energy supports Midwest Reliability Organization's NERC Standards Review Forum's (MRO NSRF) comments on this question.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to MRO NSRF's comments.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	No
Document Name	
Comment	
SRP strongly belives that IBRs should have their own NERC Reliability Standard(s).	
Likes 3	Public Utility District No. 1 of Snohomish County, 1, Rhoads Alyssia; Platte River Power Authority, 3, Kiess Richard; Wike Jennie On Behalf of: John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry
Dislikes 0	
Response	

Thank you for your comment. For conventional sites, a defined threshold of notification needs defined for Requirement R4 and communication type also needs clarified in Requirements R3 and R4. The SDT feels the ambiguity in the standard applies to all types of generating resources and the same requirements can be used to address the clarity needed with voltage and reactive capability measurements from a system operation approach to provide TOP with data and reporting needed to maintain system voltage and reactive resources in accordance to VAR-001.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports the NAGF comments.	
Likes 0	

Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Claudine Bates - Black Hills Corporation - 6	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corportion supports the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	

Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
Talen supports the comments of the NAGF.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Patrick Wells - OGE Energy - Oklahoma Gas and Electric Co. - 1,3,5,6	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	

Constellation has no additional comments. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	
Exelon agrees with the revised Purpose statement.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Exelon agrees with the revised Purpose statement.	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Alison MacKellar - Constellation - 5	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI agrees with the revised Purpose statement.	
Likes 0	
Dislikes 0	

Response	
Thank you for your support.	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	Yes
Document Name	
Comment	
PNM is in agreement with the revised purpose statement.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
: PG&E agrees with the proposed changes.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
N/A	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Hillary Dobson - Colorado Springs Utilities - 3	
Answer	Yes
Document Name	

Comment	
More words are not automatically better and there seems to be no need for the expansion of the statement from the original (other than capitalizing a defined term). That said, CSU has no objection to the revised language.	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Gregory Campoli - New York Independent System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Anna Todd - Southern Indiana Gas and Electric Co. - 1,3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento	

Municipal Utility District, 3, 6, 4, 1, 5; Pedro Juarez, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Teresa Krabe - Lower Colorado River Authority - 5, Group Name LCRA Compliance	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Richard Jackson - U.S. Bureau of Reclamation - 1,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Sing Tay - Sing Tay On Behalf of: Ruchi Shah, AES - AES Corporation, 5; - Sing Tay	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Thomas Foltz - AEP - 5	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Thank you for your support.	
Jessica Lopez - APS - Arizona Public Service Co. - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 3 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
James Keele - Entergy - 3	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	
Document Name	
Comment	
See comments submitted by the Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Thank you for your support.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	
Document Name	
Comment	
No comment	

Likes 0	
Dislikes 0	
Response	
Thank you for your support.	

3. The Project 2021-02 SDT proposes a one-year Implementation Plan. Do you agree with the proposed implementation plan timeframe? If you think an alternate timeframe is needed, please propose an alternate implementation plan with detailed explanation.	
Donald Lock - Talen Generation, LLC - 5	
Answer	No
Document Name	
Comment	
Talen supports the comments of the NAGF.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Sheila Suurmeier - Black Hills Corporation - 5	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	

Claudine Bates - Black Hills Corporation - 6	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Micah Runner - Black Hills Corporation - 1	
Answer	No
Document Name	
Comment	
Black Hills Corporation supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt	
Answer	No
Document Name	

Comment	
Black Hills Corporation supports the NAGF comments.	
Likes 0	
Dislikes 0	
Response	
Thank you. Please see responses to NAGF's comments.	
Thomas Foltz - AEP - 5	
Answer	No
Document Name	
Comment	
AEP recommends changing from a 12-month implementation period to a 24-month implementation period to allow entities to address the needed communication channels and to verify the data points required for monitoring. The unique challenges associated with IBRs and their remote operation, and the time necessary to determine mutually agreeable criteria for the threshold, would all greatly benefit from an implementation period of 24 months.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates the comments. The SDT has updated the Standard draft to align with mutually agreed methods of communication and more flexibility to language in that TOP is not required to provide a notification threshold for IBRs. If TOP provided a notification criteria outside the currently held, then depending on changes there may be an impact to monitoring points and a project would ensue. This would be a case by case and timelines would be needed to switchover the notification criteria outside the enforcement date of VAR-002 Standard. Other Standards impacted that should identify any changes to	

communication and data currently required in real time operation are COM-001 to apply interpersonal communication and data specification in TOP-003.	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez	
Answer	No
Document Name	
Comment	
SRP strongly belives that IBRs should have their own NERC Reliability Standard(s).	
Likes 3	Public Utility District No. 1 of Snohomish County, 1, Rhoads Alyssia; Platte River Power Authority, 3, Kiess Richard; Wike Jennie On Behalf of: John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry
Dislikes 0	
Response	
Thank you for your comment. For conventional sites, a defined threshold of notification needs defined for Requirement R4 and communication type also needs clarified in Requirements R3 and R4. The SDT feels the ambiguity in the standard applies to all types of generating resources and the same requirements can be used to address the clarity needed with voltage and reactive capability measurements from a system operation approach to provide TOP with data and reporting needed to maintain system voltage and reactive resources in accordance to VAR-001.	
Sing Tay - Sing Tay On Behalf of: Ruchi Shah, AES - AES Corporation, 5; - Sing Tay	
Answer	No
Document Name	
Comment	

AESCE is unable to determine at this stage if a one year-plan to implement the revised Standard including “mutually agreeable criteria and threshold of degradation” is sufficient or not.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates the comments. The SDT has updated the Standard draft to align with mutually agreed methods of communication and more flexibility to language in that TOP is not required to provide a notification threshold for IBRs. If TOP provided a notification criteria outside the currently held, then depending on changes there may be an impact to monitoring points and a project would ensue. This would be a case by case and timelines would be needed to switchover the notification criteria outside the enforcement date of VAR-002 Standard. Other Standards impacted that should identify any changes to communication and data currently required in real time operation are COM-001 to apply interpersonal communication and data specification in TOP-003.	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	No
Document Name	
Comment	
Refer to our response to Question 1.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. See Q1 response.	
David Jendras Sr - Ameren - Ameren Services - 3	
Answer	No

Document Name	
Comment	
There are too many questions about definitions in this standard for Ameren to agree with the implementation plan.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates the comments. The SDT has updated the Standard draft to align with mutually agreed methods of communication and more flexibility to language in that TOP is not required to provide a notification threshold for IBRs. If TOP provided a notification criteria outside the currently held, then depending on changes there may be an impact to monitoring points and a project would ensue. This would be a case by case and timelines would be needed to switchover the notification criteria outside the enforcement date of VAR-002 Standard. Other Standards impacted that should identify any changes to communication and data currently required in real time operation are COM-001 to apply interpersonal communication and data specification in TOP-003.	
Richard Jackson - U.S. Bureau of Reclamation - 1,5	
Answer	No
Document Name	
Comment	
Reclamation recommends a 2-year implementation plan. This will allow sufficient time for entities to develop and implement an appropriate program for compliance or implement necessary changes to existing programs.	
Likes 0	
Dislikes 0	
Response	

The SDT appreciates the comments. The SDT has updated the Standard draft to align with mutually agreed methods of communication and more flexibility to language in that TOP is not required to provide a notification threshold for IBRs. If TOP provided a notification criteria outside the currently held, then depending on changes there may be an impact to monitoring points and a project would ensue. This would be a case by case and timelines would be needed to switchover the notification criteria outside the enforcement date of VAR-002 Standard. Other Standards impacted that should identify any changes to communication and data currently required in real time operation are COM-001 to apply interpersonal communication and data specification in TOP-003.	
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 is unable to determine if a one-year Implementation Plan is sufficient currently.	
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 is unable to determine if a one-year Implementation Plan is sufficient.	
Likes 0	

Dislikes 0	
Response	
The SDT appreciates the comments. The SDT has updated the Standard draft to align with mutually agreed methods of communication and more flexibility to language in that TOP is not required to provide a notification threshold for IBRs. If TOP provided a notification criteria outside the currently held, then depending on changes there may be an impact to monitoring points and a project would ensue. This would be a case by case and timelines would be needed to switchover the notification criteria outside the enforcement date of VAR-002 Standard. Other Standards impacted that should identify any changes to communication and data currently required in real time operation are COM-001 to apply interpersonal communication and data specification in TOP-003.	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	No
Document Name	
Comment	
Implementation plan acceptance is a function of proposed standard final acceptance. This standard has available valuable revisions comments that have not been implemented.	
Likes 0	
Dislikes 0	
Response	
The SDT appreciates the comments. The SDT has updated the Standard draft to align with mutually agreed methods of communication and more flexibility to language in that TOP is not required to provide a notification threshold for IBRs. If TOP provided a notification criteria outside the currently held, then depending on changes there may be an impact to monitoring points and a project would ensue. This would be a case by case and timelines would be needed to switchover the notification criteria outside the enforcement date of VAR-002 Standard. Other Standards impacted that should identify any changes to communication and data currently required in real time operation are COM-001 to apply interpersonal communication and data specification in TOP-003.	

Patrick Wells - OGE Energy - Oklahoma Gas and Electric Co. - 1,3,5,6	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jennie Wike - Jennie Wike On Behalf of: John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	Yes
Document Name	
Comment	

None.	
Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
PG&E agrees with the proposed 1 year Implementation Plan.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comments.	
George E Brown - Pattern Operators LP - 5	
Answer	Yes
Document Name	
Comment	
No comments.	

Likes 0	
Dislikes 0	
Response	
Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	Yes
Document Name	
Comment	
No comments	
Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	Yes
Document Name	
Comment	
WEC Energy Group supports the MRO NSRF comments.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comment. Please see MRO NSRF response.	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	Yes
Document Name	
Comment	
PNM supports the one year implementation plan.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comments.	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	Yes
Document Name	
Comment	
EEI supports the 1 year implementation plan.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comments.	
Alison MacKellar - Constellation - 5	
Answer	Yes

Document Name	
Comment	
Constellation has no additional comments. Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	Yes
Document Name	
Comment	
Exelon supports the 1 year implementation plan	
Likes 0	
Dislikes 0	
Response	
Thanks for your comments.	
Kinte Whitehead - Exelon - 3	
Answer	Yes
Document Name	
Comment	

Exelon supports the 1-year implemenation plan.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comments.	
Kimberly Turco - Constellation - 6	
Answer	Yes
Document Name	
Comment	
Constellation has no additional comments. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
James Keele - Entergy - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Kevin Conway - Public Utility District No. 1 of Pend Oreille County - 3 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jessica Lopez - APS - Arizona Public Service Co. - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Julie Hall - Entergy - 6, Group Name Entergy	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Hillary Dobson - Colorado Springs Utilities - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Diana Torres - Imperial Irrigation District - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Martin Sidor - NRG - NRG Energy, Inc. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 5, Group Name LCRA Compliance	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Pedro Juarez, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Anna Todd - Southern Indiana Gas and Electric Co. - 1,3,5,6 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Adrian Raducea - DTE Energy - Detroit Edison Company - 5, Group Name DTE Energy - DTE Electric	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster	
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	
Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Hillary Creurer	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Natalie Johnson - Enel Green Power - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Gregory Campoli - New York Independent System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC	
Answer	
Document Name	
Comment	
No Comment on the implementation plan. WECC leaves that to the entities than need to implement.	
Likes 0	
Dislikes 0	
Response	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	
Document Name	
Comment	
See comments submitted by the Edison Electric Institute	

Likes 0	
Dislikes 0	
Response	

4. Provide any additional comments on proposed Reliability Standard VAR-002-5 and the technical rationale document for the SDT to consider, if desired.	
Kimberly Turco - Constellation - 6	
Answer	
Document Name	
Comment	
Constellation agrees the scope of the SAR is addressed but makes the suggestion to evaluate removing R5 and R6 from VAR-002 as these requirements are now addressed through other NERC Standards such as MOD-026, MOD-032, PRC-019 and therefore duplicative to have in VAR-002. Kimberly Turco on behalf of Constellation Segments 5 and 6	

Likes 0	
Dislikes 0	
Response	
Thank you for your comment. Removal of R5 and R6 was not in the scope of the SAR, a new SAR should be submitted	
Kenya Streeter - Edison International - Southern California Edison Company - 1,3,5,6	
Answer	
Document Name	
Comment	
See comments submitted by the Edison Electric Institute	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	
Document Name	
Comment	
Thank you for the opportunity to comment.	
Likes 0	
Dislikes 0	
Response	

Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2	
Answer	
Document Name	
Comment	
As detailed in the response to Q1, ERCOT ISO believes that additional revisions to Requirements R3 and R4 would further clarify the draft Reliability Standard.	
Likes 0	
Dislikes 0	
Response	
Thank for your comment. SDT will consider comments received from ERCOT ISO and they will be reflected in future versions of the standard.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	
Document Name	
Comment	
In Requirements R3 and R4, the change from “mutually-agreeable format” to “mutually-agreeable criteria” was not matched in the referenced footnote 6, which still uses “mutually-agreeable format”. We are concerned that the number of Transmission Operators to Generator Operators across the ERO is primarily a one-to-many relationship for each Transmission Operator Area. As written, each Generator Operator would need to have evidence that it established a mutually-agreeable criteria with the appropriate Transmission Operator and adhered to the mutually-agreeable criteria. While we would expect registered Transmission Operators to cooperate in this regard, they have no corresponding requirement to do so in either VAR-002 or VAR-001. A more efficient approach might be for each Transmission Operator to incorporate this “mutually-agreeable criteria” for voltage support awareness (the preferred	

communication method and degradation threshold trigger) into their data and information specifications covered by TOP-003 (currently open for revision under Project 2021-06). The revised Facilities section (section 4.2) states that "…"applicable Facility" will mean any generating Facility as defined by the Bulk Electric System", but is a "generating Facility" actually defined in the BES definition?	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT corrected the inconsistencies that you point out. The SDT reviewed and proposes to use the term "generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability. After reviewing comments, the SDT felt the word "criteria and format" should be changed to "method" for communication, the threshold of notification is not required for TOP to mutully agree and thus the Requirements 3 and 4 have been changed to show TOP should provide, if not provided report any changes in R3 and R4 that may have an impact to following TOP voltage and reactive power support instruction.	
Alison MacKellar - Constellation - 5	
Answer	
Document Name	
Comment	
Constellation agrees the scope of the SAR is addressed but makes the suggestion to evaluate removing R5 and R6 from VAR-002 as these requirements are now addressed through other NERC Standards such as MOD-026, MOD-032, PRC-019 and therefore duplicative to have in VAR-002.	

Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. Removal of R5 and R6 was not in the scope of the SAR. a new SAR should be submitted	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	
Document Name	
Comment	

OPG supports NPCC Regional Standards Committee's comments and has the following additional comments:

Please provide clarification regarding the difference between Status and Functionality.

In the Summary of "Technical Rationale for Reliability Standard VAR-002-5 - Generator Operation for Maintaining Network Voltage Schedule" it is stated that:

Requirement R3 – Added "functionality" for computing functions or range of functions in a Technical Rationale for Reliability Standard VAR-002-5 NERC Project 2021-02 Modifications to VAR-002-4.1 October 2022 3 control system, such as the Power System Stabilizers or aggregated volt/VAR controller (**EPR Attachment 5 Recommendation 14.1**).

However the Periodic Review Recommendations: VAR-002-4 – Generator Operation for Maintaining Network Voltage Schedules, Attachment 5 has the following **unrelated** recommendation: "Recommendation 14.1 - 14.1. Requirement R5, does not identify the Transmission Owner (TO) for cases where the TO owns the generator step-up transformer. Revise Requirement R6 to require the TO to communicate settings to the Transmission Operator"

On the other hand Recommendation14.2 talks about: "14.2. Requirement R3 require the Generator Operator to notify the Transmission Operator of power system stabilizer (PSS) unavailability. The operational requirements for initial state of PSS (on/off) clarity need to be assessed for inclusion within the VAR suite of standards (including expectations for

startup, shutdown, or testing mode). Consider whether new requirements or alternative guidance is needed to identify the expected initial state for a PSS."

The Project 2021-02 SDT agreed that the operational requirements for initial state of PSS (on/off) clarity was needed for expectations on startup, shutdown, or testing mode. To clarify notification for PSS status change, the Project 2021-02 SDT proposes to add language of functionality changes that degrade or restore its ability to automatically control voltage.

Degraded PSS Functionality is not defined such that not to create noncompliance controversy, since there is no associated degradation threshold.

If the intent of this requirement is the notification related to status change for Volt/VAR controlling equipment then the status change is clear (ON or OFF). The potential misunderstanding is associated with the implied threshold (not specified) for the **functionality** change. Suggestion is made to remove word "functionality " which is related to the specific design intent and application (i.e. Grid condition at that specific moment) and stick to "status change" for Requirement R3.

Functionality change appears to be more suited to be covered by the capability change.

Likes 0	
Dislikes 0	

Response

Thank you fo your comments. Status change are control change such as automatic and manual control, whereas functionality change is a change in application such as PSS operating to accommodate the use of on/off operation of PSS during normal operations after parallel to only make notifications to Transmission Operator for abnormal PSS operation impacting voltage control to add clarity for when to report to Transmission Operator on PSS and other applicable voltage control equipment. Unexpected functionality change may also occur in control that support voltage control, not specifically the AVR, such as individual IBRs or communication link. The SDT reviewed comments and made updates to the draft to provide more clarificiaton and substance to the measure of compliance.

The technical rationale document will be updated to reflect Standard revision. After reviewing comments, the SDT felt the word “criteria and format” should be changed to “method” for communication, the threshold of notification is not required for TOP to mutully agree and thus the Requirements 3 and 4 have been changed to show TOP should provide, if not provided report any changes in R3 and R4 that may have an impact to following TOP voltage and reactive power support instruction. A footnote has been added for R5 scope.	
Stephen Whaite - Stephen Whaite On Behalf of: Lindsey Mannion, ReliabilityFirst , 10; - Stephen Whaite, Group Name ReliabilityFirst Ballot Body Member and Proxies	
Answer	
Document Name	
Comment	
In comments on Draft 1, RF noted that “shall” had been replaced by “will” in the proposed language of the measures. RF also noted that while the measures of NERC Reliability Standards are not part of the FERC-approved enforceable language, RF recommended against a one-off deviation from established conventions. In the Draft 1 consideration of comments, the SDT indicated that for consistency, the Measures would be reverted to “shall” statements. RF appreciates the SDT’s response and efforts to make these changes, and RF notes that many of the “wills” previously included in the Measures have been changed back to “shall”. However, RF notes that some “will have/maintain/provide evidence” statements remain in Measures M1, M2, and M4 and recommends, for the sake of internal consistency and alignment with established NERC standard conventions, that these remaining statements also be revised to “shall” statements.	
Likes 0	
Dislikes 0	
Response	

Thank you for your comments. The SDT agree there needs to be consistency to established conventions, and the SDT will review terms “will” and ”shall” and revise to current conventions.	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE commends consistent use of the term “applicable Facility” in Requirement R2. Texas RE recommends the following revisions: • Revise “within each generator Facilities capabilities” to “within each applicable Facility’s capabilities”. • In Requirement Part 2.1, revise “or the generator” to “applicable Facility”. • Also in Requirement Part 2.1, revise “control the generator reactive output” to “control the applicable Facility reactive output”. • In footnote 5, revise “Generating Facility” to “applicable Facility.” In Requirement 2.2, Texas RE recommends adding Reactive Power in front of “schedule” to be consistent. Texas RE noticed that Measure M2 states “the Generator Owner will monitor the voltage…” yet there is no explicit requirement for the Generator Owner to monitor voltage. Texas RE agrees this is a best practice and recommends it be included in the requirement language, rather than just the measure. In Measure M4, “reliability data specification” is not defined. Texas RE recommends using the term “data specification” instead.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comments. The SDT agree with R2 bulleted recommendations and have revised accordingly. The SDT feel that it is understood that "GOP maintain the voltage or Reactive Power Schedule" is equilivant to "monitoring" and therefore to explicitly state is not needed. Measure 4 has been updated and data specification removed.	
Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster	
Answer	
Document Name	
Comment	
Evergy supports and incorporates by reference the comments of the MRO NSRF for question #4.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. Please refer to the response provided to MRO NSRF comments.	
Anna Todd - Southern Indiana Gas and Electric Co. - 1,3,5,6 - RF	
Answer	
Document Name	
Comment	
As stated in response to question 1, SIGE would recommend similar language changes for R4 that are consistent with those made in R3 surrounding the removal of "becoming aware of a change."	
Likes 0	

Dislikes 0	
Response	
Thank you for your comment. It should be noted that the reactive capability changes are not necessarily known until generating resource is on a limit that degrades its capability and therefore start time of 30 minute period would need to start when becoming aware and not as an instant change, e.g. on/off status, for Requirement R3.	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC	
Answer	
Document Name	
Comment	
WECC has a slight concern with the use of the words "mutually agreeable" when the requirement only applies to one of the entities that has to agree. In R3 and R4, the GOP shall notify its TOP, in a "mutually agreeable format."... What if the TOP does not agree to the format. This leaves the GOP hanging with no was to meet the requirement. WECC suggests that the entity responsible should be able to specify the format that they need the data.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. After reviewing comments, the SDT felt the word “criteria and format” should be changed to “method” for communication, the threshold of notification is not required for TOP to mutully agree and thus the Requirements 3 and 4 have been changed to show TOP should provide, if not provided report any changes in R3 and R4 that may have an impact to following TOP voltage and reactive power support instruction. The reporting of degradation from reported capabilities is to provide clarity that reporting of increased capabilities are to reported from other Standard(s).	
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	
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	
This revised draft of VAR-002-5 does not specifically address the main purpose idendified in the SAR which is to identify if the GOP must notify the TOP of the loss of a single inverter at a solar facility within R3. “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.”	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The 2014 SDT felt that Requirement R3 may have individual control reporting and feel this exemption can be provided with the threshold determination and is intended to provide a threshold of notification suitable to TOP with an understanding of Generating resource configurations that may impact system operations. The SDT has reviewed and revised to “communication method.”	

As background, the Project 2014-01 SDT explicitly declined to modify Requirement R3. On Pages 3 and 4 of the Project 2014-01 Consideration of Comments, posted October 28, 2014, for recommended applicability changes to VAR-002-4, the SDT stated:
"At least one commenter questions whether the exception that is being proposed for Requirement R4 also should be applied to Requirement R3, reasoning that otherwise, the Generator Operator will be required to report status changes for AVRs or other voltage controlling devices for each individual generating unit of a DGR.

The DGR SDT understands that the generation facilities subject to Inclusion I4 of the BES definition can be comprised of individual generating units that are typically controlled by centralized voltage/reactive controllers that can be considered alternative voltage control devices as listed in Requirement R4. Additionally, there are generation facilities that perform this voltage/reactive control at the individual power producing resource. The DGR SDT has determined that a status change of these controllers should be reported regardless of which voltage/reactive control design is used at a facility, which explains why the exclusion was not extended to Requirement R3. The exclusion in Requirement R4 was intended to exclude reporting of an individual generator at a dispersed generating facility coming offline as a change in reactive capability. For these reasons the DGR SDT respectfully declines to adopt the commenter's recommendation."

Further, on Page 2 of the Project 2014-01 Consideration of Comments, posted June 12, 2014 for the DGR Draft White Paper, the SDT had previously stated:

"The SDT understands that a GOP's voltage controlling equipment and Elements differ based on the type of generation facility, and that indeed system configurations vary. However, a "one size fits all" approach would not be appropriate due to the unique characteristics of dispersed generation. Each generation facility may have a different methodology to ensure the facility has an automatic and dynamic response to changes in voltage to ensure the voltage schedule is maintained. It is implied, for example, in NERC VAR-001-3 that each GOP and TOP should understand capabilities of the generation facility and the requirements of the transmission system to ensure a mutually agreeable solution and schedule is used."

This SDT considers philosophy outlined by the previous SDT in June 12, 2014 to be adequate, namely that the GOP/TOP should coordinate to understand the capabilities of the facility and the requirements of the transmission system. Simply copying the Requirement R4 applicability statement to Requirement R3 may be inappropriate since some facilities may rely solely on voltage control at individual power producing resources. An alternative could be for GOPs of facilities

containing I4 dispersed power-producing resources to be required to coordinate with the TOP to document what level of aggregation is selected for each facility's VAR-002 compliance.	
Casey Perry - PNM Resources - Public Service Company of New Mexico - 1,3 - WECC	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1,5	
Answer	
Document Name	
Comment	

- Do not agree with the change of mutually agreeable format to mutually agreeable criteria. For Generator Owners, this is not an applicable statement as the Transmission Owner will set criteria and the Generator Owner should meet it, and communicate in an agreed upon format. Change criteria back to format.
- Requirements R3 and R4 and footnotes 6 and 7 are unclear regarding "mutually-agreeable criteria." Reclamation recommends the drafting team clarify these items by incorporating wording from existing approved requirements, e.g., IRO-010-4 R3 and TOP-003-5 R5. Criteria. Also recommend reinstating the removed bullets from R4.
- Reclamation also recommends VAR-002 state all required information in a requirement, not in a footnote, i.e., the information in footnotes 6 and 7 should be stated in R3. Additionally, Reclamation recommends the drafting

team confirm the proposed footnote numbering, as the information in footnote 7 does not seem to align with the placement of footnote 7 with “transformers” in Requirement R5.

- Reclamation recommends clarifying Requirement R4 by adding, “For changes in reactive capability lasting longer than 30 minutes,” to the beginning of the requirement.
- Reclamation recommends Requirement R5 can be consolidated and clarified as follows: “For generator step-up and auxiliary transformers with primary voltages equal to or greater than the generator terminal voltage, each Generator Owner shall provide the following to its associated Transmission Operator and Transmission Planner within 30 calendar days of a request:
  - Tap settings.
  - Available tap ranges.
  - Impedance data.”
- Reclamation recommends removing the term “generator owned” from Requirement R6 as it is colloquial and confusing, i.e., a generator does not own anything. Reclamation recommends Requirement R6 can be clarified by rewording as follows: “For changes to step-up transformer taps owned by the Generator Owner, the Generator Owner shall ensure…”
- Reclamation recommends that dispersed power resources become a defined term in the NERC Glossary identifying what they are and what regulations they fall under. This comment applies to multiple standards.

Likes 0	
Dislikes 0	

Response

Thank you for your comments. After reviewing comments, the SDT felt the word “criteria and format” should be changed to “method” for communication, the threshold of notification is not required for TOP to mutully agree and thus the Requirements 3 and 4 have been changed to show TOP should provide, if not provided report any changes in R3 and R4 that may have an impact to following TOP voltage and reactive power support instruction.. The reporting of degradation from reported capabilities is to provide clarity that reporting of increased capabilities are to reported from other Standard(s).
The footnotes have been updated based on comments. The use of footnotes have been used frequently to address clarification and definitions specific to the Standard. The SDT agree that footnotes should not provide requirements.

Reactive Power capability changes are not binary and may be difficult to show when to start the time, therefore the language “when becoming aware” is used. R5 has been updated to reflect your language using a footnote for GO to provide data on GO owned GSU. R6 has been updated to reflect your comments. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.	
Nicolas Turcotte - Hydro-Quebec (HQ) - 1	
Answer	
Document Name	
Comment	
“Transmission System” was capitalized following comments received in Draft 1, however the terms were only capitalized in the VSL table and not in R1. Suggest capitalizing the terms in R1 as well.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT team will include the suggested change in the next version of the standard.	
Junji Yamaguchi - Hydro-Quebec (HQ) - 5	
Answer	
Document Name	

Comment	
"Transmission System" was capitalized following comments received in Draft 1, however the terms were only capitalized in the VSL table and not in R1. Suggest capitalizing the terms in R1 as well. In R2.1, proposed text: … if no other method of control capability is limitedis available, notify the Transmission Operator as soon as becoming aware of the condition.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT team will include the suggested change of Transmission System in the next version of the standard. The intent R2.1 is to state if no other control is available for sites that do not have alternative method, such as IBR site controller lost and individual units go to last known set point or unity factor.	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	
Document Name	
Comment	
Manitoba Hydro would like the "mutually-agreeable format" wording eliminated from R3 and R4. Manitoba Hydro doesn't think it is necessary to include this wording in the standard. It is implicit that communications will be mutually agreeable. This wording adds a requirement to update a lot of our standards. The thresholds for communication are already detailed.	
Likes 0	
Dislikes 0	

Response
Thank you for your comments. After reviewing comments, the SDT felt the word “criteria and format” should be changed to “method” for communication, the threshold of notification is not required for TOP to mutully agree and thus the Requirements 3 and 4 have been changed to show TOP should provide, if not provided report any changes in R3 and R4 that may have an impact to following TOP voltage and reactive power support instruction. The reporting of degradation from reported capabilities is to provide clarity that reporting of increased capabilities are to reported from other Standard(s). Mutually agreed communication is only to provide clarity from the options available and preference. The SDT will consider removing if no value added and if understood.

Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	
Document Name	
Comment	
WEC Energy Group appreciates the opportunity to comment. The SDT should consider revising the language in R3 to reduce unnecessary reporting. In order to meet the 30 minute reporting requirement, there are times that the GOP will start the reporting process, and then restore the status of the voltage controlling device within the first 30 minutes, thereby negating the reporting requirement.	
Likes 0	
Dislikes 0	

Response
Thanks for your comments. The SDT feel that the notification can take place at the end of the 30 minute reporting requirement, e.g., 25 minutes, to allow time to investigate and possible clear the alarm.

Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	

Document Name	
Comment	
The MRO NSRF would like to point out to the SDT that the technical rationale document needs to be reviewed thoroughly. For example, “reactive power” is capitalized in some places, but not in others. “Generation” is capitalized, but not defined in the NERC Glossary of Terms Used in NERC Reliability Standards. Also, terminology used in this document needs to align with Reliability Standard so that a one-to-one relationship exists.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT team will revise the technical rationale document thoroughly to reflect the comments received and eliminate errors or inconsistencies.	
Patrick Wells - OGE Energy - Oklahoma Gas and Electric Co. - 1,3,5,6	
Answer	
Document Name	
Comment	
Agree with MRO NSRF	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. Please see the MRO NSRF response.	
George E Brown - Pattern Operators LP - 5	
Answer	

Document Name	
Comment	
Pattern Energy supports Midwest Reliability Organization's NERC Standards Review Forum's (MRO NSRF) comments on this question.	
Likes 0	
Dislikes 0	
Response	
Thanks for your comment. Please see the MRO NSRF response.	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	
Document Name	
Comment	
PG&E has the following input that should be addressed by the SDT: The revision adds "in a mutually agreeable criteria" to R3, R4, and "Mutually-agreeable format" in Footnote 6 to include "communication method" and "threshold of degradation". While it provides communication examples, there is no direction on how to develop or who is responsible for developing and determining the threshold criteria.	
Likes 0	
Dislikes 0	
Response	

After reviewing comments, the SDT felt the word “criteria and format” should be changed to “method” for communication, the threshold of notification is not required for TOP to mutully agree and thus the Requirements 3 and 4 have been changed, TOP should provide any threshold impacting system planning and operations, if not provided report any changes in R3 and R4 that may have an impact to following TOP voltage and reactive power support instruction. The reporting of degradation from reported capabilities is to provide clarity that reporting of increased capabilities are to reported from other Standard(s).	
Donna Wood - Tri-State G and T Association, Inc. - 1	
Answer	
Document Name	
Comment	
N/A	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	
Document Name	
Comment	
None.	
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 RSC	
Answer	
Document Name	
Comment	
"Transmission System" was capitalized following comments received in Draft 1, however, the terms were only capitalized in the VSL table and not in R1. Suggest capitalizing the terms in R1 as well.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comments. The SDT team will include the suggested change in the next version of the standard.	
Sing Tay - Sing Tay On Behalf of: Ruchi Shah, AES - AES Corporation, 5; - Sing Tay	
Answer	
Document Name	
Comment	
In footnote 1 – Please clarify what aggregate generating plant means. Is it referring to multiple inverters aggregating to a generating plant or is it referring to multiple IBR sites aggregating at a collector substation? In footnote 2 and 3 – AESCE recommends that NERC SDT considers adding some language which clarifies that footnote 2 and 3 do not apply to wind, solar and BESS sites. These sites do not have a minimum continuous sustainable Load since they are intermittent resources and depend on external factors.	
Likes 0	

Dislikes 0	
Response	
Thank you for your comments. Footnote 1 has been updated to reflect NERC glossary terminology. The SDT team feel that footnote 2 and 3 would apply to all types of BES resources since there is a minimum sustainable load when resource is connected and disconnected from grid.	
Diana Torres - Imperial Irrigation District - 6	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF	
Answer	
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	

Donald Lock - Talen Generation, LLC - 5	
Answer	
Document Name	
Comment	
No additional comments	
Likes 0	
Dislikes 0	
Response	
Jessica Lopez - APS - Arizona Public Service Co. - 3	
Answer	
Document Name	
Comment	
SDT consider revising Section 4.2: Currently written: " Facilities: For the purpose of this standard, "applicable Facility" will mean any *generating Facility* as defined by the Bulk Electric System. Consider rewording to: "Facilities: For the purpose of this standard, "applicable Facility" will mean any **generation** defined by the Bulk Electric System."	
Likes 0	
Dislikes 0	

Response
Thank you for your comments. The SDT reviewed and proposes to use the term “generating resource(s) to capture different types of generator. The term generator, as used, is implied a single machine, the generating resource(s) will capture aggregated and single resource referencing the BES MVA and kV thresholds. The argument could be made to use other terms or leave as generator but using generating resource(s) seems logical to draw attention to change in applicability to scope of BES equipment. The purpose statement has been modified to show BES applicability.

End of Report