Comment Report

Project Name:	2021-01 Modifications to MOD-025 and PRC-019
Comment Period Start Date:	3/4/2021
Comment Period End Date:	4/2/2021
Associated Ballots:	

There were 40 sets of responses, including comments from approximately 126 different people from approximately 97 companies representing 10 of the Industry Segments as shown in the table on the following pages.

Questions

1. Do you agree with the proposed scope as described in the MOD-025 SAR? If you do not agree, or if you agree but have comments or suggestions for the project scope provide your recommendation and explanation.

2. Do you agree with the proposed scope as described in the PRC-019 SAR? If you do not agree, or if you agree but have comments or suggestions for the project scope provide your recommendation and explanation.

3. In your opinion, should the project scope of Project 2021-01 Modifications to MOD-025 and PRC-019 and Project 2020-02 Transmission-connected Dynamic Reactive Resources (MOD-025 & PRC-019 portions only) be addressed by the Project 2021-01 SAR DT? Please explain.

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

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
Tacoma Public Utilities (Tacoma, WA)	Jennie Wike	1,3,4,5,6	WECC	Tacoma Power	Jennie Wike	Tacoma Public Utilities	1,3,4,5,6	WECC
					John Merrell	Tacoma Public Utilities (Tacoma, WA)	1	WECC
					Marc Donaldson	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,NA - Not Applicable,RF,SERC,Texas RE,WECC	ACES Standard Collaborations	Bob Solomon	Hoosier Energy Rural Electric Cooperative, Inc.	1	SERC
					Kevin Lyons	Central Iowa Power Cooperative	1	MRO
					Bill Hutchison	Southern Illinois Power Cooperative	1	SERC
					David Hartman	Arizona Electric Power Cooperative	1	WECC
					Nick Fogleman	Prairie Power Incorporated	1,3	SERC
DTE Energy - Detroit Edison Company	Karie Barczak	3,4,5		DTE Energy - DTE Electric	Adrian Raducea	DTE Energy - Detroit Edison Company	5	RF
					Daniel Herring	DTE Energy - DTE Electric	4	RF
					Karie Barczak	DTE Energy - DTE Electric	3	RF
ISO New	Kathleen	1	NA - Not Applicable,NPCC	Standards	Helen Lainis	IESO	2	NPCC

England, Inc.	Goodman			Review Committee (SRC)	Greg Campoli	NYISO	2	NPCC
					Kathleen Goodman	ISO-NE	2	NPCC
					Bobbi Welch	Midcontinent ISO, Inc.	2	MRO
					Mike Del Viscio	PJM	2	RF
					Ali Miremadi	CAISO	2	WECC
					Charles Yeung	SPP	2	MRO
MRO	Kendra Buesgens	1,2,3,4,5,6	MRO	MRO NSRF	Bobbi Welch	Midcontinent ISO, Inc.	2	MRO
					Christopher Bills	City of Independence Power & Light	4	MRO
					Fred Meyer	Algonquin Power Co.	1	MRO
					Jamie Monette	Allete - Minnesota Power, Inc.	1	MRO
					Jodi Jensen	Western Area Power Administration - Upper Great Plains East (WAPA)	1,6	MRO
					John Chang	Manitoba Hydro	1,3,6	MRO
					Larry Heckert	Alliant Energy Corporation Services, Inc.	4	MRO
					Marc Gomez	Southwestern Power Administration	1	MRO
					Matthew Harward	Southwest Power Pool, Inc.	2	MRO
					LaTroy Brumfield	American Transmission Company, LLC	1	MRO
					Bryan Sherrow	Kansas City Board Of Public Utilities	1	MRO
					Terry Harbour	MidAmerican Energy	1,3	MRO

					Jamison Cawley	Nebraska Public Power	1,3,5	MRO
					Seth Shoemaker	Muscatine Power & Water	1,3,5,6	MRO
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Jeremy Voll	Basin Electric Power Cooperative	1,3,5	MRO
					Joe DePoorter	Madison Gas and Electric	4	MRO
					David Heins	Omaha Public Power District	1,3,5,6	MRO
Duke Energy	Kim Thomas	1,3,5,6	FRCC,RF,SERC,Texas RE	Duke Energy	Laura Lee	Duke Energy	1	SERC
					Dale Goodwine	Duke Energy	5	SERC
					Greg Cecil	Duke Energy	6	RF
FirstEnergy - FirstEnergy Corporation	Mark Garza	1,3,4,5,6		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF
					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF
					Ann Carey	FirstEnergy - FirstEnergy Solutions	6	RF
					Mark Garza	FirstEnergy- FirstEnergy	4	RF
Northern California Power Agency	Michael Whitney	3,4,5,6		NCPA	Scott Tomashefsky	Northern California Power Agency	4	WECC
					Marty Hostler	Northern California Power Agency	5,6	WECC
					Marty Hostler	Northern California Power Agency	5,6	WECC
Southern Company - Southern Company Services, Inc.	Pamela Hunter	1,3,5,6	SERC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC

					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
					Jim Howell	Southern Company - Southern Company Services, Inc. - Gen	5	SERC
Eversource Energy	Quintin Lee	1,3		Eversource Group	Sharon Flannery	Eversource Energy	3	NPCC
					Quintin Lee	Eversource Energy	1	NPCC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC Regional Standards Committee no Hydro One	Guy V. Zito	Northeast Power Coordinating Council	10	NPCC
					Randy MacDonald	New Brunswick Power	2	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Alan Adamson	New York State Reliability Council	7	NPCC
					David Burke	Orange & Rockland Utilities	3	NPCC
					Helen Lainis	IESO	2	NPCC
					David Kiguel	Independent	7	NPCC
					Nick Kowalczyk	Orange and Rockland	1	NPCC
					Joel Charlebois	AESI - Acumen Engineered Solutions International Inc.	5	NPCC

Mike Cooke	Ontario Power Generation, Inc.	4	NPCC
Salvatore Spagnolo	New York Power Authority	1	NPCC
Shivaz Chopra	New York Power Authority	5	NPCC
Deidre Altobell	Con Ed - Consolidated Edison	4	NPCC
Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
Cristhian Godoy	Con Ed - Consolidated Edison Co. of New York	6	NPCC
Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC
Nurul Abser	NB Power Corporation	1	NPCC
Randy MacDonald	NB Power Corporation	2	NPCC
Michael Ridolfino	Central Hudson Gas and Electric	1	NPCC
Vijay Puran	NYSPS	6	NPCC
ALAN ADAMSON	New York State Reliability Council	10	NPCC
Sean Cavote	PSEG - Public Service Electric and Gas Co.	1	NPCC
Brian Robinson	Utility Services	5	NPCC

					Quintin Lee	Eversource Energy	1	NPCC
					Jim Grant	NYISO	2	NPCC
					John Pearson	ISONE	2	NPCC
					John Hastings	National Grid USA	1	NPCC
					Michael Jones	National Grid USA	1	NPCC
					Nicolas Turcotte	Hydro-Qu?bec TransEnergie	1	NPCC
					Chantal Mazza	Hydro-Quebec	2	NPCC
					Michele Tondalo	United Illuminating Co.	1	NPCC
Southwest Power Pool, Inc. (RTO)	Shannon Mickens	2	MRO,SPP RE,WECC	SPP RTO	Shannon Mickens	Southwest Power Pool Inc.	2	MRO
					Jonathan Hayes	Southwest Power Pool Inc.	2	MRO
					Matt Harward	Southwest Power Pool Inc.	2	MRO

1. Do you agree with the proposed scope as described in the MOD-025 SAR? If you do not agree, or if you agree but have comments or suggestions for the project scope provide your recommendation and explanation.

Richard Jackson - U.S. Bureau of Reclamation - 1,5	
Answer	No
Document Name	

Comment

Reclamation supports the the proposed scope described in the MOD-025 SAR, however, proposes the following recommendations for consideration:

To make MOD-025 contain data from PRC-019 and cover the data exchange of MOD-032 would be redundant. Page 5 of the SAR recognizes that there is “significant overlap” with PRC-019. Reclamation recommends eliminating MOD-025.

Project scope #6: Reclamation recommend limiting it to “significant differences” as some degree of difference is to be expected.

Reclamation recommends instead of expanding the scope of existing standards, additional, separate standards should be created to address the unique situations of variable generation and DC generation.

Likes 0	
Dislikes 0	

Response

Thomas Foltz - AEP - 3,5,6	
Answer	No
Document Name	

Comment

While AEP agrees that MOD-025 could indeed benefit from the improvements suggested in this SAR, we also believe that this standard should be devoted exclusively to synchronous generation and synchronous condensers. IBRs have very little in common with synchronous generators. The difficult issues referred to in the SAR are specific to synchronous generators only, and as such, do not apply to IBRs. As a result, we recommend any pursuit of similar obligations related to IBRs be done in a completely separate standard, and not be incorporated in any way into MOD-025.

In addition, should a reactive capability verification standard specific to IBRs become necessary, its content should not run contrary to IEEE P2800.

Likes 0	
Dislikes 0	

Response

Kendra Buesgens - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	No
Document Name	
Comment	

There are some concerns with the efficiency and value of the MOD-025 standard changes and being an effective results-based standard. The SAR discusses alignment with models and MOD-032. This is an error. The MOD-025 tests are a point-in-time test that don't align with MOD-032 models which cover years and therefore would not provide a results-based output with respect to MOD-032.

The MOD-025 test does identify unexpected equipment limits.

There are concerns with the SAR objective to use MOD-025 data in MOD-032 models. Experience with MOD-025 testing has shown it's a point-in-time test largely dependent upon current electric grid conditions and doesn't necessarily represent the true plant capabilities over time or under a wide range of conditions. This makes it a poor fit for MOD-032 which is used to represent capabilities over a wide range of conditions, seasons, and years. Examples of some MOD-025 testing results that demonstrate the point in time nature include:

- · The maximum real Power output was derated due to wet coal.
- · Unit was MW derated due to Induced Draft fan issues.
- · The reactive verification value did not reach the thermal capacity curve upper limit due to high voltage limit of the Point-Of-Interconnection bus.

The MOD-025 SAR objective 7 should be modified to remove MOD-032 model verifications. The demonstrated reliability value of MOD-025 is to identify unexpected equipment limits and either correct those limits or to change the models appropriately. Examples could include:

- · The Under Excitation Limiter activated. May have activated early. Expected to reach around -60MVAR at this load. Contacted transmission desk…
- · Shorted turns in the stator winding limiting the reactive capability of the unit due to heating.

The MOD-025 SAR objective 8 should be modified to remove mandatory Corrective Action Plans.

- · The reliability benefit of MOD-025 is to identify unexpected real and reactive capability limits.
- · Unless a unit is identified as a must-run unit for system security and stability, mandatory CAPs have no reliability benefit. Without a reliability benefit, CAPs are administrative and only incur compliance risk.
- · FERC cannot mandate system upgrades. Unless the unit was identified as a must-run unit for system security and stability, mandating CAPs would mandate system upgrades which is beyond the 2005 FPA statutory authority.
- · Unless designated as must run for system security and stability, plant Real and reactive capabilities are largely market-driven determining how units are compensated.

Likes 0	
Dislikes 0	
Response	
Jennifer Flandermeyer - Evergy - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	

Evergy supports and incorporates by reference Edison Electric Institutes response to Question 1.

Likes 0	
Dislikes 0	

Response

Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric

Answer	No
Document Name	

Comment

Inline with the NAGF comments, the SDT should consider adding the Transmission Planner (TP) as an applicable entity for MOD-025 and provide guidance requiring the TP to incorporate the generator active and reactive power test data into planning models. In addition, the TP should be responsible for performing MOD-025 Note 2 calculations, where test results are limited by grid conditions.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

Ameren agrees with and supports EEI comments.

Likes 0	
Dislikes 0	

Response

Marty Hostler - Northern California Power Agency - 3,4,5,6

Answer	No
Document Name	

Comment

We agree that implementation of MOD-025 has not resulted in useful unit capability data being provided for planning models of generating resources and synchronous condensers (i.e., the purpose statement of the standard).

This standard has already consumed vast amounts of GO $$ and time; and BA, RC, TOP, PA $$ and time too; all for not any realibility increase. We do not agree with modifying it.

It is time to retire this Standard in its entirety.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

WEC Energy Group agrees with the intent of the SAR, but some of the scope items need clarification and refinement. For scope items 2 and 3, we do not believe that each PC and TP should develop their own verification requirements and data specifications. This should be included with the standard so that they are the same for all entities.

Likes 0	
Dislikes 0	

Response

Andy Fuhrman - Minnkota Power Cooperative Inc. - 1,5 - MRO

Answer	No
Document Name	

Comment

MPC supports MRO NERC Standards Review Forum comments.

Likes 0	
Dislikes 0	

Response

Wayne Sipperly - NAGF - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF

Answer	No
Document Name	
Comment	

The NAGF requests the SDT to consider adding the Transmission Planner (TP) as an applicable entity for MOD-025 and provide guidance requiring the TP to incorporate the generator active and reactive power test data into planning models. In addition, the TP should be responsible for performing MOD-025 Note 2 calculations, where test results are limited by grid conditions.

Likes 0	
Dislikes 0	
Response	

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

Answer	No
Document Name	
Comment	

EEI understands that many Transmission Planners and Planning Coordinators across some of the regions are struggling to obtain suitable information on generator gross and net Real and Reactive Power capability and synchronous condenser Reactive Power capability used to develop planning models. The three SARs separately do not provide a clear direction as to what the intent is for Project 2021-01 making it unfeasible to provide consequential input for the MOD-025 SAR. EEI welcomes the opportunity to provide input on a project SAR once one has been developed.

Likes 0	
Dislikes 0	
Response	

Daniela Atanasovski - APS - Arizona Public Service Co. - 1,3,5,6

Answer	No
Document Name	
Comment	

AZPS does not support the proposed MOD-025 SAR because the scope has not been adequately defined and technical justification has not been adequately addressed. The SAR scope states that a Reliability Standard is needed to ensure that certain coordination between the GO, TP, PC, and the equipment manufacturer is necessary. AZPS notes that Reliability Guidelines: Power Plant Model Verification and Testing for Synchronous Machines, dated July 2018; and Power Plant Model Verification for Inverter-Based Resources, dated Sept. 2018 have already been developed to provide extensive guidance for this process.

AZPS recognizes that Reliability Guidelines simply provide direction to assist the industry and are not enforceable. However, AZPS does not believe that the industry requires a Reliability Standard to address all industry concerns. The Transmission-connected Dynamic Reactive Resources White Paper identifies issues with data gathering for MOD-025 testing but does not provide any evidence that reliability issues have been caused by

widespread coordination problems between GO's and TP's.

The MOD-025 SAR states that implementation of the MOD-025 standard has rarely produced data that is suitable for planning models (i.e., the stated purpose of the standard). As a result, utilities are performing costly testing that do not provide a benefit to the reliability of the BES. For this reason AZPS suggest that the DT consider the retirement of the standard. If this standard is not retired, AZPS recommends that the frequency of the testing be changed to every ten years which is consistent with MOD-026 and MOD-027.

AZPS also supports EEI's position that the three SAR's separately do no provide a clear direction as to what the intent is for Project 2021-01 making it infeasible to provide meaningful input for the MOD-025 SAR.

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	No
Document Name	

Comment

The first preference for the future of this standard is for retirement in entirety.

If the Transmission Planners believe that generator capabilities need to be specified for improving studies, the GO requirements should be no more onerous than the previous SERC Supplement method of determining the real and reactive power capabilities of generating units. That process has been proven to be able to provide adequate estimations for the real and reactive power capability of generating units. The original MOD-025 standard caused the previously used SERC Supplement to the NERC reliability standards to be retired. That SERC process permitted engineering analysis performed coupled with operational data (which supports the engineering analysis) by the generators to predict equipment capability ratings for real and reactive power. The original MOD-025 standard drafting team chose not to include that possible alternative during the Generator Verification standard drafting team's work. The specifics of the analysis method need not be itemized in the SAR or in the standard. A generalized statement of what must be addressed, not specifically how it must be done, would be sufficient. The Transmission Planner and Planning Coordinators do not need to approve the data provide by the TO and GO. The facets of the SAR are so widespread, detailed that it appears that a reliability standard developed with the guidelines in the SAR would be many more times difficult to achieve compliance with no guaranteed accuracy of the capability estimation. The planners do not need a complete composite capability curve showing reactive capabilities at all possible real power output levels of generating stations. While technically possible to study the generating plant output capabilities in excruciating detail, the real need of the transmission planning objectives should be considered and any regulation imposed on the TO and GO entities should be the minimum requirements appropriate to fulfill the verified need. The direction that this SAR is headed appears to be a completed plant design review which would be unnecessarily burdensome to GOs for little relative benefit to the planning process.

Likes 0	
Dislikes 0	

Response

Jennie Wike - Tacoma Public Utilities (Tacoma, WA) - 1,3,4,5,6 - WECC, Group Name Tacoma Power

Answer	No
Document Name	
Comment	

The existing requirements and measures of MOD-025 adequately address the needs for verifying the capability of generating resources including real and reactive power assets. There is no distinction in the standard between traditional rotating assets and newer technologies, and therefore, the existing Standard should apply to all assets.

Likes 0	
Dislikes 0	
Response	

Gail Elliott - International Transmission Company Holdings Corporation - NA - Not Applicable - MRO,RF

Answer	No
Document Name	
Comment	

ITC supports the response submitted by NSRF regarding this question.

Likes 0	
Dislikes 0	
Response	

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

Answer	No
Document Name	
Comment	

The SAR suggests that the MOD-025-2 standard be revised so that it will meet its stated purpose of ensuring accurate information is available for planning models used to assess BES reliability. However, as the July 2019 PPMVTF white paper describes, this is really an unachievable task as it's not possible to hit the required test points to gather the needed data without either 1) testing during times of grid stress or 2) having the TOP put the grid through voltage gymnastics. The PPMVTF white paper conveys that meeting the stated purpose of the standard isn't possible (or at least practical), which is why some pushed to retire it. However, the PPMVTF felt there was still value in pushing generating units to their limits due to the potential for identifying plant hardware concerns such as incorrect relay or limiter settings as well as some equipment degradation issues. As such, the SAR should request removing the requirements for test data and instead require that GOPs periodically (perhaps every 10 years) push generating units to their limits to identify hardware or settings issues. This will require that MOD-025-2 be retired (since the work being done won't support modeling) and a new standard be created for the new requirement. If the recommendation to retire MOD-025-2 is not taken, there are other changes needed to the MOD-025 SAR. MOD-025 is specifically referenced (MW value that is provided to Transmission Planning) in MOD-032 and PRC-019. This SAR should add scope to change PRC-024, PRC-025, PRC-019, MOD-026, MOD-027, and any other affected standards as well as adding a definition to the Glossary of Terms to define the MW value that is given to the TP. Further, the SAR should address any unexpected operational limitations that are permanent vs

correctible where derates or other changes in capability needs to be addressed vs. ones that can be addressed with corrective actions.

Likes 0	
Dislikes 0	

Response

Kathleen Goodman - ISO New England, Inc. - 1 - NPCC, Group Name Standards Review Committee (SRC)

Answer	No
Document Name	

Comment

The MOD-025 SAR scope is very open ended compared to other SARs. The ISO/RTO Standards Review Committee (SRC) is concerned that this approach could reduce the effectiveness of the standard in terms of having Generator Owners provide accurate data. Our specific concern is that a Generator Owners may provide data that could inadvertently overstate the real and reactive power capability of their generators. Note that, in addition to capability, the time duration of testing must be considered. As such, the standard should include a requirement that testing must be verified for at least 1 hour to prove capability at test points. The SRC further recommends that the SAR review team also review other technologies in addition to synchronous generators for inclusion in the applicability of MOD-025.

Likes 0	
Dislikes 0	

Response

Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6

Answer	No
Document Name	

Comment

There are some concerns with the efficiency and value of the MOD-025 standard changes and being an effective results-based standard. The SAR discusses alignment with models and MOD-032. This is an error. The MOD-025 tests are a point-in-time test that don't align with MOD-032 models which cover years and therefore would not provide a results-based output with respect to MOD-032.

The MOD-025 test does identify unexpected equipment limits.

There are concerns with the SAR objective to use MOD-025 data in MOD-032 models. Experience with MOD-025 testing has shown it's a point-in-time test largely dependent upon current electric grid conditions and doesn't necessarily represent the true plant capabilities over time or under a wide range of conditions. This makes it a poor fit for MOD-032 which is used to represent capabilities over a wide range of conditions, seasons, and years. Examples of some MOD-025 testing results that demonstrate the point in time nature include:

- The maximum real Power output was derated due to wet coal.
- Unit was MW derated due to Induced Draft fan issues.
- The reactive verification value did not reach the thermal capacity curve upper limit due to high voltage limit of the Point-Of-Interconnection bus.

The MOD-025 SAR objective 7 should be modified to remove MOD-032 model verifications. The demonstrated reliability value of MOD-025 is to identify unexpected equipment limits and either correct those limits or to change the models appropriately. Examples could include:

- The Under Excitation Limiter activated. May have activated early. Expected to reach around -60MVAR at this load. Contacted transmission desk…
- Shorted turns in the stator winding limiting the reactive capability of the unit due to heating.

The MOD-025 SAR objective 8 should be modified to remove mandatory Corrective Action Plans.

- The reliability benefit of MOD-025 is to identify unexpected real and reactive capability limits.
- Unless a unit is identified as a must run unit for system security and stability, mandatory CAPs have no reliability benefit. Without a reliability benefit, CAPs are administrative and only incur compliance risk.
- FERC cannot mandate system upgrades. Unless the unit was identified as a must run unit for system security and stability, mandating CAPs would mandate system upgrades which is beyond the 2005 FPA statutory authority.
- Unless designated as must run for system security and stability, plant Real and reactive capabilities are largely market driven determining how units are compensated.

Likes 0	
Dislikes 0	

Response

Daniel Gacek - Exelon - 1,3,5,6

Answer	No
Document Name	

Comment

Exelon agrees with the intended purpose of the MOD-025 SAR, however the SAR as written lacks clarity. Exelon shares the concerns expressed by the EEI and supports the suggestions proposed by the NAGF.

Additionally, generators are often unable to produce accurate test results under the current MOD-025 construct due to system conditions at the time of the test as opposed to machine limitations. The current MOD-025-2 standard does not allow for adjustments to the test data based on those system conditions. This prevents planners from calculating more accurate data for use in the planning models. The scope of this project is to modify MOD-025-2 to more clearly define a process for developing accurate Real and Reactive Power capability data that is verified through an iterative verification process that includes both the resource owners and industry stakeholders (i.e., Transmission Operators, Transmission Planners and Planning

Coordinators). To add clarity to the scope of the SAR consider adding the following tasks:

1. Modification of the Applicability Section of MOD-025-2 to include Transmission Operators, Transmission Planners and Planning Coordinators.

2. Add requirements that require the participation of planners in the resource testing process plan, assessment of results, and validation of resource capability.

3. Add requirements that obligate GOs and TOs to investigate and analyze resource capability test results whenever the expected active/reactive capability is less than the expected resource capability utilizing TOP documented system conditions that prevented the generator from delivering maximum MVARS during the test.

4. Add requirements that bar the use of raw test data from being used until that data has been analyzed to account for system conditions at the time of the test.

5. Add requirements that align verification test data collected under MOD-025 testing with actual system data collected by Reliability Coordinators and Transmission Operators for the purpose of assessing the veracity of the resource verification data.

6. Standardize reporting requirements to align MOD-025 data submittal expectations and methods with the needs of the TPs and PCs and eliminate ISO specific data forms, formats and submittal methods.

7. Add requirements to direct the TOP, when practical, to align the system to provide optimal conditions for staged verification testing to support the expected reactive output.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Paul Mehlhaff - Sunflower Electric Power Corporation - 1

Answer	Yes
Document Name	

Comment

I concur that MOD-025 testing does not provide useful information. Additionally, the cost of testing (particularly on resources that are not often operated

in markets) can dramatically exceed the testing costs identified in the SAR. This makes for an expensive and laborious test that provides very little benefit to the reliability of the grid. Reactive power capability is practically impossible to accurately test in real world conditions due to the influence of the grid. It makes sense to incorporate *some* reactive power testing to verify or identify the limiting factor(s). MOD-025 could be revised to reflect this type of testing. However, with the close connection to PRC-019, the best approach may be to retire MOD-025 in its entirety and roll the testing into PRC-019. This should not be a recurring test, but rather triggered within a certain time period after setting changes or implementation of systems or equipment that will affect coordination as called out PRC-019 R2. Additionally, due to the high cost and minimal reliability benefit of low capacity factor units, physical testing should only be required on resources with a greater than 5% NCF.

Chandler Brown, Sunflower Electric Power Corporation.

Likes 0	
Dislikes 0	

Response

Dan Roethemeyer - Vistra Energy - 5

Answer	Yes
Document Name	

Comment

We generally agree with thhe proposed scope in the MOD-025 SAR but have some concern that GO's may be asked to become modeling experts which are not skills GO's generally have and would require GO's to acquire the skills through expensive consultants.

Likes 0	
Dislikes 0	

Response

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

Answer	Yes
Document Name	

Comment

Requested Information Item #2 - “Ensure that each Planning Coordinator and the area Transmission Planners develop requirements for the Planning Coordinator area real and reactive capability data verification” - suggest this item be revised to ensure the data portion of requirement can be removed from discretion of the TP and PC but new requirements cannot be added at the request of the TP.

Requested Information Item #7 - “Ensure alignment of the MOD-025 standard with MOD-032-1 regarding data submittals for annual case creation and PRC-019-2 regarding collection of information that can be effectively used for verification purposes. Ensure activities across standards can be applied to effectively meet the purpose of these standards, and avoid any potential overlap or duplication of activities. This is dependent on the success of bullet number 1.” - suggest this item be revised to delineate perceived “overlap or duplication of activities.

Likes 0	

Dislikes 0	
Response	
Carl Pineault - Hydro-Qu?bec Production - 1,5	
Answer	Yes
Document Name	
Comment	
No comments	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - MRO,WECC	
Answer	Yes
Document Name	
Comment	
Black Hills Corporation believes testing requirements could use improvement, particularly unit capability data used for modeling	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
An analysis is needed by the Transmission Planners and Planning Coordinators. Currently, there is no feedback mechanism. Need to ensure that there are clearer directions for the information requested. Current directions are unclear.	
Likes 0	
Dislikes 0	
Response	

James Baldwin - Lower Colorado River Authority - 1,5	
Answer	Yes
Document Name	
Comment	
LCRA TSC agrees with proposed changes described in the MOD-025 SAR. During the drafting process, the standard should be written such that the appropriate party develops the real and reactive capability data verification requirements and receives the data provided by the Generator Owners and Transmission Owners. Some areas the appropriate party may be the Transmission Planner while other areas it may be the Planning Coordinator. Specifically within ERCOT, ERCOT would be the appropriate party to receive the data and the appropriate party to develop the real and reactive capability data verification requirements, with Transmission Planner support.	
Likes 0	
Dislikes 0	
Response	
Truong Le - Florida Municipal Power Agency - 5 - SERC	
Answer	Yes
Document Name	
Comment	
I agree the existing standard is not effective in resolving the concerns the standard was developed to address. These concerns were communicated in the early 2000s through the SERC EC, which commissioned a Generation Subcommittee when the Planning Standards were originally published and additionally during the early SDT activities. Additional communications were attempted as part of the EPRI Power Plant Standards Interest Group efforts from 2012 to 2014. Unfortunately, the channels of communication between NERC and the Generation community always seem to contain a diode which stopped the feedback from reaching the proper NERC channels to be heard, even though the standards acknowledged an undefined engineering approach likely would be needed. As we tried to develop an understanding of meaningful validations, we worked with a University Engineering department to explore what an engineering study would entail. A draft paper was written, discussing an approach. This paper was shared with the PPMVTF group. Some more work likely is needed to add guidance on evaluating the thermal performance on any main power train cooling systems (Generator, GSU, and possibly IPB force cooled systems which industry has experienced issues with, especially on larger generation plant designs developed in the 1960s and 1970s) to confirm the condition of these systems is being maintained as needed to not impact the assumed capacities. It is suggested that NERC develop this concept as a Guide prior to putting new standard requirements in place. It is also suggested that NERC cease enforcement on MOD-025 until a meaningful process is developed to eliminate wasted costs.	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC Regional Standards Committee no Hydro	

One	
Answer	Yes
Document Name	
Comment	
An analysis is needed by the Transmission Planners and Planning Coordinators. Currently, there is no feedback mechanism. Need to ensure that there are clearer directions for the information requested. Current directions are unclear.	
Likes 0	
Dislikes 0	
Response	
Gabriela Trujillo - Edison International - Southern California Edison Company - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Southern California Edison (SCE) supports the intended purpose of the MOD-025 SAR but has suggested comments for the project scope not to include the Transmission Planner and Planning Coordinator (TP/PC) as an applicable entity. As a TP, SCE receives facility verification and data reports with respect to the generator's real and reactive power capability for inclusion in planning models. However, the existing process generally does not produce usable data. For instance, typical tests reach plant or system operating limits that prohibit reaching the actual machine capability or limiters. Therefore, the existing Standard is not adequate for its intended purpose. If this industry concern is not addressed, the data provided through the existing process will not accurately represent the generator's capability. As such, TPs may use default capability settings that may introduce a potential reliability risk if the models do not accurately capture the capability of the machine during a system disturbance. For these reasons, we support the proposed project that will consider how verification testing activities can produce suitable data for the purposes of developing accurate planning models. SCE's main concern with the proposed project's scope is including the TP/PC to the Applicability Section. Typically, the TP/PC do not have the expertise to perform the actual staged verification testing. Thus, SCE does not support requiring the TP/PC to develop verification requirements for the Generator Owner's (GO) use during the actual staged verification testing process. SCE supports coordination among the various entities, including the TP/PC, but the scope should be limited to the TP/PC reviewing the data provided by the GO for usability in planning models.	
Likes 0	
Dislikes 0	
Response	
Quintin Lee - Eversource Energy - 1,3, Group Name Eversource Group	
Answer	Yes
Document Name	

Comment
The current scope references "transmission connected reactive devices in addition to generators and synchronous condensers." The scope needs to be clear to include applicability to all supplementary devices, such as SVCs, STATCOMs, DVARs, and synchronous condensers. Also, the voltage at which these devices operate should not be considered relevant since these devices could be connected at the transmission point-of-interconnection; a central, low-voltage "collector" location, or at some intermediate location/voltage. These devices are somewhat common as part of large solar PV farms or wind farms and can have a notable impact on transmission system operation and NERC compliance assessments (example: TPL-001).

Likes 0	
Dislikes 0	

Response

Joshua Andersen - Salt River Project - 1,3,5,6 - WECC

Answer	Yes
Document Name	

Comment
Although SRP does not see direct benefit from MOD-025, SRP sees that there may be the need in the industry. SRP has had a process in place to provide the necessary data from the generators to the Transmission Planners. SRP cautions the drafting team to balance any additional requirements for testing with the benefit of those requirements. Entities, like SRP, may already have current process they use for their Transmission Planners to receive any date they deem necessary for modeling. Especially when the entity is vertically integrated and are the GOP and TP.

Likes 0	
Dislikes 0	

Response

Mark Garza - FirstEnergy - FirstEnergy Corporation - 1,3,4,5,6, Group Name FE Voter

Answer	Yes
Document Name	

Comment

Likes 0	
Dislikes 0	

Response

Anthony Jablonski - ReliabilityFirst - 10

Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Matthew Nutsch - Seattle City Light - 1,3,4,5,6 - WECC	
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	
Cain Braveheart - Bonneville Power Administration - 1,3,5,6 - WECC	
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 Standard Collaborations	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - MRO,WECC, Group Name SPP RTO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

2. Do you agree with the proposed scope as described in the PRC-019 SAR? If you do not agree, or if you agree but have comments or suggestions for the project scope provide your recommendation and explanation.

Daniel Gacek - Exelon - 1,3,5,6

Answer	No
Document Name	

Comment

Exelon would support a project to address the issue described in the PRC-019 SAR. With regard to the currently proposed scope, Exelon concurs with the concerns stated in the EEI response to this question.

Likes 0	
Dislikes 0	

Response

Michael Whitney - Northern California Power Agency - 3,4,5,6, Group Name NCPA

Answer	No
Document Name	

Comment

Supporting Marty Hostler - NCPA's comments.

Likes 0	
Dislikes 0	

Response

Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6

Answer	No
Document Name	

Comment

There are concerns with the SAR statement to modify the I4 definition. Modifying the I4 definition will affect nearly all NERC standards currently enforceable and future Standards. This SAR should not seek to change the I4 definition. PRC-019-2 already covers Facilities per the NERC defined BES I4, definition. The BES I4 definition is agnostic to what type of generation plant Facility consist of, which means wind turbine assets, solar, assets, etc.

There are concerns about the actual risk-based nature of the 90-day implementation of systems, equipment or setting changes. Due to the large number of potential changes that could impact PRC-019, PRC-024, PRC-025, MOD-026, MOD-027, and MOD-032 which are all interconnected, 90-days when discovered is not sufficient. 90-days should be extended to one year as companies need to find a specialized contractor, budget for the changes, make time for the specialized contractor to perform the studies, evaluate the changes, and incorporate the changes.

The implementation of the group of generation coordination, protection, and modeling standards has imposed a large administrative burden that demands many study changes and costs that is not commensurate with risks to the Bulk Electric System (BES).

Each inverter-based resource can have dozens of software settings and dozens of model parameters that can change coordination, protection, and model performance. Continued zero-defect implementation of these standards are not sustainable as the nation adds more inverter-based resource due to the large population of equipment parameters and software settings. The sheer numbers will at some point generate significant amounts of low-risk self-logs which will increase administrative costs for both NERC and the regulated entities.

Therefore, it's suggested the group of generation coordination, protection and modeling standards be converted from zero defect implementation to statistics and results based confidence interval type standards. Entities would periodically sample settings and parameters and verify errors were small enough to meet a defined confidence interval. Self-logs would not be required, unless the entity's sample did not meet the identified performance or confidence interval.

Likes 0	
Dislikes 0	

Response

Gail Elliott - International Transmission Company Holdings Corporation - NA - Not Applicable - MRO,RF

Answer	No
Document Name	

Comment

ITC supports the responses submitted by NSRF.

Since there are concerns with the SAR statement modifying the I4 definition. Modifying the I4 definition will affect nearly all NERC standards currently enforceable and future standards.

Likes 0	
Dislikes 0	

Response

Jennie Wike - Tacoma Public Utilities (Tacoma, WA) - 1,3,4,5,6 - WECC, Group Name Tacoma Power

Answer	No

Document Name	

Comment

The PRC-019 SAR section 2.f. regarding firmware updates should be removed from the scope. The intent of performing a coordination study under PRC-019 R2 is to verify that the protection still operates as intended after some aspect of the protection system has been changed. If a firmware update somehow directly changes a protection setting, it would already be covered by PRC-019 R2 so including firmware updates to the SAR means requiring new protection studies for firmware updates that have no direct impact on any protection setting, which seems unnecessary. Firmware updates are provided and recommended by the manufacturer and so a protection study performed by a utility engineer cannot verify that the firmware update will work as expected. Furthermore, no justification for including firmware updates in PRC-019 was provided in either the PRC-019 SAR or the accompanying white paper.

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	No
Document Name	

Comment

The original PRC-019 standard was developed and written to address a specific repeated event situation where the tripping element of a synchronous generator excitation control system was operating before the excitation control system control limiter programed in the control system (the miscoordination of these two elements was causing the protection component to trip before the control component would limit). For this situation, the solution developed in the standard creation directly addressed the problem at hand, and did not need to be expanded to any other generation type. To modify the standard simply to have it address all possible types of generating stations, with no underlying problem that exists or needs to be solved, is not a valid reason to expand the scope of the standard.

The clarification of applicable facilities listed in section 1a of the detailed description of the SAR, Section 4.2.3.1 of the standard, does not need to include the plant controller for wind and solar facilities as there are no protection elements and control limiters in the plant controllers that need to be coordinated.

The basis for the need to modify the applicable facilities in section 1b of the detailed description of the SAR is unsubstantiated. What existing evidence of system mal-operation indicates that static or dynamic reactive compensating devices are causing problems in the BES? With no deterministic evidence showing that some additional regulation is needed to correct an issue, no additional regulation should be considered. Furthermore, synchronous condensers are already in the scope of PRC-019-2.

The language in footnote 1 of PRC-019-2 indicates that the requirement for coordination of limiters and protective functions only applies where those functions are installed and activated (in use). This statement is necessary because the use of the protective functions in many excitation control systems is optional.

Reactive power devices installed at the collection system voltage busses of renewable generating stations should not be included in the scope of PRC-019. Those devices are used at generating stations in order to meet the reactive capabilities of the generating plant in response to transmission interconnection agreements, are used to offset the static reactive power supply of the station, and are not part of the dynamic voltage regulating equipment.

Item 1c of the detailed description (Modifying Inclusion I4 of the Bulk Electric System (BES) definition and the associated diagrams in the BES Reference Document) should not be considered for the scope of PRC-019 SAR since the BES definition modification is outside the scope of PRC-019

modifications.

Item 2d in the detailed description does not need to be considered in the SAR - there are no coordination problems with wind or solar park controllers (PPCs = power plant controllers) that provide real and reactive setpoints to the power conversion equipment of the photovoltaic array or the wind turbine generators. These control loops work perfectly fine as they are and do not need additional coordination.

Item 2e in the detailed description does not need to be considered in the SAR - this topic is misunderstood by many even today. The power conversion equipment for most installed inverters uses very high speed switching techniques to control the real and reactive power flow through the devices. The success of this switching strategy relies specifically on the timing of the switching relative to the power system frequency. In situations where the power system frequency cannot be reliably determined, the switching cannot successfully execute to control the real and reactive power flow properly This "synchronizing" signal may be distorted from transmission system faults and appear to the inverter as low voltage, high harmonic content voltage waveforms, waveforms with frequency shifts. Any of these situations, and others, will cause the inverter to be unable to determine when to switch the power semiconductors so that the desired real and reactive power flow occurs. In these situations, the inverter control system is programmed to pause the gating of the switching devices and wait until the power system synchronizing signal is re-established and is recognizable as a ~60Hz sinusoid. At this time, the power conversion can again commence with predictable control. No regulation contemplated by this SAR can change this control functionality. This "control ability", or ability to control, has nothing to do with the protection system or its coordination, and does not belong in this standard. Additionally, recent NERC alerts have resulted in many GOs already modifying the existing controls, where possible, to eliminate this pausing, and to restart as quickly as possible. The IEEE P2800 project for inverter design includes specifications newly developed inverters to have the ride through functionality. Coupling these together gives reasons for the lack of need to include section 2e in the standard revision.

Section 2f of the detailed description does not necessarily need to be included in the standard revision consideration. Not all firmware revisions would affect dispersed power producing resource voltage control--protection-limiters; this needs to be taken on a case by case basis as not all firmware upgrades would impact equipment settings.

Section 2j of the detailed description does not need to be included in the standard revision consideration. The direction of the scope of the standard requirements, if permitted to follow this path, tends toward making this a complete plant design review standard. The purpose for this consideration is not specified, and is open-ended, making the possible impact and need for inclusion unclear.

The revision of the language indicated in Section 2k of the detailed description should not be modified. The wording of PRC-019-2 R2 was specifically intended to be "within 90 days following the identification of or implementation of…" so that entities would not be immediately non-compliant with the coordination requirements of Requirement R1 for cases where third parties (vendors) may implement settings that cause certain mis-coordination and the owner was not immediately aware of the miscoordination. Changing this language would reverse this safeguard intentionally placed in the standard. Several drafting team members of PRC-019-1 recalled cases where vendors have changed certain excitation control system settings without the owner's immediate knowledge.

Likes 0	
Dislikes 0	

Response

Gabriela Trujillo - Edison International - Southern California Edison Company - 1,3,5,6 - WECC

Answer	No
Document Name	

Comment

SCE is aligned with Edison Electric Institute’s (EEI) comments and does not support the modifications to the PRC-019 SAR.

Likes 0	
Dislikes 0	
Response	
Daniela Atanasovski - APS - Arizona Public Service Co. - 1,3,5,6	
Answer	No
Document Name	
Comment	
AZPS does not support the proposed PRC-019 SAR because the technical justification has not been adequately addressed, it is too prescriptive, and the proposed changes are not risk-based. Although a white paper has been referenced, the white paper is dated 2015 and was never approved. Additionally, PRC-019 is only discussed in one small section in this white paper and the issue identified has been addressed and approved by FERC in 2015. AZPS also does not support the modification of the BES Definition and associated BES Reference Document, as it relates to Inclusion 4. These changes would have significant impacts beyond the scope and intent of this project as well as on other Reliability Standards because the BES definition is integral to identifying which facilities are subject to the NERC Reliability Standards. AZPS also supports EEI Comments that the PRC-019 SAR is unclear with respect to the intended scope for Project 2021-01 because three SAR's were posted for industry input.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	No
Document Name	
Comment	
The PRC-019 SAR is unclear with respect to the intended scope for Project 2021-01 because three SARs were posted for Industry input. While we are unable to provide input on Project 2021-01, the SAR provided for PRC-019 does not contains sufficient technical justification to support moving it forward because it appears to be based on a reference to an unapproved 2015 white paper and a statement contained in the SAR that the SPCS attempted to develop Implementation Guidance but concluded that the standard needed additional clarify for IBRs.	
Likes 0	
Dislikes 0	
Response	

Truong Le - Florida Municipal Power Agency - 5 - SERC	
Answer	No
Document Name	
Comment	

The SAR makes the following statement "There are also issues within PRC-019-2 regarding synchronous generation that need to be corrected or clarified to remove ambiguity", but there does not appear to be language included to clarify what issues should be addressed. Considering new coordination study requirements in PRC-027 are now being developed, it would be clean from a generation plant documentation perspective if all relevant PRC requirements such as PRC-024, 025, and 026 be rolled into on standard approach, reducing the administrative burden of compliance with multiple standards. The NATF recently developed a MOD-027 Guidance document to this effect which should be considered.

Likes 0	
Dislikes 0	
Response	

Wayne Sipperly - NAGF - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	

The NAGF provides the following comments for consideration:

- PRC-019 SAR p.2, part 1.b: Recommend that the expression, ‘within BES generating facilities,’ be replaced by, ‘owned by the GO.’ A power factor correction should not be included in the GO’s PRC-019 analysis if the GO was made to install a capacitor bank for a synchronous generation unit that runs at maximum load in the nose of the OEM D-curve, but the capacitor bank is owned and switched in and out by the TO.
- Modifying Inclusion I4 of the Bulk Electric System (BES) definition and the associated diagrams in the BES Reference Document should not be considered for the scope of PRC-019 SAR since the BES definition is outside the scope of PRC-019 modifications.
- With respect to “Requested Information” within the SAR, “Momentary cessation” should be considered for removal since this was previously addressed in PRC-019-2.
- With respect to item f, “Controller upgrades and/or changes (e.g. firmware):” this needs to be taken on a case by case basis as not all firmware upgrades would impact equipment settings.

Likes 0	
Dislikes 0	
Response	

Andy Fuhrman - Minnkota Power Cooperative Inc. - 1,5 - MRO	
Answer	No

Document Name	
Comment	
MPC supports MRO NERC Standards Review Forum comments.	
Likes 0	
Dislikes 0	
Response	
Thomas Breene - WEC Energy Group, Inc. - 3,4,5,6	
Answer	No
Document Name	
Comment	
WEC Energy Group opposes this SAR, we think that the standard language does include all types of resources and does not need modification. We strongly oppose modifying Inclusion I4 of the BES definition as stated in Part c of the SAR. We do not agree that this is the appropriate place to address the momentary cessation mentioned in part e of the SAR. We do not agree that firmware or controller upgrades necessarily constitute a change as stated in part f. We have plenty of examples where these types of changes would not affect coordination. We do not agree that the time frame to complete coordination should be changed as stated in part k, as the SAR states there needs to be some amount of time to correct a mis-coordination if discovered.	
Likes 0	
Dislikes 0	
Response	
Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	No
Document Name	
Comment	
At paragraph 2.e, the subject SAR identifies Momentary cessation as a feature of Inverter-Based Resources (IBR) that could result in “A reduction in active and/or reactive current” that “can negatively impact reliability, especially during system perturbations, since the function prohibits the IBR from providing support to the BPS during these events.” The paragraph advises that “Revisions to the standard should consider methods or parameters to eliminate momentary cessation where possible, otherwise ensure it is coordinated with equipment capabilities of the inverter where it cannot be eliminated (for legacy equipment).” The momentary cessation feature is designed to protect the semiconductor junctions (P-N layers) in IBR from thermal damage. Operation of the junction above a threshold temperature will provide near statistical certainty that the P and N carriers in the metal matrix (approximately 10 atoms deep, depending on the gaseous diffusion method employed in their manufacture) will migrate, transforming the P-N junction into a non-functional mass of native Silicon metal.	

The suggested approach is analogous to proposing that steam turbine under-speed protection be inhibited to assure governor response to system emergencies. No one would seriously propose such a measure, as this would provide near-statistical certainty that the turbine would respond to a single event prior to being damaged beyond repair.

Rather than proposing technically questionable measures applicable only to BES generators (that will address none of the Momentary cessation of rooftop solar contributing to system frequency degradation post-perturbation) I suggest that we consider additional security measures for Balancing Authorities that recognize the very real threat that behind-the-meter resources pose to system stability, and develop additional predictive tools that may assist with operational strategies to address the risk.

Likes 1	Northern California Power Agency, 3, Whitney Michael
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

Ameren agrees with and supports EEI commnets. In addition, Ameren would like the drafting team to provide more clarification on which capacitor banks are under scope. We reccommend that the capacitor banks that are installed solely to meet power factor correction requirements per FERC 827 are out of scope as the loss of those resources would not result in a IBR trip.

Likes 0	
Dislikes 0	

Response

Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric

Answer	No
Document Name	

Comment

Inline with the NAGF, please consider the following comments for consideration:
-- PRC-019 SAR p.2, part 1.b: Recommend that the expression, ‘within BES generating facilities,’ be replaced by, ‘owned by the GO.’ A power factor correction should not be included in the GO’s PRC-019 analysis if the GO was made to install a capacitor bank for a synchronous generation unit that runs at maximum load in the nose of the OEM D-curve, but the capacitor bank is owned and switched in and out by the TO.
-- Modifying Inclusion I4 of the Bulk Electric System (BES) definition and the associated diagrams in the BES Reference Document should not be considered for the scope of PRC-019 SAR since the BES definition is outside the scope of PRC-019 modifications.
-- With respect to “Requested Information” within the SAR, “Momentary cessation” should be considered for removal since this was previously addressed in PRC-019-2.
-- With respect to item f, “Controller upgrades and/or changes (e.g. firmware):” this needs to be taken on a case by case basis as not all firmware upgrades would impact equipment settings.

Likes 0	
Dislikes 0	

Response

Jennifer Flandermeyer - Evergy - 1,3,5,6 - MRO	
Answer	No
Document Name	

Comment
Evergy supports and incorporates by reference Edison Electric Institutes response to Question 2.

Likes 0	
Dislikes 0	

Response

Kendra Buesgens - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	No
Document Name	

Comment
There are concerns with the SAR statement to modify the I4 definition. Modifying the I4 definition will affect nearly all NERC standards currently enforceable and future Standards. This SAR should not seek to change the I4 definition. PRC-019-2 already covers Facilities per the NERC defined BES I4, definition. The BES I4 definition is agnostic to what type of generation plant Facility consist of, which means wind turbine assets, solar, assets, etc. There are concerns about the actual risk-based nature of the 90-day implementation of systems, equipment or setting changes. Due to the large number of potential changes that could impact PRC-019, PRC-024, PRC-025, MOD-026, MOD-027, and MOD-032 which are all interconnected, 90-days when discovered is not sufficient. 90-days should be extended to one year as companies need to find a specialized contractor, budget for the changes, make time for the specialized contractor to perform the studies, evaluate the changes, and incorporate the changes. The implementation of the group of generation coordination, protection, and modeling standards has imposed a large administrative burden that demands many study changes and costs that is not commensurate with risks to the Bulk Electric System (BES). Each inverter-based resource can have dozens of software settings and dozens of model parameters that can change coordination, protection, and model performance. Continued zero-defect implementation of these standards are not sustainable as the nation adds more inverter-based resource due to the large population of equipment parameters and software settings. The sheer numbers will at some point generate significant amounts of low-risk self-logs which will increase administrative costs for both NERC and the regulated entities. Therefore, it's suggested the group of generation coordination, protection and modeling standards be converted from zero defect implementation to statistics and results based confidence interval type standards. Entities would periodically sample settings and parameters and verify errors were small enough to meet a defined confidence interval. Self-logs would not be required, unless the entity's sample did not meet the identified performance or confidence interval.

Likes 0	
Dislikes 0	

Response

Thomas Foltz - AEP - 3,5,6

Answer	No
Document Name	

Comment

AEP is concerned by any effort by Project 2021-01 to further revise the definition of Bulk Electric System. The potential impact to all reliability standards by doing so cannot be overstated, and with any revision to this definition also comes the possibly of unintended, negative consequences. We recommend any changes pursued by this SAR be made solely within new or revised standards*only*, and not involve any revisions to the definition of Bulk Electric System.

Similar to our response regarding the proposed SAR for MOD-25, AEP agrees that PRC-019 could indeed benefit the improvements suggested in its own SAR. Once again however, we believe any efforts related to IBRs should be solely pursued in a completely separate (new) PRC standard, and for the reasons stated in our previous response, kept totally separate from any efforts related to PRC-019.

Once again, should a standard specific to IBRs become necessary, its content should not run contrary to IEEE P2800.

AEP disagrees with the SAR where it states the eventual drafting team “be made up predominantly by protection engineers with a background in generation protection (synchronous/dispersed power producing resources)”, as there is also a need for expertise in generation design and operation as well. Protection is only one aspect of the PRC-019 standard, and care should be taken to ensure the standard drafting team is made up of individuals with expertise beyond protection.

AEP does not agree with the assertions made in item 2g “Steady State Stability Limit” within the Detailed Description. There are concerns stated here regarding the control mode being used, which we believe is irreverent as SSSL is not a control mode issue. Rather, it exists in all modes.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

Likes 0	
Dislikes 0	

Response
Joshua Andersen - Salt River Project - 1,3,5,6 - WECC
Answer	Yes
Document Name	
Comment
SRP cautions the drafting team to include non-traditional resources without significantly increasing the burden on the traditional generation facilities.
Likes 0	
Dislikes 0	
Response
Kathleen Goodman - ISO New England, Inc. - 1 - NPCC, Group Name Standards Review Committee (SRC)
Answer	Yes
Document Name	
Comment
The inclusion of plant level voltage controls in the PRC-019 standard is a benefit in terms of ensuring proper coordination. Additionally, The SRC agrees that the standard should cover verification of static or dynamic reactive compensating devices (i.e., capacitor banks, static VAR compensators, STATCOMs, etc.) and synchronous condensers within BES generating facilities because these devices must be coordinated for protection and plant capability.
Likes 0	
Dislikes 0	
Response
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC
Answer	Yes
Document Name	
Comment
As there is a PRC-005 SAR (Project 2019-04) intended to “provide clarity that the BES protective functions enabled within excitation systems….., that respond to electrical quantities and trip BES elements either directly or via lockout or auxiliary tripping relays” -- which will require verifying protective functions enabled within excitation systems -- alignment of maintenance intervals for PRC-005 and verification of coordination for PRC-019 would offer opportunities for efficiency. We recommend the R1 interval for PRC-019 be extended from 5 years to 6 years to match the maintenance interval for PRC-005-6.

Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC Regional Standards Committee no Hydro One	
Answer	Yes
Document Name	
Comment	
The SAR should add in the consideration of the SER Project Phase 1 recommendation from 2018 which specified: PRC-019-2 R1 (LT) Requirement R2 already requires that any change that impacts the voltage regulating coordination be performed within 90 days of changes. If this requirement is followed, the five-year coordination is an unnecessary paper exercise with no reliability benefit once the initial coordination study has been completed.	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
The SAR should add in the consideration of the SER Project Phase 1 recommendation from 2018 which specified: PRC-019-2 R1 (LT) Requirement R2 already requires that any change that impacts the voltage regulating coordination be performed within 90 days of changes. If this requirement is followed, the five-year coordination is an unnecessary paper exercise with no reliability benefit once the initial coordination study has been completed.	
Likes 0	
Dislikes 0	
Response	
Cain Braveheart - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	

In general, BPA is in support of the efforts to align with MOD-025 proposed by this SAR	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - MRO,WECC	
Answer	Yes
Document Name	
Comment	
Black Hills Corporation agrees that all generation resource types should be included with the PRC-019 standard. 2f, 2g and 2k are good additions and necessary to provide further clarity	
Likes 0	
Dislikes 0	
Response	
Carl Pineault - Hydro-Qu?bec Production - 1,5	
Answer	Yes
Document Name	
Comment	
No comments	
Likes 0	
Dislikes 0	
Response	
Dan Roethemeyer - Vistra Energy - 5	
Answer	Yes
Document Name	
Comment	
Generally we agree with the scope of in the PRC-019 SAR but have the following comments:	

- Static devices - We do not agree with adding static reactive devices (capacitor banks) to the standard. Only dynamic resources (generators, inverters, STATCOMs) should be applicable
- Stability Limits – We would recommend keeping the SSSL in the requirement since loss of field (partial) is coordinated with the limit
- We have some concern that GO's may be asked to become modeling experts which are not skills GO's generally have and would require GO's to acquire the skills through expensive consultants.

Likes 0	
Dislikes 0	

Response

Paul Mehlhaff - Sunflower Electric Power Corporation - 1

Answer	Yes
Document Name	

Comment

I generally agree with the scope as described in the PRC-019 SAR, though as mentioned above, the cleanest approach would appear to be to eliminate MOD-025 and roll reactive power verification testing into PRC-019.

Chandler Brown, Sunflower Electric Power Corporation.

Likes 0	
Dislikes 0	

Response

Richard Jackson - U.S. Bureau of Reclamation - 1,5

Answer	Yes
Document Name	

Comment

Instead of expanding the scope of existing standards, Reclamation recommends creating additional, separate standards to address uncommon types of generation that present their own unique risks to the BES. Synchronous generation should be covered in only one standard, i.e., MOD-025 or PRC-019.

Separate standards for dispersed power generation would enable more precise language based on their situations and unique needs instead of adding confusion to current standards that are acceptably written for a plurality of generation types. For example, a requirement dealing with DC generation may be needed for photovoltaic sources but creates additional work with no benefit for hydroelectric plants. In another example, “momentary cessation” is a problem unique to wind and solar. Other Generator Owners may find the specific language embedded in an applicable standard to be unclear and confusing, and they should not have to address it.

Reclamation recommends the PRC-019 SAR acknowledge the anticipated coordination with the NERC projects for modifications to MOD-025, MOD-026, MOD-027, MOD-032, and PRC-024. Reclamation also recommends a quality review of the SAR to ensure correct grammar and punctuation. This will ensure the SAR is accurately understood.

Likes 0	
Dislikes 0	
Response	
Quintin Lee - Eversource Energy - 1,3, Group Name Eversource Group	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - MRO,WECC, Group Name SPP RTO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Baldwin - Lower Colorado River Authority - 1,5	
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 Standard Collaborations	

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	
Matthew Nutsch - Seattle City Light - 1,3,4,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kim Thomas - Duke Energy - 1,3,5,6 - SERC,RF, Group Name Duke Energy	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Anthony Jablonski - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 1,3,4,5,6, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

3. In your opinion, should the project scope of Project 2021-01 Modifications to MOD-025 and PRC-019 and Project 2020-02 Transmission-connected Dynamic Reactive Resources (MOD-025 & PRC-019 portions only) be addressed by the Project 2021-01 SAR DT? Please explain.

Thomas Foltz - AEP - 3,5,6	
Answer	No
Document Name	
Comment	

As stated in a previous comment period, AEP objects to the scope and direction proposed in the SAR for Project 2020-02, and by extension, also objects to incorporating any part of it into Project 2021-01. AEP finds the Project 2020-02 SAR to be far too open-ended, as typified by the inclusion of "all varieties of transmission-connected dynamic reactive resources that are utilized in providing ERS in the BES." While we acknowledge that new technologies in this regard continue to emerge, more specificity is needed within that SAR to enable industry to provide meaningful feedback. For additional perspective, we provide below the comments previously made specifically regarding the potential impacts of that SAR to PRC-019 and MOD-025.

PRC-019: Initial factory testing is sufficient, and no ongoing field testing is necessary. Factory coordination of protection elements and controls is a basic part of the design of a FACTS device. When possible, FACTS devices are tested to the full range of operation during commissioning, otherwise such testing is always performed on the RTDS during factory testing. Test results are then compiled and made available to show compliance with specifications. If changes are made in the field, then coordination studies would be required to update the documentation.

Mod-025: The testing of a FACTS reactive resource may potentially (though obviously unintentionally) introduce risk to the system to which it is connected. Operating the system outside reasonable parameters is not acceptable for the purposes of testing. Testing of a FACTS reactive resource will be limited due to the constraints of the system at the time the testing is performed. It is quite possible that full output may not be obtained in either the capacitive or inductive direction (or both). Testing cannot require the disruption of the power system in the vicinity of the FACTS device, nor can it put that system at any risk due to the testing. The reason for the termination of the test at any output level should be documented in the test results with no further requirements due for further testing. As mentioned in the last paragraph of the white paper, an early termination of a test due to system constraints at the time of the test should not be construed to mean that the unit will always be limited to that maximum output. Any resulting limitation of the FACTS device in planning models would need to be determined after analysis of the cause of the limitation in the test results.

Likes 0	
Dislikes 0	
Response	

Jennifer Flandermeyer - Evergy - 1,3,5,6 - MRO	
Answer	No
Document Name	
Comment	

Evergy supports and incorporates by reference Edison Electric Institutes response to Question 3.

Likes 0	
Dislikes 0	

Response

David Jendras - Ameren - Ameren Services - 1,3,6	
Answer	No
Document Name	

Comment
Ameren agrees with and supports EEI comments.

Likes 0	
Dislikes 0	

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	No
Document Name	

Comment
Texas RE agrees that it would be helpful for the changes to MOD-025 and PRC-019 to be combined with the project 2020-02. This would help ensure that all changes related to those standards, as well as updates to NERC Glossary terms and implementation timeframes for entities and Facilities added to applicability of these Standards are consistent. Texas RE is concerned, however, with combining the entirety of the scope of the 2021-01 SAR with the 2020-02 project as the scope is much extensive than MOD-025 and PRC-019. Project 2020-02 should not be delayed due to these other changes.

Likes 0	
Dislikes 0	

Response

Thomas Breene - WEC Energy Group, Inc. - 3,4,5,6	
Answer	No
Document Name	

Comment
WEC Energy Group opposes combining these separate and complex standards into a single drafting team. Although they are related, they need to be

considered separately.

Likes 0	
Dislikes 0	

Response

Leonard Kula - Independent Electricity System Operator - 2

Answer	No
Document Name	

Comment

Transmission connected dynamic reactive resources are a separate topic and the standards should be updated to address the generating resources first before adding non-generation.

Likes 0	
Dislikes 0	

Response

Truong Le - Florida Municipal Power Agency - 5 - SERC

Answer	No
Document Name	

Comment

I believe the multiple GO/GOP standards championed by various NERC committees over the years have been narrowly focused and have missed the boat on some dynamic VAR support issues. For instance, FAC-008 states Emergency Ratings should be developed, but there is no basis for these ratings that is universally understood. I believe one consideration is short-term VAR excursions above the continuous capability curves and any short-term unit responses to frequency dips should be the basis to assure units can respond to assumed contingencies, as shown in the following slide developed for an EPRI Power Plant NERC Standards interest group. NERC should somehow engage the appropriate industry experts, so the relevant generator protection technical issues are represented.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

EEI cannot comment on the value of moving any portion of the project scope of Project 2020-02 to this project until there is a clear understanding of the scope of Project 2021-01.

Likes 0	
Dislikes 0	

Response

Daniela Atanasovski - APS - Arizona Public Service Co. - 1,3,5,6

Answer	No
Document Name	

Comment

AZPS does not support the Project 2021-01 SARs for reasons described above. In addition, AZPS does not support the Project 2020-02 SAR and has previously provided recommendations to improve that SAR.

AZPS supports EEI comments that it is difficult to comment on the value of moving any portion of the Project 2020-02 scope to Project 2021-01 until these is a clear understanding of the Project 2021-01 Scope.

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC Regional Standards Committee no Hydro One

Answer	No
Document Name	

Comment

Transmission-connected dynamic reactive resources are a separate topic and the standards should be updated to address the generating resources first before adding non-generation.

Likes 0	
Dislikes 0	

Response

Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	No
Document Name	
Comment	
Project 2020-02 should remain indefinitely on hold. Sufficient reliability standards already exist to ensure that the capabilities, models, and performance are verified and validated.	
Likes 0	
Dislikes 0	
Response	
Jennie Wike - Tacoma Public Utilities (Tacoma, WA) - 1,3,4,5,6 - WECC, Group Name Tacoma Power	
Answer	No
Document Name	
Comment	
Tacoma Power does not consider MOD-025 to be a “dynamic” modelling standard. It is a steady state verification of the real and/or reactive capability of generating resources. MOD-025 requires a 1 hour verification at maximum real and maximum reactive power output. This is not consistent with “dynamic” modeling such as MOD-026 and MOD-027 which are based on real and reactive response of generating assets due to system voltage and/or frequency transients.	
Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - MRO,WECC, Group Name SPP RTO	
Answer	No
Document Name	
Comment	
The SDT should provide clarification why Project 2021-01 is needed when current Project 2020-02 could be expanded to include the revisions sought in this project. In other words, industry would benefit from understanding why the additional projects are needed when Project 2020-02 is open and could be utilized for this project.	

Likes 0	
Dislikes 0	
Response	
Kathleen Goodman - ISO New England, Inc. - 1 - NPCC, Group Name Standards Review Committee (SRC)	
Answer	No
Document Name	
Comment	
It seems appropriate for one drafting team to make changes to these standards, rather than several drafting teams.	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1,3,5,6	
Answer	No
Document Name	
Comment	
Exelon agrees with the EEI that project scope must be better defined before we can agree to consolidating these two projects.	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1,5	
Answer	Yes
Document Name	
Comment	
To minimize churn among standard versions, Reclamation recommends all modifications for any standard be addressed by only one NERC project. For example, MOD-025 should only be addressed by one NERC project at a time. Reclamation observes that multiple simultaneous projects addressing the same standard(s) cause confusion among industry and complications to the standards development process.	
Likes 0	

Dislikes 0	
Response	
Carl Pineault - Hydro-Qu?bec Production - 1,5	
Answer	Yes
Document Name	
Comment	
No comments	
Likes 0	
Dislikes 0	
Response	
Kendra Buesgens - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	Yes
Document Name	
Comment	
The NSRF believes that both Projects should be addressed by the Project 2021-01 SAR DT. Both projects would be looking to modify the same standards, it makes sense to have the same drafting team address all concerns. This may open the talent pool for addressing the concerns on the teams, however, this will help to ascertain all reliability aspects of the standards.	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - MRO,WECC	
Answer	Yes
Document Name	
Comment	
See responses to question 1 and 2	
Likes 0	
Dislikes 0	

Response	
Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric	
Answer	Yes
Document Name	
Comment	
It is prudent to consider similiar standards together, whereby modifying the accepted SARs together in a single project.	
Likes 0	
Dislikes 0	
Response	
Marty Hostler - Northern California Power Agency - 3,4,5,6	
Answer	Yes
Document Name	
Comment	
Lets combine the projects and have just one drafting team. Too many seperate projects has resulted in inefficient, non-results based standards that are too administrative, costly, time consuming, and redunant.	
Likes 0	
Dislikes 0	
Response	
Andy Fuhrman - Minnkota Power Cooperative Inc. - 1,5 - MRO	
Answer	Yes
Document Name	
Comment	
MPC supports MRO NERC Standards Review Forum comments.	
Likes 0	
Dislikes 0	
Response	

Gabriela Trujillo - Edison International - Southern California Edison Company - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
SCE agrees that all MOD-025 SARs should be handled by one Drafting Team and not separately. As noted in Question 2, SCE does not support the modifications to the PRC-019 SAR.	
Likes 0	
Dislikes 0	
Response	

Gail Elliott - International Transmission Company Holdings Corporation - NA - Not Applicable - MRO,RF	
Answer	Yes
Document Name	
Comment	
ITC supports the response submitted by NSRF that both project should be addressed by the Project 212021-01 SAR DT. Both projects would be looking to modify the same standards therefore it makes sense for one team to handle both.	
Likes 0	
Dislikes 0	
Response	

Lindsay Wickizer - Berkshire Hathaway - PacifiCorp - 6	
Answer	Yes
Document Name	
Comment	
Pacificorp believes that both Projects should be addressed by the Project 2021-01 SAR DT. Both projects would be looking to modify the same standards, it makes sense to have the same drafting team address all concerns. This may open the talent pool for addressing the concerns on the teams, however, this will help to ascertain all reliability aspects of the standards.	
Likes 0	
Dislikes 0	
Response	

Joshua Andersen - Salt River Project - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
SRP sees that there may be the need in the industry. SRP cautions the drafting team to include non-traditional resources without significantly increasing the burden on the traditional generation facilities.	
Likes 0	
Dislikes 0	
Response	
Paul Mehlhaff - Sunflower Electric Power Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 1,3,4,5,6, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Anthony Jablonski - ReliabilityFirst - 10	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Kim Thomas - Duke Energy - 1,3,5,6 - SERC,RF, Group Name Duke Energy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Matthew Nutsch - Seattle City Light - 1,3,4,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Cain Braveheart - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Standard Collaborations	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
James Baldwin - Lower Colorado River Authority - 1,5	
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	
Quintin Lee - Eversource Energy - 1,3, Group Name Eversource Group	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Jamie Monette - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - NAGF - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	
Document Name	
Comment	
The NAGF has no comments.	
Likes 0	
Dislikes 0	
Response	

4. Provide any additional comments for the SAR drafting team to consider, if desired.	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	
Document Name	
Comment	
While perhaps beyond the purview of the SAR drafting team, the statement in the MOD-025 SAR that “The current MOD-025-2 verification testing activities require significant time, expertise, and coordination; however, they do not result in data that should be used by planners for modeling purposes” should be elevated to the NERC Board of Trustees at the earliest date possible. We suggest that NERC work with FERC to suspend enforcement of the MOD-025-2 standard until such time that it can be retired, or in the alternative improved to something more practical/useful for planning models. Adopting and enforcing a standard of such limited value compared to the cost to comply damages NERC’s reputation as a capable steward of FERC’s ERO delegation.	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Gabriela Trujillo - Edison International - Southern California Edison Company - 1,3,5,6 - WECC	
Answer	
Document Name	
Comment	
N/A	
Likes 0	

Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC Regional Standards Committee no Hydro One	
Answer	
Document Name	
Comment	
We are in support of the modification to the NERC standards to close gaps between historical requirements on synchronous generation and the now common inverter-based resources.	
Likes 0	
Dislikes 0	
Response	
Daniela Atanasovski - APS - Arizona Public Service Co. - 1,3,5,6	
Answer	
Document Name	
Comment	
AZPS does not support the MOD-025 and PRC-019 SARs. Both projects propose to address issues that do not appear to be risk based or conform to NERC's Results-Based Reliability Standard Development Guidance.	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - NAGF - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	
Document Name	
Comment	
Commensurate benefits should be considered as Generator Owners could incur additional costs based on additional proposed requirements to MOD-025.	
Likes 0	

Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Standard Collaborations	
Answer	
Document Name	
Comment	
Thank you for the opportunity to comment.	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	
Document Name	
Comment	
We are in support of the modification to the NERC standards to close gaps between historical requirements on synchronous generation and the now common inverter-based resources.	
Likes 0	
Dislikes 0	
Response	
Cain Braveheart - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	
Document Name	
Comment	
BPA is in support of this SAR and the review of MOD-025-2 to ensure that the data being submitted from the GOs is actually pertinent data that can be used to verify plant real and reactive power capabilities.	
Likes 0	
Dislikes 0	

Response
Thomas Breene - WEC Energy Group, Inc. - 3,4,5,6
Answer	
Document Name	
Comment
WEC Energy Group does not agree with combining these SARs into one project. Each require independent thought and consideration.
Likes 0	
Dislikes 0	
Response
Rachel Coyne - Texas Reliability Entity, Inc. - 10
Answer	
Document Name	
Comment
Texas RE appreciates the SAR drafting team enhancing the reliability aspects of this Standard and looks forward to language to support those efforts.
Likes 0	
Dislikes 0	
Response
Marty Hostler - Northern California Power Agency - 3,4,5,6
Answer	
Document Name	
Comment
None.
Likes 0	
Dislikes 0	
Response

David Jendras - Ameren - Ameren Services - 1,3,6	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric	
Answer	
Document Name	
Comment	
Commensurate benefits should be considered as Generator Owners could incur additional costs based on additional proposed requirements to MOD-025.	
Likes 0	
Dislikes 0	
Response	
Jennifer Flandermeyer - Evergy - 1,3,5,6 - MRO	
Answer	
Document Name	
Comment	
Evergy supports and incorporates by reference Edison Electric Institutes response to Question 4.	
Likes 0	
Dislikes 0	
Response	
Kim Thomas - Duke Energy - 1,3,5,6 - SERC,RF, Group Name Duke Energy	
Answer	

Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 1,3,4,5,6, Group Name FE Voter	
Answer	
Document Name	
Comment	
N/A	
Likes 0	
Dislikes 0	
Response	
Paul Mehlhaff - Sunflower Electric Power Corporation - 1	
Answer	
Document Name	
Comment	
Thank you for the opportunity to comment.	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 3,5,6	
Answer	
Document Name	
Comment	

AEP acknowledges that consideration is being given to combining the proposed scopes and directions from at least two (and possibly even three) SARs. Feedback was sought last year for the Project 2020-02 SAR, and given that two additional SARs for PRC-019 and MOD-025 are being proposed in this current comment period, we trust that a *single SAR* will eventually be provided to industry for Project 2021-01 comprising whatever aspects of the three SARS are pursued. A SAR defines a project's scope and direction, and while a project's SAR may be revised over time, AEP does not believe Appendix 3A of the Standards Process Manual allows for multiple, concurrent SARs to govern a single NERC project. While we are not alleging this is the intent for this project, we do trust that industry will eventually be provided a single SAR for review and comment before a standard drafting team is established.

Likes 0	
Dislikes 0	

Response

Richard Jackson - U.S. Bureau of Reclamation - 1,5

Answer	
Document Name	

Comment

None

Likes 0	
Dislikes 0	

Response