Comment Report

Project Name:	2018-04 Modifications to PRC-024-2 | Supplemental SAR
Comment Period Start Date:	6/27/2019
Comment Period End Date:	7/26/2019
Associated Ballots:	

There were 39 sets of responses, including comments from approximately 97 different people from approximately 77 companies representing 10 of the Industry Segments as shown in the table on the following pages.

Questions

1. Do you agree with the scope of the Supplemental SAR to include the setting of voltage and frequency protective relays (if applied) on GSUs or collector transformers? If you do not agree, or if you agree but have comments or suggestions, provide your recommendation or proposed modification below.

2. Are you aware of any organizations registered as a Transmission Owner (but not registered as Generator Owner) that own a GSU or collector transformer and apply the applicable protection listed above? If so, please provide an example and any relevant technical information.

3. If you have any other comments on this SAR that you haven't already mentioned above, provide them here

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
Southwest Power Pool, Inc. (RTO)	Charles Yeung	2	SPP RE	SRC	Helen Lainis	IESO	2	NPCC
					Greg Campoli	NYISO	2	NPCC
					Dave Zwergel	MISO	2	MRO
					Mark Holman	PJM	2	RF
					Matt Goldberg	ISONE	1	NPCC
					Ali Miremadi	CAISO	1	WECC
					Nathan Bigbee	ERCOT	1	Texas RE
Great Plains Energy - Kansas City Power and Light Co.	Douglas Webb	1,3,5,6	MRO,SPP RE	Westar-KCPL	Doug Webb	Westar	1,3,5,6	MRO
					Doug Webb	KCP&L	1,3,5,6	MRO
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
					Jennifer Bray	Arizona Electric Power Cooperative	1	WECC
					Bill Hutchison	Southern Illinois Power Cooperative	1	SERC
					Shari Heino	Brazos Electric Power Cooperative, Inc.	5	Texas RE
Southern Company - Alabama Power Company	Joel Dembowski	3		Southern Company	Adrianne Collins	Southern Company Services, Inc.	1	SERC
					Bill Shultz	Southern Company Generation	5	SERC

					Ron Carlsen	Southern Company Generation and Energy Marketing	6	SERC
					Joel Dembowski	Alabama Power Company	3	SERC
DTE Energy - Detroit Edison Company	Karie Barczak	3,4,5		DTE Energy - DTE Electric	Jeffrey Depriest	DTE Energy - DTE Electric	5	RF
					Daniel Herring	DTE Energy - DTE Electric	4	RF
					Karie Barczak	DTE Energy - DTE Electric	3	RF
Duke Energy	Katherine Street	1,3,5,6	FRCC,RF,SERC	Duke Energy	Laura Lee	Duke Energy	1	SERC
					Dale Goodwine	Duke Energy	5	SERC
					Greg Cecil	Duke Energy	6	RF
					Lee Schuster	Duke Energy	3	SERC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	RSC no Dominion and HQ	Guy V. Zito	Northeast Power Coordinating Council	10	NPCC
					Randy MacDonald	New Brunswick Power	2	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Brian Robinson	Utility Services	5	NPCC
					Alan Adamson	New York State Reliability Council	7	NPCC
					David Burke	Orange & Rockland Utilities	3	NPCC
					Michele Tondalo	UI	1	NPCC
					Helen Lainis	IESO	2	NPCC
					Michael Jones	National Grid	3	NPCC
					Sean Cavote	PSEG	4	NPCC

Kathleen Goodman	ISO-NE	2	NPCC
David Kiguel	Independent	NA - Not Applicable	NPCC
Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	6	NPCC
Paul Malozewski	Hydro One Networks, Inc.	3	NPCC
Gregory Campoli	New York Independent System Operator	2	NPCC
Laura McLeod	NB Power Corporation	5	NPCC
Nick Kowalczyk	Orange and Rockland	1	NPCC
John Hastings	National Grid	1	NPCC
Joel Charlebois	AESI - Acumen Engineered Solutions International Inc.	5	NPCC
Quintin Lee	Eversource Energy	1	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
Mike Forte	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
					Ashmeet Kaur	Con Ed - Consolidated Edison	5	NPCC
Dominion - Dominion Resources, Inc.	Sean Bodkin	3,5,6		Dominion	Connie Lowe	Dominion - Dominion Resources, Inc.	3	NA - Not Applicable
					Lou Oberski	Dominion - Dominion Resources, Inc.	5	NA - Not Applicable
					Larry Nash	Dominion - Dominion Virginia Power	1	NA - Not Applicable
Lower Colorado River Authority	Teresa Cantwell	1,5		LCRA Compliance	Michael Shaw	LCRA	6	Texas RE
					Dixie Wells	LCRA	5	Texas RE
					Teresa Cantwell	LCRA	1	Texas RE

1. Do you agree with the scope of the Supplemental SAR to include the setting of voltage and frequency protective relays (if applied) on GSUs or collector transformers? If you do not agree, or if you agree but have comments or suggestions, provide your recommendation or proposed modification below.

Thomas Foltz - AEP - 3,5	
Answer	No
Document Name	
Comment	
AEP has no objections to altering the scope and direction of this project as proposed in the most recent SAR, however we do object to the manner in which it is being pursued. It appears that this "supplemental SAR" would be applied to Project 2018-04 along with the existing SAR, bringing the total number of SARs for this project to two. AEP is not aware of any precedent of multiple, concurrent SARs governing a NERC project at a single point in time. A SAR helps set a project's direction and scope, and while a project's SAR may be revised over time, AEP does not believe Appendix 3A of the Standards Process Manual provides an allowance for multiple, concurrent SARs to govern a single NERC project. Rather, the SPM allows a project's existing SAR to be revised to accommodate any changes believed to be necessary. If this project's scope or direction needs to be revised, the current and governing SAR should be revised accordingly rather than developing an additional SAR to somehow expand upon its predecessor.	
Likes 0	
Dislikes 0	
Response	

Allen Schriver - NextEra Energy - 5	
Answer	No
Document Name	
Comment	
The Supplemental SAR is attempting to expand the scope of the PRC-024 changes beyond the intent of providing clarity for inverter response.	
Likes 0	
Dislikes 0	
Response	

Michelle Amarantos - APS - Arizona Public Service Co. - 1,3,5,6	
Answer	No
Document Name	
Comment	

AZPS suggests generator side terminal voltage be used instead of the high-side voltage. Using high-side GSU voltage unnecessarily creates confusion and calculation burden, when there has been no realistic case study or other justification presented that would support using the terminal voltage or that indicates that use of the generator side terminal voltage will not be adequate. In fact, due to AVR, AZPS respectfully asserts that use of the generator terminal voltage is steadier and more appropriate than use of the high-side voltage. AZPS suggests generator side terminal voltage be used instead of the high-side voltage. Using high-side GSU voltage unnecessarily creates confusion and calculation burden, when there has been no realistic case study or other justification presented that would support using the terminal voltage or that indicates that use of the generator side terminal voltage will not be adequate. In fact, due to AVR, AZPS respectfully asserts that use of the generator terminal voltage is steadier and more appropriate than use of the high-side voltage.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

EEI Member companies do not support the proposed Supplemental SAR because it does not provide a technical justification that describes a reliability gap that needs to be addressed. The Supplemental SAR also does not provide a technical basis for adding new obligations to Transmission Owners (TOs) who may own Generator Step-up (GSUs) and collector transformers.

Likes 0	
Dislikes 0	

Response

Douglas Webb - Great Plains Energy - Kansas City Power and Light Co. - 1,3,5,6 - MRO, Group Name Westar-KCPL

Answer	No
Document Name	

Comment

Westar Energy and Kansas City Power & Light Company endorse the Edison Electric Institute's response to Question 1.

Likes 0	
Dislikes 0	

Response

Joel Dembowski - Southern Company - Alabama Power Company - 3, Group Name Southern Company

Answer	No
Document Name	
Comment	

The protection elements on main station transformers have not been reported to have been nor are known to have been the cause of plant tripping due to transmission system voltage or frequency disturbances. No established need exists relative to system reliability improvement. The scope expansion is not needed. The SAR fails to clearly and sufficiently identify a gap in BES reliability.

Likes 0	
Dislikes 0	
Response	

Armin Klusman - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE

Answer	No
Document Name	
Comment	

CenterPoint Energy Houston Electric, LLC agrees with the comments submitted on behalf of The Edison Electrical Institute.

Likes 0	
Dislikes 0	
Response	

Sean Bodkin - Dominion - Dominion Resources, Inc. - 3,5,6, Group Name Dominion

Answer	No
Document Name	
Comment	

Dominion Energy does not agree that a reliability gap was identified in the proposed SAR. The orignal scope of the SAR is appropriate to address the identified and substantiated issue related to inverters during system events. The equipment mentioned in the SAR (GSUs and collector transofrmers) have nevfer been part of PRC-024. The mention in a foot note of this equipment is ONLY in reference to defining point of interconnection within the standard and inclusion 4 of the BES definition does not include or even mentions these pieces of equipment. The scope of the project should NOT be expanded to an issue that has not been substantiated and reliability risk identified.

Likes 0	
Dislikes 0	
Response	

Katherine Street - Duke Energy - 1,3,5,6 - SERC,RF, Group Name Duke Energy	
Answer	Yes
Document Name	
Comment	
As the terms ‘GSU’ and ‘collector transformer’ appear to be used inconsistently across the industry--clarification within the Reliability Standard or definitions may be necessary to achieve consistency.	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
We agree with including the setting of voltage and frequency protective relays (if applied) on GSUs or collector transformers, however, there still remains a reliability gap in the scope. The scope should also include auxiliaries critical to maintain plant output. The supply to other critical auxiliaries like lubricating systems, governing and excitation systems that allow the generating unit to maintain its output level must also meet PRC-024 requirements for reliability. **Having auxiliaries trip too early on voltage or frequency which cause output to change is by definition an interaction between the plant and the power system. The diagram in the Supplemental SAR should be amended to show the Motor Control Center (MCC) handling a critical load be subject to PRC-024 (within the shaded area), as the operation of this would result in tripping and defeat the reliability intent of the standard. The diagram can also show a non-critical load handled by the MCC not subject to the PRC-024 (outside the shaded area) to highlight that if the tripping auxiliary does not affect that would to be P,Q, or Vt of the units, then they do not need to be included.**	
Likes 0	
Dislikes 0	
Response	
David Jendras - Ameren - Ameren Services - 1,3,6	
Answer	Yes
Document Name	
Comment	

Ameren agrees with revising the Applicability to include all relevant Registered Entities and facilities to make the standard more comprehensive, and revise the requirement language to improve the clarity and completeness of the standard. Ameren supports this effort to ensure the voltage and frequency protection on all applicable equipment (including the GSU or collector transformer) up to the point of interconnection that could cause a generating resource to trip or cease to inject current meets the voltage and frequency ride-through requirements of PRC-024, thus enabling the generating resource to support grid stability during defined system voltage and frequency excursions.

Likes 0	
Dislikes 0	

Response

Chris Scanlon - Exelon - 1,3,5,6

Answer	Yes
Document Name	

Comment

Exelon might agree to the scope of the SAR if the Standard Drafting Team provides sufficient technical basis. At this point in time, Exelon does not believe that sufficient technical basis has been provided to move forward with the supplemental SAR.

Likes 0	
Dislikes 0	

Response

John Bee - Exelon - 1,3,5,6

Answer	Yes
Document Name	

Comment

Exelon might agree to the scope of the SAR if the Standard Drafting Team provides sufficient technical basis. At this point in time, Exelon does not believe that sufficient technical basis has been provided to move forward with the supplemental SAR.

Likes 0	
Dislikes 0	

Response

Ruth Miller - Exelon - 1,3,5,6

Answer	Yes
Document Name	

Comment	
Exelon might agree to the scope of the SAR if the Standard Drafting Team provides sufficient technical basis. At this point in time, Exelon does not believe that sufficient technical basis has been provided to move forward with the supplemental SAR.	
Likes 0	
Dislikes 0	
Response	
Becky Webb - Exelon - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
Exelon might agree to the scope of the SAR if the Standard Drafting Team provides sufficient technical basis. At this point in time, Exelon does not believe that sufficient technical basis has been provided to move forward with the supplemental SAR.	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1,5	
Answer	Yes
Document Name	
Comment	
Reclamation supports the scope clarification of the Supplemental SAR and recommends the figure on page 3 of the Supplemental SAR be included in the Guidelines and Technical Basis of the revised standard.	
Likes 0	
Dislikes 0	
Response	
Michael Godbout - Hydro-Qu?bec TransEnergie - 1 - NPCC	
Answer	Yes
Document Name	

Comment
We consider it important to subject the appropriate relays regardless of the owner. This approach is consistent with NERC's approach in other standards that require the applicability to facilities necessary to reliability, for example, FAC-008, PRC-005, PRC-025. These standards all apply to both TO and GO as function and specify the facilities subject to the standards, regardless of ownership, and there is no gap. The extension of the applicability to the TO is justified on its technical merits and the impact to a TO without GSU would be, at worse, a bit of paperwork. If a Regional Entity were to audit a TO that does not own GSU for a version of PRC-024 that applies to TO that own GSU, which seems a bit senseless to us, the TO can fill in an RSAW easily, saying, "Not applicable because we do not own a GSU." As a technical quibble, we note that the Supplemental SAR defines the "point of interconnection" as the high-side of the step-up transformer (with a parenthetical remark). We think that, like in FAC-008, the standard (and the supplemental SAR) need not introduce and use the POI term. It can just use the term "high-side of the step-up transformer" directly. That said, with the parenthetical remark and the graphic, it is quite clear what is intended in the supplemental SAR.

Likes 0	
Dislikes 0	

Response

Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	

Comment
None

Likes 0	
Dislikes 0	

Response

Bruce Reimer - Manitoba Hydro - 1,3,5,6	
Answer	Yes
Document Name	

Comment
V/Hz protective relay setting requirement for the GSUs or collector transformers should be added to the standard (V/Hz ride through curve).

Likes 0	

Dislikes 0	

Response

Charles Yeung - Southwest Power Pool, Inc. (RTO) - 2, Group Name SRC	
Answer	Yes
Document Name	

Comment
The PRC-024 was developed at a time when generators and generator step-up transformers were more often than not owned by the same asset owner. As such coordination between generator protection schemes and associated transmission equipment may not have required any explicit requirements and the PRC-024 applicability to only the generator side of the interconnection was sufficient. Today, with the separation of ownership of assets at the generator point of interconnection, NERC must ensure the intent of PRC-024 is met through adding explicit requirements which may or may not fall within the original construct of the standard.

Likes 0	
Dislikes 0	

Response

Joshua Andersen - Salt River Project - 1,3,5,6 - WECC	
Answer	Yes
Document Name	

Comment
SRP recommends the scope to only include phase over/under voltages that are enabled and not 3VO overvoltage like in the case of a zero sequence over voltage.

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
We would like to request that the drafting team provide industry the opportunity to address and clarify some of the concerns with the existing draft of the PRC-024-3 language at a later time.

Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG agrees with closing the reliability gap. Suggestion is made to consider the use of Main Output Transformers (MOT) instead of GSU.	
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	
Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5, Group Name DTE Energy - DTE Electric	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Bette White - AES - Indianapolis Power and Light Co. - 3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - MRO,WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
faranak sarbaz - Los Angeles Department of Water and Power - 1,3,5,6	
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	
Anthony Jablonski - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sandra Kennedy - CMS Energy - Consumers Energy Company - 1,3,4,5 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kjersti Drott - Tri-State G and T Association, Inc. - 1,3,5	
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	
Neil Swearingen - Salt River Project - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Cantwell - Lower Colorado River Authority - 1,5, Group Name LCRA Compliance	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Steven Rueckert - Western Electricity Coordinating Council - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Amy Casuscelli - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Vine - California ISO - 2	
Answer	
Document Name	
Comment	
The California ISO supports the comments submitted by the ISO/RTO Council Standards Review Committee (SRC)	
Likes 0	
Dislikes 0	
Response	

2. Are you aware of any organizations registered as a Transmission Owner (but not registered as Generator Owner) that own a GSU or collector transformer and apply the applicable protection listed above? If so, please provide an example and any relevant technical information.

Sean Bodkin - Dominion - Dominion Resources, Inc. - 3,5,6, Group Name Dominion

Answer	No
Document Name	

Comment

Dominion Energy does not have anmy of these aseets that are owned by our Transmission Owner regitration (we are also separetly registered as a GO). We are also unaware of any other entities in the United States that fit this criteria.

Likes 0	
Dislikes 0	

Response

Armin Klusman - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE

Answer	No
Document Name	

Comment

CenterPoint Energy Houston Electric, LLC agrees with the comments submitted on behalf of The Edison Electrical Institute.

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	No
Document Name	

Comment

OPG is not aware of such cases.

Likes 0	
Dislikes 0	

Response

Joel Dembowski - Southern Company - Alabama Power Company - 3, Group Name Southern Company

Answer	No
Document Name	

Comment
The number of TO owned main generating station transformers is believed to be very few. In Southern Company, the number of TO owned generator step up transformers is zero.

Likes 0	
Dislikes 0	

Response

Douglas Webb - Great Plains Energy - Kansas City Power and Light Co. - 1,3,5,6 - MRO, Group Name Westar-KCPL

Answer	No
Document Name	

Comment
Westar Energy and Kansas City Power & Light Company incorporate by reference the Edison Electric Institute's response to Question 2.

Likes 0	
Dislikes 0	

Response

Teresa Cantwell - Lower Colorado River Authority - 1,5, Group Name LCRA Compliance

Answer	No
Document Name	

Comment
As an organization, LCRA is registered as both TO and GO.

Likes 0	
Dislikes 0	

Response

Charles Yeung - Southwest Power Pool, Inc. (RTO) - 2, Group Name SRC	
Answer	No
Document Name	
Comment	
We are aware there are entities that are concerned that including the generator step up transformer as part of a generator protection standard may be inappropriate because the original intent of PRC-024 is to apply to generator protection systems. However, the importance to coordinate the protection schemes for inverter based resources and the transmission grid cannot and should not be limited to what registered entity a standard is applicable to.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	No
Document Name	
Comment	
EEI is not aware of any instances, among member companies, of the situation described in Question 2 that exists based on readily available information.	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	No
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	

Michelle Amarantos - APS - Arizona Public Service Co. - 1,3,5,6	
Answer	No
Document Name	
Comment	
While there may be instances of a Transmission Owner owning a GSU or collector transformer, these are more likely to be exceptional cases or anomalies, which do not justify modifying the applicability of the standard or adding additional burden to Transmission Owners to assess applicability.	
Likes 0	
Dislikes 0	
Response	
Becky Webb - Exelon - 1,3,5,6	
Answer	No
Document Name	
Comment	
Exelon supports EEI's comments that this question alone may be insufficient to gather the data needed to identify the magnitude of this issue because all relevant parties may not choose to respond.	
Likes 0	
Dislikes 0	
Response	
Ruth Miller - Exelon - 1,3,5,6	
Answer	No
Document Name	
Comment	
Exelon supports EEI's comments that this question alone may be insufficient to gather the data needed to identify the magnitude of this issue because all relevant parties may not choose to respond.	
Likes 0	
Dislikes 0	
Response	

John Bee - Exelon - 1,3,5,6	
Answer	No
Document Name	
Comment	
Exelon supports EEI's comments that this question alone may be insufficient to gather the data needed to identify the magnitude of this issue because all relevant parties may not choose to respond.	
Likes 0	
Dislikes 0	
Response	
Chris Scanlon - Exelon - 1,3,5,6	
Answer	No
Document Name	
Comment	
Exelon supports EEI's comments that this question alone may be insufficient to gather the data needed to identify the magnitude of this issue because all relevant parties may not choose to respond.	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - MRO,WECC	
Answer	No
Document Name	
Comment	
Not aware of others, not applicable to BHC	
Likes 0	
Dislikes 0	
Response	
Amy Casuscelli - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC	

Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Steven Rueckert - Western Electricity Coordinating Council - 10	
Answer	No
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	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Neil Swearingen - Salt River Project - 1,3,5,6 - WECC	
Answer	No
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Bruce Reimer - Manitoba Hydro - 1,3,5,6	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jamie Monette - Allete - Minnesota Power, Inc. - 1	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kjersti Drott - Tri-State G and T Association, Inc. - 1,3,5	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1,5	
Answer	No

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sandra Kennedy - CMS Energy - Consumers Energy Company - 1,3,4,5 - RF	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
David Jendras - Ameren - Ameren Services - 1,3,6	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Katherine Street - Duke Energy - 1,3,5,6 - SERC,RF, Group Name Duke Energy	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Anthony Jablonski - ReliabilityFirst - 10	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Allen Schriver - NextEra Energy - 5	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
faranak sarbaz - Los Angeles Department of Water and Power - 1,3,5,6	
Answer	No
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Bette White - AES - Indianapolis Power and Light Co. - 3	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 3,5	
Answer	No
Document Name	
Comment	
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	
Likes 0	
Dislikes 0	
Response	

Matthew Nutsch - Seattle City Light - 1,3,4,5,6 - WECC	
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	
If a Generator Owner owns the generator and a Transmission Owner the GSU, they should both have PRC-024 and PRC-025 compliance responsibility of their assets and coordinate via PRC-001. This has become a gray area in the industry of who has the compliance obligation. For example, the GO doesn't share or update the generator capability and characteristics so the TO can properly verify the associated coordination. And, it's difficult for the TO to be responsible for tracking the GO's generator information since it's not their asset. In a different example, if the GO owns the generator and the GSU, because the standard doesn't dictate that the TO has PRC-024 or PRC-025 obligation on the intertie, this exclusion of language in the standard defeats the reliability intent.	
Likes 0	
Dislikes 0	
Response	
Michael Godbout - Hydro-Qu?bec TransEnergie - 1 - NPCC	
Answer	Yes
Document Name	
Comment	
Hydro-Québec TransÉnergie is a TO that owns the GSU associated with about 37 GW of generation which we do not own. We are not registered as a GO since we do not own any generators.	
Likes 0	
Dislikes 0	

Response
Richard Vine - California ISO - 2
Answer	
Document Name	
Comment
The California ISO supports the comments submitted by the ISO/RTO Council Standards Review Committee (SRC)
Likes 0	
Dislikes 0	
Response
Rachel Coyne - Texas Reliability Entity, Inc. - 10
Answer	
Document Name	
Comment
Texas RE does not have comments on this question.
Likes 0	
Dislikes 0	
Response

3. If you have any other comments on this SAR that you haven't already mentioned above, provide them here	
Matthew Nutsch - Seattle City Light - 1,3,4,5,6 - WECC	
Answer	
Document Name	
Comment	
No other comments.	
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	
no.	
Likes 0	
Dislikes 0	
Response	
Bette White - AES - Indianapolis Power and Light Co. - 3	
Answer	
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	

faranak sarbaz - Los Angeles Department of Water and Power - 1,3,5,6	
Answer	
Document Name	
Comment	
NA	
Likes 0	
Dislikes 0	
Response	

Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE recommends the SDT add “TO that owns synchronous condenser(s)” to the applicability of PRC-024, with “Synchronous condenser greater than 20 MVA (gross nameplate rating) directly connected to the Bulk Electric System” as an “applicable Facility.” This addition would make the applicability of PRC-024 consistent with PRC-019-2 and MOD-025-2, and increase the reliability of the BES by requiring large Reactive Resources remain connected during voltage excursions. Additionally, Texas RE recommends the SDT consider adding any dynamic Reactive Power resource (SVC, STATCOM, D-VAR) that meet a capability threshold as “applicable Facilities”, as the loss of these resources during a voltage excursion can lead voltage instability on the BES.	
Likes 0	
Dislikes 0	
Response	

Anthony Jablonski - ReliabilityFirst - 10	
Answer	
Document Name	
Comment	
ReliabilityFirst supports the changes. We beliveve they address the issues in the “White Paper” and remove ambiguity and add clarity.	
Likes 0	

Dislikes 0	

Response

Leonard Kula - Independent Electricity System Operator - 2	
Answer	
Document Name	

Comment
The proposed standard requires to use the nominal voltages (e.g. 230 kV) as 1 pu for the voltage boundary curves that define No Trip Zone. The operating voltages boundaries can vary significantly around the nominal voltages. For example, there are entities that operate continuously at 250 kV facilities that have the nominal voltage of 230 kV. If the nominal voltage value is used in this case, there is a risk of tripping, considering that the overvoltage settings based on the nominal voltage might not provide enough margin to cover measuring errors. **We propose that the scope of the Supplemental SAR is expanded to allow for some margin to be added to the defined setting points when the continuous operating voltages exceed or are below the nominal voltages (e.g., by more than 5%).** **There is also an error in the Table on Voltage Boundary Data Points in Attachment-2 (Voltage No-Trip Boundary – Eastern, Western, and ERCOT Interconnection) of the proposed standard.** **The last line in the table currently shows the high voltage at less than or equal to 1.10 pu with a minimum time 4 seconds and the low voltage at greater than or equal to 0.90 pu with a minimum time 4 seconds:** **“High Voltage at < 1.10 pu at Minimum Time 4.00 sec and Low Voltage at > 0.90 at Minimum Time 4.00 sec”.** **However, consistent with the lines above, the high voltage should be at greater than or equal to 1.10 pu with a minimum time 4 seconds and the low voltage should be at less than or equal to 0.90 pu a minimum time 4 seconds. We propose the last line in the table be modified as follows:** **“High Voltage at > 1.10 pu at Minimum Time 4.00 sec and Low Voltage at < 0.90 at Minimum Time 4.00 sec”.**

Likes 0	
Dislikes 0	

Response

Sandra Kennedy - CMS Energy - Consumers Energy Company - 1,3,4,5 - RF	
Answer	

Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1,5	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Michelle Amarantos - APS - Arizona Public Service Co. - 1,3,5,6	
Answer	
Document Name	
Comment	
AZPS would like to reiterate its previous comments that were submitted in regards to Draft 1 of PRC-023-3. Please modify Attachment 2, Evaluation Protection Settings, number 1. c. as follows, because there is no realistic scenario where the high side voltage will be 1.1 pu or higher and the generator voltage will be at 0.95 pf lagging. It is most realistic to use lagging pf for low voltage conditions and leading pf for high voltage conditions. *For low voltage protection use Power factor is 0.95 lagging (i.e. supplying reactive power to the system) as measured at the generator terminals. For high voltage settings use Power factor is 0.95 leading (i.e. taking reactive power from the system) as measured at the generator terminals.* AZPS also reiterates concern with the addition of the TO as an applicable entity shifting compliance and cost responsibility from the GO/GOPs to TO/TOPs, which are distinct, separate entities.	
Likes 0	
Dislikes 0	
Response	

Michael Godbout - Hydro-Qu?bec TransEnergie - 1 - NPCC	
Answer	
Document Name	
Comment	
We were surprised that the SDT felt it needed to use a supplemental SAR to resolve the interpretative issue the SDT ran into regarding the scope of the SAR . That said, we strongly support this approach. The use of a supplemental SAR to clarify the scope of the project already underway seems to us an efficient way of raising this issue with industry and resolving it, rather than shipping it a few years down the road into a future project.	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	
Document Name	
Comment	
None	
Likes 0	
Dislikes 0	
Response	
Bruce Reimer - Manitoba Hydro - 1,3,5,6	
Answer	
Document Name	
Comment	
In the Voltage Boundary Clarifications – Eastern, Western, and ERCOT Interconnections section; what does “The ‘no trip zone’ ends at 4 seconds” mean? Does it mean that there is not a standard concern if the relay trips beyond the 4 second time? Why was the 4 seconds chosen?	
Likes 0	

Dislikes 0	

Response

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

Answer	
Document Name	

Comment

EEI member companies believe that NERC has more effective methods and tools available that they could use to collect data and identify technical justifications for reliability gaps.

Likes 0	
Dislikes 0	

Response

Richard Vine - California ISO - 2

Answer	
Document Name	

Comment

The California ISO supports the comments submitted by the ISO/RTO Council Standards Review Committee (SRC)

Likes 0	
Dislikes 0	

Response

Charles Yeung - Southwest Power Pool, Inc. (RTO) - 2, Group Name SRC

Answer	
Document Name	

Comment

We ask what the rationale is for using the nominal voltage and not the operating voltage for the voltage boundary curves. The operating voltages boundaries can vary significantly around the nominal voltages (e.g. 230 kV as 1 p.u.) that define the No Trip Zone. For example, if an entity operates facilities continuously at 250 kV and the nominal voltage of 230 kV 1 p.u. is used in this case, there is a risk of premature tripping considering that the overvoltage settings based on the nominal voltage might not provide enough margin to cover measuring errors.

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	
Teresa Cantwell - Lower Colorado River Authority - 1,5, Group Name LCRA Compliance	
Answer	
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Amy Casuscelli - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC	
Answer	
Document Name	
Comment	
Xcel Energy believes the reliability or compliance gaps described in the Requested Information section of the SAR exist for all synchronous machines GSU transformers which have microprocessor based transformer protection relays applied that have the capability to provide voltage, frequency and volts/Hz protection functions. Virtually all major transformer protection manufacturers provide relays with these functions available. As such, the gaps described in the SAR are wide spread throughout the industry. While there is likely a very small population of GSUs owned by TOs for which this type	

of protection is enabled, there is a very high portion of GO owned GSU which will continue to have the these reliability and compliance gaps if GSU transformer protection is excluded from the standard.	
Likes 0	
Dislikes 0	
Response	
Douglas Webb - Great Plains Energy - Kansas City Power and Light Co. - 1,3,5,6 - MRO, Group Name Westar-KCPL	
Answer	
Document Name	
Comment	
None.	
Likes 0	
Dislikes 0	
Response	
Joel Dembowski - Southern Company - Alabama Power Company - 3, Group Name Southern Company	
Answer	
Document Name	
Comment	
The use of a supplemental SAR for the stated purpose is not clearly aligned with guidance in the Standards Process Manual.	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	
Document Name	PRC-024-3 Outreach Questions.docx
Comment	
The Supplemental SAR section “Purpose or Goal (How does this proposed project provide the reliability-related benefit described above?):” states the following:	

“Ensure the voltage and frequency protection on all applicable equipment (including the GSU or collector transformer) up to the point of interconnection that could cause a generating resource to trip or cease to inject current meets the voltage and frequency ride-through requirements of PRC-024, thus enabling the generating resource to support grid stability during defined system voltage and frequency excursions. Project”

PRC-024-2 does not have frequency ride through requirements, and merely sets the requirements for the generator frequency protective relays settings. Ride through implies performance criteria.

Also generating resources can negatively impact the grids reliability not only by ceasing to inject current, but also through a sensible reduction of the amount of current being injected. This is not currently covered by the existing standard nor by the proposed draft.

Consideration should be given also to revising the existing SAR (i.e. add to the parameters of the proposed project).

Please see attached the OPG comments for the SDT outreach questions.

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name RSC no Dominion and HQ

Answer	
Document Name	

Comment

A Standard Authorization Request (SAR) comment form should not be used to collect data needed to justify the SAR. If data needs to be collected, then a Section 1600 data request could be considered. After data is collected, then a determination can be made regarding next steps. The applicability of PRC-024 should remain as Generator Owners, at this time.

Likes 0	
Dislikes 0	

Response

Armin Klusman - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE

Answer	
Document Name	

Comment

No	
Likes 0	
Dislikes 0	
Response	