Comment Report

Project Name:	2022-02 Modifications to TPL-001-5.1 and MOD-032-1 | SARs
Comment Period Start Date:	2/1/2022
Comment Period End Date:	3/2/2022
Associated Ballots:	

There were 39 sets of responses, including comments from approximately 126 different people from approximately 88 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 SARs? If you do not agree, or if you agree but have comments or suggestions for the project scope please provide your recommendation and explanation.

2. Provide any additional comments for the SARs 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
Santee Cooper	Chris Wagner	1,3,5,6		Santee Cooper	LaChelle Brooks	Santee Cooper	1,3,5,6	SERC
					Rene' Free	Santee Cooper	1,3,5,6	SERC
					Anthony Noisette	Santee Cooper	1,3,5,6	SERC
Electric Reliability Council of Texas, Inc.	Dana Showalter	2	Texas RE	ISO/RTO Council (IRC) Standards Review Committee (SRC) 2022-02 SAR	Bobbi Welch	MISO	2	RF
					Ali Miremadi	CAISO	2	WECC
					Dana Showalter	Electric Reliability Council of Texas, Inc.	2	Texas RE
					Helen Lainis	IESO	2	NPCC
					Gregory Campoli	New York Independent System Operator	2	NPCC
					John Pearson	ISO New England, Inc.	2	NPCC
					Elizabeth Davis	PJM Interconnection	2	RF
					Charles Yeung	Southwest Power Pool, Inc. (RTO)	2	MRO
Entergy	Julie Hall	1,3,6		Entergy	Oliver Burke	Entergy - Entergy Services, Inc.	1	SERC
					Jamie Prater	Entergy	5	SERC
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	3,5	MRO
					Fred Meyer	Algonquin Power Co.	3	MRO
					Jamie Monette	Allete - Minnesota Power, Inc.	1	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
					David Heins	Omaha Public Power District	1,3,5,6	MRO
					George Brown	Acciona Energy North America	5	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
Florida Municipal Power Agency	LaKenya VanNorman	1,3,4,5,6	SERC	FMPA and members	Chris Gowder	Florida Municipal Power Agency	5	SERC
					Dan O'Hagan	Florida Municipal Power Agency	4	SERC
					Carl Turner	Florida Municipal Power Agency	3	SERC
					Richard Montgomery	Florida Municipal Power Agency	6	SERC

					Larry Watt	Lakeland Electric	1	SERC
					Carolyn Woodard	Beaches Energy Services	3	SERC
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
					Tricia Bynum	FirstEnergy - FirstEnergy Corporation	6	RF
					Mark Garza	FirstEnergy-FirstEnergy	4	RF
Southern Company - Southern Company Services, Inc.	Pamela Frazier	1,3,5,6	MRO,NPCC,RF,SERC,Texas RE,WECC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC
					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
					James Howell	Southern Company - Southern Company Generation	5	SERC
Eversource Energy	Quintin Lee	1,3		Eversource Group	Quintin Lee	Eversource Energy	1	NPCC
					Christopher McKinnon	Eversource Energy	3	NPCC
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	NPCC Regional Standards Committee	Gerry Dunbar	Northeast Power Coordinating Council	10	NPCC

Randy MacDonald	New Brunswick Power	2	NPCC
Glen Smith	Entergy Services	4	NPCC
Alan Adamson	New York State Reliability Council	7	NPCC
David Burke	Orange & Rockland Utilities	3	NPCC
Helen Lainis	IESO	2	NPCC
David Kiguel	Independent	7	NPCC
Nick Kowalczyk	Orange and Rockland	1	NPCC
Joel Charlebois	AESI - Acumen Engineered Solutions International Inc.	5	NPCC
Mike Cooke	Ontario Power Generation, Inc.	4	NPCC
Salvatore Spagnolo	New York Power Authority	1	NPCC
Shivaz Chopra	New York Power Authority	5	NPCC
Deidre Altobell	Con Ed - Consolidated Edison	4	NPCC
Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
Cristhian Godoy	Con Ed - Consolidated Edison Co. of New York	6	NPCC
Nurul Abser	NB Power Corporation	1	NPCC

					Randy MacDonald	NB Power Corporation	2	NPCC
					Michael Ridolfino	Central Hudson Gas and Electric	1	NPCC
					Vijay Puran	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
					Nicolas Turcotte	Hydro-Qu?bec TransEnergie	1	NPCC
					Chantal Mazza	Hydro-Quebec	2	NPCC
					Michele Tondalo	United Illuminating Co.	1	NPCC
					Paul Malozewski	Hydro One Networks, Inc.	3	NPCC
					Sean Bodkin	Dominion - Dominion Resources, Inc.	6	NPCC
Southwest Power Pool, Inc. (RTO)	Shannon Mickens	2	MRO,SPP RE,WECC	SPP RTO	Shannon Mickens	Southwest Power Pool Inc.	2	MRO
					Matt Harward	Southwest Power Pool Inc.	2	MRO
					Ellen Cook	Southwest Power Pool Inc.	2	MRO
					Scott Jordan	Southwest Power Pool Inc.	2	MRO

					Eddie Watson	Southwest Power Pool Inc.	2	MRO
					Sunny Raheem	Southwest Power Pool Inc.	2	MRO
					Jonathan Hayes	Southwest Power Pool Inc.	2	MRO
					Jeff McDiarmid	Southwest Power Pool Inc.	2	MRO
					Doug Bowman	Southwest Power Pool Inc.	2	MRO
Lower Colorado River Authority	Teresa Krabe	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 proposed scope as described in the SARs? If you do not agree, or if you agree but have comments or suggestions for the project scope please provide your recommendation and explanation.

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

AEP is in agreement with the scopes and directions of the two proposed SARs for TPL-001, and recommends that Project 2022-02 be governed by their content. This would presumably be done by combining the content of these two unique SARs into a single SAR. AEP is not in agreement however with the proposed SAR for MOD-032, and recommends it *not* be pursued for this project for the reasons and rationale provided below.

1) As stated in a previous comment period for Project 2020-01, we believe MOD-032 is already written in a way that allows DER data to be obtained for power system modeling and analysis, if that data is available. The existing requirements for Transmission bus delivery points already include obligations for the Distribution Provider (DP) at that Transmission bus to separate out in its report to the RTO, the Distribution-connected generation capacity from the demand capacity appearing at that Transmission bus.

2) While the SPIDERWG SAR for MOD-032 does correctly acknowledge that DER owners are not themselves subject to NERC Reliability Standards, it incorrectly presumes that a) the data is already being provided by all entities who are not required to provide it, b) the DPs currently possess all the desired DER data, and c) the “data collection effort by the DP would be minimal additional effort.” This is simply not the case, and was voiced by industry in the comments provided two years ago when the MOD-032 SAR was proposed for Project 2020-01 (the Standards Committee eventually rejected the SAR that year “for good cause” in their letter to the SAR’s authors). In addition, the SPIDERWG SAR for TPL-001 states “In general, the impact of DERs on the BES should be included in planning assessments *if* DER data and models are available.” Contrary to the SAR for MOD-032, this quote does correctly acknowledge that the DER data will not always be available, but that same understanding is not also applied to the SAR for MOD-032. Many of the entities that the TP would rely on for this DER data are not themselves NERC Functional Entities, nor are they obligated by NERC requirement(s) to provide such data. In addition, many generators that have historically been considered load-augmenting in most cases, would now qualify as DER. As a result, these entities which have had no previous obligations to provide information to NERC Registered Entities would now be relied on to do so. However even after MOD-032’s potential revision, since they are not NERC registered entities, these generators would still have no NERC obligations to provide such data. This being the case, if this SAR is pursued as currently drafted, the Transmission Planner presumably bears all risk associated with whether or not that data is provided to them. If this SAR is indeed pursued, the SDT must ensure the Transmission Planner does not assume any risk associated with “non-obligated entities” not providing that data to the TP.

DER data is uniquely specified by RTO tariffs, and authorized by each state’s commission. This data is provided to the RTOs by NERC-registered entities as well as entities which are *not* registered as NERC entities. As such, if any entity should be responsible for the collection and dissemination of such data for system modeling purposes within NERC obligations, it should be the RTO and *not* the Distribution Provider.

Likes 0	
Dislikes 0	
Response	

Julie Hall - Entergy - 1,3,6, Group Name Entergy	
Answer	No
Document Name	

Comment
TPL-001-5.1 IRPWG SAR Comments: Suggest adding clarity that TP depends on the data provided by the GO for an IBR facility (i.e., the trip settings at the low side of the GSU). The TP should not be expected to convert the data to the high-side. (R4.3.1.2) **TPL-001-5.1 SPIDERWG SAR Comments:** R4.1.1 & R4.1.2 language does not align with changes proposed in the TPL-001-5.1 IRPWG SAR. Some DERs with legacy settings (not required to abide by PRC-024) may not be able to ride through a close fault in any circumstance. These DERs will not be able to meet P1 criteria and need to be clearly excluded in the performance requirements. **MOD-032-1 SAR Comments:** The definition of DER should make a distinction between aggregated customer solar installations (e.g., residential rooftop solar, etc.) and commercial solar installations connected to distribution.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment
With respect to the proposed SAR, MOD-032-1 Data for Power System Modeling and Analysis, the only suggested modification that we agree with in the list of proposed work is adding the Distribution Provider (DP) to the scope of applicability so that modeling information can be obtained by the planners for retail connected distributed energy resources (DER). We believe that everything else in the proposed work is not needed. The specification of DER equipment and details related to it are not needed in the standard. Requirement R1 of the existing version specifies that the PC/TP develop modeling data requirements and reporting procedures including the data in Attachment 1. The steady state and dynamic sections of Attachment 1 both include this line item: "Other information requested by the Planning Coordinator or Transmission Planner necessary for modeling purposes. [BA, GO, LSE, TO, TSP]" This item gives the PC/TP the authority to ask for the modeling information they deem necessary to build the cases and to perform their studies. Because of this, no modification to the standard is needed to itemize the DER modeling information. In summary, including the Distribution Provider in the applicability section of MOD-032, in Requirements R2 & R3 of MOD-032, in item 9 of the steady-state data column of Attachment 1 of MOD-032, and in item 10 of the dynamic data column of Attachment 1 of MOD-032 will sufficiently permit the PC/TP to request what modeling data it needs for DER from the DP and from the GO. With respect to the proposed modifications to TPL-001-5 described in separate SARs of the same title and submitted by representatives of the IRPWG and SPIDERWG, TPL-001-5.1 Transmission System Planning Performance Requirements, clarifications to terminology (e.g., “pulls out of synchronism” and “GSU transformer”) does not address an immediate risk to BPS reliability. These types of modifications should be considered in a future revision to the standard.

Likes 0	
Dislikes 0	

Response

Stephen Stafford - Georgia Transmission Corporation - NA - Not Applicable - SERC

Answer	No
Document Name	

Comment

MOD-032 SAR:

- Modification to MOD-032 appear to be prudent to ensure clarity on what entities should provide the PC regarding DER.

IRPWG TPL SAR:

- In general, the recommendations in the SAR are aimed at clarifying the requirements to ensure they are inclusive of IBR. These modifications do not appear to change the intent of the current standard language so they should not prompt the opening of the TPL standard but should be considered whenever the standard is open for more substantive modifications.
- The SAR cites the IRPTF whitepaper and states, “the term GSU transformer can be confusing to GOs…” The GO function is not applicable to the TPL standard so it is not clear how this term being included in the TPL standard would be confusing to GOs.
- The recommendations regarding “pulls out of synchronism” and the proposed modification to R4.3.2 provide clarifications that are appropriate for the standard and should be considered if the TPL standard is open for more substantive updates.

SPIDER TPL SAR:

- The comments for the IRPWG apply here as well.
- The recommendations around “System Peak Load” refer to potential new glossary terms and a change of the use of the term within the TPL standard. The benefits of adding qualifiers like “net” or “gross” are not clear relative to the time and effort modifications to the TPL standard would require. The current language in the standard allows a measure of discretion in the determination of “peak” load to be modeled that planners can use as appropriate in their respective areas.
- The penetration levels of DER at which potential BPS problems occur and the resulting impacts to the BPS are not clear. Prior to opening the TPL standard for substantial modifications, more guidance is needed for different sections of the industry (with varying penetration levels of DER) that define potentially problematic penetration levels of DER.

Likes 0	
Dislikes 0	

Response

LaTroy Brumfield - American Transmission Company, LLC - 1

Answer	No
Document Name	

Comment

SPIDERWG MOD-032-1 SAR Comments

{C}· ATC supports the collection of DER data for steady-state and dynamics modeling. Setting a guideline that calls out best practices for DERs is a very important step toward obtaining detailed and representative modeling data. This will hopefully get industry moving in the right direction so that Transmission Planners and Planning Coordinators have something to leverage with Distribution Providers when collecting information.

- A mechanism to require behind-the-meter IBR and DER to report data to Distribution Provider does not exist.
  - ATC supports SAR language to use the DER data if it is available. ATC cautions against requiring Transmission Planners to have/ use data that may not be obtainable from the Distribution Provider (who may not be able to collect it from the DER).
  - Planning Coordinators should require DER data collection in their MOD-032 data collection requirements.
  - Due to the challenges associated with the collection of distribution-level data, consideration needs to be given to screening criteria and/or the ability to aggregate data to allow for efficiency and effectiveness such that the technical benefits received are commensurate with the cost of obtaining the data.
- ATC agrees with Item D of the Scope: "The SDT should review any potential gaps regarding data collection for aggregate DER data with the de-registration of LSE or based on applicability transfer from LSE to DP."
- ATC supports the SAR scope's proposal to consider including a definition for "Distributed Energy Resource (DER)" in the NERC Glossary of Terms.
- The SAR drafting should consider the inclusion on non-BES generators in the scope.

IRPWG and SPIDERWG TPL-001-5 SAR Comments

- ATC supports setting a guideline that calls out best practices for DERs is a very important step toward obtaining detailed and representative modeling data. This will hopefully get industry moving in the right direction so that Transmission Planners and Planning Coordinators have something to leverage with Distribution Providers when collecting information.
- Under SPIDERWG TPL-001-5 SAR Item C of the Scope "R4.1.1 and 4.1.2, the stability performance criteria should be applicable to both synchronous and asynchronous generation, inclusive of DER", if tripping criteria is required for DERs, it should *only* be applicable under NERC cascading conditions.
- PRC-024-3 differentiates GSU from Main Power Transformer for Quebec but FERC documents with (LGIAs, 661-A, etc.) use GSU to mean Main Power Transformer.
  - The SAR and/ or Drafting Team could consider the language PRC-024-3 uses in Attachment 2: "… voltages at the high side of the GSU/MPT. For generating resources with multiple stages of step up to reach interconnecting voltage, this is the high side of the transformer with a low side below 100 kV and a high side 100kV or above."
- ATC agrees that the terms Gross Load and Net Load should be defined in the NERC Glossary of Terms, and consideration should be given to the timing of peak load occurrence shifts with increased DER presence. However, if the requirements are changed to specify "System peak net load", then Gross Load conditions would only be studied as a sensitivity and may not be considered under latter requirement (such as development of associated Corrective Action Plans).

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

Kimberly Turco - Constellation - 5,6

Answer	No
Document Name	

Comment

Constellation has concerns on the expansion of scope in the SAR to include all DER's as that can expand further than DER's subject the NERC Compliance under MOD-032-1.
Constellation agrees with NAGF's comments regarding the majority of DERs are not subject to NERC compliance. "Though the NAGF generally agrees with the proposed scopes of these SARs, the NAGF has concerns with the DERs providing information as DERs are not subject to NERC compliance or these standards. As such, requiring entities (i.e. DPs) to acquire such data should not have compliance obligations or accountability in situations where the DERs do not comply with the request(s)."
Constellation also asserts that the NERC Reliability Guidance "Improvements to Interconnection Requirements for BPS-Connected Inverter Based Resources" of Sept 2019 has good guidance to Transmission Owners to derive the data that is being considered in this SAR.

Kimberly Turco on behalf of Constellation Segments 5, 6

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

EEI does not support the entirety of the proposed scopes of the three SARs. All references to BPS should be removed from these SARs. While we understand the motivations and perceived need for including this language, the scope of NERC Reliability Standards, as defined in FERC Order 693 (see P75), is limited to the Bulk Electric System. Moreover, the scope of these Reliability Standards cannot be expanded within the scope of a single NERC Standards project.

Additionally, EEI suggests the use of composite load models as a viable option to address the difficulties of collecting DER information from unregistered entities. Such an approach is a reasonable option until the jurisdictional issues can be resolved.

Please see EEI’s comments for the three SARs in our response to question 2 below.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

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

Likes 0	
Dislikes 0	

Response

Michelle Amarantos - APS - Arizona Public Service Co. - 1,3,5,6

Answer	No
Document Name	

Comment

AZPS does not agree with the scope of the proposed SARs as written. AZPS is particularly concerned with references to the BPS instead of the BES which is commonly used through the NERC Reliability Standards. This is problematic because registered entities such as the PC, TP, and DP do not have any authority to collect data from non-BES resources as they are not registered and have no obligation to provide requested data.

AZPS agrees with EEI's comments that "the scope of NERC Reliability Standards, as defined in FERC Order 693, page 75, is limited to the Bulk Electric System. Moreover, the scope of these Reliability Standards cannot be expanded within the scope of a single NERC Standard project."

TPL-001-5.1 IRPWG SAR

AZPS recommends that BPS-connected inverter-based resources should be changed to BES inverter-based resources throughout the SAR. This is consistent with the statement in the last paragraph of the Industry Need Section which states, "This SAR does not include any modification to TPL-001-5 regarding the inclusion of distributed energy resources (DERs)."

AZPS believes that expanding the scope of the term "GSU Transformer" within the standard would create unnecessary confusion. AZPS recommends adding the term Main Power Transformer (MPT) to the standard as was done in PRC-024-3 (see Section 4.2.1.6 and footnote 1), instead of expanding the scope of the term GSU.

In regard to the Project Scope section, AZPS agrees with EEI's comment that entities should not be "required to maintain lists of all devices that might impact the study area inclusive of BPS-connected inverter-based resource technologies. This represents a substantial burden that goes beyond what entities can reliably collect."

TPL-001-5.1 SPIDERWG SAR

AZPS recommends that the term BPS-connected generation be changed to BES-connected generation in the first paragraph of the Industry Need section and that the term BPS Planning be changed to BES Planning in Footnote 1.

In regard to Item b of the Project Scope section, AZPS supports the following EEI comments:

The SAR "does not clarify the concern contained in the reference SPIDERWG whitepaper or provide clear language that an SDT could act upon."

The SAR also "states that the SDT should "include tripping of DER if data and models are available," however, there are no methods contained within any Reliability Standard that would define how PCs or TPs could collect this data. While we understand that some transmission tariffs may provide viable methods for collecting some of this data from Transmission Service Providers (TSP), this is tariff dependent and cannot be universally relied upon. Therefore, it is unclear how these two entities would have sufficient data to perform an effective planning study in most regions.

The second sentence in Item b states that the SDT should consider whether a threshold needs to be established, however, the SAR does not clarify what threshold should be considered. In the whitepaper, it states that "no specific threshold for DER modeling is suggested, each entity should keep track of DER to make such determinations." Given the whitepaper is the basis for the SAR and "no specific threshold is suggested" we suggest this statement be removed."

In regard to Item C, AZPS recommends that the language contained in subparts 4.1.1 and 4.1.2 be changed to consider BES Inverter-based resources only as there are currently no provisions that would ensure that PCs, TPs, or DPs have any ability through the NERC Reliability Standards to collect sufficient data to conduct the planning studies envisioned.

In regard to Item D, AZPS does not agree that DER's should be included as they are outside the registration criteria and are not required to provide the data required to perform an accurate stability analysis. To address this concern, AZPS suggests a more practical approach is to use generic load models such as the composite load model based on known nameplate data using engineering judgement.

MOD-032-1 SPIDERWG SAR

AZPS supports the addition of the DP function to support the deregistration of the LSE function but does not support the proposed SAR because it lacks supporting technical justifications, such as a white paper describing what, if any, reliability gap exists.

AZPS also supports the following comments submitted by EEI:

EEI disagrees with Item 3 contained within the Industry Need statement. There is no need to "review any additional gaps in DER data collection with the de-registration of LSE." Such a review is inconsistent with the FERC order (153 FERC ¶ 61,024) approving the removal of LSEs from the functional registration. Notably, RCs, BAs, and REs and other affected entities that need the information from LSEs had no concerns if LSEs were no longer registered. The working group should take notice of the FERC conclusions and findings in this order.

EEI disagrees with the Purpose and Goal statement. Specifically, it is not clear what gaps within the currently approved MOD-032-1 beyond the need to add the DP function, exist.

Attachment 1 – Data Reporting Requirements within MOD-032-1 do not need to be updated. Steady-State (Item 2 and Item 9), and Dynamics (Item 10) provide sufficient flexibility for PCs and TPs to ensure that DER data is collected. We further note that these items provide sufficient latitude in what is collected. "Other information requested by the Planning Coordinator or Transmission Planner necessary for modeling purposes. [BA, GO, LSE, TO, TSP].

Likes 0	
Dislikes 0	

Response

Alison Mackellar - Constellation - 5,6

Answer	No
Document Name	

Comment

Constellation has concerns on the expansion of scope in the SAR to include all DER's as that can expand further than DER's subject the NERC Compliance under MOD-032-1 Constellation agrees with NAGF's comments regarding the majority of DERs are not subject to NERC compliance. "Though the NAGF generally agrees with the proposed scopes of these SARs, the NAGF has concerns with the DERs providing information as DERs are not subject to NERC compliance or these standards. As such, requiring entities (i.e. DPs) to acquire such data should not have compliance obligations or accountability in situations where the DERs do not comply with the request(s)." Constellation also asserts that the NERC Reliability Guidance "Improvements to Interconnection Requirements for BPS-Connected Inverter Based Resources" of Sept 2019 has good guidance to Transmission Owners to derive the data that is being considered in this SAR.

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

The North American Generator Forum (NAGF) understands the need for and supports including Distributed Energy Resources (DERs) and BPS connected inverter-based resources in planning assessments where such data is made available. The NAGF has concerns as it relates to the SAR proposed for MOD-032-1 as well as the TPL-001-5.1 SAR proposed by the SPIDERWG:

- *The NAGF has concerns with the DERs providing information as DERs are not subject to NERC compliance or these standards. As such, requiring entities (i.e. DPs) to acquire such data should not have compliance obligations or accountability in situations where the DERs do not comply with the request(s).*
- *The steady-state and dynamic sections of Attachment 1 for MOD-032-1 already contain the following line item: "Other information requested by the Planning Coordinator or Transmission Planner necessary for modeling purposes [BA, GO, LSE, TO, TSP]." This item provides the PC/TP the authority to ask for modeling information they deem necessary to build the cases and to perform studies. Therefore, no modification to the standard is needed to itemize DER modeling information.*

The NAGF agrees with the proposed scope of the TPL-001-5.1 IRPWG SAR to improve language and provide clarity for inverter-based resources.

Likes 0	
Dislikes 0	

Response

Kendra Buesgens - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	No
Document Name	

Comment

The MRO NSRF understands the IPRWG concerns and intent to consider Distributed Energy Resources (DERs). While the MRO NSRF appreciates the issues the SARs are attempting to solve and good intentions, NERC regulated entities must deal with the final zero-defect product enforced by auditors for a large, diverse, and rapidly changing population. This is a poor fit for zero-defect standards.

IRPWG SAR Responses:

- The MRO NSRF believes that a solution can be achieved, but the SAR as currently written must be revised.
- BPS cannot be allowed and needs to be replaced with BES.
- Lists cannot be allowed and maintained to zero-defect due to the large, diverse, and ever-changing nature of DERs.
- Regulatory jurisdiction issues must be overcome.
- At least one solution in any future NERC standard requirements must allow flexibility for the DP, TP, and PC to use its engineering best judgment to develop composite load models and the SAR scope must explicitly state that.

IPRWG SAR Required Modifications for NERC standards and DER to be enforceable:

- The MRO NSRF can support certain aspects of the IPRWG SAR, but not the SAR itself without modifications.

o Bulk Power System (BPS) cannot be used in SARs or NERC standards and must be replaced with Bulk Electric System.

o BPS is undefined, which is why BES was created and debated carefully.

o Distributed Energy Resources are by NERC's own definition are part of the distribution system.

- A Distributed Energy Resource (DER) is any resource on the distribution system that produces electricity and is not otherwise included in the formal NERC definition of the Bulk Electric System (BES).
- https://www.nerc.com/comm/Other/essntlrlbltysrvcstskfrcDL/Distributed_Energy_Resources_Report.pdf

o The 2015 Federal Power Act (FPA) forbids "facilities used in the local distribution of electric energy" to which DERs are connected.

- DERs must first be subject to the same regulatory penalty structure as NERC registered entities or zero-defect standards are unenforceable.

o Regardless of good intentions, without equal enforcement penalties, DERs do not have the same incentive to provide data to NERC Distribution Providers, Transmission Planners, or Planning Coordinators.

o Zero-defect is by definition, without error.

o DERs are small and will change constantly, rendering lists useless. When a DER goes bankrupt, disappears or changes, data may not be communicated.

- Listing BPS devices cannot be required.

o For the reasons stated above, a zero-defect list cannot be perfectly maintained.

MRO NSRF Can Support:

- Clarifying pulling out of synchronism is for synchronous generators only.
- Modify Requirements 3.3 and 4.3 and their applicable sub-requirements to make the term "GSU transformer" suitable for all generation types.

Technical Issues:

The SAR had requested entities note any technical issues.

- Decades of load research have shown that generic load model assumptions provide the best approach to simulating loads.
- Whether mercury vapor lights, compact fluorescent lights, LEDs, or power electronics, achieving a good cost-to-benefit ratio for specific load data has always been difficult. Detailed load surveys are expensive and time-consuming, often yielding only marginal benefits above engineering judgment by experienced Transmission Planners.

Alternatives:

- A revised SAR must state specifically the resulting NERC standard requirements will explicitly allow flexibility with DP, TP, and PC engineering judgment discretion for composite load models as a solution.
- FERC could require FERC registered entities to submit DER data to DPs, TPs, and PCs or face penalties similar to NERC registered entities to provide the same incentives to the small DERs to provide the required data.
- NERC could publish a white paper on best practices, not subject to mandatory enforcement that NERC DPs, TPs, and PCs provide their best estimates of DER impacts in composite load models.

SPIDERWG and MOD-032 SAR Responses:

The MRO NSRF supports the intent of the SARs. Following the repeated recurrence of major events involving Inverter-Based Resources (IBRs), there is an industry need to be able to accurately model IBRs and aggregated Distributed Energy Resources (DERs) in the planning horizon to identify risks and develop plans to mitigate them prior to those risks giving rise to events in the operating horizon, particularly with respect to IBRs. However, there are two main issues that should be addressed by the SDT:

- **Approach to data collection/modeling**
- **Replace all references to Bulk Power System with Bulk Electric System**

Approach to Data Collection / Modeling:

The NSRF proposes the SAR not require a granular approach to data collection which contemplates zero-defect compliance and instead focus on a risk-based approach that would result in efficient and effective aggregated modeling data. Due to the challenges associated with the collection of distribution data, consideration needs to be given to screening criteria and/or the ability to aggregate data to allow for efficiency and effectiveness such that the technical benefits received are commensurate with the cost of obtaining the data. These fundamental issues (a better framework, better performance standards and better enforcement that recognizes most data collection issues are low risk) must be implemented for industry or regulators to avoid being pulled into the meticulous examination of each piece of data provided.

Likes 0	
Dislikes 0	

Response

Donna Wood - Tri-State G and T Association, Inc. - 1,3,5	
Answer	No
Document Name	
Comment	

Tri-State appreciates the opportunity to comment on the three SARs and understands the concerns with Distributed Energy Resources (DER).

IRPWG SAR

Tri-State generally agrees with the SAR except for the below:

- Bulk Power System (BPS) should be replaced with Bulk Electric System (BES). BPS is not defined and should not be used in the SAR.

SPIDERWG/MOD-032 SAR

Tri-State does not agree with the SPIDERWG SARs:

- Unless you reach a certain threshold DER models are not required so more times than not you will not have a model. Concern is how do you monitor performance if you don't have model data. There has to be certain thresholds in place and also what changes a threshold. Most importantly, because DERs are not being subject to any regulation the incentive to provide data/modeling is very small. There has to be an incentive for DERs to provide data.
- Bulk Power System (BPS) should be replaced with Bulk Electric System (BES). BPS is not defined and should not be used in the SAR.

Likes 0	
Dislikes 0	

Response

Daniel Gacek - Exelon - 1,3

Answer	No
Document Name	

Comment

Exelon supports this project and the efforts of the IRPWG and the SPIDERWG. We do not agree with the proposed scope in part due to the reference to the Bulk Power System (BPS). We concur with the comments on this concern provided by the EEI.

Likes 0	
Dislikes 0	

Response

Quintin Lee - Eversource Energy - 1,3, Group Name Eversource Group

Answer	No
Document Name	

Comment

The term Bulk Power System lacks the clarity of Bulk Electric System, suggest changing BPS to BES.

It should be clear the DER data is for the Transmission Planner not SCADA data for the Transmission Operator.

See comments in Question 2 for more details for each SAR.	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC Regional Standards Committee	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Kim Thomas - Duke Energy - 1,3,5,6 - SERC,RF, Group Name Duke Energy	
Answer	Yes
Document Name	
Comment	
Add a definition for “Distributed Energy Resource (DER)” to the NERC Glossary of Terms.	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Texas RE appreciates the drafting team’s efforts to account for inverter-based resources (IBR). Texas RE agrees with the purpose and justification of the three SARs presented. Texas RE has a few specific comments regarding the SAR scopes.	

First, Texas RE noticed that the IRPWG SAR discusses clarifying the term “GSU transformer”. Texas RE generally supports clarifying terms, and appreciates the SDT’s efforts in this regard.

Second, Texas RE also agrees the requirements should clarify whether they are applicable to DERs. As part of this process, the SDT could consider defining the term “DER.”

Finally, while Texas RE agrees with the TPL-001-5 IRPWG SAR regarding synchronization being more applicable to non-IBR machines, the SAR team should consider evaluating whether there is a corresponding attribute of IBRs that needs to be captured effectively in planning reliable operation of the grid. The SPIDERWG SAR partially addresses this issue with the recommendation to expand the stability performance criteria for synchronous and asynchronous generation.

Likes 0	
Dislikes 0	

Response

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

Answer	Yes
Document Name	

Comment

FirstEnergy - while supporting the scope in the SARS - supports EEI's request for clarification and changes to the three SARS.

Likes 0	
Dislikes 0	

Response

LaKenya VanNorman - Florida Municipal Power Agency - 1,3,4,5,6 - SERC, Group Name FMPA and members

Answer	Yes
Document Name	

Comment

FMPA generally supports the present high-level proposals in the SARs. As details are developed in the actual standard language, we will review to ensure we agree with the way the changes are implemented. We explicitly support the concept of including thresholds for DER inclusion, since in many regions penetrations are still very low.

Likes 0	
Dislikes 0	

Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	

For the MOD-032 SAR, we generally agree with the proposed project scope but have the following comments:

The *NERC Reliability Guideline: DER Data Collection for Modeling in Transmission Planning Studies* referenced in the SAR notes a distinction between utility-scale DERs (U-DERs) and retail-scale DERs (R-DERs). It states that the distinction is "based on their size, impact, or location on the distribution system". We suggest that another distinction to consider is ownership of the DER. Is the DER owned by an electric utility, an end-use (industrial, commercial, residential) consumer of electricity, or a DER owner/aggregator/provider? The project proposal to "consider whether including a definition for "Distributed Energy Resource (DER)" in the NERC Glossary of Terms is necessary" is perhaps all that can be stated at the SAR stage; however we believe an industry vetted definition is important if the term is going to be added to the MOD-032 standard. It is presumed that modeling data for U-DERs will be more readily obtainable than for R-DERs.

The SAR states that "The goal is to provide clarity and consistency for data collection across PCs and TPs when coordinating with the DP to gather aggregate load and aggregate DER data." There may be instances where DERs are owned by or installed under programs coordinated by a utility that is registered for a broader set of NERC functions (not just registered as a DP). In such instances, a registrant that is only registered as a DP may not be the most practical source for the modeling data needed by the PC and TP, but they would be subject to the standard. The NERC Compliance Registry dated 2/11/2022 reflects there are 316 registered DPs, of which 68 are registered only as a DP. An additional 70 entities are registered as "UFLS-Only DPs". Could a new "DER-only DP" registration sub-category be needed for the DP? An alternative approach for the MOD-032 standard would be to add a "DER data entity" to the applicability section (similar to PRC-006-5's section 4.2). Then such entities "could include one or more of the following.... (DP, UFLS-Only DP, TO, RP, GO, ???)".

The MOD-032 SAR should also include removal of the "Planning Authority" and related PA / PC explanation from section 4.1.4 of MOD-032 within the scope. This would be consistent with action taken on MOD-031 and MOD-033 under Project 2017-07, Standards Alignment with Registration.

For the TPL-001 SARs, we generally agree with the proposed project scopes but have the following comments:

The SAR submitted by the SPIDERWG proposes to replace the phrase "System peak Load" with "System peak net Load" in TPL-001-5.1, R2.1/2.1.1 and R2.2/2.2.1. We interpret this to mean that models representing DER adjusted loads would be treated as the "baseline" representation for assessing the system and scenarios without DER adjusted loads would be treated as a sensitivity case (with sensitivity cases only required for the Near-Term Transmission Planning Horizon). We believe that each TP, in consultation with their PC, should be allowed to determine the appropriate assumption for DERs to be used in their baseline study models. Some may prefer to utilize models with DER adjusted loads represented as a sensitivity case. As greater confidence is gained in the DER data received by the PC/TP, along with a review of historical DER performance/event response, using models with DER adjusted loads as the "baseline" could become the norm.

The SAR submitted by the SPIDERWG proposes that the "tripping of generators" in steady state (R3/3.3.1.1) and stability (R4/4.3.1.2) contingency analysis should include tripping of DER if data is available. We believe the phrase "if data and models are available" is an important distinction that should carry over into the standard. This tripping of generators makes sense if the planners have the data, a definition of DER; and a specified threshold.

The SAR submitted by the SPIDERWG proposes that the stability performance criteria (R4/4.1.1, 4.1.2) should be applicable to both synchronous and asynchronous generation, inclusive of DER. The standard currently states that a generator disconnected by "fault clearing action or by a Remedial Action Scheme is not considered pulling out of synchronism." This language appropriately emphasizes that pulling out of synchronism is the consequence to be avoided. While loss of inverter-based generation could cause challenges for system operators, that impact is similar to the loss of generation due to fault clearing or a Remedial Action Scheme; it is not the angular stability of any generating unit that is at risk, but instead a possible

power deficit that must be supplied from other generators. The original intent of the standard was to distinguish the extra impact to the grid when the swing of a synchronous generator was pulling out of synchronism and causing a potential low voltage and out of step condition. This type of impact is not present when a nonsynchronous generator is tripped offline due to an event. Moreover, specifically in respect to DERs being included in R4.1.1 and R4.1.2, these generators are not part of the BES. While tripping these resources may be appropriate to understand BES impacts, the loss of non-BES generation should never be considered a BES violation.

The SAR submitted by the SPIDERWG proposes that for R4/4.3.2, the list of dynamic control devices should include DER so that the expected automatic operation of DER (e.g., DER tripping, dynamic voltage and frequency controls, momentary cessation, etc.) can be considered in stability analyses. The standard currently states that the operation of dynamic control devices is required when "such devices impact the study area." It is important that planners be able to rely on documented assumptions in determining which devices should be modeled. Obtaining accurate modeling data for DERs is challenging and for many DERs may result in negligible impact to the BES. Thus, it is important that the addition of DER controls to R4.3.2: 1) be accompanied by a qualification that the modeling data is available, and 2) retain the ability to exclude facilities where the dynamic control devices do not impact the study area.

Likes 0	
Dislikes 0	

Response

Scott Brame - North Carolina Electric Membership Corporation - 3,4,5 - SERC

Answer	Yes
Document Name	

Comment

NCEMC generally agrees with the proposed scope as described in the SARs, but we have concerns about how these 3 SARs have been proposed to be addressed with only one SAR SDT, mainly that the make-up of the SDT will most likely be a majority of PC/TP representatives and not very many DPs will participate as very few DPs will be interesting in working on activities they are not subject to or have much interest (since there are two SARs for TPL-001-5.1 in this case). Plus the amount of time it may take to address the various and complex issues in the TPL SARs and the MOD SAR may take many meetings over numerous months and very few companies if any has sufficient resources to allow a staff representative to be out-of-pocket working on this project for numerous months. We strongly suggest that NERC and the leaders of this SAR SDT carefully consider how best to address the specific items identified within the SAR and make every effort for this Project not to wander beyond what is specifically stated in the SARs to do.

Additionally, because of what happened on the 2020-01 Project SAR SDT for MOD-032-1 only seeking "informal comments", we would have preferred that NERC had requested "formal comments" first for each of these SARs as a possible means to better gauge industry support to avoid the potential situation of having the SAR being rejected as what happened for Project 2020-01. For Project 2022-02, we would strongly encourage NERC to consider having multiple comment rounds before these SARs are taken back to the NERC Standards Committee for vote/approval on how to move forward. As a member of that SAR SDT, it was disappointing when the NERC SC decided to reject the SAR completely and disband the SAR SDT when only "informal comments" were requested. Maybe NERC has already addressed this in the SPM manual to prevent this incident from being repeated. Many of the reliability issues regarding DERs re-surfaced in the NERC Odessa Disturbance report as well as the NERC Inverter-Based Resource Performance Task Force (IRPTF) White Paper before the Odessa event occurred. In our opinion, coordinated Transmission - Distribution Planning is not being done in a proactive manner as it once was and it needs to be for various reasons, but one reason has to do with a lack of consistency and uniformity for how increasing DERs are accounted for that have already interconnected to the BPS and are still being interconnected. Additionally, it seems that DERs are being allowed to exhaust any and all surplus/overhead capacity to the BPS and as a result, network and native load is continuing to be put at risk if they don't have sufficient resources to back-up their primary supply source located at or near the load delivery points.

As for extending the MOD-032-1 to the Distribution Providers (DP) since the Load-Serving Entity (LSE) function was retired by NERC (LSEs still exists in the OATT world for NITS customers performing the DP function), simply extending this standard and several other standards as noted in the NERC Inverter-Based Resource Performance Task Force (IRPTF) White Paper to the DP function does not go far enough to address the ongoing complex

issues associated with collecting and modeling of aggregate DERs in powerflow models used for seasonal reliability assessments and long-term transmission planning. PC/TP entities are responsible for providing a procedure and mechanism for collecting any and all modeling data needed for carrying out long-term planning. Today, the modeling standards MOD-031 and MOD-032 each already allow the PC/TP to request this DER/DR data from anyone taking transmission service from their grid. They have item 9 in Table 1 of MOD-032-1 which allows to ask for “any other data” and that can include DER, DSM or DR or any behind-the-meter resource for that matter. Distribution Providers are not always party to the DERs interconnected to the Transmission or Distribution so assuming that DPs have the authority to request data from DERs is not an accurate assumption. Does every standard have to explicitly include a reference to DERs to allow the PC/TP to request it? There has to be additional accountability to address the coordination issues (or lack thereof) between DPs and GOs (or “data providers”) and TOs and their respective PCs/TPs to accurately account for DERs explicitly or in aggregate. We have observed that often the “model builders” may not account for the full MW capacity value of the DERs interconnected to the BES or BPS as they appear to be assuming either ELCC or a “Capacity Value at Peak” Study for DERs or IBRs or assuming some sort of “engineering judgment” to reflect something less than the full MW output of DERs coincident with the transmission/system peaks (winter and summer). It seems to be something that is far less than what the DER or IBR was studied during interconnection and is capable of producing to the grid. This is “without” any discussion or exchange of information between the DER and/or asset owners of this facility or the local Distribution Provider. Why is that? Why not account for the max output of the DERs or IBRs during sensitivities assumed for “worse case” under contingency “stress tests” for identifying system weaknesses rather than simply “assuming” that scenario may never happen OR the grid is suddenly in an unanalyzed state(s) and you would then have to resort to curtailment of that DER/IBR assuming there is proper SCADA or isolating devices to enable the DER/IBR to be reduced or tripped offline? Why assume this rather than test for the possibility and mitigate it the best you can? Collectively, all utilities in all states should not and cannot simply rely on the LGIA and SGIA agreements and GI queue processes that “sometimes” trigger “affected system studies” to properly account for DERs needed to be modeled in powerflow models used for reliability assessments and long-term planning.

For the TPL SAR, we still have concerns about the TPL standard being revised to allow for only planning to the “net load” (defined as “net load = gross load – DER output”) as seen at the T-D interfaces versus gross load observed during the transmission system peaks. The load profile at the T-D interface is NOT or is rarely going to be the same as the energy profile of any behind-the-meter DER. From recent comments shared with the RSTC about this SAR, it seems to be proposing a provision to allow the PC/TP entities to ONLY plan for high system “net” load (whatever that means) that may or may not account for periods when the sun is NOT shining thus no output provided by that solar DER. If PC/TP entities only plan to trigger upgrades for the “net load” then this may drive us all to a point where the net T-D interface load at all T-D substation/delivery points become flat or even decreasing over time (if it is not already experiencing that phenomena) which could mask loading and stability issues that would have otherwise been accelerated needed network transmission upgrades had it not been for the modeling practice of accounting for DERs below the BPS “only” in the substation/POD load forecasts assumed across the planning horizon.

Perhaps it may take a FERC Technical Conference (there may have already been some at this point) to reach a point where dealing with the “identified reliability gap claimed by NERC” in a manner such that it is not overly burdensome to any NERC-registered reliability party while also accounting for non-FERC and non-NERC registered DER/IBR asset owners and developers. If that is what is needed, then NCEMC would like for NERC and FERC to hold such conference(s) with local/state regulators sooner rather than allowing this “reliability gap” to continue to persist and trigger yet another reliability event like the ones in Southern California and Odessa, Texas.

Likes 0	
Dislikes 0	

Response

John Pearson - ISO New England, Inc. - 2

Answer	Yes
Document Name	

Comment

Recognizing the impact of increased use of inverter-based resources, ISO New England supports the proposed SARs to modify the MOD-032 and TPL-001 Standards. Since many inverter based resources are less than 20 MVA for a single unit or 75 MVA aggregate with connections at less than 100 kV, these smaller resources should be taken into consideration when revising the TPL-001 and MOD-032 Standards.

Likes 0	
Dislikes 0	

Response

Dana Showalter - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council (IRC) Standards Review Committee (SRC) 2022-02 SAR

Answer	Yes
Document Name	

Comment

The Standards Review Committee (SRC) of the ISO/RTO Council supports the need to modify TPL-001-5.1, as identified in the IRPWG and the SPIDERWG Standard Authorization Requests (SARs) associated with this project. With the continued increase of Inverter-Based Resources (IBRs) and Distributed Energy Resources (DERs), Planning Assessments require consideration of the reliability impact of these facilities on the BPS. However, additional data is required to ensure useful assessments, which leads into the importance of modifying the data collection requirements of MOD-032.

TPL-001 (IRPWG and SPIDERWG SARs)

The SRC believes TPL-001 Requirements 4.1.1 and 4.1.2 should be addressed, but could be clearer on the direction. The IRPWG SAR stated the requirement should be clarified to address only synchronous generators. The SPIDERWG SAR stated that these requirements should be expanded to include asynchronous generation. There are two issues embedded here and the SRC believes each should be addressed separately by the Standard Drafting Team: (1) Requirements 4.1.1 and 4.1.2 should be clarified to apply to synchronous generators only and (2) additional criteria should be established for asynchronous generation and inverter-based resources connected at both the BPS level and at the transmission/distribution interface.

For Requirement 4.3.2, both SARS suggested expansion of the list of devices to be considered in the analyses to include the impact of automatic operation of DERs and IBRs. The SRC suggests that, in addition to the scope of the SARs provided by the IRPTF and SPIDERWG, the Standard Drafting Team consider a stronger stance than the current “devices may include . . .” if these devices are expected to be included in the contingency analysis required in Requirement 4.3. Otherwise, this seems to be optional or informative and would be better to be in a guidance document.

Regarding Requirements 3.3.1.1 and 4.3.1.2, the SRC would like to ensure the Standard Drafting Team ensures the standard includes large DERs as well as aggregation of smaller DERs. Further, the SRC would like to see the SAR provide for a standard broad enough to allow appropriate Responsible Entities the ability to develop a pre-screening process, methodology and/or criteria to identify when there is a need to further study DERs that could have a meaningful impact on the reliability of the BES, as opposed to requiring a comprehensive study be done to assess all DERs regardless of impact. With this methodology or criteria, Responsible Entities such as the Planning Coordinators (PCs) could establish both a voltage threshold as well as a MW threshold to focus the efforts on meaningful impacts to their Planning Assessments while at the same time minimizing the burden on entities required to provide the data.

MOD-032 (SPIDERWG SAR)

The SRC sees significant value in ensuring that PCs and Transmission Planners (TPs) have the DER data contemplated by the SAR; as such, the SRC supports the proposed changes to MOD-032-1.

It is important from a reliability perspective for the PC and TP to have information regarding DERs with the potential to impact reliable operation of the BPS to accurately model load and generation. As is recognized under current NERC standards, NERC requirements are not limited to managing BES

facilities only; e.g., loads connected at 100 kV or above and resources equal or greater than 75 MVA. As identified in the FERC/NERC Staff Report in the September 8, 2011 Blackout report, an underlying cause of the event was “not identifying and studying the impact on Bulk-Power System (BPS) reliability of sub-100 kV facilities in planning and operations.” Therefore, to the extent a non-BES facility has the ability to impact the reliability of the BES, NERC has the ability to require it be identified and studied. This is already the case in existing NERC standards, e.g., TOP-001-5, Transmission Operations, requirement R10, Part 10.3:

“Each Transmission Operator shall perform the following for determining System Operating Limit (SOL) exceedances within its Transmission Operator Area: Monitor non-BES facilities within its Transmission Operator Area identified as necessary by the Transmission Operator.”

The reliability of the BPS would be improved with the modeling of DER generation (e.g., as equivalents on a substation low voltage bus) separate from the distribution load, which ultimately leads to modifying MOD-032’s data collection requirements. As the amount of DERs increases on a system, netting generation from load leads to modeling inaccuracies and the potential of masking performance issues that would not otherwise be taken into consideration, such as times when the DERs are not able to generate; netting generation from load is not a preferred method. Modeling DERs explicitly as generator equivalents and separating them from load gives an opportunity to enhance case fidelity, improve Planning Assessments and mitigate overall system impact.

The SRC recognizes that the LSE function is retired, however, the SRC notes that simply replacing Load Serving Entity (LSE) function with Distribution Provider (DP) function may not be the optimum solution. Accordingly, while the information contemplated in the SAR would no doubt benefit PCs, that information may be incomplete due to gaps in the data collection process. The SRC recommends the Standard Drafting Team spend time to review the reliability impact of the LSE tasks as they exist before a blanket DP replacement. The SRC also recommends that this effort be followed by the identification of information and data availability gaps for DERs and the provision of recommendations or guidance to resolve the identified gaps.

The SRC believes the Standard Drafting Team should also consider assigning the responsibility of DER data collection to the Transmission Owner (TO) rather than the PC or TP. The TO has direct contact with DPs and is in a better position in terms of visibility to account for what is being connected at the distribution level and provide a suitable, aggregated modeling information to the PC and TP for inclusion in system impact studies. The table in Attachment 1 should include references to aggregate DER, categorized by intermittent resources and dispatchable resources, in the steady-state and dynamics columns and be assigned to the DP and TO. Ideally, the DP provides the data to the TO and the TO includes that data in their submission to the TP/PC. DPs must also provide their total system load absent any DER modification, unless approved to be netted by the TP/PC. The DPs and TOs must timely provide the data to meet the annual model build schedule established by the TP/PC.

The SRC also asks that the SAR scope specifically states that requirements will be created for data needed from the appropriate functional entities, as implied by the box checked in the SAR form: “Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.”

[The IRC SRC includes the following entities: CAISO, ERCOT, IESO, MISO, ISO-NE, NYISO, PJM and SPP.]

Likes 0	
Dislikes 0	

Response

Eric Shaw - Oncor Electric Delivery - 1 - Texas RE	
Answer	Yes
Document Name	
Comment	

MOD-032 SAR

Data collection requirements should be kept within practical reason. DP's cannot be expected to collect detailed information for every rooftop solar installation on their system. Considering the broad scope of DER's, the standard should set a reasonable expectation for the level of information required to be collected per Attachment 1 of the standard.

DER data collection and modeling requirements should consider the existing processes of all PC's. For example, there are DERs registered with ERCOT, typically U-DER, where the DER owners are required to provide DER mapping and modeling data directly to ERCOT, and ERCOT is responsible for mapping and modeling these types of DERs in the operations and planning models. ERCOT is provided residential and small commercial DER, typically R-DER, in aggregate for mapping to the network operations model. Any deviation from the existing ERCOT processes may cause more confusion and inefficiency.

TPL-001 SAR

Given the broad scope of the topic of DER, the standard language should set a reasonable expectation for the level of detail required in simulation regarding DER's.

Because of the nature of DER, it is possible for a single distribution bus to connect U-DER installations with different inverters, legacy IEEE standards, and protective settings. R-DER may also differ and may require aggregations by inverters with similar performance characteristics. During the modeling process these installations may be aggregated into a single unit modeled at the bus in order to avoid having many different generator models on a single bus. A requirement to explicitly simulate the protection and behavior of all these inverters would require a much greater modeling burden.

Given the broad scope of the topic of DER, the standard language should set a reasonable expectation for stability performance criteria. Inverter based generation, and especially DER's, are prone to tripping for many transmission level events on the system. A requirement to mitigate for every observed inverter based trip may be impractical for Transmission Planners to execute.

Texas's Substantive Rules require highly sensitive DER tripping standards for Voltage and Frequency protection. Transmission level faults are likely to cause DER tripping in the area. There should not be a requirement to mitigate every DER trip that is observed, even if it is for a P1 event.

Likes 0	
Dislikes 0	

Response

Matthew Jaramilla - Salt River Project - NA - Not Applicable - WECC

Answer	Yes
Document Name	

Comment

None.

Likes 0	
Dislikes 0	

Response

Carl Pineault - Hydro-Qu?bec Production - 1,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Nazra Gladu - Manitoba Hydro - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Randy Buswell - VELCO -Vermont Electric Power Company, Inc. - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ramneek Dimen - Seattle City Light - 1 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Wayne Guttormson - SaskPower - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Teresa Krabe - Lower Colorado River Authority - 1,5, Group Name LCRA Compliance	

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	
Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - MRO,WECC, Group Name SPP RTO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Darcy O'Connell - California ISO - 2	
Answer	
Document Name	
Comment	
CAISO agrees with comments submitted by the ISO/RTO Counsel (IRC) Standards Review Committee (SRC)	

Likes 0	
Dislikes 0	
Response	

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

Matthew Jaramilla - Salt River Project - NA - Not Applicable - WECC

Answer	
Document Name	

Comment

None

Likes 0	
Dislikes 0	

Response

Quintin Lee - Eversource Energy - 1,3, Group Name Eversource Group

Answer	
Document Name	

Comment

Suggest changing the **SAR titled, 'TPL-001-5.1 Transmission System Planning Performance Requirements' (dated 12/15/2021)** to TPL-001-5.1 SPIDERWG SAR since this currently shares the same SAR title as the TPL-001-5.1 IRPWG SAR.

Since not all DER is inverter-based, suggest changing:

· The SDT can consider adding asynchronous generator related devices like inverter, plant controller, etc.

to:

· The SDT can consider adding synchronous generator over-excitation limiters (OELs), under-excitation limiters (UELs) and asynchronous generator related devices like inverter, plant controller, etc.

Suggest changing the **SAR titled, 'TPL-001-5.1 Transmission System Planning Performance Requirements' (dated 12/16/2021)** to TPL-001-5.1 IRPWG SAR since this currently shares the same SAR title as the TPL-001-5.1 SPIDERWG SAR.

Since the impacts to the BES are coming from high/low-voltage connected inverter-based utility-scale inverter-based resources, suggest changing:

- Many areas of the North American bulk power system (BPS) continue to experience an increase in BPS-connected inverter-based resources

to:

- Many areas of the North American bulk power system (BPS) continue to experience an increase in directly and indirectly BPS-connected, utility scale inverter-based resources.

Suggest changing:

- Not included in this list are power plant controllers and inverter controls, which often dominate the dynamic response of IBRs.

to:

- Not included in this list are power plant controllers, inverter controls, limiters, etc., which often dominate the dynamic response of IBRs and can also be applicable to synchronous generators.

SAR "MOD-032-1 Data for Power System Modeling and Analysis"

Suggest changing:

- that are necessary to support the development of accurate interconnection-wide models

to:

- that are necessary to support the development of accurate regional and interconnection-wide models

Suggest there should be modifications to the short circuit column of Attachment 1 because while #1 already states "all applicable elements" in the steady-state column, that does not mean we have necessary information related to positive, negative, and zero sequence data. In areas with low short-circuit margins, the impact of DER can make/break the system.

Likes 0	
Dislikes 0	

Response

Dana Showalter - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Council (IRC) Standards Review Committee (SRC) 2022-02 SAR

Answer	
Document Name	

Comment

The SRC believes the PC and TP need to have information on all DERs impacting the BPS, as load and generation have distinct impacts on the accuracy of the study results. A standard addressing modeling should not limit what information may be required to accurately model the BES. Nor should it be restricted to modeling only data tied to the BES Definition thresholds – as the electrical properties of the grid are not limited to the BES Definition. In load forecasts today, the planning models are not limited to modeling only loads above 100KV and resources above 75 MVA. The same should be true for DERs. Due to the growing DER impact, the potential significant impact of DERs on the system, and the "invisibility" of these resources to the PCs and TPs, this project needs to find a way for PCs and TPs to acquire and model DERs separate from load, even though they fall outside the definition of BES.

The SRC recognizes that too much data is cumbersome to collect and manage, and can be a hindrance to all involved. Thus, the SRC proposes the Standard Drafting Team avoid a granular approach to data collection, which may contemplate zero-defect compliance, but instead focus on a risk-based approach that would result in efficient and effective collection of large DER and aggregated DER modeling data, in light of the use of the data for

planning models. Planning models are forward looking (versus real-time) using existing system information and forecasts, so awareness and knowledge of the current system is important, but perfect knowledge is not necessary.

In addition, the SRC acknowledges that there are challenges associated with collecting distribution data, so due consideration should be given to Responsible Entities to establish screening criteria and/or to aggregate data to allow for modeling efficiency such that the technical benefits received are commensurate with the cost and effort of obtaining the data. A granular approach to modeling data would only serve to "clutter" the model, making it impractical and resource-intensive to maintain.

The fundamental issues of a modeling framework, risk-based performance standards, and appropriate enforcement for low-risk issues must be clearly addressed and implemented for industry and regulators to avoid being pulled into the meticulous examination of each piece of data provided.

Finally, the SRC recommends the consistent use of "inverter-based resource" by the SARs and the Standard Drafting Team rather than asynchronous resource.

[The IRC SRC includes the following entities: CAISO, ERCOT, IESO, MISO, ISO-NE, NYISO, PJM and SPP.]

Likes 0	
Dislikes 0	

Response

Chris Wagner - Santee Cooper - 1,3,5,6, Group Name Santee Cooper

Answer	
Document Name	

Comment

The SPIDERWG SAR only states that DERs should be modeled if data is available, and not all DERs in the "Requested Information Section". Therefore, the statement, "*In general, the impact of DERs on the BES should be included in planning assessments if DER data and models are available. Any choice to exclude the consideration of the impact of DER on the BES should be supported by a technical rationale and/or justification*", should be included in the standard in addition to the changes.

I do not agree with tripping DERs in R3.3.1.1 and R4.3.1.2. I agree that DERs should be monitored after transmission and/or generators fault, but not tripped. Additionally, in R4.1.1 and R4.1.2, I do not agree DERs should be included in the stability performance criteria of the TPL. We, as planners, will be required to make correction action plans based on our studies, but we are not the owners of the DERs.

Likes 0	
Dislikes 0	

Response

Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - MRO,WECC, Group Name SPP RTO

Answer	
Document Name	

Comment

SPP recommends that the drafting team take into consideration coordinating with the Project 2021-06 Modifications to IRO-010 and TOP-003 (drafting team) and their efforts in reference to their IRO-010 SAR. We understand that IRO-010 doesn't meet the scope of this project. However, at this point, our concern is that both standards are used in the process for data acquisition and doesn't have the foundational language to enable an entity to obtain the pertinent data needed to perform accurate studies (for example- planning and/or ops modeling data) to maintain the reliability of the grid. From our perspective, there is an opportunity for both drafting teams to work together and learn about the needs of both the requesting and sharing entities perspective in reference to data acquisition as well as ensuring the appropriate data exchange is accomplished with the common goal of maintaining the reliability of the grid.

Furthermore, SPP recommends that the drafting team take into consideration including the EMT (Electromagnetic Transient Studies) data into the scope of the MOD-032 efforts. Again, we understand that this effort is not currently included into the scope of the MOD-032 SAR. However, this is a form of data collection that is applicable to a study that's more granular than the dynamic study listed in the attachment 1 of the MOD-032 Standard.

SPP is concerned that entities like the TP and PC cannot obtain modeling data such as phase lock loop parameters to conduct appropriate inverter instability screening studies and EMT models to perform EMT studies, for example. Further, there are other concerns as follows:

•Spurious spikes in electrical quantities in positive sequence RMS (Root-Mean-Square) simulations can occur at any bus. This is caused by sudden changes in inverter terminal voltage phase angle due to network bus voltages being algebraic variables in the RMS simulation instead of differential equations that offer the true response. Without EMT studies, these disturbances may not be recognized.

•Dynamics models do not include the real-code behavior of inverter-based resources and often involve engineering judgment based on controller block diagrams used in representing the actual performance of these complex power electronic resources. Gaps exists in identifying the exact thresholds at which inverter and plant protection would activate that could be dependent on knowledge of the real code within the control systems.

Additionally, SPP's interpretation is that the MOD-032 Standard (attachment 1) does not give entities, like the TP and PC, the complete support to obtain this type of modeling data. As an example, our organization has requested the phase lock loop data from the Interconnection Customers and the OEMs (Original Equipment Manufacturer) only to have our request denied due to "proprietary legalities". At this point, SPP is not confident the GO will provide this modeling data to help ensure quality results from the study.

As for the SPIDERWG TPL-001-5 SAR, SPP recommends that the drafting team takes into consideration adding more clarity pertaining to the resources that the DER definition is applicable to. From our perspective, it is unclear about the DER's definitional stance in reference to the inclusion or exclusion of Demand Response. For example, the SPIDERWG Terms and Definition Document (notes: Loads and Demand Response do not produce electric power and are therefore not included in the definition of DER). Does this note have merit? We have a concern that the inclusion\exclusion of Demand Response data will impact the model's accuracy when performing planning assessments. We would hope to have a clear direction of how to appropriately handle this data so we provide quality planning assessments.

Furthermore, we would recommend that drafting team take into consideration of adding clarity in reference to the inclusion\exclusion of R-DERs and U-DER in the applicability of the DER definition. We understand that the DER Parameterization guideline discusses the R-DERs and U-DERs. However, our concern is basically the same for the R-DERs and U-DERs as mentioned in the previous paragraph.

Likes 0	
Dislikes 0	

Response

Scott Brame - North Carolina Electric Membership Corporation - 3,4,5 - SERC

Answer	
Document Name	

Comment

NCEMC fully supports the comments submitted by the North American Generator Forum for this NERC Project.	
Likes 0	
Dislikes 0	
Response	
Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	
Document Name	
Comment	
No additional comments.	
Likes 0	
Dislikes 0	
Response	
Kendra Buesgens - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF	
Answer	
Document Name	
Comment	
No additional comments at this time.	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	
Document Name	
Comment	

The existing MOD-032-1 standard already allows PCs/TPs to request the DER information contemplated in the SAR. Modifications to the standards should be focused on obtaining modeling data and not dictate what must be included in the model or how assessments are performed. That should be left up to the PC/TP.

In the interest of standardization of general process flow across all the NERC standards, the NAGF suggests that language/requirements be added to MOD-032, similar to IRO-010-3 R2 and TOP-003-4 R3 and R4, which requires the PC and TP to ***distribute*** *its data specification to entities that are required to submit data to be used in the models.*

Likes 0	
Dislikes 0	

Response

LaKenya VanNorman - Florida Municipal Power Agency - 1,3,4,5,6 - SERC, Group Name FMPA and members

Answer	
Document Name	

Comment

Attachment 1 for MOD-032 is very high level and allows the PC/TP discretion to request DER data already. The proposed changes to MOD-032 only increase industry awareness and establish a minimum bar. There are regions where the current levels of penetration are far too low for any real impact. SPIDERWG SAR acknowledges this by allowing for the SDT to establish thresholds for when DER may be required to be included. If any changes are made to Attachment 1 to MOD-032, such thresholds should be coordinated. That is, if for example TPL-001 language is drafted that states that DER need to be explicitly modeled only when above 10% penetration, then data should only be mandatory from MOD-032 for that same level.

Other issues presently in MOD-032 that ought to be cleaned up if Attachment 1 is modified.

1) Attachment 1 still refers to LSE as does the overall standard. We are aware this reference was previously intended to be removed.

2) Positive sequence branch impedance / shunt admittance data really ought to be listed in steady state, and then negative and zero added in short circuit.

Likes 0	
Dislikes 0	

Response

Alison Mackellar - Constellation - 5,6

Answer	
Document Name	

Comment

N/A

Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 1,3,4,5,6, Group Name FE Voter	
Answer	
Document Name	
Comment	
FirstEnergy - while supporting the scope in the SARS - supports EEI's request for clarification and changes to the three SARS.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	
Document Name	
Comment	

EEI offers comments on each of the individual SARs below:

TPL-001-5.1 IRPWG SAR Comments

EEI could support this SAR if the following changes were incorporated within the next version of the SAR.

- **Industry Need:** As noted in our response to question 1, references to the Bulk Power System (BPS) should be changed to Bulk Electric System (BES). Often, responsible entities find it difficult, and in some cases impossible, to obtain data from non-BES resources because they are not registered and do not have any regulatory obligation to provide data when requested. For this reason, we do not support the statement in paragraph 3 which requires the TPL-001-5.1 Reliability Standard be modified to address all “BPS-connected inverter-based resources”, and request the scope be limited to all BES inverter-based resources.
- **Purpose or Goal:** BPS-connected inverter-based resources should be changed to BES inverter-based resources.
- **Project Scope:** EEI supports making the term “GSU transformer” suitable for all generation types and suggests that the SDT consider an approach similar to what was done to address this issue in PRC-024-3 (see main power transformer definition). Additionally, BPS-connected inverter-based resources should be changed to BES inverter-based resources. We also support the proposed changes to 4.1.1 and 4.1.2. Lastly, we do not agree that entities should be required to maintain lists of all devices that might impact the study area inclusive of BPS-connected inverter-based resource technologies. This represents a substantial burden that goes beyond what entities can reliably collect.
- **Detailed Description:** EEI supports the detailed description provide in the SAR which we note was “copied verbatim from the IRPTF white paper that was approved by the NERC PC” and does not specify BPS-connected inverter-based resources.

TPL-001-5.1 SPIDERWG SAR Comments

EEI recognizes the importance of accurately planning transmission system performance and the impacts of Inverter-based resources, including DERs. However, there are substantial issues and challenges for the industry because many of these newer resources fall outside of NERC's jurisdiction or the ability of responsible entities to collect the needed data. Nevertheless, we could support the proposed SAR with the following changes:

- **Industry Need:** Footnote 1 should be corrected by replacing BPS with BES. EEI notes that the Purpose statement in TPL-001-5.1 states the scope of this Reliability Standard as: "Establish Transmission system planning performance requirements within the planning horizon to develop a **Bulk Electric System (BES)** that will operate reliably over a broad spectrum of System conditions and following a wide range of probable Contingencies."
- **Project Scope:** EEI offers the following changes to the SAR Project Scope:
    - **Item a**: identifies Requirement 2, subparts 2.1 and 2.2 as using the phrase "System peak Load" but the subparts that use this term include: 2.1.1, 2.2.1 and 2.4.1. The SAR scope should be changed to reflect the correct subparts where the phrase is used.
    - **Item b:** EEI does not support the language because it does not clarify the concern contained in the reference SPIDERWG whitepaper or provide clear language that an SDT could act upon.

1. The SAR states that the SDT should "include tripping of DER if data and models are available", however, there are no methods contained with the any Reliability Standard that would define how PCs or TPs could collect this data. While we understand that some transmission tariffs may provide viable methods for collecting some of this data from Transmission Service Providers (TSP), this is tariff dependent and cannot be universally relied upon. Therefore, it is unclear how these two entities would have sufficient data to perform an effective planning study in most regions.
2. The second sentence in Item b states that the SDT should consider whether a threshold needs to be established, however, the SAR does not clarify what threshold should be considered. In the whitepaper, it states that "no specific threshold for DER modeling is suggested, each entity should keep track of DER to make such determinations". Given the whitepaper is the basis for the SAR and "no specific threshold is suggested" we suggest this statement be removed.

- **Item c:** The language contained in Requirement R4, subparts 4.1.1 and 4.1.2 should be clarified to consider Inverter-based resources. Relative to DERs, these resources are part of the distribution system and currently, there are no provision that would ensure that PCs or TPs have any ability through the NERC Reliability Standards to collect sufficient data to conduct the planning studies envisioned. Even obligating DPs to collect this data is unlikely to solve the problem since many of the DER owners have no regulatory obligation to provide this data to the DPs.
- **Item d:** EEI agrees that the automatic performance of Inverter-based resources, including DERs, is important to accurately develop planning performance requirements for the BES, however, the industry's ability to accurately accomplish this is tied to their ability to gather accurate data on DERs, which are often outside of the registration criteria. For this reason, we suggest that the language be tempered to ensure that entities are only held responsible for the data they gather. To address this concern, EEI suggests a more practical approach is to use composite load models based on known nameplate data using engineering judgement.

MOD-032-1 (SPIDERWG SAR) Comments

EEI's position on this SAR it the same as the last time it was posted for comment. EEI does not support the proposed SAR as currently written, however, we support adding the DP function to MOD-032 to address a potential reliability gap related to data that can only be effectively collected by the DP, since the deregistration of the LSE. For this reason, we would support a limited SAR that only addresses this issue. Once this is done, we believe the existing MOD-032 Reliability Standard should provide adequate protections to ensure that the Planning Coordinators (PC) and Transmission Planners (TP) are able to collect data necessary to account for distributed energy resources (DER) to develop planning models in a manner sufficient to support the reliable operation of the interconnected transmission system under their purview.

Additionally, the SAR still lacks supporting technical justifications, such as a white papers, describing what if any reliability gap exists. For these reasons, we ask that the proposed SAR not be approved. We support the good work being done by the SPIDER Working Group (SPIDERWG), including the development of a draft Reliability Guideline that have been issued for industry review and comment for the collection of DER data for modeling transmission planning studies. We additionally recommend the SPIDERWG develop Implementation Guidance to support the existing MOD-032-1 Reliability Standard and associated Reliability Guideline. Additionally, we would support a NERC initiative to evaluate the effectiveness of the above referenced Reliability Guideline (see Reliability Guideline: DER Data Collection for Modeling in Transmission Planning Studies dated Sept. 2020) to determine if there are reliability gaps or issues with the PCs and TPs obtaining the necessary modeling data needed for grid reliability. As noted above, EEI encourages the SPIDERWG to develop Implementation Guidance to provide clear examples and approaches to better inform planners on

possible methods to ensure MOD-032-1, as currently written and approved, more effectively addresses the collection of specific DER data as well as provides guidance on how to ensure consistency in DER modeling data requirements and reporting procedures, particularly among adjoining PCs.

In addition to the above comments on this SAR, we offer the following additional concerns:

1. EEI disagrees with Item 3 contained within the Industry Need statement. There is no need to "review any additional gaps in DER data collection with the de-registration of LSE." Such a review is inconsistent with the FERC order (153 FERC ¶ 61,024) approving the removal of LSEs from the functional registration. Notably, RCs, BAs, and REs and other affected entities that need the information from LSEs had no concerns if LSEs were no longer registered. The working group should take notice of the FERC conclusions and findings in this order. EEI also disagrees with the following statement in this section: "As the penetration of distributed energy resources (DERs) **continues to increase across the North American bulk power system (BPS)**, it is necessary to account for the potential impacts of DERs on reliability in the planning, operation, and design of the BES." A more accurate statement would be: As the penetration of distributed energy resources (DERs) continues to increase **across the many distribution systems**, it is necessary to account for the potential impacts of DERs on reliability in the planning, operation, and design of the BES.
2. EEI disagrees with the Purpose and Goal statement. Specifically, it is not clear what gaps within the currently approved MOD-032-1 beyond the need to add the DP function, exist.
3. EEI does not support the Project Scope as defined in the SAR.
    i. Attachment 1 – Data Reporting Requirements within MOD-032-1 do not need to be updated. Steady-State (Item 2 and Item 9), and Dynamics (Item 10) provide sufficient flexibility for PCs and TPs to ensure that DER data is collected. We further note that these items provide sufficient latitude in what is collected. "Other information requested by the Planning Coordinator or Transmission Planner necessary for modeling purposes. [BA, GO, LSE, TO, TSP]".
    ii. EEI does not see a need to define the term Distributed Energy Resource (DER) but does not oppose a drafting team evaluating it and offering the industry a proposed definition.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 5,6

Answer	
Document Name	

Comment

N/A

Kimberly Turco on behalf of Constellation Segments 5, 6

Likes 0	
Dislikes 0	

Response

David Jendras - Ameren - Ameren Services - 1,3,6	
Answer	
Document Name	
Comment	
Ameren agrees with and supports EEI comments.	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	
Texas RE recommends the SAR team consider addition of any IBR-related criteria for short circuit analysis.	
Likes 0	
Dislikes 0	
Response	
Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC Regional Standards Committee	
Answer	
Document Name	
Comment	
The SARs (and ultimately any Standards drafted or revised as a result of the SARs) should not use the term Bulk Power System (BPS). The SARs should adhere to the term Bulk Electric System (BES), as the BES is what NERC Standards apply to. Compliance with NERC Requirements is enforced on the BES. BES is also extensively defined by NERC and well understood by registered entities. The term BPS is too vague and its use in the SARs and any subsequent Standards will lead to confusion and a general lack of clarity regarding the applicability of assets and Facilities. DERs are generally connected to the Low and Medium-voltage distribution voltages and many of them may be insignificant for BES. Hence, the SARs should include a requirement to properly define DER that shall be included as an Inclusion in the BES Definition to be providers of data as per the requirements of NERC Standards. This will ensure that DERs are required to provide that data.	
Likes 0	

Dislikes 0	
Response	
Stephen Stafford - Georgia Transmission Corporation - NA - Not Applicable - SERC	
Answer	
Document Name	
Comment	

- Time and cost requirements for the submitted SARs appear to be under stated. Adding glossary terms, as the SAR suggests, and modifying standard requirements would almost certainly lead to more significant coordination efforts with other standards and definitions.
- There also needs to be consideration to have region-specific efforts to address DER penetration to account for the system differences.
- GTC supports the comments submitted by Southern Company.

Likes 0	
Dislikes 0	
Response	
Pamela Frazier - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name Southern Company	
Answer	
Document Name	
Comment	

We offer the following additional (a-f) comments for consideration by the SAR drafting team:

a) We do not support a SAR that dictates overly prescriptive data requirements that the TP/PC must request from the DP, as the existing MOD-032 standard already allows PCs/TPs to request the type of information contemplated in the SAR;

b) Any modifications to the standard should be focused on obtaining modeling data and should not dictate what must be included in the model and how assessments are performed;

c) Any modifications to the standard related to DER should recognize that a small quantity of DERs could have no impact on BES studies, especially for low penetration regions, and thus could be netted out with load with no impact to reliability. That determination should be left up to the individual TP/PC;

d) Cost impact may not be minimal depending on the scope of data being requested;

e) We endorse the comments developed by EEI;

f) We support the comments submitted by Georgia Transmission Corporation.

Likes 0	
Dislikes 0	
Response	

Ramneek Dimen - Seattle City Light - 1 - WECC	
Answer	
Document Name	
Comment	
Seattle City Light is largely in agreement with the direction of this SAR, and we understand the desire to include DERs in modelling efforts in the continued pursuit towards a secure and reliable grid. That being said, greater clarification in the Standard is desired around minimum penetration levels of DERs on the system and minimum capacity requirements. While we see the importance of this effort, without setting thresholds, as we have on the generation side, entities will be putting a lot of time, effort, and resources into modelling DER related data that may have little to no impact on the reliability of the grid, and whether there will be any deference given to region specific needs.	
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	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5 - WECC	
Answer	
Document Name	
Comment	
Not at this time.	
Likes 0	
Dislikes 0	
Response	