

## Consideration of Comments

<b>Project Name:</b>	2022-02 Modifications to TPL-001 and MOD-032   Draft 1 - MOD-032-2
<b>Comment Period Start Date:</b>	5/31/2023
<b>Comment Period End Date:</b>	7/14/2023
<b>Associated Ballot(s):</b>	2022-02 Modifications to TPL-001 and MOD-032   Draft 1 Implementation Plan IN 1 OT 2022-02 Modifications to TPL-001 and MOD-032   Draft 1 MOD-032-2 IN 1 ST 2022-02 Modifications to TPL-001 and MOD-032   Non-Binding Poll MOD-032-2 IN 1 NB

There were 77 sets of responses, including comments from approximately 200 different people from approximately 126 companies representing 10 of the Industry Segments as shown in the table on the following pages.

All comments submitted can be reviewed in their original format on the [project page](#).

If you feel that your comment has been overlooked, let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, contact Vice President of Engineering and Standards, [Soo Jin Kim](#) (via email) or at (404) 446-9742.

## Questions

1. [Do you agree with the modification to remove “Load Serving Entity” and replace with “Distribution Provider” in MOD-032-2?](#)
2. [Provide any additional comments for the standard drafting team to consider, if desired.](#)

## The Industry Segments are:

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

**1. Do you agree with the modification to remove “Load Serving Entity” and replace with “Distribution Provider” in MOD-032-2?**

**Ben Hammer - Ben Hammer On Behalf of: Sean Erickson, Western Area Power Administration, 1, 6; - Ben Hammer**

**Answer** No

**Document Name**

**Comment**

To be clear, the Project 2022-02 SDT added both TO and DP to replace LSE in the proposed MOD-032-2 Attachment 1 revision. This proposed change is incomplete, misappropriates modeling data responsibilities for Aggregate Demand, Demand, and Distributed Energy Resource (DER) modeling data, as well as retains a significant reliability gap.

Transmission Owners who are not Distribution Providers likely have no knowledge or capability to provide data for planned demand or DER constituents served from the transmission system. Transmission Owner visibility for load demand is typically limited to historical telemetered MW and MVAR data. This finding, especially with regards to DERs, has already been well-documented. A key recommendation in the NERC Reliability and Security Technical Committee (RSTC) subcommittee approved the [“Model Verification of Aggregate DER Models used in Planning Studies - Reliability Guideline”](#) developed by the System Planning Impacts from Distributed Energy Resources Working Group (SPIDERWG) was:

*“TPs, PCs, TOs, and other applicable entities that may need DER information should coordinate with DPs for facilities connected to distribution systems to determine the necessary measurement information that would be of use for DER modeling and model verification and jointly develop requirements or practices that will ensure this data is available. **As the TPs, PCs, and TOs are dependent on the DP to have the data made available**, this will likely require actions from state regulatory bodies and DPs to establish requirements to gather this information” (page 7 of 61).*

The SDT should consider that Transmission Owners should not be held accountable for demand and DER data that they have no cognizance of. Additionally, the SDT should remember that most DER are smaller than the BES resource threshold or reside on a distribution system. The threshold for an entity to be registered as a Distribution Provider is 75 MW of load. This implies that the majority of DERs are and will be connected to systems outside the scope and visibility of Transmission Owners, as well as existing Distribution Providers. To emphasize this reality: as of 15 May 2023, there were 314 Distribution Providers [registered with NERC](#) (excluding UFLS-only DPs). Of those DPs, 96 were not otherwise registered as either a PC, TP, or TO. While it may be misunderstood that only 96 DPs may become newly

applicable and participatory in model data collection given the draft changes to MOD-032-2, this ignores that the latest EIA 861 data (collected in 2021; published in 2022) reflects about 1,190 distribution utilities reflecting almost 197,000 distribution circuits in the continental US. In other words, it may be reasonable to conclude that 74% of the distribution utilities in the US do not meet the NERC registration threshold. Furthermore, PCs, TPs, and TOs have no regulatory relationship with these unregistered entities and cannot be held responsible for DER data for which that are not aware.

In June 2022, NERC published its [“Inverter-Based Resource Strategy”](#) that recognized efforts necessary to analyze the breakdown of resource size, location, type, and applicability with the BES definition to make a determination of whether the current BES threshold should be updated to reflect the changing resource mix” (page 9 of 10). Subsequently, the NERC Member Representatives Committee (MRC) and Board of Trustees (BOT) [technical session](#) on inverter-based resources in February 2023 emphasized the need for a focus on functional registration noting: “industry is increasingly challenged with addressing reliability issues for unregistered inverter-based resources, and those resources are reaching critical mass in some parts of the country. The lack of requirements currently imposed on those resources creates local and regional reliability risks to the BPS in aggregate. This issue compounds in many areas with the growing presence of distributed energy resources (DERs) connected to the distribution system.” In response to the FERC directive [“Registration of Inverter-based Resources”](#), NERC [filed a proposal](#) to modify its Rules of Procedure to “include a new function comprised of owners of IBRs interconnected to the BPS.” The Generator Owner – Inverter-Based Resource (GO-IBR) registration would include “owners of IBRs which have aggregate nameplate capacity of less than or equal to 75 MVA and greater than or equal to 20 MVA interconnected at a voltage greater than or equal to 100 kV; or Owners of IBRs which have aggregate nameplate capacity of greater than or equal to 20 MVA interconnected at a voltage less than 100 kV.”

Given the anticipated GO-IBR functional registration, the NERC Project 2022-02 SDT should modify MOD-032-2 Attachment 1 to specify **DP, GO-IBR** are responsible for Aggregate Demand, Demand, and Distributed Energy Resource (DER) data, as well as other information requested by the Planning Coordinator or Transmission Planner necessary for modeling purposes.

Likes	1	Wike Jennie On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merre
Dislikes	0	
<b>Response</b>		

Thank you for your comment.

The SDT views comments suggesting NERC registration of individual DER owners as unnecessary and impractical (similar to the impracticality of registering the load at every single house connected to the system) that would still require DPs and TOs to report what is connected to their systems unless NERC registration of every single rooftop solar installation is being proposed.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

GO-IBR

The SDT is unable to add a registration not currently defined in the NERC registration documents. Further the proposed GO-IBR registration would not cover many DER installations.

**Bruce Walkup - Arkansas Electric Cooperative Corporation - 6**

**Answer** No

**Document Name**

**Comment**

Comments to be supplied separately by AECC's Ayslynn McAvoy.

Likes 0

Dislikes 0

**Response**

Thank you for your comment. See response to AECC.

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

**Answer** No

<b>Document Name</b>	
<b>Comment</b>	
<p>WECC supports the removal of Load Serving Entity as that registration no longer exists. However, WECC believes that adding Distribution Provider is not necessary as explained below.</p> <p>Including the registered Distribuion Provider in the applicability of the standard complicates compliance applicability and monitoring. It requires two processes and two monitoring methods instead of one.</p> <p>The technical rational for the standard states that for distribution facilities which have no Distribution Provider, or which do not connect to a Distribution Provider, the Transmission Owner is responsible for coordinating to obtain the necessary data. If the TO can perform this for distrbution facilities that do not have a registered DP, they can use the same process to obtain the data from a registered DP.</p> <p>This removes the need of potentially complex determination of standard applicability and the research needed to determine applicability for each Transmission Owner based on the existence of registered Distribution Providers or any other non-BES load that has no registered DP. It also makes clear that the Planning Coordinator and Transmission Planner would be receiving bus level demand data from a single source (The Transmission Owner) rather than obtaining data from multiple DP’s and TO’s.</p> <p>If there is a concern that without a standard requirement to support it, a registered DP would not provide the required data to a TO or TP then how could it be expected that a non-registered entity would provide this information. The TO has the authority to obtain this data for any entities connected to its system via FAC-002.</p> <p>If it is decided to continue to include Distribution Providers in the applicability, please clarify the applicability and obligation of the “registered” (USLF)- Only DP. Would MOD-032 now be applicable to all USLF only Distribution Providers?</p>	
Likes 0	
Dislikes 0	
<b>Response</b>	

Thank you for your comment.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

Data flow processes

Modifications to footnotes 2 and 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1.

It should be clear that UFLS-only DPs are not included in the Applicability.

**Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez**

<b>Answer</b>	No
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<b>Document Name</b>	
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**Comment**

The definition of Distribution Providers is limited by the current definition of Distribution providers to the entity that operates the wires between the Transmission system and the end-user. This is a short-cut to getting the DERs included in the standard. I recommend editing the definition of Distribution Provider to include those entities that are responsible for the operation and balancing of DERs if this is how the SDT wants to address this issue.

Likes 0	
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Dislikes 0	
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**Response**

Thank you for your comment. Modifying the definition of Distribution Provider is beyond the scope of this project.

<b>Thomas Standifur - Austin Energy - 1</b>	
<b>Answer</b>	No
<b>Document Name</b>	
<b>Comment</b>	
Austin Energy supports APPA's comments.	
Austin Energy is concerned about having the DP responsible for significant data collection from DER that it doesn't have control over, may be difficult to attain, not available or inaccurate. The SDT should, at minimum revise the proposed standard to indicate that (a) DPs' and TOs' responsibility with respect to DER data is limited to passing along any responsive data they have received from DER owners, without vouching for the data's completeness or accuracy"	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your comment.	
The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.	
<b>Teresa Krabe - Lower Colorado River Authority - 5</b>	
<b>Answer</b>	No
<b>Document Name</b>	
<b>Comment</b>	

*LCRA notes that the Project 2022-02 SDT added both TO and DP to replace LSE in the proposed MOD-032-2 Attachment 1 revision. This proposed change inappropriately assigns modeling data responsibilities for Aggregate Demand, Demand, and Distributed Energy Resource (DER) modeling data. Transmission Owners who are not Distribution Providers likely have limited knowledge or capability to provide data for planned demand or DER constituents served from the transmission system. This finding, especially with regards to DERs, was identified in the “Model Verification of Aggregate DER Models used in Planning Studies - Reliability Guideline” developed by the System Planning Impacts from Distributed Energy Resources Working Group (SPIDERWG)*

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Kacie Fischer - Kacie Fischer On Behalf of: Byron Booker, Oncor Electric Delivery, 1; - Kacie Fischer**

**Answer** No

**Document Name**

**Comment**

Oncor does not agree with the Load Serving Entity (“LSE”) to Distribution Provider (“DP”) terminology modification. Even for Transmission Owners that are also DP (like Oncor), there are many instances in which we interconnect and deliver transmission-level service to another DP. In these cases, Oncor would not have access to the DER modeling parameters listed in Attachment 1 or visibility into the other DP’s system other than the aggregated load provided.

We further disagree with the changes outlined in Attachment 1 in the Steady-State column of Table – #9, which are being proposed in conjunction with the change in terminology from LSE to DP. It will be more appropriate to specify general model requirements in MOD-032 and allow Planning Coordinators and Transmission Planners to determine model details that are appropriate for their established processes and methodologies. Also, it may be impossible to provide individual specifications for Retail Scale DER such as reactive capability and in-service date.

Also, Oncor would like further clarification on the following:

1. “a. Location (bus from item 1) and if DER feeder is subject to UFLS and/or UVLS”
  - Could the SDT elaborate on how knowing that a DER is on a UFLS feeder could impact the results of a Steady State analysis? We do not see the need for the UFLS data in the Steady State column.
2. “b. Real power capability (minimum and maximum)”
  - Is this referring to the nameplate or approved capacity?
  - Is the meaning of *minimum* equivalent to approved capacity? And is *maximum* equivalent to nameplate capacity?
3. “c. Reactive capability (minimum and maximum)”
  - Oncor does not typically track reactive power data for currently installed DER.
4. “d. Generator type (solar, battery, etc.)”
  - Oncor recommends modifying this statement to give instruction on how to report a single location with multiple types of DER.
5. “e. In-service date or other information to be used to make assumptions about DER capabilities related to ride-through, voltage control and/or frequency control.”
  - Can you define the in-service date? In Oncor’s experience, some DER projects will connect to our system, test, and then permission is granted to operate. For some of the DER projects, we give permission for them to operate; but the project is not energized until the DER facility is ready on their end. Typically, the registered resources that participate in ancillary services go in-service before they are permitted to operate for testing purposes.
  - This is not practical for DERs that are modeled in an aggregated manner.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

Adjustments made to Attachment 1 – many identified items would be specified in PC/TP procedures. Modifications to footnotes 2 and 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1.

**Laura Hankins - Laura Hankins On Behalf of: Matt Lewis, Lower Colorado River Authority, 5, 1; - Laura Hankins**

<b>Answer</b>	No
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<b>Document Name</b>	
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**Comment**

LCRA TSC notes that the Project 2022-02 SDT added both TO and DP to replace LSE in the proposed MOD-032-2 Attachment 1 revision. This proposed change inappropriately assigns modeling data responsibilities for Aggregate Demand, Demand, and Distributed Energy Resource (DER) modeling data. Transmission Owners who are not Distribution Providers likely have limited knowledge or capability to provide data for planned demand or DER constituents served from the transmission system. This finding, especially with regards to DERs, was identified in the “Model Verification of Aggregate DER Models used in Planning Studies - Reliability Guideline” developed by the System Planning Impacts from Distributed Energy Resources Working Group (SPIDERWG).

Likes	0
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Dislikes	0
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**Response**

Thank you for your comment.  
 The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical

Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Ayslynn Mcavoy - Arkansas Electric Cooperative Corporation - 3**

<b>Answer</b>	No
<b>Document Name</b>	
<b>Comment</b>	
Likes 0	
Dislikes 0	

**Response**

**Joseph OBrien - NiSource - Northern Indiana Public Service Co. - 6**

<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
A specific definition of DER should be included in the standard. A specific MW threshold for the inclusion of a DER in the interconnected transmission system model data should be included in the standard	
Likes 0	
Dislikes 0	

**Response**

Thank you for your comment.  
 A NERC Glossary definition for DER was proposed.

DER MW thresholds

NERC has recommended a zero MVA threshold for gathering DER information:

[https://www.nerc.com/comm/RSTC\\_Reliability\\_Guidelines/DERStudyReport.pdf](https://www.nerc.com/comm/RSTC_Reliability_Guidelines/DERStudyReport.pdf)

It is expected that PC/TP procedures may specify thresholds and technical justification for inclusion of DER models (or not) in any particular study – this issue is more aligned with the SAR for TPL-001 that will be addressed in the second phase of this project 2022-02.

**Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter**

**Answer** Yes

**Document Name**

**Comment**

FE supports the removal of “Load Serving Entity” and supports the addition of “Distribution Provides” in MOD-032-2.

Likes 0

Dislikes 0

**Response**

Thank you for your support.

**Andrea Jessup - Bonneville Power Administration - 1,3,5,6 - WECC**

**Answer** Yes

**Document Name**

**Comment**

Load Serving Entity is no longer an active NERC registration code. BPA agrees that replacement is appropriate.

However, Attachment A adds a parenthetical that states the Transmission Owner (TO) is responsible when a Demand or DER is not associated with a registered DP. That would put the responsibility on BPA as the TO. What if the TO cannot get non-BES DER data from an

unregistered customer? As long as BPA is held responsible for providing data as the TO (that we do not have the authority to require from an unregistered DP), our vote will be NO.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Kimberly Turco - Constellation - 6**

**Answer**

Yes

**Document Name**

**Comment**

Constellation has no additional comments.

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0

Dislikes 0

**Response**

Thank you for your comment.	
<b>Srikanth Chennupati - Entergy - Entergy Services, Inc. - 1,3,5,7 - SERC</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	<a href="#">2022-02_Unofficial Comment Form_May2023.docx</a>
<b>Comment</b>	
None.	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&amp;E All Segments</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
PG&E agrees with the modification to remove the “Load Serving Entity” (LSE) and replace it with ‘Distribution Provider” (DP) since the LSE designation has been retired.	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Constantin Chitescu - Ontario Power Generation Inc. - 5</b>	

<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
OPG agrees with NPCC/RSC's comments.	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your comment. See response to NPCC/RSC.	
<b>Andy Fuhrman - Andy Fuhrman On Behalf of: Theresa Allard, Minnkota Power Cooperative Inc., 1; - Andy Fuhrman</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
MPC supports comments submitted by the MRO NERC Standards Review Forum (NSRF).	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your comment. See response to MRO NERC Standards Review Forum (NSRF).	
<b>Alison MacKellar - Constellation - 5</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	

Constellation has no additional comments

Alison Mackellar on behalf of Constellation Segments 5 and 6

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

**Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF**

**Answer** Yes

**Document Name**

**Comment**

None.

Likes 0

Dislikes 0

**Response**

Thank you for your support.

**Daniel Gacek - Exelon - 1**

**Answer** Yes

**Document Name**

**Comment**

Exelon supports the removal of Load Serving Entities (LSE) and the addition of Distribution Providers (DP) as an appropriate LSE replacement.

Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Kinte Whitehead - Exelon - 3</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Exelon supports the removal of Load Serving Entities (LSE) and the addition of Distribution Providers (DP) as an appropriate LSE replacement.	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Joseph Gatten - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Xcel Energy supports the comments of the EEI	
Likes	0
Dislikes	0
<b>Response</b>	

Thank you for your comment. See response to EEI.	
<b>John Pearson - ISO New England, Inc. - 2</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Yes, this change will be helpful in obtaining DER data for transmission planning studies	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your comment.	
<b>Glen Farmer - Avista - Avista Corporation - 5</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Agree with EEI comment:	
<p>{C}· To better clarify the extent of DER resources that must be reported under MOD-032, EEI suggests that a Facilities section be added to this Reliability Standard.</p>	
<p>{C}· Footnote 2 – EEI asks that the SDT provide additional clarity regarding the intent of Footnote 2. Footnote 2 appears to require DPs (or TOs) to supply Aggregate Demand data that has been manipulated to exclude all DER offsets. While we understand why this would be desirable, most small DERs are not metered except for billing meters. Billing meters are not synchronized with SCADA data, diminishing the value of any data supplied by the reporting entities. We are further concerned that the manhours required to account for these DER offsets</p>	

could be substantial adding excessive costs while providing questionable value to this change. As an alternative, EEI suggests that DPs and TOs could provide estimated DER offset values, which would require fewer manhours to develop and should provide sufficient value to the planning models.

{C} Steady-state and Dynamic columns

EEI is concerned that the data requests identified in Item 9 (Steady-state), and Item 10 (Dynamic) seek non-aggregated data, while the SAR specifies that aggregated DER data is to be supplied. To address this concern, we ask that both Items 9 and 10 be edited to make it clear that data requests to DPs and TOs are to be limited to aggregate DER data.

{C} Footnote 4: EEI is concerned that footnote 4 does not align with the SAR. In the SAR, data requests for DERs appear to be limited to aggregated DER data, however, in footnote 4 it states “TP/PC modeling data requirements and reporting procedures may require either aggregated or unaggregated data as necessary”. This appears to go beyond the approved limits of this SAR and should therefore be removed.

Likes	0
Dislikes	0

**Response**

Thank you for your comment.  
 The SDT determined that a Facilities section is not necessary. Modifications were made to clarify data obligation for TOs and DPs with respect to data related to DER, for which a definition is proposed.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and

BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

Modifications to footnotes 2 and 4 are intended to address the concern and emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1. The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Clarification made in the Technical Rationale.

**Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group**

**Answer** Yes

**Document Name**

**Comment**

WEC Energy Group supports the comment of EEI which states:

*"EEI supports both the removal of Load Serving Entities (LSE) and the addition of Distribution Providers as an appropriate LSE replacement."*

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

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

**Answer** Yes

**Document Name**

**Comment**

Southern Company supports comments submitted by EEI.

Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your comment. See response to EEI.	
<b>Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Evergy supports and incorporates by reference the comments of the Edison Electric Institute (EEI) for question #1.	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your comment. See response to EEI.	
<b>Lan Nguyen - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
CenterPoint Energy Houston Electric, LLC (CEHE) is supporting the proposed MOD-032-2 modification to replace Load Serving Entities (LSE) with Distribution Providers (DP).	
Likes	0
Dislikes	0

<b>Response</b>	
Thank you for your comment.	
<b>Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Southern Indiana Gas & Electric Co. (SIGE) is supporting the proposed MOD-032-2 modification to replace Load Serving Entities (LSE) with Distribution Providers (DP).	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your comment.	
<b>Daniela Atanasovski - APS - Arizona Public Service Co. - 1</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
None	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	

<b>Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
EEI supports both the removal of Load Serving Entities (LSE) and the addition of Distribution Providers as an appropriate LSE replacement.	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Bobbi Welch - Midcontinent ISO, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (IRC SRC) 2022-02 Modifications to MOD-032 Draft 1</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
The The <b>ISO/RTO Council Standards Review Committee (“SRC”)</b> <a href="#">[1]</a> supports the replacement of “Load Serving Entity (LSE)” with “Distribution Provider (DP).” This is a vast improvement over where MOD-032 stands today as this will fill the gap left by the retirement of the LSE function.	
<a href="#">[1]</a> For purposes of these comments, the IRC SRC includes the following entities: CAISO, IESO, ISO-NE, MISO, NYISO, PJM, SPP and ERCOT (with the exception of the response to question 2).	
Likes	0
Dislikes	0
<b>Response</b>	

Thank you for your comment.	
<b>David Jendras Sr - Ameren - Ameren Services - 3</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Ameren agrees with and supports EEI comments.	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your comment. See response to EEI.	
<b>James Mearns - James Mearns On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5; - James Mearns</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
This modification appears to meet the intent of the SAR by addressing the paralleled DERs that are presently not modelled within Distribution Provider's system models. While some argument could be made concerning the minimal impact on system planning studies caused by Distribution Customer's DER deployment, it is important to set a standard approach toward assessing potential impacts, and these requirements are not substantially burdensome.	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	

<b>Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - MRO,WECC, Group Name SPP RTO</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
.	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
For this response, ERCOT joins the comments submitted by the ISO/RTO Council Standards Review Committee and adopts them as its own.	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your comment. See response to ISO/RTO Council Standards Review Committee.	
<b>Hillary Creurer - Hillary Creurer On Behalf of: Lori Frisk, Allete - Minnesota Power, Inc., 1; - Allete - Minnesota Power, Inc. - 1 - MRO</b>	
<b>Answer</b>	Yes

<b>Document Name</b>	
<b>Comment</b>	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your support.	
<b>Thomas Foltz - AEP - 5</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your support.	
<b>Jou Yang - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes 0	
Dislikes 0	

<b>Response</b>	
Thank you for your support.	
<b>Martin Sidor - NRG - NRG Energy, Inc. - 6</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Robert Follini - Avista - Avista Corporation - 3</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Larry Heckert - Alliant Energy Corporation Services, Inc. - 4</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	

Comment	
Likes	0
Dislikes	0
Response	
Thank you for your support.	
<b>Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power</b>	
Answer	Yes
Document Name	
Comment	
Likes	0
Dislikes	0
Response	
Thank you for your support.	
<b>Claudine Bates - Black Hills Corporation - 6</b>	
Answer	Yes
Document Name	
Comment	
Likes	0
Dislikes	0

<b>Response</b>	
Thank you for your support.	
<b>Rachel Schuldt - Rachel Schuldt On Behalf of: Josh Combs, Black Hills Corporation, 5, 6, 1, 3; - Rachel Schuldt</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Micah Runner - Black Hills Corporation - 1</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Sheila Suurmeier - Black Hills Corporation - 5</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	

<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECl</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	

Thank you for your support.	
<b>Anne Kronshage - Public Utility District No. 1 of Chelan County - 6, Group Name</b> Public Utility District No. 1 of Chelan County - Voting Group	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Adrian Raducea - DTE Energy - Detroit Edison Company - 5, Group Name</b> DTE Energy - DTE Electric	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name</b> BC Hydro Balloters	
<b>Answer</b>	Yes
<b>Document Name</b>	

## Comment

Likes 0

Dislikes 0

## Response

Thank you for your support.

**Nicolas Turcotte - Hydro-Quebec (HQ) - 1**

Answer

Yes

Document Name

## Comment

Likes 0

Dislikes 0

## Response

Thank you for your support.

**Harishkumar Subramani Vijay Kumar - Independent Electricity System Operator - 2**

Answer

Yes

Document Name

## Comment

Likes 0

Dislikes 0

## Response

Thank you for your support.	
<b>Brittany Millard - Lincoln Electric System - 5</b>	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your support.	
<b>Donna Wood - Tri-State G and T Association, Inc. - 1</b>	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your support.	
<b>Devin Shines - PPL - Louisville Gas and Electric Co. - 1,3,5,6 - SERC,RF</b>	
Answer	Yes
Document Name	
Comment	

Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Dennis Chastain - Tennessee Valley Authority - 1,3,5,6 - SERC</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Michael Jones - National Grid USA - 1, Group Name National Grid</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	

<b>Lindsey Mannion - ReliabilityFirst - 10</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Stephen Stafford - Georgia Transmission Corporation - NA - Not Applicable - SERC</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	

Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Junji Yamaguchi - Hydro-Quebec (HQ) - 5</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Imane Mrini - Austin Energy - 6</b>	

<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your support.	
<b>Joshua London - Eversource Energy - 1, Group Name Eversource</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your support.	
<b>Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes 0	

Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Fong Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Desmarie Waterhouse - American Public Power Association - 4 - NA - Not Applicable</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	

<b>Elizabeth Davis - Elizabeth Davis On Behalf of: Thomas Foster, PJM Interconnection, L.L.C., 2; - Elizabeth Davis</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Devon Tremont - Taunton Municipal Lighting Plant - 1</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators</b>	
<b>Answer</b>	Yes
<b>Document Name</b>	
<b>Comment</b>	

Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzel, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Mike Gabriel - Greybeard Compliance Services, LLC - 5</b>	
Answer	Yes
Document Name	
<b>Comment</b>	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	

**Rachel Coyne - Texas Reliability Entity, Inc. - 10**

**Answer**

**Document Name**

**Comment**

Texas RE supports the modification to remove Load Serving Entity (LSE) and replace with Distribution Provider (DP) as LSE is no longer a registered function. Texas RE has some concerns, however, regarding the actions required by the DP in gathering Distributed Energy Resource (DER) data. There seems to be a potential gap for getting the DER data for Power System Modeling and Analysis as written. DPs are not typically the owners of the DER data and there are no current NERC registration or requirements for the owners of the DER data to provide the data to DPs. As written, the compliance responsibility for providing the DER data falls on the DP who may not authority or a robust process to get the data from the current and future DER owners. Texas RE recommends a requirement that the registered entity managing DERs provide the data to the DPs. Additionally, that non-registered DERs should be captured effectively to ensure reliability operations.

Texas RE does agree that the DPs should be responsible for providing the equivalent system impedance data (distribution feeder, power transformer, etc.) for the DER connections.

The Standard does not specify a threshold limit for the DER facilities required to provide the data. Texas RE recommends the 'Term(s)' section include a distinction between utility scale DERs (commercial level DERs, utility scale solar facilities, etc.) and aggregated level DERs (residential rooftop solar, small generators, residential batteries, etc.).

Texas RE understands the intention of the modifications to MOD-032 is to provide visibility of DER in planning models and achieve consistency in representation of various types of DER. To avoid double-counting DERs in the models, Texas RE recommends identifying whether or not the DER outputs are embedded in the load forecasts used in the models and that this is aligned with the demand and energy data that is needed for MOD-031-3.

Likes 0

Dislikes 0

### Response

Thank you for your comment.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

DER MW thresholds

NERC has recommended a zero MVA threshold for gathering DER information:

[https://www.nerc.com/comm/RSTC\\_Reliability\\_Guidelines/DERStudyReport.pdf](https://www.nerc.com/comm/RSTC_Reliability_Guidelines/DERStudyReport.pdf)

It is expected that PC/TP procedures may specify thresholds and technical justification for inclusion of DER models (or not) in any particular study – this issue is more aligned with the SAR for TPL-001 that will be addressed in the second phase of this project 2022-02.

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

**Mike Gabriel - Greybeard Compliance Services, LLC - 5**

**Answer**

**Document Name**

**Comment**

In lieu of creating yet another definition, we recommend using one of the existing definitions in Table D.1 of the SPIDERWG document: [https://www.nerc.com/pa/Documents/DER\\_Quick%20Reference%20Guide.pdf](https://www.nerc.com/pa/Documents/DER_Quick%20Reference%20Guide.pdf), or potentially using the NERC Distributed Energy Task Force (ERTF) DER definition: 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).

Likes 0

Dislikes 0

**Response**

Thank you for your comment.  
 The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

**Ryan Strom - Ryan Strom On Behalf of: Carl Spaetzle, Buckeye Power, Inc., 4, 3, 5; Jason Procuniar, Buckeye Power, Inc., 4, 3, 5; Kevin Zemanek, Buckeye Power, Inc., 4, 3, 5; - Ryan Strom**

**Answer**

**Document Name**

**Comment**

Buckeye agrees with the comments prepared by ACES:

We have an ongoing concern regarding the level upon which this will require DPs to collect DER data interconnected to distribution systems. The proposed draft establishes a zero MVA threshold for the collection of all DER data "in non-isolated parallel operation with the Bulk Power System". Per the Technical Rationale, this includes each and every residential solar and commercial rooftop solar customer on the DP's systems. This is a major concern given the extent it may go to exhausting the resources of our Members for the collection of DER data which may or may not have a material impact to the reliability of the BES.

Additionally, we have concerns regarding footnote 4 on the last page of the Attachment 1. This footnote states: "The TP/PC modeling data requirements and reporting procedures may require either aggregated or unaggregated data as necessary for local practices and the TP/PC may need to coordinate with the DP/TO to determine appropriate assumptions for equivalent distribution system impedance."

This statement seems to allow some discretion for allowing "local practices" to then dictate what classifications of DER are to be modeled in aggregate versus otherwise. If that is the case, then it seems to conflict with the stated goal of the MOD-032-1 SAR 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." We recommend that a non-zero MVA threshold be established below which DER data will be modeled in aggregate and above which DER data will be modeled explicitly. Allowing such "local practices" to dictate which DERs are to be modeled in aggregate or not seems contrary to having a standard for the industry to implement that is intended to provide clarity and consistency.

Thank you for the opportunity to comment.

Likes 0

Dislikes 0

### Response

Thank you for your comment.

NERC has recommended a zero MVA threshold for gathering DER information:

[https://www.nerc.com/comm/RSTC\\_Reliability\\_Guidelines/DERStudyReport.pdf](https://www.nerc.com/comm/RSTC_Reliability_Guidelines/DERStudyReport.pdf)

It is expected that PC/TP procedures may specify thresholds and technical justification for inclusion of DER models (or not) in any particular study – this issue is more aligned with the SAR for TPL-001 that will be addressed in the second phase of this project 2022-02.

Footnote 4 modified to address the concern. The SDT intent is to maintain PC/TP flexibility for consistently collecting accurate data, but not be overly prescriptive on data collection processes.

**Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2**

<b>Answer</b>	
<b>Document Name</b>	<a href="#">2022-02_Unofficial Comment Form_ERCOT Comments.docx</a>
<b>Comment</b>	
<p>ERCOT generally supports DER-related data collection and recommends that it occur at an early stage (steady-state) of model development. ERCOT requests the following revisions and clarifications to the draft standard.</p> <p><b>1. Dual Planning Authority (PA) / Planning Coordinator (PC) Designation</b></p> <p>While there is justification to reference both the Planning Authority and Planning Coordinator in the Applicability section (section 4), since <a href="#">Appendix 5B: Statement of Compliance Registry Criteria</a> of the NERC Rules of Procedure, dated January 19, 2021, still uses both terms, the explanatory paragraph in Part 4.1.4 refers to synchronization between registration criteria and the <a href="#">NERC functional model</a>, which is not maintained, was never formally approved, and is only posted as a historical document. Therefore, ERCOT requests the explanatory paragraph be deleted from Part 4.1.4, which would then read as follows:</p> <p><b>4.1.4</b> Planning Authority and Planning Coordinator (hereafter collectively referred to as “Planning Coordinator”)</p> <p><b>2. Planning Coordinator (PC) Interface</b></p> <p>ERCOT notes the importance of retaining the PC’s flexibility with respect to determining the process used to acquire modeling data. While some PCs prefer to interface directly with the DP as noted in footnote 2 (see page 20 of 22 of the standard), other PCs prefer to interface with the Transmission Owner (TO) or Transmission Planner (TP). In the latter example, the TO or TP maintains the interface with the DP.</p> <p>In support of this flexibility, ERCOT requests the SDT revise the table in Attachment 1 by removing the last sentence from footnote 2, adding a new footnote 3 to the first reference to DP in the steady-state column, and renumbering the remaining footnotes as needed, as proposed below:</p> <p>2. Aggregate Demand<sup>2</sup> [DP<sup>3</sup>, TO (when a Demand is not associated with a registered DP)] a. real and reactive power* b. in-service status*</p> <p>Footnote 2: For purposes of this item, aggregate Demand is the gross Demand aggregated at each bus under item 1 that is identified by a Transmission Owner as a load serving bus rather than the net Demand that incorporates offsets due to output from Distributed Energy Resources.</p>	

Footnote 3: Wherever DP is noted as the functional entity responsible for reporting data in Attachment 1, a Distribution Provider is responsible for providing this information, generally through coordination with the Transmission Owner or as specified in the joint PC/TP modeling data requirements and reporting procedures developed per R1.

**3. Attachment 1, steady state column, item 9**

- a. Strike “feeder” to provide the TP/PC with flexibility in tracking the status of UVLS and UFLS (i.e. as aggregated values or as individual feeders).
- b. Clarify the use of “and/or” with regards to UVLS and UFLS. Using “and/or” creates four possible combinations that must be tracked: UFLS only, UVLS only, both UFLS and UVLS, and neither UFLS nor UVLS. Is the intent of the SDT to track all these possible permutations?

ERCOT requests that the SDT modify item 9 to read as follows:

**9.a.** Location (bus from item 1) and if DER is subject to UFLS and/or UVLS

- b.** Real power capability (gross minimum and maximum)
- c.** Reactive power capability (gross minimum and maximum)

**4. Attachment 1, existing footnote 4** - clarify the use of “/” by revising the footnote to read as follows:

**4** The modeling data requirements and reporting procedures that the PC and TP jointly develop under R1 may require either aggregated or unaggregated data as necessary for local practices and the TP or PC may need to coordinate with the DP or TO to determine appropriate assumptions for equivalent distribution system impedance.

**5. Clarify the intent of the short circuit column**

The technical rationale states that “[d]rastically altering the structure of Attachment 1 or adding DER data to the ‘short circuit’ column was beyond the scope of the Project 2022- 02 SAR,” which in turn states “note that the SPIDERWG does not see a need to modify the short circuit column of Attachment 1 because #1 already states ‘all applicable elements’ in the steady-state column should have necessary information

related to positive, negative, and zero sequence data provided accordingly. If the TP/PC determines that aggregate DER is needed for these studies, then they have the capability to request such data. However, this is not a prevalent issue currently.”

While the dynamics column was edited to include Distributed Energy Resource Data to match the format of the Dynamics column, the short circuit column was not updated per the reasoning given in the technical rationale and SAR. However, the short circuit column includes the bullet “[p]rovide for all applicable elements in column ‘steady state’ [GO, RP, TO],” which could be interpreted to compel the relevant entities to collect DER information in the short circuit models if it is deemed an applicable element. ERCOT requests that the SDT confirm that the TP/PC would determine if DER information is an applicable element for short circuit models.

**6. Clarify the note regarding data that vary with system operating state and conditions**

The steady-state column of Attachment 1 indicates that “[i]tems marked with an asterisk indicate data that vary with system operating state or conditions.” ERCOT recommends that the SDT clarify or provide additional information regarding what types of system operating states or conditions are contemplated. For example, if a data element changes seasonally, should the element be marked with an asterisk, or are seasonal variations not considered “system operating state[s] or conditions” for purposes of Attachment 1?

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

Change made to address PC/PA applicability.

Modifications to footnotes 2 and 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1. The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Clarification made in the Technical Rationale.

The intent of the SDT is to track all of the identified permutations of UFLS and UVLS.

Changes made to item 9 to address the concern and provide PC/TP flexibility.

Technical Rationale modified to address concern about short circuit column.

Regarding asterisks – this is outside the scope of the SAR. The SDT does not believe asterisks would apply to any of the new items added.

**Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators**

**Answer**

**Document Name**

**Comment**

We have an ongoing concern regarding the level upon which this will require DPs to collect DER data interconnected to distribution systems. The proposed draft establishes a zero MVA threshold for the collection of all DER data "in non-isolated parallel operation with the Bulk Power System". Per the Technical Rationale, this includes each and every residential solar and commercial rooftop solar customer on the DP's systems. This is a major concern given the extent it may go to exhausting the resources of our Members for the collection of DER data which may or may not have a material impact to the reliability of the BES.

Additionally, we have concerns regarding footnote 4 on the last page of the Attachment 1. This footnote states: "The TP/PC modeling data requirements and reporting procedures may require either aggregated or unaggregated data as necessary for local practices and the TP/PC may need to coordinate with the DP/TO to determine appropriate assumptions for equivalent distribution system impedance."

This statement seems to allow some discretion for allowing "local practices" to then dictate what classifications of DER are to be modeled in aggregate versus otherwise. If that is the case, then it seems to conflict with the stated goal of the MOD-032-1 SAR 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." We recommend that a non-zero MVA threshold be established below which DER data will be modeled in aggregate and above which DER data will be modeled explicitly. Allowing such "local practices" to dictate which DERs are to be modeled in aggregate or not seems contrary to having a standard for the industry to implement that is intended to provide clarity and consistency.

Thank you for the opportunity to comment.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

NERC has recommended a zero MVA threshold for gathering DER information:

[https://www.nerc.com/comm/RSTC\\_Reliability\\_Guidelines/DERStudyReport.pdf](https://www.nerc.com/comm/RSTC_Reliability_Guidelines/DERStudyReport.pdf)

It is expected that PC/TP procedures may specify thresholds and technical justification for inclusion of DER models (or not) in any particular study – this issue is more aligned with the SAR for TPL-001 that will be addressed in the second phase of this project 2022-02.

Footnote 4 modified to address the concern. The SDT’s intent is to maintain PC/TP flexibility for consistently collecting accurate data, but not be overly prescriptive on data collection processes.

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

**Answer**

**Document Name**

**Comment**

The SPP RTO recommends the drafting team revise the original Standard Authorization Request (SAR) to keep the project open and coordinate with other NERC drafting teams to address data collection efforts that are applicable to the Inverter-Based Resource (IBR) and Energy Storage Resource (ESR-Batteries). This coordination effort will create a level of proficiency and efficiency in the areas of creating accurate models that can be used by the appropriate entities in their study processes to generate quality results that address initial concerns applicable the reliability of the grid.

The drafting team should conduct a cost analysis to help industry understand the cost impacts of this project.

Additionally, the drafting team should consider a resource analysis to help industry understand the additional time required for their resources to participate in these efforts if the project is extended for a certain amount of time.

As for concerns, one of them focuses around NERC suggesting new responsibilities being applicable to the PC and TP in reference to modeling as well as studying process in reference to the reliability of the grid. For example, NERC suggests that there is a need to conduct an EMT study ever so often to help identify issues in a PC and TP footprint; however, the EMT standard has not been approved by the NERC Board of Trustees (BoT) nor FERC at this point. The RSTC has identified that the MOD-032 standard current doesn’t align with such data collection

efforts to assist industry, specifically the PC and TP, in this type of process. These data collection gaps need to be resolved prior to giving the PC and TP related responsibilities.

Furthermore, there will be a need to align with the proposed MOD-026-2 standard in reference to the IBRs from a PC and TP perspective (PC and TP creating a process for GOs and TOs to access models).

Moreover, NERC has identified that PRC-024-3 doesn't provide the information needed to address IBR ride-through with the occurrence of a system disturbance. From our perspective, there will be a need for data collection via MOD-032 to help ensure an appropriate performance standard can be developed to address NERC's reliability concerns and needs.

Finally, our last concern pertains to the definition of the DER. There are several definitions currently used in industry, including the SPIDERWG's definition. We recommend that the drafting team coordinate with NERC legal to structure one definition (vetted via standard development process) for industry use. Without a common Glossary Term, there is a potential that the various definitions of DER will create confusing as well as reliability/compliance risks for the PC and TP..

Likes	0
Dislikes	0

**Response**

Thank you for your comment.  
 Establishing EMT modeling and data requirements for DER is beyond the scope of Project 2022-02.

MOD-026 is currently only applicable to BES facilities. There would need to be a separate project to add DER applicability to MOD-026.

PRC-024 - The SDT feels the language in Attachment 1 is appropriate to address the concern.

DER definition  
 The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

**Devon Tremont - Taunton Municipal Lighting Plant - 1**

Answer	
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Document Name	
Comment	
<p>Taunton Municipal Lighting Plant (TMLP) understands and respects the defined need for additional DER modeling data as these resources continue to grow behind-the-meter and beyond the visibility of PCs and BAs. Our concerns with the modifications to MOD-032 are simply to ensure that they require what we can reasonably expect to provide given current configurations. Adding all of the changes that the SDT proposed concerns us that we will continue to add costs to these projects and continue to prevent their viability. Below are additional comments on a few specific proposed revisions to MOD-032:</p> <p><b>Proposed DER Definition:</b> The project team is proposing to define a new term of DER to the NERC Glossary. We request additional clarity and background on the development on this definition. We have reviewed the Technical Rationale document that explains its development on Page 1, but it still remains unclear to us what could be considered to have “parallel operation” with the BES versus being a non-BES asset. TMLP requests that we consider a definition that better aligns with the BES definition and its inclusions/exclusions as this will be better understood by DPs.</p> <p><b>Att. 1, Steady State Column, New Item 9:</b> The request to provide real and reactive capability, as well as generator type, is within reason as it is readily available information.</p> <p><b>Att. 1, Dynamics Column, New Item 10:</b> TMLP requests additional clarity on the parenthetical that requires a distinction of an “<i>association</i>” between the DER and the DP, without which the TO is expected to be responsible. In either scenario, it will be unreasonable to expect the DP or TO to provide dynamic modeling information of the DERs. Currently, the DP is typically the host through a Power Purchase Agreement but are not requiring that DER developers provide dynamic modeling information, and the added cost to do so must be considered. At a minimum, the SDT should limit any TO/DP obligations to what is feasible and reasonable, and presently dynamic information for unregistered DERs is not available to us (as a DP) and other DP peers. Expecting a DP or TO to provide this information would require them to alter their interconnection agreements for future projects, as well as sending them on a “research mission” for their existing resources. Further on this point, TMLP agrees with APPA’s comments which state “<i>While DPs may receive some or all of this information at the interconnection request stage, and can pass whatever data they have to their PC and TP, the draft standard must be revised to account for the fact that the DPs and TOs do not own or control these DERs, and thus cannot be held responsible for the completeness or accuracy of the data they themselves receive from the DER owners.</i>”</p> <p><b>tt. 1, Steady-State Column, Footnote 2 on “Aggregate Demand”:</b> This effectively provides the authority for the host PC/TP to request that DPs reconstitute their load readings prior to submitting, however, the DP’s typically are not using revenue quality metering with their DERs</p>	

and therefore cannot be relied upon for market reporting. If this is not the intended use of the data, then this needs to be clarified in this footnote. The Technical Rationale document states that current collection and modeling of net demand is not consistent with “a modeling framework that explicitly represents DER,” and if this is true, then we need to understand what this framework is. We reside in ISO-NE and their market rules currently define the inputs to *Regional Network Load* to exclude “load served by behind-the-meter generation” (ISO-NE OATT, Section II.21.2).

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Aggregate Demand**

The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Clarification made in the Technical Rationale.

**Elizabeth Davis - Elizabeth Davis On Behalf of: Thomas Foster, PJM Interconnection, L.L.C., 2; - Elizabeth Davis**

**Answer**

**Document Name**

**Comment**

In addition to PJM supporting the IRC SRC comments, PJM wants to ensure the coordination of Distribution Provider (DP) data is coordinated between the DP and Transmission Owner (TO). The coordination between the DP and TO is needed to properly model due to the DP interconnection with the TO. Thus, each Transmission Owner shall work with the Distribution Provider(s) within the Transmission Owner’s area in collecting data for the PA and PC in order to properly model this information and how it interconnects with the Transmission Owner systems. PJM is requesting this information to be written directly in the Standard to ensure accurate and proper data collection.

PJM wants to thank the Standard Drafting Team for all their work and commitment to the Project!

Likes 0

Dislikes 0

**Response**

Thank you for your comment.  
 The changes made to Attachment 1 in conjunction with R1 address this concern. Modifications to footnotes 2 and 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1. The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Clarification made in the Technical Rationale.

**David Jendras Sr - Ameren - Ameren Services - 3**

**Answer**

**Document Name**

**Comment**

None

Likes 0

Dislikes 0

**Response**

Thank you for your support.

**Bret Galbraith - Seminole Electric Cooperative, Inc. - 6**

<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p>For the dynamics column in Attachment 1, it is unclear as to what DER data may be requested from the DP. Seminole recommends the drafting team to provide additional clarification, similar to what the drafting team provided in the steady state column, for the data to be collected in the dynamics column.</p>	
Likes 0	
Dislikes 0	
<b>Response</b>	
<p>Thank you for your comment.          It is expected that much of the same data listed under the steady-state column would be needed for dynamics. MOD-032-2 provides the PC/TP flexibility in developing joint modeling data requirements and reporting procedures per R1. Modifications were made to Attachment 1 to address the comment.</p>	
<b>Desmarie Waterhouse - American Public Power Association - 4 - NA - Not Applicable</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p>APPA has multiple concerns with the proposed definition of distributed energy resources (DER) and adding this scope to the MOD-032 Standard, as outlined below.</p> <p><b>Scope Expansion and non-NERC Registered Entities</b></p> <p>The proposed changes to include DERs in MOD-032 is expanding the scope of the Standard to include equipment not currently covered in the BES definition. The concept that non-BES or distribution equipment could impact the reliability and operation of the BES is not new to NERC Standards. For example, there is precedent in the PRC Standards to consider distribution equipment that supports UVLS programs or</p>	

Protection System schemes. However, the proposed changes in this posting for MOD-032 are not sufficient to ensure the expansion of scope will be effective or reasonable.

The Technical Rationale states “the modifications place a compliance obligation on NERC registered DPs (or TOs) to provide basic information about DER that are connected to their systems so that DER can be properly represented in interconnection-wide cases.” The information includes “Location (bus from item 1) and if DER feeder is subject to UFLS and/or UVLS,” “Real power capability (minimum and maximum),” “Reactive power capability (minimum and maximum),” “Generator type (solar, battery, etc.),” and “In-service date or other information to be used to make assumptions about DER capabilities related to ride-through, voltage control and/or frequency control.” While DPs may receive some or all of this information at the interconnection request stage, and can pass whatever data they have to their PC and TP, the draft standard must be revised to account for the fact that the DPs and TOs do not own or control these DERs, and thus cannot be held responsible for the completeness or accuracy of the data they themselves receive from the DER owners. For example, a DER owner might inadvertently change its nameplate capacity by replacing a damaged inverter with a different capacity from the original due to supply chain issues, and might not think to inform its DP of the change. More fundamentally, some solar installations, whether commercial, industrial, or homeowners installing on rooftops, do so without taking advantage of net metering or otherwise complying with their distribution utility’s interconnection requirements—in other words, DPs may not have complete information about the *location* of DERs on their systems, let alone the capacity, type, and in-service date. Where customers *do* take advantage of net metering, the metering devices are generally not production meters, which highlights a concern regarding the SDT’s proposal to revise the existing requirement for “aggregate demand” data to state that “For purposes of this item, aggregate Demand is the gross Demand aggregated at each bus under item 1 that is identified by a Transmission Owner as a load serving bus rather than the net Demand that incorporates offsets due to output from Distributed Energy Resources.” Indeed, it is the nature of “net metering” that the data produced and collected is demand offset by DER output, not separate gross demand and generation values.

A registered entity cannot provide data that the registered entity itself does not have. In particular, it would be unrealistic to expect a TO or DP to have information about unregistered DERs at the same level of detail and accuracy that the unregistered DER owners can provide about their own facilities, nor would it be reasonable to hold a TO or DP responsible for gaps or inaccuracies in the data provided by an unregistered DER owner.

Accordingly, the SDT should, at minimum, revise the proposed standard to indicate that (a) DPs’ and TOs’ responsibility with respect to DER data is limited to passing along any responsive data they have received from DER owners, without vouching for the data’s completeness or accuracy; and (b) the requirement to provide “aggregate demand” can be satisfied by net demand data, at least with respect to net-metered DERs.

**Implementation Plan**

APPA does not agree with the proposed implementation plan for the DER definition. This definition will eventually be used in several future NERC Standard revisions. Some of these revisions may have a shorter implementation timeframe than Project 2022-02. The effective date of the DER definition needs to be coordinated with the other planned Standard revisions to ensure the timing supports implementation of the other Standard revisions.

**Coordination with Other Standard Changes**

APPA is concerned about how the DER definition will be used for other future NERC Standard changes, as outlined in the October 2022 “NERC System Planning Impacts from Distributed Energy Resources Working Group (SPIDERWG) White Paper.” The proposal's impact on other Standards must be clear prior to putting the DER definition in place to avoid unintended consequences. For example, excluding various types of demand response from the DER definition may not be appropriate for PRC-006 and TPL-001. These two Standards may need to consider demand response for proper modeling of the BES. If NERC intends to add DERs to EMT Modeling Requirements in MOD-026, then this would be a significant cost and pose technical challenges for registered entities, which could impact the DER definition scope.

When reviewing the DER definition, entities need to understand how this definition will be used in all of the impacted Standards. APPA recommends creating a standalone Standards Project that addresses the DER definition development for all future Standard changes, similar to Standard Project 2016-02 and Standard Project 2015-09.

Likes	0
Dislikes	0

**Response**

Thank you for your comment.  
 BES expansion  
 Inclusion of DER as a BES facility is not being considered as part of this project.

Improper DP/TO applicability  
 The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale)

and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**DER definition**

The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

The RSTC approved a White Paper produced by SPIDERWG identifying standards that may require revision due to DER:

[https://www.nerc.com/comm/RSTC\\_Reliability\\_Guidelines/Whitepaper\\_SPIDERWG\\_Standards\\_Review.pdf](https://www.nerc.com/comm/RSTC_Reliability_Guidelines/Whitepaper_SPIDERWG_Standards_Review.pdf)

Other projects could propose to accelerate the DER definition timeline if necessary.

MOD-026 is currently only applicable to BES facilities. There would need to be a separate project to add DER applicability to MOD-026.

**Bobbi Welch - Midcontinent ISO, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (IRC SRC) 2022-02 Modifications to MOD-032 Draft 1**

**Answer**

**Document Name**

[2022-02\\_Unofficial Comment Form\\_SRC\\_07-14-23\\_Final \(as filed\).docx](#)

**Comment**

To achieve this project’s objective [\[1\]](#) in an effective and efficient manner, the SRC recommends NERC do the following:

1. **Retain the need to define Distributed Energy Resources (DERs) as part of the scope of this project (as opposed to initiating another project).** This would be beneficial because:
  - a. The SDT for this project already includes many SPIDERWG members. Therefore, the existing team already has the “right” representation and expertise to perform this task.
  - b. The existing SDT has discussed and examined a broad range of DER definitions, so a substantial portion of the work needed to develop a DER definition has already been done, thereby giving the existing SDT a leg up on this effort.

c. It would eliminate the need for NERC to initiate another project and for industry to provide representatives to staff another team that would be starting this work from scratch (i.e., a loss of efficiency) and which may not be able to attract a commensurate level of expertise, e.g., SPIDERWG members (i.e., a loss of effectiveness).

2. **Revise the DP registration criteria found in the Rules Of Procedure (ROP), Appendix 5B, Section III** and in the corresponding [ERO Enterprise Registration Practice Guide Distribution Provider “directly connected” Determinations.pdf \(nerc.com\)](#) to more closely align with the criteria proposed in its Work Plan to register Inverter-Based Resources (IBRs) under FERC Docket RD22-4-000.

When the DP criteria (RoP, Appendix 5b, Section III.a.1) in the [ERO Enterprise Registration Practice Guide Distribution Provider “directly connected” Determinations.pdf \(nerc.com\)](#) was updated in July 2018, two key aspects were modified that are now in direct opposition to the approach NERC is taking with respect to registering IBRs:

a. **The amount of peak load served by the DP system was increased from 25 MW to 75 MW.** This is in direct contrast to NERC’s Work Plan for the registration of IBRs whereby NERC is seeking to decrease the registration threshold from 75 MVA to 20 MVA.

b. **The connection point for peak load was changed from “directly connected to the “Bulk Power System (BPS)” to “directly connected to the BES.”** Again, this is in direct contrast to NERC’s Work Plan for the registration of IBRs whereby NERC is seeking to register IBRs that are directly connected to the BPS.

As the penetration of Distributed Energy Resources (DERs) increases, there will be a reliability need to register a broader range of Distribution Providers as was acknowledged with IBRs. The SRC requests NERC address this issue as part of this project, perhaps as a separate phase.

### 3. **Dual Planning Authority (PA) / Planning Coordinator (PC) Designation**

While there is justification to reference both the Planning Authority and Planning Coordinator in the Applicability section (section 4) since NERC [Appendix 5B: Statement of Compliance Registry Criteria](#), dated January 19, 2021, still uses both terms, the explanatory paragraph in Part 4.1.4 refers to synchronization between registration criteria and the [NERC functional model](#), which is not maintained, was never formally approved, and is only posted as a historical document. Therefore, the SRC requests the explanatory paragraph be deleted from Part 4.1.4 as illustrated below and in the attached file:

#### 4.1.4 Planning Authority and Planning Coordinator (hereafter collectively referred to as “Planning Coordinator”)

##### **Planning Coordinator (PC) Interface**

The SRC notes the importance of retaining the PC’s flexibility with respect to determining the process used to acquire modeling data. While some PCs prefer to interface directly with the DP as noted in footnote 2 (see page 20 of 22 of the standard), other PCs prefer to interface with the Transmission Owner (TO) or Transmission Planner (TP). In the latter example, the TO or TP maintains the interface with the DP.

*Footnote 2: For purposes of this item, aggregate Demand is the gross Demand aggregated at each bus under item 1 that is identified by a Transmission Owner as a load serving bus rather than the net Demand that incorporates offsets due to output from Distributed Energy Resources. A Distribution Provider is responsible for providing this information, generally through coordination with the Transmission Owner.*

The SRC requests the SDT clarify the required interfaces under the standard are “as directed by the PC” so information flows to the appropriate entities as part of the data collection process. Leave flexibility to the PC for determining how this data is collected as proposed below:

2. Aggregate Demand2 [DP3, TO (when a Demand is not associated with a registered DP)] a. real and reactive power\* b. in-service status\*

*Footnote 2: For purposes of this item, aggregate Demand is the gross Demand aggregated at each bus under item 1 that is identified by a Transmission Owner as a load serving bus rather than the net Demand that incorporates offsets due to output from Distributed Energy Resources.*

*Footnote 3: Wherever DP is noted as the functional entity responsible for reporting data in the table, a Distribution Provider is responsible for providing this information, generally through coordination with the Transmission Owner.*

*Footnote 4: Including synchronous condensers and pumped storage.*

### **Other Clarifications**

#### **1. Attachment 1, “steady state” column, item 9**

a. Strike “feeder” to provide the TP/PC with flexibility in tracking the status of UVLS and UFLS (i.e. as aggregated values or as individual feeders).

b. Clarify the use of “and/or” with regards to UVLS and UFLS. Using “and/or” creates four possible combinations that must be tracked: UFLS only, UVLS only, Both UFLS and UVLS, and neither UFLS nor UVLS. Is the intent of the SDT to track all these possible permutations?

The SRC requests the SDT modify item 9 to add the following details:

- 9.a. Location (bus from item 1) and if DER is subject to UFLS and/or UVLS
- b. Real power capability (gross minimum and maximum)
- c. Reactive power capability (gross minimum and maximum)

2. **Attachment 1, footnote 4** - clarify the use of “/” as illustrated below:

4 The TP or PC modeling data requirements and reporting procedures may require either aggregated or unaggregated data as necessary for local practices and the TP or PC may need to coordinate with the DP or TO to determine appropriate assumptions for equivalent distribution system impedance.

[1] From pages 1-2 of the SAR: *“Update MOD-032-1 to: (1) include “data requirements and reporting procedures” for DER that are necessary to support the development of accurate interconnection-wide models, (2) replace Load-Serving Entity (LSE) with Distribution Provider (DP) because of the removal of LSEs from the NERC registry criteria, (3) enable the SDT to review any additional gaps in DER data collection with the de-registration of LSE.”*

Likes 0

Dislikes 0

**Response**

Thank you for your comment.  
 A NERC Glossary definition for DER was proposed.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

See Applicability section of Technical Rationale for SDT conclusion regarding modification of NERC registration criteria in ROP.

Change made to address PC/PA applicability.

Data flow processes

Modifications to footnotes 2 and 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1. The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Clarification made in the Technical Rationale.

The intent of the SDT is to track all of the identified permutations of UFLS and UVLS.

Changes made to item 9 to address the concern and provide PC/TP flexibility.

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

**Answer**

**Document Name**

**Comment**

EEI supports SDT efforts to address DER impacts, however, the modifications to MOD-032-2 is inappropriately running ahead of NERC IBR organizational registration efforts. Presently, TOs and DPs have no ability to compel DER owners to supply the data identified in the proposed Reliability Standard and until these issues are settled through changes to DER registration, efforts to gather DER data beyond those resources DPs own will likely yield little useful data. Additionally, subjecting DPs and TOs to the compliance obligations through MOD-032-2, before the registration issues have been solved, represent untenable regulatory obligations they cannot fulfil. To address this concern, we ask that all efforts by the Project 2022-02 SDT to compel TOs and DPs to supply DER data, beyond the resources they own and operation, be removed.

We also do not support the development of a DER definition within this NERC Reliability Standards project. The impact of this definition will have far reaching impacts that go beyond this project. To address this issue, we suggest that a separate NERC Reliability Standards project be developed to address this definition.

EEI is additionally concerned that the number of separate DER projects currently under development and otherwise being considered is growing very quickly and it is unclear if there is adequate coordination between all of these projects. While addressing these issues is important, speed should not take precedent over ensuring these efforts are adequately coordinated and Requirements are not being duplicated or conflict.

In addition to the above concerns, we offer the following comments and concerns for consideration:

### **Applicability Section**

There is insufficient clarity related to the extent of DER resources that must be reported under MOD-032. To address this concern, a Facilities section should be added to this Reliability Standard.

### **Attachment 1**

**General comment:** As stated in EEI's response to Question 1, we support the replacement of LSEs with DP, however, Attachment 1 goes beyond the replacement of LSEs with DP and includes TOs as an additional replacement where there are no registered DPs. This change should be stricken from the proposed draft of MOD-032-2. Registration problems cannot be solved through compliance obligations placed on registered entities who do not participate in the approval of DER interconnections or have any ability to compel the sharing of DER data contained on networks outside their purview.

### **Steady-State Column - Item 2 (Aggregate Demand) & Dynamic Column – Item 5**

EEI does not support the addition of "TO (when a Demand is not associated with a registered DP)" to Steady-State Column - Item 2 (Aggregate Demand) & Dynamic Column – Item 5 (Demand) because TOs have no part in interconnections on Distribution Provider systems and would therefore only have this data if it were supplied to them by the responsible DP. Furthermore, it is impractical to expect that TOs could compel unregistered DPs to supply this data. We further note that even registered DPs only have detailed data on DERs they own. Compelling DPs to similarly supply data beyond those resources they own should be removed. For these reasons, changes to MOD-032-2 should be placed on hold until registration issues surrounding DER owners can be resolved through the NERC organizational registration reforms that are intended to address IBRs that impact the BPS.

**Footnote 2** – Additional clarity is needed regarding the intent of Footnote 2. Footnote 2 appears to require DPs (or TOs) to supply Aggregate Demand data that has been manipulated to exclude all DER offsets. While this would be desirable, most small DERs are not metered except through billing meters. Billing meters are not synchronized with SCADA data, diminishing the value of any data supplied by the reporting entities. Additionally, the work hours required to account for these DER offsets could be substantial, adding excessive costs while providing questionable value or improved reliability through this change. As an alternative, EEI suggests that DPs might be able provide estimated DER offset values to address the immediate needs of planners in the development of their planning models, but even this should be studied to ensure such efforts are even possible or practical to implement.

**Steady-state Column (Item 9) and Dynamic Column 10**

See EEI comments for Items 2 and 5 above.

**Footnote 4:** Footnote 4 does not align with the SAR. In the SAR, data requests for DERs appear to be limited to aggregated DER data, however, in footnote 4 it states “TP/PC modeling data requirements and reporting procedures may require either aggregated or unaggregated data as necessary”. This appears to go beyond the approved limits of this SAR and should therefore be removed.

Likes	0
Dislikes	0

**Response**

Thank you for your comment.

Facilities Section

The SDT determined that a Facilities section is not necessary. Modifications were made to clarify data obligation for TOs and DPs with respect to data related to DER, for which a definition is proposed.

Improper DP/TO applicability

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

See Applicability section of Technical Rationale for SDT conclusion regarding modification of NERC registration criteria in ROP.

**Aggregate Demand**

The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Clarification made in the Technical Rationale.

Adjustments made to Attachment 1 – many identified items would be specified in PC/TP procedures. Modifications to footnotes 2 and 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1.

**Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Fong Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley**

**Answer**

**Document Name**

**Comment**

SMUD and BANC support the comments submitted by APPA, especially with regards to the DER definition and Coordination with Other Standard Changes.

Likes 0

Dislikes 0

**Response**

Thank you for your comment. See response to APPA.	
<b>Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name NPCC RSC</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p>Suggest making the following conforming changes to section 4.1.4 as per standards MOD-031-3 and MOD-033-2 in the NERC project 2017-17 - Standards Alignment with Registration project:</p> <p>Replace “Planning Authority and Planning Coordinator (hereafter collectively referred to as “Planning Coordinator”)” with “Planning Coordinator”.</p> <p>Delete the 2nd paragraph in section 4.1.4</p> <p>R3 indicates “...each notified BA, GO, DP, RP, TO, or TSP shall respond to the notifying PC or TP as follows ...”. The R3 VSL indicates these entities failed to provide a written response to their PC or TP. Suggesting either adding “written” to R3 or removing it from the R3 VSL.</p> <p>R1 Severe VSL: Correct “The Planning and Transmission Planner(s) Coordinator ...” for “The Planning Coordinator and Transmission Planner(s)...”</p> <p>R2 Severe VSL: Missing the TO entity after the last “OR”.</p> <p>R3 VSL: incorrect references to R4 instead of R3 in all VSL levels.</p> <p>R3 Severe VSL: should read “or within a longer period of 45 days agreed upon by the notifying Planning Coordinator or Transmission Planner” instead of “or within a longer period agreed upon by the notifying Planning Coordinator or Transmission Planner”</p>	

TO's and DP's cannot be required to provide data for DER (or any generation resources) that the TO and DP do not own. TO and DP have no authority to collect this data and DER's are not obligated to provide the data.

In Attachment 1, under Dynamics, the following change should be made:

Distributed Energy Resource (DER) data [DP, TO (when DER is owned by the TO or DP)

In Attachment 1, under Steady-State, the following change should be made:

Distributed Energy Resource (DER) data [DP, TO (when DER is owned by the TO or DP)

- a. Location (bus from item 1) and if DER feeder is subject to UFLS and/or UVLS
- b. Real power capability (minimum and maximum)
- c. Reactive power capability (minimum and maximum)
- d. Generator type (solar, battery, etc.)
- e. In-service date or other information to be used to make assumptions about DER capabilities related to ride-through, voltage control, and/or frequency control.

Likes	0
Dislikes	0

**Response**

Thank you for your comment.

Change made to address PC/PA applicability – please see Technical Rationale.

R3/R3 VSL – proposed change is beyond the SAR scope and more substantial than a typo/correction; no change made.

R1 Severe VSL – correction made to obvious typo.

R2 Severe VSL – correction made to obvious typo.

R3 VSL – correction made to obvious typo.

R3 Severe VSL – proposed change is beyond the SAR scope and more substantial than a typo/correction; no change made.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 1, 6, 5; Sarah Blankenship, Salt River Project, 3, 1, 6, 5; Thomas Johnson, Salt River Project, 3, 1, 6, 5; Timothy Singh, Salt River Project, 3, 1, 6, 5; - Israel Perez**

**Answer**

**Document Name**

**Comment**

SRP recommends adjusting the definition for the Distribution Provider before making the proposed adjustments so that there is clear delineation of roles and responsibilities.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.  
 Modifying the definition of Distribution Provider is beyond the scope of this project.

See Applicability section of Technical Rationale for SDT conclusion regarding modification of NERC registration criteria in ROP.	
<b>Joshua London - Eversource Energy - 1, Group Name</b> Eversource	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p>Eversource recommends the drafting team consider the category of “Transients” (specifically EMT Models) as an inclusion in required data submittals in Attachment 1 to reach the SDT’s goal to “address gaps in data collection for the purposes of modeling aggregate levels of DERs in planning assessments” per the MOD-032 SAR.</p> <p>While interconnection-wide models are built using dynamic and short circuit studies and not transient studies, there are still situations where border areas are studied between differing TPs or PCs, and the need for these EMT models to be available is necessary to better model aggregate levels of DERs.</p>	
Likes	0
Dislikes	0
<b>Response</b>	
<p>Thank you for your comment.          Establishing EMT modeling and data requirements for DER is beyond the scope of Project 2022-02.</p>	
<b>Daniela Atanasovski - APS - Arizona Public Service Co. - 1</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p>Attachment 1 Data Reporting table (Steady State Column items 2, and 9, and Dynamics Column items 5, and 10) has added language indicating that the Transmission Owner (TO) is the responsible entity for submitting modeling data when a demand is not associated with a registered Distribution Provider. AZPS requests clarification regarding the type of entity that would have load, but not be a registered</p>	

distribution provider. AZPS is concerned that the Transmission Owner may not have the ability to produce or acquire certain load information from an unregistered entity unless there is some other type of contractual relationship in place.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Imane Mrini - Austin Energy - 6**

**Answer**

**Document Name**

**Comment**

Austin Energy supports APPA's comments.

Austin Energy is concerned about having the DP responsible for significant data collection from DER that it doesn't have control over, may be difficult to attain, not available or inaccurate. The SDT should, at minimum revise the proposed standard to indicate that (a) DPs' and TOs' responsibility with respect to DER data is limited to passing along any responsive data they have received from DER owners, without vouching for the data's completeness or accuracy"

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Michael Dillard - Austin Energy - 5**

**Answer**

**Document Name**

**Comment**

Austin Energy supports APPA's comments.

Austin Energy is concerned about having the DP responsible for significant data collection from DER that it doesn't have control over, may be difficult to attain, not available or inaccurate. The SDT should, at minimum revise the proposed standard to indicate that (a) DPs' and TOs' responsibility with respect to DER data is limited to passing along any responsive data they have received from DER owners, without vouching for the data's completeness or accuracy"

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

<b>Leslie Hamby - Southern Indiana Gas and Electric Co. - 3,5,6 - RF</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p><b>DER Definition:</b></p> <p>Southern Indiana Gas &amp; Electric Co. (SIGE) believes the potential impact of the DER definition exceeds the current scope of Project 2022-02 and suggestions expanding the scope of the current project and/or initiating a separate NERC Reliability Standards project to address the DER definition.</p> <p><b>Applicability:</b></p> <p>SIGE believes there is insufficient clarity related to the extent of DER resources that must be reported under MOD-032. Further clarity on the DER definition is needed.</p> <p><b>Attachment 1:</b></p> <p>SIGE agrees with EEI’s comments that changes to MOD-032-2 should be put on hold until registration issues surrounding DER owners can be resolved through the NERC organizational registration reforms intended to address Inverter Based Resources (IBRs) that impact the Bulk Power System (BPS) .</p> <p>SIGE is supporting EEI’s <b>Footnote 2</b>.</p> <p>SIGE recommends replacing the ‘\’ in <b>Footnote 4</b> with “or”. “The TP/ or PC modeling data requirements and reporting procedures may require either aggregated or unaggregated data as necessary for local practices and the TP or PC may need to coordinate with the DP or TO to determine appropriate assumptions for equivalent distribution system impedance.”</p>	
Likes	0
Dislikes	0
<b>Response</b>	

Thank you for your comment.

The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

The RSTC approved a White Paper produced by SPIDERWG identifying standards that may require revision due to DER:

[https://www.nerc.com/comm/RSTC\\_Reliability\\_Guidelines/Whitepaper\\_SPIDERWG\\_Standards\\_Review.pdf](https://www.nerc.com/comm/RSTC_Reliability_Guidelines/Whitepaper_SPIDERWG_Standards_Review.pdf)

The project scope for Project 2022-02 explicitly includes consideration of a DER definition.

Modifications were made to clarify data obligation for TOs and DPs with respect to data related to DER, for which a definition is proposed.

See Applicability section of Technical Rationale for SDT conclusion regarding modification of NERC registration criteria in ROP.

Adjustments made to Attachment 1, including footnote 4 – also, see response to EEI.

**Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin**

**Answer**

**Document Name**

**Comment**

Attachment 1 - Under Steady State (2, 9) Recommend changing language to [DP (when a Demand connected to the DP is not associated with a registered DP), TO (when a Demand connected to the TO is not associated with a registered DP)]. Under dynamics (5, 10) Recommend changing language to [DP (when a Demand connected to the DP is not associated with a registered DP), TO (when a Demand connected to the TO is not associated with a registered DP)]. An entity that has an unregistered DP connected to them will have both the knowledge that the entity exists and contacts for them to obtain the required information. If a TO is required to provide information for an unregistered DP that receives its service through a registered DP, they may not know the entity exists or have the required contacts to obtain the required information. As written, the SDT is setting the TO up to fail and be non-compliant.

Attachment 1 steady state, modify (9e) to DER capabilities related to ride-through, voltage control and/or frequency control, if available, or In-service date or other information to be used to make assumptions about them if this information is not available. Recommend trying to get the actual information if it is available rather than always making assumptions for this.

Likes	0
Dislikes	0
<b>Response</b>	
<p>Thank you for your comment.          Added footnote 5 to address compliance concerns associated with collecting data from unregistered entities.</p> <p>Modified 9d (formerly 9e) to address concern about assumed capability. Modifications to footnote 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1.</p>	
<b>Junji Yamaguchi - Hydro-Quebec (HQ) - 5</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p>Suggest making the following conforming changes to section 4.1.4 as per standards MOD-031-3 and MOD-033-2 in the NERC project 2017-17 - Standards Alignment with Registration project: • Replace “Planning Authority and Planning Coordinator (hereafter collectively referred to as “Planning Coordinator”)” with “Planning Coordinator”. • Delete the 2nd paragraph in section 4.1.4 R3 indicates “...each notified BA, GO, DP, RP, TO, or TSP shall respond to the notifying PC or TP as follows ...”. The R3 VSL indicates these entities failed to provide a written response to its PC or TP. Suggesting either adding “written” to R3 or removing it from the R3 VSL. R1 Severe VSL: Correct “The Planning and Transmission Planner(s) Coordinator ...” for “The Planning Coordinator and Transmission Planner(s)...” R2 Severe VSL: Missing the TO entity after the last “OR”. R3 VSL: incorrect references to R4 instead of R3 in all VSL levels. R3 Severe VSL: should read “or within a longer period of 45 days agreed upon by the notifying Planning Coordinator or Transmission Planner” instead of “or within a longer period agreed upon by the notifying Planning Coordinator or Transmission Planner” TO’s and DP’s cannot be required to provide data for DER (or any generation resources) that the TO and DP do not own. TO and DP have no authority to collect this data and DER’s are not obligated to provide the data. In Attachment 1, under Dynamics, the following change should be made: Distributed Energy Resource (DER) data [DP, TO (when DER is owned by the TO or DP) In Attachment 1, under Steady-State, the following change should be made: Distributed Energy Resource (DER) data [DP, TO (when DER is owned by the TO or DP) a. Location (bus from item 1) and if DER feeder is subject to UFLS and/or UVLS b. Real power capability (minimum and maximum) c. Reactive power capability (minimum and maximum) d. Generator type (solar, battery, etc.) e. In-service date or other information to be used to make assumptions about DER capabilities related to ride through, voltage control and/or frequency control.</p>	
Likes	0

Dislikes	0
<b>Response</b>	
<p>Thank you for your comment.          Change made to address PC/PA applicability – please see Technical Rationale.</p> <p>R3/R3 VSL – proposed change is beyond the SAR scope and more substantial than a typo/correction; no change made.</p> <p>R1 Severe VSL – correction made to obvious typo.</p> <p>R2 Severe VSL – correction made to obvious typo.</p> <p>R3 VSL – correction made to obvious typo.</p> <p>R3 Severe VSL – proposed change is beyond the SAR scope and more substantial than a typo/correction; no change made.</p> <p>Improper DP/TO applicability          The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.</p>	
<b>Lan Nguyen - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p>CEHE finds the proposed revisions to MOD-032-2, Attachment 1 too detailed and prescriptive. The NERC Standard should be written to give Planning Coordinators (PC), Transmission Planners (TP) and Transmission Service Providers (TSP) the flexibility to coordinate and determine</p>	

the specific data requirements that are needed for the planning models under MOD-032-2, Attachment 1. CEHE recommends that data reporting requirements listed in Attachment 1 be determined by the PC, in coordination with TP.

In the ERCOT region, processes are already in place to define these data requirements through the coordination of the Planning Coordinator and Transmission Planners as part of various regional working groups.

CEHE also supports the comments as submitted by the Edison Electric Institute (EEI) regarding the development of a DER definition separate from the NERC Reliability Standards Project 2020-02.

CEHE agrees with EEI comments on how presently, Transmission Owners (TOs) and Distribution Providers (DPs) have no ability to compel DER owners to supply the data identified in the proposed Reliability Standard and until these issues are settled through changes to DER registration, efforts to gather DER data beyond those resources DPs own will yield little useful data. Subjecting DPs and TOs to the compliance obligations through MOD-032-2, before the registration issues have been solved, represents untenable regulatory obligations they cannot fulfil. To address this concern, CEHE suggests that all efforts by the Project 2022-02 SDT to compel TOs and DPs to supply DER data, beyond the resources they own and operate, be removed.

CEHE agrees with EEI comments relative to TOs. These entities may have no insights on DERs of unregistered DP systems and therefore should not be held accountable for supplying this type of information.

CEHE supports the additional comments submitted by EEI regarding footnote 4 of the SAR.

Likes	0
Dislikes	0

**Response**

Thank you for your comment.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

Data flow processes

Modifications to footnotes 2 and 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1. The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Clarification made in the Technical Rationale.

Also, see response to EEI.

**Alan Kloster - Alan Kloster On Behalf of: Jennifer Flandermeyer, Evergy, 3, 6, 5, 1; Jeremy Harris, Evergy, 3, 6, 5, 1; Kevin Frick, Evergy, 3, 6, 5, 1; Marcus Moor, Evergy, 3, 6, 5, 1; - Alan Kloster**

**Answer**

**Document Name**

**Comment**

Evergy supports and incorporates by reference the comments of the Edison Electric Institute (EEI) for question #2.

Likes 0

Dislikes 0

**Response**

Thank you for your comment. See response to EEI.

**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**

Southern Company supports comments submitted by EEI on potential implementation challenges.

Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your comment. See response to EEI.	
<b>Christine Kane - WEC Energy Group, Inc. - 3, Group Name</b> WEC Energy Group	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p>WEC Energy Group appreciates the opportunity to provide comment and suggests for consideration the inclusion of a specific MW threshold below which DER modeling is not required.</p> <p>WEC Energy Group is also in support of the comments submitted by EEI which state:</p> <p><i>"EEI supports SDT efforts to address DER impacts, however, the modifications to MOD-032-2 is inappropriately running ahead of NERC IBR organizational registration efforts. Presently, TOs and DPs have no ability to compel DER owners to supply the data identified in the proposed Reliability Standard and until these issues are settled through changes to DER registration, efforts to gather DER data beyond those resources DPs own will likely yield little useful data. Additionally, subjecting DPs and TOs to the compliance obligations through MOD-032-2, before the registration issues have been solved, represent untenable regulatory obligations they cannot fulfil. To address this concern, we ask that all efforts by the Project 2022-02 SDT to compel TOs and DPs to supply DER data, beyond the resources they own and operation, be removed.</i></p> <p><i>We also do not support the development of a DER definition within this NERC Reliability Standards project. The impact of this definition will have far reaching impacts that go beyond this project. To address this issue, we suggest that a separate NERC Reliability Standards project be developed to address this definition.</i></p> <p><i>EEI is additionally concerned that the number of separate DER projects currently under development and otherwise being considered is growing very quickly and it is unclear if there is adequate coordination between all of these projects. While addressing these issues is important, speed should not take precedent over ensuring these efforts are adequately coordinated and Requirements are not being duplicated or conflict.</i></p>	

*In addition to the above concerns, we offer the following comments and concerns for consideration:*

***Applicability Section***

*There is insufficient clarity related to the extent of DER resources that must be reported under MOD-032. To address this concern, a Facilities section should be added to this Reliability Standard.*

***Attachment 1***

*Steady-State Column - Item 2 (Aggregate Demand) & Dynamic Column – Item 5*

*EI does not support the addition of “TO (when a Demand is not associated with a registered DP)” to Steady-State Column - Item 2 (Aggregate Demand) & Dynamic Column – Item 5 (Demand) because TOs have no part in interconnections on Distribution Provider systems and would therefore only have this data if it were supplied to them by the responsible DP. Furthermore, it is impractical to expect that TOs could compel unregistered DPs to supply this data. We further note that even registered DPs only have detailed data on DERs they own. Compelling DPs to similarly supply data beyond those resources they own should be removed. For these reasons, changes to MOD-032-2 should be placed on hold until registration issues surrounding DER owners can be resolved through the NERC organizational registration reforms that are intended to address IBRs that impact the BPS.*

*Footnote 2 – Additional clarity is needed regarding the intent of Footnote 2. Footnote 2 appears to require DPs (or TOs) to supply Aggregate Demand data that has been manipulated to exclude all DER offsets. While this would be desirable, most small DERs are not metered except through billing meters. Billing meters are not synchronized with SCADA data, diminishing the value of any data supplied by the reporting entities. Additionally, the work hours required to account for these DER offsets could be substantial, adding excessive costs while providing questionable value or improved reliability through this change. As an alternative, EEI suggests that DPs might be able provide estimated DER offset values to address the immediate needs of planners in the development of their planning models, but even this should be studied to ensure such efforts are even possible or practical to implement.*

*Steady-state Column (Item 9) and Dynamic Column 10*

*See EEI comments for Items 2 and 5 above.*

*Footnote 4: Footnote 4 does not align with the SAR. In the SAR, data requests for DERs appear to be limited to aggregated DER data, however, in footnote 4 it states “TP/PC modeling data requirements and reporting procedures may require either aggregated or unaggregated data as necessary”. This appears to go beyond the approved limits of this SAR and should therefore be removed.”*

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT determined that a Facilities section is not necessary. Modifications were made to clarify data obligation for TOs and DPs with respect to data related to DER, for which a definition is proposed.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

See Applicability section of Technical Rationale for SDT conclusion regarding modification of NERC registration criteria in ROP.

**Aggregate Demand**

The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Clarification made in the Technical Rationale.

Adjustments made to Attachment 1 – many identified items would be specified in PC/TP procedures. Modifications to footnotes 2 and 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1.

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

<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
The NAGF has no additional comments at this time.	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your support.	
<b>Lindsey Mannion - ReliabilityFirst – 10</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
RF notes the draft standard revision also adds DER data under the steady state and dynamics columns in Attachment 1: Data Reporting Requirements, addressing industry need (1) from the SPIDERWG MOD-032 SAR and appreciates the efforts of the SDT on this project.	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your support.	
<b>Michael Jones - National Grid USA - 1, Group Name National Grid</b>	
<b>Answer</b>	
<b>Document Name</b>	

**Comment**

RE: Definition of Distributed Energy Resource (DER): Please consider that the definition of Distributed Energy Resource (DER) should be more generic, such as, “Real Power and Reactive Power resources connected on the distribution system, in non-isolated parallel operation. Please consider changing active power to Real Power since “active power” is not included in the NERC Glossary of Terms and is in literature a synonym to Real Power and should not be defined differently. In the NERC Glossary of Terms, Real Power is defined as, “The portion of electricity that supplies energy to load.” In the slides presented at the Project 2022-02 webinar (June 27), “Active power” was proposed to “indicate[s] that the scope is focused on only those facilities that may be exporting real power to the power system or offsetting real power load (e.g. residential or commercial rooftop solar, even if they only operate at unity power factor or don’t have any reactive power capability). This would exclude examples such as charging-only electric vehicle (EV) installations and controllable load options.” This proposal seems to indicate active power no longer being used as a synonym to Real Power, which could cause a potential risk of misinterpretations.

RE: Applicability – Functional Entities, Section 4.1.4: Please consider removing the “Planning Authority” function from section 4.1.4 since Planning Coordinator is the preferred function name. Please consider that Project 2017-07 Standards Alignment with Registration was previously removing “Planning Authority” from other standards such as MOD-031-2 and MOD-033-1, in-advance of the removal of “Planning Authority” from Rules of Procedure - Appendix 5B: Statement of Compliance Registry Criteria.

RE: Section C. Compliance: Please consider adding (CEA) as the abbreviation of “Compliance Enforcement Authority” to section 1.1. Please consider using the abbreviation CEA in section 1.2.

RE: Attachment 1: Data Reporting Requirements: Please consider limiting steady-state data for new item 9 to read as, “9. Distributed Energy Resource (DER) data4 [DP]” Please consider that sub-parts a., b., c., d., and e. are not necessary since DER data requirements can be agreed upon per requirement R1.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.  
 Active power was replaced with Real Power in the proposed DER definition.

DER definition

The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

Use of CEA abbreviation was not a significant topic for industry comment – no change made.

Adjustments made to Attachment 1. The SDT believes that the intent of the SAR was to establish some minimum level of DER data needed.

**Joseph Gatten - Xcel Energy, Inc. - 1,3,5,6 - MRO,WECC**

**Answer**

**Document Name**

**Comment**

Xcel Energy supports the comments of the EEI and the MRO NSRF

Likes 0

Dislikes 0

**Response**

Thank you for your comment. See response to EEI and the MRO NSRF.

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

**Answer**

**Document Name**

**Comment**

We appreciate the SDT’s inclusion of a draft definition for a “Distributed Energy Resource (DER)” in Draft 1 of MOD-032-2. We suggest the words ‘Generators and energy storage technologies...’ in the definition be replaced with ‘Sources of Electrical Energy...’. The NERC Glossary of Terms defines “Electrical Energy” as “The generation or use of electric power by a device over a period of time, expressed in kilowatthours (kWh), megawatthours (MWh), or gigawatthours (GWh)” and is technology neutral. While a DER definition is important, the definition in

combination with adding DP applicability may not provide the clarity for applicability that the SDT concludes in the Technical Rationale. The SDT should consider whether utilizing a new Facilities applicability section (4.2) could provide further scope clarity.

We believe section 4.1.4 should be updated to simply “Planning Coordinator”. This would be consistent with the direction taken in other NERC standards that previously contained similar language regarding PA/PC applicability (see changes made to MOD-031-3 and MOD-033-2 under Project 2017-07, Standards Alignment with Registration). The Project 2017-07 webpage contains the following statement about MOD-032-1:

*“MOD-032-1 will not be revised at this time, but may come back into Project 2017-07. The work of the System Planning Impact from Distributed Energy Resource Working Group (SPIDERWG) is ongoing at the time of the final posting for Project 2017-07. In June 2018, the NERC Planning Committee (PC) formed the SPIDERWG subcommittee to address Distributed Energy Resource (DER) impacts on the bulk power system (BPS). Currently, the subcommittee has proposed a Standard Authorization Request (SAR) for MOD-032-1 pertaining to DERs. The SAR has recently been reviewed by the PC. At this time, the Project 2017-07 drafting team will not take any action in reference to the MOD-032 standard until the SPIDERWG has completed their initial efforts.”*

While the Draft 1 Technical Rationale notes that the currently posted “Appendix 5B: Statement of Compliance Registry Criteria” still uses the Planning Authority term, a cursory review of all currently active standards reflects that a transition to “Planning Coordinator” in the applicability sections is almost complete, so making this change in MOD-032-2 would complement this transition. FAC-014-3, effective 4/1/2024, will incorporate the PA to PC change for that standard.

We noted in our comments on the SAR that a Distribution Provider may not always be the most practical source for the DER modeling data needed by the PC and TP. We recognize that the SDT has allowed for the flexibility of a Transmission Owner to also be a source for DER modeling data in Draft 1. However if the DP or TO is not directly affiliated with the DER owner, would their need to collect the DER model data from the entities that possess it not essentially mirror the PC and TP’s need under R1? The DP and TO might need their own requirement(s) to develop steady-state, dynamics, and short circuit modeling data requirements and reporting procedures to obtain DER modeling data (potentially from unregistered entities that don’t have an obligation to comply with NERC’s Reliability Standards) that would subsequently be passed on to the PC and TP. A “DER data entity” could also be added to the applicability section (reference PRC-006-5 for precedent) with a broader range of registered entity options to fulfil that role (e.g., DP, UFLS-Only DP, TO, RP, GO).

We interpret the implementation plan to mean that the PC and each of their TPs will have 24 months to jointly update their modeling data requirements and reporting procedures to incorporate the changes in Attachment 1. The entities responsible for providing DER modeling data to the PC/TP will then have 12 months to comply. We believe the initial collection and submittal of DER data will be equally if not more

time consuming than the PC/TPs efforts to update their modeling data requirements and reporting procedures. As noted above, after receiving the PC/TP's updated modeling data requirements and reporting procedures, the DER data collectors may need to perform outreach and communicate their own procedure/schedule for receiving the data from others. We suggest the implementation plan be revised to allow 24 months (rather than 12 months) after the effective date for the initial performance of R2, R3 and R4.

We suggest that further development of MOD-032-2 and its associated implementation plan be paused until it can be performed in closer conjunction with NERC's three year plan to register 'GO-IBRs', which is just beginning; and the "Modifications to FAC-001 and FAC-002" Standard Authorization Requests approved for posting at the NERC Standards Committee's May 17, 2023 meeting (no NERC project number assigned yet). Addressing these items (and perhaps other IBR related standards initiatives) in a piecemeal fashion will lead to less optimal results and confusion in the industry.

Likes 0

Dislikes 0

### Response

Thank you for your comment.

The proposed DER definition refers specifically to generators and storage technologies which would exclude transient sources of active power. Clarification added to Technical Rationale.

#### Facilities Section

The SDT determined that a Facilities section is not necessary. Modifications were made to clarify data obligation for TOs and DPs with respect to data related to DER, for which a definition is proposed.

#### Improper DP/TO applicability

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

See Applicability section of Technical Rationale for SDT conclusion regarding modification of NERC registration criteria in ROP.

**Implementation Plan**

The expectation is that TOs and DPs would participate in PC/TP processes to change data reporting requirements related to DER developed during the 24 months prior to the effective date of R1. Thus, TOs and DPs should be able to start working on data collection processes and methods more than 12 months prior to the effective dates of R2, R3, and R4.

GO-IBR registration would not cover many DER installations. The SDT views the GO-IBR registration as a separate effort that should not impact moving forward with MOD-032-2 as proposed.

**Devin Shines - PPL - Louisville Gas and Electric Co. - 1,3,5,6 - SERC,RF**

**Answer**

**Document Name**

**Comment**

PPL NERC Registered Affiliates do not agree with the separate inclusion of DER data in Attachment 1. A lack of specific reference to DER data does not mean that the data does not exist or is not already attainable by PCs and TPs under the existing standard. There are already specific provisions in the Standard allowing for the collection of such data. We do not believe there are gaps or lack of clarity within the currently approved MOD-032-1. Directing how an entity should collect and model such data is overly prescriptive, will increase administrative burden, and limit innovation in modeling DERs. The industry is just now learning how DERs are going to affect the BES. It is counterproductive to circumscribe how entities should meet their compliance requirements.

Likes 0

Dislikes 0

**Response**

Thank you for your comment. The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Modifications to footnotes 2 and 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1.

**Donna Wood - Tri-State G and T Association, Inc. - 1**

<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
N/A	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your support.	
<b>Kinte Whitehead - Exelon – 3</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p>Exelon concurs with the concerns expressed in the EEI comments.</p> <p>Requirements for DPs and TOs to provide Aggregate Demand and DER data should be limited to the aggregate data currently available to the entity.</p> <p>For Attachment 1, Steady-State 9e, we suggest removing the implied requirement for the “in-service dates”. Consider restating Attachment 1, Steady-State 9e as, “Information to be used to make assumptions about DER capabilities related to ride-through, voltage control and/or frequency control.” The Technical Rationale document can be modified to discuss how in-service dates may support the response to Attachment 1, Steady-State 9e.</p>	
Likes 0	
Dislikes 0	
<b>Response</b>	

Thank you for your comment. See response to EEI.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

Made adjustment to Attachment 1 to remove “service date”.

**Daniel Gacek - Exelon – 1**

**Answer**

**Document Name**

**Comment**

Exelon concurs with the concerns expressed in the EEI comments.

Requirements for DPs and TOs to provide Aggregate Demand and DER data should be limited to the aggregate data currently available to the entity.

For Attachment 1, Steady-State 9e, we suggest removing the implied requirement for the “in-service dates”. Consider restating Attachment 1, Steady-State 9e as, “Information to be used to make assumptions about DER capabilities related to ride-through, voltage control and/or frequency control.” The Technical Rationale document can be modified to discuss how in-service dates may support the response to Attachment 1, Steady-State 9e.

Likes 0

Dislikes 0

**Response**

Thank you for your comment. See response to EEI.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

Made adjustment to Attachment 1 to remove “service date”.

**Brittany Millard - Lincoln Electric System – 5**

**Answer**

**Document Name**

**Comment**

LES does not agree with the SDT proposed definition of DERs. The definition should be more in line with the FERC Energy Primer definition, already in place.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

**Andy Thomas - Duke Energy - 1,3,5,6 - SERC,RF**

**Answer**

<b>Document Name</b>	
<b>Comment</b>	
<p>The DP must be able to bound restrictions/limitations to TP request due to limited data availability, reasonableness, etc., when DER data requirements are made.</p> <p>Also, when determining the size of each DER, a minimum size of 500 kVA should be required for inclusion. Anything less than 500kVA would require an onerous amount of effort to provide accurate data, which would result in data being outdated and/or obsolete, etc. There is limited data available (MOD-032-2 Attachment 1) for DP area small DER generation (e.g., residential solar, small commercial), therefore the accuracy of aggregated small DER generation for BES system impact modeling is limited.</p>	
Likes	0
Dislikes	0
<b>Response</b>	
<p>Thank you for your comment.</p> <p>The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.</p> <p>DER MW thresholds        NERC has recommended a zero MVA threshold for gathering DER information:  <a href="https://www.nerc.com/comm/RSTC_Reliability_Guidelines/DERStudyReport.pdf">https://www.nerc.com/comm/RSTC_Reliability_Guidelines/DERStudyReport.pdf</a>        It is expected that PC/TP procedures may specify thresholds and technical justification for inclusion of DER models (or not) in any particular study – this issue is more aligned with the SAR for TPL-001 that will be addressed in the second phase of this project 2022-02.</p>	
<b>Alison MacKellar - Constellation – 5</b>	

<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
Constellation has no additional comments	
Alison Mackellar on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your support.	
<b>Andy Fuhrman - Andy Fuhrman On Behalf of: Theresa Allard, Minnkota Power Cooperative Inc., 1; - Andy Fuhrman</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
MPC supports comments submitted by the MRO NERC Standards Review Forum (NSRF).	
Likes 0	
Dislikes 0	
<b>Response</b>	
Thank you for your comment. See response to MRO NERC Standards Review Forum (NSRF).	
<b>Constantin Chitescu - Ontario Power Generation Inc. - 5</b>	
<b>Answer</b>	
<b>Document Name</b>	

**Comment**

OPG agrees with NPCC/RSC's comments.

Likes 0

Dislikes 0

**Response**

Thank you for your comment. See response to NPCC/RSC.

**Nicolas Turcotte - Hydro-Quebec (HQ) – 1**

**Answer**

**Document Name**

**Comment**

1) Suggest making the following conforming changes to section 4.1.4 as per standards MOD-031-3 and MOD-033-2 in the NERC project 2017-17 - Standards Alignment with Registration project:

- Replace “Planning Authority and Planning Coordinator (hereafter collectively referred to as “Planning Coordinator”)” with “Planning Coordinator”.
- Delete the 2nd paragraph in section 4.1.4

2) R3 indicates “...each notified BA, GO, DP, RP, TO, or TSP shall respond to the notifying PC or TP as follows ...”. The R3 VSL indicates these entities failed to provide a written response to its PC or TP. Suggesting either adding “written” to R3 or removing it from the R3 VSL.

3) R1 Severe VSL: Correct “The Planning and Transmission Planner(s) Coordinator ...” for “The Planning Coordinator and Transmission Planner(s)...”

4) R2 Severe VSL: Missing the TO entity after the last “OR”.

5) R3 VSL: incorrect references to R4 instead of R3 (more specifically R3.2) in all VSL levels.

6) R3 Severe VSL: should read “[...Requirement R3 within 90 calendar days (or within a longer period agreed upon by the notifying Planning Coordinator or Transmission Planner), but did provide the response after 135 calendar days (or within a longer period agreed upon by the notifying Planning Coordinator or Transmission Planner)]” instead of “Requirement R4 within 135 calendar days (or within a longer period agreed upon by the notifying Planning Coordinator or Transmission Planner).”

7)TO’s and DP’s cannot be required to provide data for DER (or any generation resources) that the TO and DP do not own. TO and DP have no authority to collect this data and DER’s are not obligated to provide the data.

8) In Attachment 1, under Dynamics, the following change should be made:

- Distributed Energy Resource (DER) data [DP, TO (when DER is owned by the TO or DP)
- In Attachment 1, under Steady-State, the following change should be made: Distributed Energy Resource (DER) data [DP, TO (when DER is owned by the TO or DP)

a. Location (bus from item 1) and if DER feeder is subject to UFLS and/or UVLS

b. Real power capability (minimum and maximum)

c. Reactive power capability (minimum and maximum)

d. Generator type (solar, battery, etc.)

e. In-service date or other information to be used to make assumptions about DER capabilities related to ride through, voltage control and/or frequency control.

Likes	0
Dislikes	0

**Response**

Thank you for your comment.

Change made to address PC/PA applicability – please see Technical Rationale.

R3/R3 VSL – proposed change is beyond the SAR scope and more substantial than a typo/correction; no change made.

R1 Severe VSL – correction made to obvious typo.

R2 Severe VSL – correction made to obvious typo.

R3 VSL – correction made to obvious typo.

R3 Severe VSL – proposed change is beyond the SAR scope and more substantial than a typo/correction; no change made.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments**

**Answer**

**Document Name**

**Comment**

PG&E provides the following:

The MRO New Standard Review Forum (NSRF) has provided additional comments that PG&E wishes to support related to the DER definition. PG&E supports the recommendation that the definition should be removed from this modification and addressed in a separate project since it would impact many Standards currently being worked on or planned for in the future. With seven (7) different DER definitions

currently being provided from such sources as the NERC SPIDERWG, NARUC, IEEE, and the California PUC, the Project 2022-02 effort will cause further confusion for the industry.

For this reason, PG&E will be voting Negative for this proposed modification.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

**Srikanth Chennupati - Entergy - Entergy Services, Inc. - 1,3,5,7 - SERC**

**Answer**

**Document Name**

[2022-02\\_Unofficial Comment Form\\_May2023.docx](#)

**Comment**

1. Will there be an aggregate DER threshold (either nameplate or net injection to the grid) above which the DP should submit modeling data to the TP and PC for inclusion in transmission planning models? MOD-025, MOD-026, and MOD-027 standards are being revised to limit applicability to resources included in either I2 or I4 of the BES definition (individual units > 20 MVA or an aggregate plant > 75 MVA). Should thresholds for MOD-032 DER modeling be consistent with the other NERC modeling standard applicability thresholds?
2. Will the NERC BES Reference document be revised to include DER generation (individual units and/or DER aggregations)?
3. Are these DER data reporting requirements limited to merchant DER installations in the future only?
  - o It will be challenging to obtain steady-state and dynamic data for each individual installation that has taken place over the years in the past, especially for non-merchant applications (such as residential roof-top solar resources). How are DPs expected to obtain this data and who will bear the cost associated with this process?

- How will DPs be able to obtain and verify the in-service dates of each individual distribution connected resource that has occurred in the past?
- Most of the residential and other non-merchant solar and battery installations fall below the installed capacity threshold at which such resources are required to go through the distribution interconnection detailed study process. How are DPs expected to collect steady-state and dynamic data on such resources, even if occurring in the future?

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

NERC has recommended a zero MVA threshold for gathering DER information:

[https://www.nerc.com/comm/RSTC\\_Reliability\\_Guidelines/DERStudyReport.pdf](https://www.nerc.com/comm/RSTC_Reliability_Guidelines/DERStudyReport.pdf)

It is expected that PC/TP procedures may specify thresholds and technical justification for inclusion of DER models (or not) in any particular study – this issue is more aligned with the SAR for TPL-001 that will be addressed in the second phase of this project 2022-02.

Inclusion of DER as a BES facility is not being considered as part of this project.

Data for all DER that satisfy the proposed DER definition should be reported, subject to the joint PC/TP modeling data requirements and reporting procedures developed per R1.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Kimberly Turco - Constellation - 6**

**Answer**

<b>Document Name</b>	
<b>Comment</b>	
Constellation has no additional comments.	
Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Patricia Robertson - Patricia Robertson On Behalf of: Adrian Andreoiu, BC Hydro and Power Authority, 5, 3, 1; - Patricia Robertson, Group Name BC Hydro Balloters</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
General comments on MOD-032-2:	
<p>a. In Section 4. Applicability, under 4.1.4, BC Hydro recommends that the wording “Planning Authority and Planning Coordinator (hereafter collectively referred to as “Planning Coordinator”)", be changed to “Planning Coordinator”. Retaining the current wording may create confusion or result in misinterpretation, especially for those utilities that treat PA standards and PC standards differently. A PC-only approach has been used in other recently approved NERC standards and those that are being developed, such as FAC-002-4, MOD-033-2, and MOD-026-2.</p> <p>b. BC Hydro recommends that in Attachment 1, the language used in the DER steady-state data section (Item 9) be generalized to account for distribution-connected hydroelectric generators. A suggested wording is provided below for consideration:</p>	

*“...c. Reactive power capability (minimum and maximum)*

*d. Fuel type (solar, wind, hydraulic, battery, etc.)*

*e. Generator type (synchronous, inverter-based resource, etc.)*

*f. In-service date or other ...”*

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

Change made to address PC/PA applicability – please see Technical Rationale.

The SDT intent is to maintain PC/TP flexibility for consistently collecting accurate data, but not be overly prescriptive on data collection processes with respect to developing modeling data requirements and reporting procedures per R1.

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

**Answer**

**Document Name**

**Comment**

WECC believes there is value in including these Distributed Sources in system modeling, but is concerned that the proposed definition may not satisfy that need.

The definition of DER does not seem adequate. First, it includes non BES generation type resources that are beyond BES dispersed generation identified under inclusion I4 of the BES Definition. And thus, appears to go beyond the scope of mandatory standards applicability. A second issue is that because the definition has the qualifier “...connected to the Distribution Provider’s system...” it would leave out any “DER” that did not have a registered Distribution Provider including any connected via some pathway directly to a Transmission System.

WECC believes that a focused effort on defining DER and addressing it within the BES Definition or in the NERC Glossary to be used consistently in all standards.

Likes 0

Dislikes 0

**Response**

Thank you for your comment. A clarification was added to the DER definition indicating that the Distribution Provider reflects the NERC glossary of terms definition rather than the NERC registered entity.

**Adrian Raducea - DTE Energy - Detroit Edison Company - 5, Group Name** DTE Energy - DTE Electric

**Answer**

**Document Name**

**Comment**

Per the Federal Power Act, NERC’s jurisdiction is to establish and enforce Reliability Standards for the Bulk Power System. A NERC document, Understanding the Grid, published in March 2023, indicates that the generation and transmission components and their associated control systems make up the BPS, so requiring DP’s to provide DER data that is connected to the Distribution system is outside of NERC’s jurisdiction, unless the DER is connected to the transmission system such as non-BES generation. Furthermore, the NERC Glossary of Terms definition for Bulk Power System explicitly states that it does not include facilities used in the local distribution of electric energy, which aligns to the definition for bulk-power system in the Federal Power Act Section 215(a), definitions.

DER on a DP’s network is not that clear in the Technical Reference document. Please provide some examples similar to the BES reference document of what would not be in-scope DER and what would be in-scope DER on a DP’s network.

What happens if we are unable to obtain modeling data from OEMs for older DER inverters?

What if we do not have the information to determine the collector system impedance values?

What happens if residential, retail or commercial owners do not want to support this effort?

What happens if an IBR OEM has gone out of business?

Likes 1

Mearns James On Behalf of: Dennis Sismaet, Northern California Power Agency, 4, 6, 3, 5;

Dislikes 0

**Response**

Thank you for your comment.

Data for all DER that satisfy the proposed DER definition should be reported, subject to the joint PC/TP modeling data requirements and reporting procedures developed per R1. Based on the work of the NERC SPIDERWG and observed events around the world, it should be clear that DER can impact BPS reliability.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Andrea Jessup - Bonneville Power Administration - 1,3,5,6 - WECC**

**Answer**

**Document Name**

**Comment**

BPA believes that this definition would require adjustment of the BES inclusions and exclusions lists. For example, currently resources below 75 MVA are not required to submit the data that will be required of DER. This will result in entities not providing data for anything less than 75 MVA and citing exclusion (or lack of inclusion), even though the intent appears to require data submission from much smaller

resources. BPA suggests excluding legacy equipment such as hydro, or perhaps the definition should only apply to inverter based resources (IBR.) It is also important to note that small generator owners are likely not financially able to test equipment (per MOD-025/026/027) in order to provide modeling data. This could result in shutting down such generators and associated loads costing local jobs in affected areas.

BPA requests clarification and consistency regarding the use of Bulk Power System and Bulk Electric System. Both terms are being used.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.  
 Inclusion of DER as a BES facility is not being considered as part of this project.

Data for all DER that satisfy the proposed DER definition should be reported, subject to the joint PC/TP modeling data requirements and reporting procedures developed per R1.

**Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter**

**Answer**

**Document Name**

**Comment**

FE supports EEI's comments which state:

EEI supports SDT efforts to address DER impacts, however, the modifications to MOD-032-2 is inappropriately running ahead of NERC IBR organizational registration efforts. Presently, TOs and DPs have no ability to compel DER owners to supply the data identified in the proposed Reliability Standard and until these issues are settled through changes to DER registration, efforts to gather DER data beyond those resources DPs own will likely yield little useful data. Additionally, subjecting DPs and TOs to the compliance obligations through MOD-032-2, before the registration issues have been solved, represent untenable regulatory obligations they cannot fulfil. To address this concern, we ask that all efforts by the Project 2022-02 SDT to compel TOs and DPs to supply DER data, beyond the resources they own and operation, be removed.

We also do not support the development of a DER definition within this NERC Reliability Standards project. The impact of this definition will have far reaching impacts that go beyond this project. To address this issue, we suggest that a separate NERC Reliability Standards project be developed to address this definition.

EEl is additionally concerned that the number of separate DER projects currently under development and otherwise being considered is growing very quickly and it is unclear if there is adequate coordination between all of these projects. While addressing these issues is important, speed should not take precedent over ensuring these efforts are adequately coordinated and Requirements are not being duplicated or conflict.

In addition to the above concerns, we offer the following comments and concerns for consideration:

### **Applicability Section**

There is insufficient clarity related to the extent of DER resources that must be reported under MOD-032. To address this concern, a Facilities section should be added to this Reliability Standard.

### **Attachment 1**

General comment: As stated in EEl's response to Question 1, we support the replacement of LSEs with DP, however, Attachment 1 goes beyond the replacement of LSEs with DP and includes TOs as an additional replacement where there are no registered DPs. This change should be stricken from the proposed draft of MOD-032-2. Registration problems cannot be solved through compliance obligations placed on registered entities who do not participate in the approval of DER interconnections or have any ability to compel the sharing of DER data contained on networks outside their purview.

Steady-State Column - Item 2 (Aggregate Demand) & Dynamic Column – Item 5

EEl does not support the addition of "TO (when a Demand is not associated with a registered DP)" to Steady-State Column - Item 2 (Aggregate Demand) & Dynamic Column – Item 5 (Demand) because TOs have no part in interconnections on Distribution Provider systems and would therefore only have this data if it were supplied to them by the responsible DP. Furthermore, it is impractical to expect that TOs could compel unregistered DPs to supply this data. We further note that even registered DPs only have detailed data on DERs they own. Compelling DPs to similarly supply data beyond those resources they own should be removed. For these reasons, changes to MOD-032-2 should be placed on

hold until registration issues surrounding DER owners can be resolved through the NERC organizational registration reforms that are intended to address IBRs that impact the BPS.

**Footnote 2** – Additional clarity is needed regarding the intent of Footnote 2. Footnote 2 appears to require DPs (or TOs) to supply Aggregate Demand data that has been manipulated to exclude all DER offsets. While this would be desirable, most small DERs are not metered except through billing meters. Billing meters are not synchronized with SCADA data, diminishing the value of any data supplied by the reporting entities. Additionally, the work hours required to account for these DER offsets could be substantial, adding excessive costs while providing questionable value or improved reliability through this change. As an alternative, EEI suggests that DPs might be able provide estimated DER offset values to address the immediate needs of planners in the development of their planning models, but even this should be studied to ensure such efforts are even possible or practical to implement.

Steady-state Column (Item 9) and Dynamic Column 10

See EEI comments for Items 2 and 5 above.

Footnote 4: EEI is concerned that footnote 4 does not align with the SAR. In the SAR, data requests for DERs appear to be limited to aggregated DER data, however, in footnote 4 it states “TP/PC modeling data requirements and reporting procedures may require either aggregated or unaggregated data as necessary”. This appears to go beyond the approved limits of this SAR and should therefore be removed.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The SDT determined that a Facilities section is not necessary. Modifications were made to clarify data obligation for TOs and DPs with respect to data related to DER, for which a definition is proposed.

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability.

However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

See Applicability section of Technical Rationale for SDT conclusion regarding modification of NERC registration criteria in ROP.

The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Clarification made in the Technical Rationale.

Adjustments made to Attachment 1 – many identified items would be specified in PC/TP procedures. Modifications to footnotes 2 and 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1.

**Bruce Walkup - Arkansas Electric Cooperative Corporation - 6**

**Answer**

**Document Name**

**Comment**

Comments to be supplied separately by AECC's Ayslynn McAvoy.

Likes 0

Dislikes 0

**Response**

Thank you for your comment. See response to AECC.

**Anne Kronshage - Public Utility District No. 1 of Chelan County - 6, Group Name Public Utility District No. 1 of Chelan County - Voting Group**

**Answer**

**Document Name**

**Comment**

Project 2022-02 is more than the replacement of these registration identifiers as it also includes DER modeling data additions. The question above does not fully encompass the changes proposed for MOD-032-02. However, the changes for adding DER modeling data does seem appropriate and reflects the NERC Reliability Guideline: DER Data Collection for Modeling in Transmission Planning.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

**Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO**

**Answer**

**Document Name**

**Comment**

- Can 4.1.4 be simplified to just Planning Coordinator?
- Note 10 under dynamics in Attachment-1 assumes a specific model for each DER will be provided. Note 9 under steady state (and footnote 4) assume that DER could be aggregated. The dynamics model may also need to be aggregated and there should be a footnote regarding coordination of model parameters. The Resource Planner may need to be involved in the coordination for dynamic models in Years 1-10.
- Regarding the DER definition provided under the section “New or Modified Terms Used in NERC Reliability Standards”, did the SDT consider the definition provided in IEEE Std 1547-2018, especially Note-1(exclusion of Controllable loads used for demand response) and Note-2 (supplemental DER devices)?

Likes 0

Dislikes 0

**Response**

Thank you for your comment.  
 Change made to address PC/PA applicability – please see Technical Rationale.

Modifications to footnote 4 are intended to emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1.

**DER definition**

The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

**Todd Bennett - Associated Electric Cooperative, Inc. - 3, Group Name AECI**

**Answer**

**Document Name**

**Comment**

AECI supports comments submitted by Tacoma Power.

Likes 0

Dislikes 0

**Response**

Thank you for your comment. See response to Tacoma Power.

**Sheila Suurmeier - Black Hills Corporation - 5**

**Answer**

**Document Name**

**Comment**

No Additional Comments

Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your support.	
<b>Jennie Wike - Jennie Wike On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merrell, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Nierenberg, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; Ozan Ferrin, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power</b>	
Answer	
Document Name	
<b>Comment</b>	
<p>Tacoma Power has multiple concerns with the proposed DER definition and adding this scope to the MOD-032 Standard, as outlined in the next few bullets.</p> <p><b>Scope Expansion and non-NERC Registered Entities</b></p> <p>The proposed changes to include DERs in MOD-032 is expanding the scope of the Standard to include equipment not currently covered in the BES definition. The concept that non-BES or distribution equipment could impact the reliability and operation of the BES is not new to NERC Standards. For example, there is precedent in the PRC Standards to consider distribution equipment that supports UVLS programs or Protection System schemes. However, the proposed changes in this posting for MOD-032 are not sufficient on their own to ensure the expansion of scope will be effective.</p> <p>The Technical Rationale states “the modifications place a compliance obligation on NERC registered DPs (or TOs) to provide basic information about DER that are connected to their systems so that DER can be properly represented in interconnection-wide cases.” However, there are large distribution utilities that are not registered as DPs, but have aggregate DERs that should be accounted for under the proposed MOD-032 Attachment 1 scope. To ensure the appropriate entities are held responsible, either the (1) BES definition needs to change to include DERs, (2) a new “DP-DER” registration needs to be created, or (3) the DP registration criteria needs to change to ensure the appropriate entities are held responsible. Of these three options, Tacoma Power recommends revising the DP criteria in ROP Appendix 5B, Section III, to include a new criterion to ensure distribution utilities that must provide data to support MOD-032, Attachment 1, are subject to NERC jurisdiction. This</p>	

approach aligns with the regulatory precedent set for UVLS programs, RAS schemes, and Protection System components under PRC-005 and PRC-006. Without a separate effort to revise the DP registration, Tacoma Power cannot approve the draft MOD-032. The draft Standard cannot be fulfilled without these entities being held responsible for the data.

Below is an example mark-up of ROP Appendix 5B, Section III for NERC to consider in the ROP revision:

*III.a.1 Distribution Provider system serving >75 MW of peak Load that is directly connected to the BES; or*

*III.a.2 Distribution Provider is the responsible entity that owns, controls, or operates Facilities that are part of any of the following Protection Systems or programs designed, installed, and operated for the protection of the BES:*

- *a required Undervoltage Load Shedding (UVLS) program and/or*
- *a required Special Protection System or Remedial Action Scheme and/or*
- *a required transmission Protection System; or*

*III.a.3 Distribution Provider that is responsible for providing services related to Nuclear Plant Interface Requirements (NPIRs) pursuant to an executed agreement; or*

*III.a.4 Distribution Provider with field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks; or*

***III.a.5 Distribution Provider is the responsible entity that serves, controls, owns, or operates Distributed Energy Resources (DERs) exceeding 0.01 MW.***

#### **DER Definition**

Tacoma Power supports the essence of the DER definition, but is concerned that it is unclear whether the proposed definition includes devices that have transient export of real power such as closed transition transfer switches, regenerative elevators/cranes, and industrial motors with regenerative braking. The proposed definition should be clarified to exclude these devices, while still including devices installed for energy storage such as batteries, flywheels, and Synchronous condensers. Tacoma Power suggests adding "for at least 30 seconds" to the definition so that the definition reads "... providing active power for at least 30 seconds in non-isolated parallel operation..."

The IEEE definition of DER includes both the energy resource plus any necessary supplemental equipment. Tacoma Power would like to see similar guidance within the NERC DER definition. This ensures that reactive power control devices such as capacitor and STATCOMS are correctly included in the DER model submittals.

**Implementation Plan**

Tacoma Power does not agree with the proposed implementation plan for the DER definition. This definition will eventually be used in several future NERC Standard revisions. Some of these revisions may have a shorter implementation timeframe than Project 2022-02. The effective date of the DER definition needs to be coordinated with the other planned Standard revisions to ensure the timing supports implementation of these other Standard revisions.

**Coordination with Other Standard Changes**

Tacoma Power is concerned about how the DER definition will be used for other future NERC Standard changes, as outlined in the October 2022 “NERC System Planning Impacts from Distributed Energy Resources Working Group (SPIDERWG) White Paper.” The proposal’s impact on other Standards must be clear prior to putting the DER definition in place to avoid unintended consequences. For example, excluding various types of demand response from the DER definition may not be appropriate for PRC-006 and TPL-001. These two Standards may need to consider demand response for proper modeling of the BES. If NERC intends to add DERs to EMT Modeling Requirements in MOD-026, then this would be a significant cost and pose technical challenges for registered entities, which could impact the DER definition scope.

When reviewing the DER definition in this posting, entities need to understand how this definition will be used in other future Standard changes. Tacoma Power recommends one of the two following options to ensure impacts to other future Standard changes are considered in the definition development:

1. Provide a list of other Standards that will be impacted by this definition change in the “New or Modified Term(s) Used in NERC Reliability Standards” section of the MOD-032 redline, similar to the approach taken by Project 2019-04, Modifications to PRC-005, or
2. Create a standalone Standards Project that addresses the DER definition development for all future Standard changes.

Likes	1	Public Utility District No. 1 of Snohomish County, 1, Rhoads Alyssia
Dislikes	0	

**Response**

Thank you for your comment.

Inclusion of DER as a BES facility is not being considered as part of this project.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

See Applicability section of Technical Rationale for SDT conclusion regarding modification of NERC registration criteria in ROP.

**DER Definition**

The proposed DER definition refers specifically to generators and storage technologies which would exclude transient source of active power. Clarification added to Technical Rationale.

The SDT feels that the DER definition is broad enough to include supplemental equipment, and in conjunction with item 9d in Attachment 1, adequately covers the concern. Clarification added to the Technical Rationale.

The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

The RSTC approved a White Paper produced by SPIDERWG identifying standards that may require revision due to DER:

[https://www.nerc.com/comm/RSTC\\_Reliability\\_Guidelines/Whitepaper\\_SPIDERWG\\_Standards\\_Review.pdf](https://www.nerc.com/comm/RSTC_Reliability_Guidelines/Whitepaper_SPIDERWG_Standards_Review.pdf)

**Larry Heckert - Alliant Energy Corporation Services, Inc. - 4**

<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
Alliant Energy supports the comments submitted by the MRO NSRF.	

Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your comment. See response to MRO NSRF.	
<b>Ayslynn Mcavoy - Arkansas Electric Cooperative Corporation - 3</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
SMEs responded "MOD-032-1 provides language for the Planning Coordinators (PC) and their Transmission Planner(s) (TP) to request any, and all, modeling data pertaining to the development of steady-state, short circuit, and dynamics models. The language in MOD-032-1 currently allows the PCs and TPs to request DER data from TOs, GOs, and LSEs (Distribution Providers). Therefore, any language specific to the addition of DERs to MOD-032-1 would be redundant."	
Likes	0
Dislikes	0
<b>Response</b>	
Thank you for your comment. The SDT believes that this comment was answered when the Standards Committee approved the MOD-032 SAR.	
<b>Robert Follini - Avista - Avista Corporation - 3</b>	
<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
EEI Draft Comments should be included or referenced:	

{C}· {C}To better clarify the extent of DER resources that must be reported under MOD-032, EEI suggests that a Facilities section be added to this Reliability Standard.

{C}· {C}Footnote 2 – EEI asks that the SDT provide additional clarity regarding the intent of Footnote 2. Footnote 2 appears to require DPs (or TOs) to supply Aggregate Demand data that has been manipulated to exclude all DER offsets. While we understand why this would be desirable, most small DERs are not metered except for billing meters. Billing meters are not synchronized with SCADA data, diminishing the value of any data supplied by the reporting entities. We are further concerned that the manhours required to account for these DER offsets could be substantial adding excessive costs while providing questionable value to this change. As an alternative, EEI suggests that DPs and TOs could provide estimated DER offset values, which would require fewer manhours to develop and should provide sufficient value to the planning models.

{C}· {C}Steady-state and Dynamic columns

EEI is concerned that the data requests identified in Item 9 (Steady-state), and Item 10 (Dynamic) seek non-aggregated data, while the SAR specifies that aggregated DER data is to be supplied. To address this concern, we ask that both Items 9 and 10 be edited to make it clear that data requests to DPs and TOs are to be limited to aggregate DER data.

Footnote 4: EEI is concerned that footnote 4 does not align with the SAR. In the SAR, data requests for DERs appear to be limited to aggregated DER data, however, in footnote 4 it states “TP/PC modeling data requirements and reporting procedures may require either aggregated or unaggregated data as necessary”. This appears to go beyond the approved limits of this SAR and should therefore be removed.

Likes	0
Dislikes	0

**Response**

Thank you for your comment.

The SDT determined that a Facilities section is not necessary. Modifications were made to clarify data obligation for TOs and DPs with respect to data related to DER, for which a definition is proposed.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

**Data flow processes**

Modifications to footnotes 2 and 4 are intended to address the concern and emphasize PC/TP flexibility in developing modeling data requirements and reporting procedures per R1. The intent of Attachment 1 is to specify the minimum required data but not procedures and methods. Clarification made in the Technical Rationale.

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

<b>Answer</b>	
<b>Document Name</b>	<a href="#">2022-02 Tables.PNG</a>
<b>Comment</b>	
<ul style="list-style-type: none"> <li>The NSRF recommends the SDT remove the DER definition from the proposed MOD-032-2 standard.</li> <li>The NSRF recommends NERC create a standalone Standards Project that addresses the DER definition development for all future Standard changes. As part of this project, the NSRF recommends revising the DP criteria in the Rules Of Procedure (ROP), Appendix 5B, Section III.</li> </ul>	

- NERC needs a way to register a DER or “DER aggregator” type entity, to ensure the appropriate entities are held responsible for NERC Reliability Standards.

Further:

The proposed changes to include DERs in MOD-032 is expanding the scope of the Standard to include equipment not currently covered in the BES definition. The concept that non-BES or distribution equipment could impact the reliability and operation of the BES is not new to NERC Standards. For example, there is precedent in the PRC Standards to consider distribution equipment that supports UVLS programs or Protection System schemes. However, the proposed changes in this posting for MOD-032 are not sufficient to ensure the expansion of scope will be effective.

Currently there are seven definitions for DER. The SDT chose to create a new definition of DER separate from those.

The proposed definition:

Term(s): Distributed Energy Resource (DER) Generators and energy storage technologies connected to the Distribution Provider’s system that are capable of providing active power in non-isolated parallel operation with the Bulk Electric System.

The SPIDERWG Terms and definitions document has six definitions for DER. The draft MOD-032-2 definition is different than the definitions contained in the document. See Table D.1: Alternate Definitions for DER-Related Concepts.

Link to [SPIDERWG Terms and definitions](#) document

Link to DER reference document – contains DER definition.

[Distributed Energy Resources Connection Modeling and Reliability Considerations February 2017](#)

The NERC Distributed Energy Task Force (ERTF) DER definition:

“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).”

The NSRF is concerned about how the DER definition will be used for other future NERC Standard changes, as outlined in the October 2022 “NERC System Planning Impacts from Distributed Energy Resources Working Group (SPIDERWG) White Paper.” The proposal's impact on other Standards must be clear prior to putting the DER definition in place to avoid unintended consequences.

For example, excluding various types of demand response from the DER definition may not be appropriate for PRC-006 and TPL-001. These two Standards may need to consider demand response for proper modeling of the BES. If NERC intends to add DERs to EMT Modeling Requirements in MOD-026, then this would be a significant cost and pose technical challenges for registered entities, which could impact the DER definition scope.

The Technical Rationale states “the modifications place a compliance obligation on NERC registered DPs (or TOs) to provide basic information about DER that are connected to their systems so that DER can be properly represented in interconnection-wide cases.” However, there are large distribution utilities that are not registered as DPs, but have aggregate DERs that should be accounted for under the proposed MOD-032 Attachment 1 scope. To ensure the appropriate entities are held responsible, either the:

1. BES definition needs to change to include DERs,
2. a new “DP-DER” registration needs to be created, or
3. the DP registration criteria needs to change to ensure the appropriate entities are held responsible.

From the [SPIDERWG Terms and Definitions Working Document](#):

-See Attachment

Likes 1	Wike Jennie On Behalf of: Hien Ho, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; John Merre
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Dislikes 0	
------------	--

**Response**

Thank you for your comment.

**New DER registration**

The SDT views comments suggesting NERC registration of individual DER owners as unnecessary and impractical (similar to the impracticality of registering the load at every single house connected to the system) that would still require DPs and TOs to report what is connected to their systems unless NERC registration of every single rooftop solar installation is being proposed.

**Improper DP/TO applicability**

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

See Applicability section of Technical Rationale for SDT conclusion regarding modification of NERC registration criteria in ROP.

Inclusion of DER as a BES facility is not being considered as part of this project.

**DER definition**

The SDT did review available definitions of DER and found existing definitions were not adequate to cover BPS reliability concerns. The proposed definition is aligned with the SPIDERWG working definition for DER. Additional details were added to the Technical Rationale.

Demand response was specifically excluded by SPIDERWG, so the cited example would impact intent related to other SPIDERWG recommendations and SARs.

**Joseph OBrien - NiSource - Northern Indiana Public Service Co. - 6**

**Answer**

**Document Name**

**Comment**

NIPSCO agrees with the comments of the Edison Electric Institute (EEI) regarding the proposed TPL-001-5 Footnote 13d revision.

Likes 0

Dislikes 0

**Response**

Thank you for your comment.

The first phase of Project 2022-02 is only proposing modifications to MOD-032.

**Thomas Foltz - AEP - 5**

**Answer**

**Document Name**

**Comment**

AEP appreciates the efforts of the standards drafting team and sees the value of the proposed revisions to Attachment One. Even so, AEP would be unable to vote affirmative on this revised standard unless and until every entity providing DER data is a registered Functional Entity who is formally obligated to provide it. As is the case in existing standards where Generator Owners are obligated to provide similar data, entities who possess the needed DER data noted in the Attachment One revisions should likewise be registered and explicitly obligated to provide this data as well. While we are unsure if the existing Functional Entities classes are themselves sufficient, or if instead, a new class of Functional Entities might need to be considered and developed, the need nonetheless exists. NERC may wish to also consider the potential that such obligations could potentially cross Federal and State jurisdictional lines of responsibility, further illustrating the complexity-of and challenges-in developing obligations to obtain the DER data in the revised Attachment One.

In addition, while the SDT has not provided a question regarding the proposed Implementation Plan, AEP believes additional time will be needed to accommodate the work pertaining to assets newly brought into scope. Rather than being required to comply with the obligations 12 months after the definition has become effective, we instead suggest it be 24 months after the definition has become effective.

Likes 0

Dislikes 0

### Response

Thank you for your comment.

#### New DER registration

The SDT views comments suggesting NERC registration of individual DER owners as unnecessary and impractical (similar to the impracticality of registering the load at every single house connected to the system) that would still require DPs and TOs to report what is connected to their systems unless NERC registration of every single rooftop solar installation is being proposed.

#### Improper DP/TO applicability

The SDT contends that TOs and DPs (registered or not) have a reliability interest in knowing what is (and projected to be) connected to their systems with respect to the DER data items proposed to be added in Attachment 1. MOD-032-2 may help TOs get a better knowledge of what is being connected to their systems (and this may require amended interconnection agreements, as acknowledged in the Technical Rationale) and will require better coordination between TOs and DPs (registered or not) which should improve situational awareness and BPS reliability. However, the SDT recognizes the compliance challenges with obligating TOs and DPs to collect data from unregistered entities and added footnote 5 to Attachment 1 that requires TOs and DPs to pass through available information.

See Applicability section of Technical Rationale for SDT conclusion regarding modification of NERC registration criteria in ROP.

#### Implementation Plan

The expectation is that TOs and DPs would participate in PC/TP processes to change data reporting requirements related to DER developed during the 24 months prior to the effective date of R1. Thus, TOs and DPs should be able to start working on data collection processes and methods more than 12 months prior to the effective dates of R2, R3, and R4.

**Ben Hammer - Ben Hammer On Behalf of: Sean Erickson, Western Area Power Administration, 1, 6; - Ben Hammer**

<b>Answer</b>	
<b>Document Name</b>	
<b>Comment</b>	
<p>The Project 2022-02 SDT should review and coordinate with ERO efforts separately filed with FERC in the NERC proposed work plan to register GO-IBRs. Recognizing the current and expected state of DER and inverter-based resources in North America demands that any revisions proposed to the MOD-032-2 Reliability Standard respect functional registrations and corresponding cognizance of modeling data.</p>	
Likes	0
Dislikes	0
<b>Response</b>	
<p>Thank you for your comment. GO-IBR registration would not cover many DER installations. The SDT views the GO-IBR registration as a separate effort that should not impact moving forward with MOD-032-2 as proposed.</p>	