Comment Report

Project Name:	2022-02 Modifications to TPL-001 and MOD-032 | Draft 3 - MOD-032-2
Comment Period Start Date:	8/27/2024
Comment Period End Date:	10/10/2024
Associated Ballots:	2022-02 Modifications to TPL-001 and MOD-032 | Draft 1 Implementation Plan AB 3 OT 2022-02 Modifications to TPL-001 and MOD-032 | Draft 1 MOD-032-2 AB 3 ST 2022-02 Modifications to TPL-001 and MOD-032 | Non-Binding Poll MOD-032-2 AB 3 NB

There were 55 sets of responses, including comments from approximately 140 different people from approximately 87 companies representing 7 of the Industry Segments as shown in the table on the following pages.

Questions

1. Given the explanation in the Technical Rationale and responses to industry comments, do you agree with the proposed definition for DER? If you do not agree, please suggest modifications to improve the definition.

2. Do you agree that the modifications for the proposed reliability standard address the scope of the SAR, modifications to MOD-032-1, in a cost-effective manner? If you do not agree, please provide alternatives that would address the SAR scope in a more cost-effective manner.

3. Given the explanation added in the Implementation Plan and in response to industry comments, do you agree with the Implementation Plan for proposed Reliability Standard MOD-032-2?

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

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
MRO	Anna Martinson	1,2,3,4,5,6	MRO	MRO Group	Shonda McCain	Omaha Public Power District (OPPD)	1,3,5,6	MRO
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Jamison Cawley	Nebraska Public Power District	1,3,5	MRO
					Jay Sethi	Manitoba Hydro (MH)	1,3,5,6	MRO
					Husam Al-Hadidi	Manitoba Hydro (System Preformance)	1,3,5,6	MRO
					Kimberly Bentley	Western Area Power Adminstration	1,6	MRO
					Jaimin Patal	Saskatchewan Power Coporation (SPC)	1	MRO
					George Brown	Pattern Operators LP	5	MRO
					Larry Heckert	Alliant Energy (ALTE)	4	MRO
					Terry Harbour	MidAmerican Energy Company (MEC)	1,3	MRO
					Dane Rogers	Oklahoma Gas and Electric (OG&E)	1,3,5,6	MRO
					Seth Shoemaker	Muscatine Power & Water	1,3,5,6	MRO
					Michael Ayotte	ITC Holdings	1	MRO
					Andrew Coffelt	Board of Public Utilities-Kansas (BPU)	1,3,5,6	MRO
					Peter Brown	Invenergy	5,6	MRO

					Angela Wheat	Southwestern Power Administration	1	MRO
					Bobbi Welch	Midcontinent ISO, Inc.	2	MRO
					Joshua Phillips	Southwest Power Pool	2	MRO
					Patrick Tuttle	Oklahoma Municipal Power Authority	4,5	MRO
Midcontinent ISO, Inc.	Bobbi Welch	2	MRO,RF,SERC	ISO/RTO Council Standards Review Committee (SRC) 2022-02 Modifications to MOD-032 Draft 3	Ali Miremadi	CAISO	2	WECC
					Kennedy Meier	Electric Reliability Council of Texas, Inc.	2	Texas RE
					John Pearson	ISO New England, Inc.	2	NPCC
					Bobbi Welch	MISO	2	RF
					Gregory Campoli	New York Independent System Operator	2	NPCC
					Elizabeth Davis	PJM	2	RF
					Charles Yeung	SPP	2	MRO
					Helen Lainis	IESO	2	NPCC
WEC Energy Group, Inc.	Christine Kane	3		WEC Energy Group	Christine Kane	WEC Energy Group, Inc.	3	RF
					Michelle Hribar	WEC Energy Group, Inc.	5	RF
					David Boeshaar	WEC Energy Group, Inc.	6	RF
					Candace Morakinyo	WEC Energy Group, Inc.	4	RF
Jennie Wike	Jennie Wike		WECC	Tacoma Power	Jennie Wike	Tacoma Public Utilities	1,3,4,5,6	WECC
					John Merrell	Tacoma Public Utilities (Tacoma, WA)	1	WECC
					John Nierenberg	Tacoma Public Utilities (Tacoma, WA)	3	WECC

					Hien Ho	Tacoma Public Utilities (Tacoma, WA)	4	WECC
					Terry Gifford	Tacoma Public Utilities (Tacoma, WA)	6	WECC
					Ozan Ferrin	Tacoma Public Utilities (Tacoma, WA)	5	WECC
ACES Power Marketing	Jodirah Green	1,3,4,5,6	MRO,NPCC,RF,SERC,Texas RE,WECC	ACES Collaborators	Bob Soloman	Hoosier Energy Electric Cooperative	1	RF
					Kevin Lyons	Central Iowa Power Cooperative	1	MRO
					Jason Procuniar	Buckeye Power, Inc.	4	RF
					Kylee Kropp	Sunflower Electric Power Corporation	1	MRO
					Scott Brame	North Carolina Electric Membership Corporation	1,3,4,5	SERC
					Scott Brame	North Carolina Electric Membership Corporation	1,3,4,5	SERC
Eversource Energy	Joshua London	1		Eversource	Joshua London	Eversource Energy	1	NPCC
					Vicki O'Leary	Eversource Energy	3	NPCC
FirstEnergy - FirstEnergy Corporation	Mark Garza	4		FE Voter	Julie Severino	FirstEnergy - FirstEnergy Corporation	1	RF
					Aaron Ghodooshim	FirstEnergy - FirstEnergy Corporation	3	RF
					Robert Loy	FirstEnergy - FirstEnergy Solutions	5	RF
					Mark Garza	FirstEnergy- FirstEnergy	1,3,4,5,6	RF

					Stacey Sheehan	FirstEnergy - FirstEnergy Corporation	6	RF
Michael Johnson	Michael Johnson		WECC	PG&E All Segments	Marco Rios	Pacific Gas and Electric Company	1	WECC
					Sandra Ellis	Pacific Gas and Electric Company	3	WECC
					Tyler Brun	Pacific Gas and Electric Company	5	WECC
DTE Energy - Detroit Edison Company	Mohamad Elhusseini	5		DTE Energy	Mohamad Elhusseini	DTE Energy	5	RF
					Patricia Ireland	DTE Energy	4	RF
					Marvin Johnson	DTE Energy - Detroit Edison Company	3	RF
Southern Company - Southern Company Services, Inc.	Pamela Hunter	1,3,5,6	SERC	Southern Company	Matt Carden	Southern Company - Southern Company Services, Inc.	1	SERC
					Joel Dembowski	Southern Company - Alabama Power Company	3	SERC
					Ron Carlsen	Southern Company - Southern Company Generation	6	SERC
					Leslie Burke	Southern Company - Southern Company Generation	5	SERC
Black Hills Corporation	Rachel Schuldt	6		Black Hills Corporation - All Segments	Travis Grablander	Black Hills Corporation	1	WECC
					Josh Combs	Black Hills Corporation	3	WECC
					Rachel Schuldt	Black Hills Corporation	6	WECC
					Carly Miller	Black Hills Corporation	5	WECC

					Sheila Suurmeier	Black Hills Corporation	5	WECC
Dominion - Dominion Resources, Inc.	Sean Bodkin	6		Dominion	Victoria Crider	Dominion Energy	3	NA - Not Applicable
					Sean Bodkin	Dominion Energy	6	NA - Not Applicable
					Steven Belle	Dominion Energy	1	NA - Not Applicable
					Barbara Marion	Dominion Energy	5	NA - Not Applicable
Shannon Mickens	Shannon Mickens		MRO,SPP RE,WECC	SPP RTO	Shannon Mickens	Southwest Power Pool Inc.	2	MRO
					Mia Wilson	Southwest Power Pool Inc.	2	MRO
					Eddie Watson	Southwest Power Pool Inc.	2	MRO
					Erin Cullum	Southwest Power Pool Inc.	2	MRO
					Jonathan Hayes	Southwest Power Pool Inc.	2	MRO
					Jeff McDiarmid	Southwest Power Pool Inc.	2	MRO
					Scott Jordan	Southwest Power Pool Inc	2	MRO
					Mason Favazza	Southwest Power Pool Inc	2	MRO
					Sherri Maxey	Southwest Power Pool Inc.	2	MRO
					Josh Phillips	Southwest Power Pool Inc.	2	MRO
Western Electricity Coordinating Council	Steven Rueckert	10		WECC Entity Monitoring	Steve Rueckert	WECC	10	WECC
					Curtis Crews	WECC	10	WECC

Tim Kelley	Tim Kelley		WECC	SMUD and BANC	Nicole Looney	Sacramento Municipal Utility District	3	WECC
					Charles Norton	Sacramento Municipal Utility District	6	WECC
					Wei Shao	Sacramento Municipal Utility District	1	WECC
					Foung Mua	Sacramento Municipal Utility District	4	WECC
					Nicole Goi	Sacramento Municipal Utility District	5	WECC
					Kevin Smith	Balancing Authority of Northern California	1	WECC

1. Given the explanation in the Technical Rationale and responses to industry comments, do you agree with the proposed definition for DER? If you do not agree, please suggest modifications to improve the definition.

Srikanth Chennupati - Entergy - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

The standard as written places an untenable compliance burden on NERC registered entities. It does not note or address in any way the challenges in collecting DER data from behind the meter facilities connected to DPs or TOs. These unregistered DER owners have no obligation or requirement under NERC standards to provide data for modeling. Requiring that DPs provide modeling data for equipment they do not own and have no means to acquire data on leaves them in a position where they fail to comply with the standard through no fault of their own and despite their best efforts.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	No
Document Name	

Comment

1. The standard does not address responsibilities where legacy DER connected to TP or DP may not have the modeling data to provide.

2. The range of options to expand DP registration criteria mentioned in the technical rationale should be discussed in detail in the standard

3. Constellation recommends that references to “behind the meter” devices be removed. A distributed energy resource’s location relative to the meter does not define it.

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

Thomas Foltz - AEP - 5

Answer	No

Document Name	
Comment	
Did the SDT perhaps intend to strike the phrase “not the NERC registered entity” from the bullet which states “Distribution Provider refers to the NERC glossary definition, rather than an entity meeting the NERC registration criteria not the NERC registered entity?”	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	No
Document Name	
Comment	
1. The standard does not address responsibilities where legacy DER connected to TP or DP may not have the modeling data to provide. 2. The range of options to expand DP registration criteria mentioned in the technical rationale should be discussed in detail in the standard 3. Constellation recommends that references to “behind the meter” devices be removed. A distributed energy resource’s location relative to the meter does not define it.	
Likes 0	
Dislikes 0	
Response	
Jennifer Weber - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	
The proposed definition has no boundaries and, as such, would apply to all generators and energy storage systems, no matter the size, e.g. a 1 kW solar panel mounted on a homeowner’s garage. This is unworkable due the sheer number of these that exist. Suggest including boundaries such as those proposed by NERC, i.e. “resources that have an aggregate nameplate capacity of greater than or equal to 20 MVA, delivering such capacity to a common point of connection at a voltage greater than or equal to 60 kV.” Remove the sub bullet related to the Distribution Provider.	

Adding the reference to Distribution Provider's system but saying it's not referring to the registered DP, which is applicable to this standard, adds unnecessary confusion. Striking the words "connected to the Distribution Provider's system" doesn't affect the definition and removes the confusion. If you are trying to use this to say it includes sub-transmission voltages, just say that; including DP language makes it difficult to figure out the intent.	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	
NRG supports NAGF's comments and response regarding this question.	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation supports NAGF's comment "The NAGF recommends that references to "behind the meter" devices be removed. A distributed energy resource's location relative to the meter does not define it. The NAGF recommends that the bulleted phrase stating that the term Distribution Provider is referencing NERC Glossary of Terms be removed. It is implicitly understood, unnecessary, and not in line with any other definition. NAGF recommends removal of the phrase "in non-isolated parallel operation." This phrase adds no value and potentially adds unnecessary ambiguity. A potential alternative is to use language similar to that in IEEE 1547 ("not directly connected to the Bulk Power System"). If this phrase is intended to include or exclude any particular type of resource, instead any exclusions or inclusions should be explicitly listed in subparts, as done in the BES definition". Reclamation recommends the DER definition should be added to the Glossary of Terms.	
Likes 0	
Dislikes 0	
Response	

Andy Thomas - Andy Thomas On Behalf of: John Sturgeon, Duke Energy , 5, 6, 1, 1; - Andy Thomas	
Answer	No
Document Name	
Comment	

Duke Energy supports implementation of the following NAGF Question 1 responses:

(a) The NAGF recommends that references to “behind the meter” devices be removed. A distributed energy resource’s location relative to the meter does not define it.

(b) The NAGF recommends that the bulleted phrase stating that the term Distribution Provider is referencing NERC Glossary of Terms be removed. It is implicitly understood, unnecessary, and not in line with any other definition.

Duke Energy also supports implementation of EEI Question 1 responses.

Likes 0	
Dislikes 0	
Response	

Steven Taddeucci - NiSource - Northern Indiana Public Service Co. - 3	
Answer	No
Document Name	
Comment	

Behind the meter generation should not be included.

Likes 0	
Dislikes 0	
Response	

Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	No
Document Name	
Comment	

Black Hills Corporation agrees with the following concerns from EEI’s comments.

- There is no need to specify that DERs include DERs behind the meter.

- It is not necessary to state that Distribution Provider (DP) are to be understood through the definition provided within the NERC Glossary of Terms. This is true of any term defined in the NERC Glossary of Terms and contained in a NERC Reliability Standard.
- It is preferable to state a DER is designed to export Real Power to the DP's system, rather than "provides Real Power in non-isolated parallel operation with the Bulk Power System".

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

The NAGF recommends that references to "behind the meter" devices be removed. A distributed energy resource's location relative to the meter does not define it.

The NAGF recommends that the bulleted phrase stating that the term Distribution Provider is referencing NERC Glossary of Terms be removed. It is implicitly understood, unnecessary, and not in line with any other definition.

NAGF recommends removal of the phrase "in non-isolated parallel operation." This phrase adds no value and potentially adds unnecessary ambiguity. A potential alternative is to use language similar to that in IEEE 1547 ("not directly connected to the Bulk Power System"). If this phrase is intended to include or exclude any particular type of resource, instead any exclusions or inclusions should be explicitly listed in subparts, as done in the BES definition.

Likes 0	
Dislikes 0	

Response

Broc Bruton - Oncor Electric Delivery - NA - Not Applicable - Texas RE

Answer	No
Document Name	

Comment

Definition of "Distribution Provider"

As used in the revised draft MOD-32-2, the term "Distribution Provider" ("DP") is ambiguous and should be clarified.

- Earlier comments from industry participants and numerous responses from the drafting team to industry comments on previous drafts clearly show that there is some confusion around the definition of DP as used in this revised MOD-032-2. In one instance, the text points to how "Distribution Provider" is defined in the NERC Glossary of Terms. In another instance, however, the text appears to consider a "Distribution Provider" to meet NERC's registration criteria (as defined in NERC Rules of Procedure, Appendix 5B). To address this persistent confusion, the

drafting team added a note at the beginning of the standard that reads: “Distribution Provider refers to the NERC glossary definition, rather than an entity meeting the NERC registration criteria.”

- Considering the revised draft MOD-032-2 in isolation, one would reasonably assume that the definition of “Distribution Provider” provided at the beginning of the document to apply to the entire document. The technical rationale included in the document, however, explicitly states this is not the case - the alternative interpretation of “Distribution Provider” is apparently to be used for the rest of the document. This seems needlessly confusing at best and at worst, could cause problems during the implementation of MOD-032-2.

Definition of “Distributed Energy Resource”

- Oncor Electric Delivery Company LLC (“Oncor”) considers the “Distributed Energy Resource” (“DER”) definition used in the Technical Rationale for Reliability Standard MOD-032-2 too vague because it does not contain a voltage class threshold for an energy resource to be considered a DER.
- Oncor’s view of DER is consistent with ERCOT’s definition of DER, which is: “An electrical generating facility consisting of one or more on-site distributed generation units connected at a voltage less than or equal to 60 kilovolts (kV), which may be connected in parallel operation to the utility system.” This definition can be found here: https://www.ercot.com/files/docs/2017/03/24/DER_OnePager_FINAL.pdf
- From Oncor’s experience, the total capacity of the installation’s on-site distributed generation units may exceed ten megawatts (MW); however, no more than ten MW of the installation’s capacity will be allowed to export into the grid at any point in time at the point of common coupling.
- Is there any MW size threshold for Generator and energy storage technologies to be taken into account when the end-use customer is served at transmission voltage? We would prefer a MW size threshold be specified in the definition.

Likes 0	
Dislikes 0	

Response

Jessica Cordero - Unisource - Tucson Electric Power Co. - 1

Answer	No
Document Name	

Comment

TEPC does not agree with the interchangeable use of “Distribution Provider (DP)” between the Applicability/registered entity and the NERC Glossary of Terms definition.

Likes 0	
Dislikes 0	

Response

Marcus Bortman - APS - Arizona Public Service Co. - 6

Answer	No
Document Name	

Comment

AZPS supports the comments submitted by EEI on behalf of their members:

While EEI does not object to defining Distributed Energy Resources (DERs), we do question the need. However, if DER needs to be defined, we note the following concerns:

- There is no need to specify that DERs include DERs behind the meter.
- It is not necessary to state that Distribution Provider (DP) are to be understood through the definition provided within the NERC Glossary of Terms. This is true of any term defined in the NERC Glossary of Terms and contained in a NERC Reliability Standard.
- It is preferable to state a DER is designed to export Real Power to the DP's system, rather than "provides Real Power in non-isolated parallel operation with the Bulk Power System".

To address these concerns, we offer the following changes to the proposed DER Definition:

Generators and energy storage technologies connected to a Distribution Provider's system and designed to export Real Power to the Distribution Provider's system.

Likes 0	
Dislikes 0	

Response

Tyler Schwendiman - ReliabilityFirst - 10

Answer	No
Document Name	

Comment

The proposed definition for DER should make it abundantly clear that Invertor Based Resources are included by explicitly including them in the definition. The current definition only includes generators and batteries, but not IBRs such as rooftop solar.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

WEC Energy Group supports the comments of EEI.

Likes 0	
Dislikes 0	

Response

Daniel Gacek - Exelon - 1	
Answer	No
Document Name	
Comment	
Exelon supports the comments submitted by the EEI for this question.	
Likes 0	
Dislikes 0	
Response	
Diana Aguas - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	No
Document Name	
Comment	
CenterPoint Energy Houston Electric, LLC (CEHE) does not support the development of an additional NERC Reliability Standard to define DER and believes this DER definition is too prescriptive. CEHE recommends that data reporting requirements for DERs listed in Attachment 1 be determined by the Planning Coordinator, in coordination with the Transmission Planner.	
Likes 0	
Dislikes 0	
Response	
Mark Flanary - Midwest Reliability Organization - 10	
Answer	No
Document Name	
Comment	
The definition of distributed energy resources lacks sufficient specificity by not including solar resources. Even though the definition of distributed energy includes “energy storage technologies”, it might not be sufficient to imply it includes solar resources. MRO recommends, for example, using “energy resources and energy storage technologies connected to…..” in the definition to ensure it includes all types of energy resources.	
Likes 0	
Dislikes 0	
Response	

Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	No
Document Name	
Comment	
Minnesota Power Supports MRO's NERC Standards Review Forum's (NSRF) comments.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	No
Document Name	
Comment	

While EEI does not object to defining Distributed Energy Resources (DERs), we do question the need. However, if DER needs to be defined, we note the following concerns:

- There is no need to specify that DERs include DERs behind the meter.
- It is not necessary to state that Distribution Provider (DP) are to be understood through the definition provided within the NERC Glossary of Terms. This is true of any term defined in the NERC Glossary of Terms and contained in a NERC Reliability Standard.
- It is preferable to state a DER is designed to export Real Power to the DP's system, rather than "provides Real Power in non-isolated parallel operation with the Bulk Power System".

To address these concerns, we offer the following changes to the proposed **DER Definition** (in bold face):

Generators and energy storage technologies connected to **a** Distribution Provider's system **and designed to export Real Power to the Distribution Provider's system.**

Likes 0	
Dislikes 0	
Response	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 6, Group Name Dominion	
Answer	No
Document Name	
Comment	

Dominion Energy supports EEI comments.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

WECC suggests the Drafting Team use “end-use” in the definition for consistency with Glossary of Terms (i.e., hyphenate the term). Is there any concern that the Distribution Provider’s system, by definition, stops at the end-use customer but the DER definition goes beyond that interface (or appears to)? While the Technical Rationale provides a good description of the inter-relatedness of IBR and DER definitions but the DER definition itself is not clear.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

SMUD supports the following comments provided by the North American Generator Forum (NAGF) to improve the definition:

(1) The NAGF recommends that references to “behind the meter” devices be removed. A distributed energy resource’s location relative to the meter does not define it.

(2) The NAGF recommends that the bulleted phrase stating that the term Distribution Provider is referencing NERC Glossary of Terms be removed. It is implicitly understood, unnecessary, and not in line with any other definition.

In addition, the DER definition needs some threshold limits for what DER data must be reported so that entities are solely focused on the aggregate DERs of significant size that may impact the Bulk Power System. The registration criteria for Category 2 Generator Owners and Generator Operators uses an aggregate capacity of 20 MVA or more, connected to a common point of connection at 60 kV and above. This criteria is comparable to other generation resources applicable to NERC reliability standards and would eliminate the need for Distribution Providers to consider every residential solar PV installation.

Likes 0	
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	No
Document Name	
Comment	
Exelon supports the comments submitted by the EEI for this question.	
Likes 0	
Dislikes 0	
Response	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	No
Document Name	MRO NSRF MOD-032 Comments Project 2022-02 NSRF 10-9-2024.docx
Comment	
Please view comments in the attachment.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	No
Document Name	
Comment	
PNM and TNMP support the establishment of an aggregate MVA threshold that would determine applicability to Distribution Provider. Also, PNM supports the DER definition development in a separate NERC Reliability Standards project.	
Likes 0	
Dislikes 0	

Response	
Lidija Efremova - Lidija Efremova On Behalf of: Emma Halilovic, Hydro One Networks, Inc., 1; - Lidija Efremova	
Answer	No
Document Name	
Comment	

Hydro One recommendation is to add a note for rotating loads. ***Rotating loads such as large induction or synchronous motors, which have the ability to backfeed momentarily during a disturbance, are specifically excluded.***

Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	No
Document Name	
Comment	

It is the opinion of ACES that the currently proposed definition of DER is inherently flawed and rife with ambiguity.

Firstly, we take great issue with the phrase “Distribution Provider refers to the NERC glossary definition, rather than an entity meeting the NERC registration criteria.” We believe that the term Distribution Provider (DP) is a well-defined term in widespread use throughout the industry and is universally understood to refer to a NERC registered entity. Using this term in such a unique manner as is done in the proposed DER definition will only create confusion and cause consternation for registered entities. This is further compounded by the stark contrast between the currently proposed draft 3 of MOD-032-2 and the updated Technical Rationale. The 1st paragraph on page 1 of the Technical Rationale states (emphasis added):

“It is recognized that some distribution facilities do not have an associated DP that meets the NERC registration criteria, but it should be clear that compliance obligations can only be imposed on NERC-registered entities listed in the Applicability Section; use of the DP term within proposed Reliability Standard MOD-032-2 should be understood to refer to an entity meeting the NERC registration criteria, unless otherwise specified.”

It is our understanding that the intent of the Technical Rationale is to support and provide additional clarification and context for the enumerated requirements within a given Reliability Standard. If the Technical Rationale blatantly contradicts rather than bolsters the Reliability Standard that is intended to support, then in our opinion, the Technical Rationale fails to fulfill its intended purpose.

Moreover, the term DP is used throughout the NERC Rules of Procedure for describing an entity that meets NERC registration criteria.

Page 1 of Appendix 2 to the Rules of Procedure states:

“For purposes of the NERC Rules of Procedure, including all Appendices, the terms defined in this Appendix shall have the meanings set forth herein.”

Page 2 of Appendix 2 states:

““Distribution Provider” means the entity that provides and operates the “wires” between the transmission system and the end-use customer. For those end-use customers who are served at transmission voltages, the Transmission Owner also serves as the Distribution Provider. Thus, the Distribution Provider is not defined by a specific voltage, but rather as performing the distribution function at any voltage.**”

As evidenced above, the NERC Rules of Procedure clearly uses the same definition to refer to a DP as is used in the Glossary of Terms. In fact, this explicitly stated within Appendix 2.

Page 1 of Appendix 2 states:

“Definitions of terms in this Appendix that are marked with asterisks (**) are taken from the NERC Glossary of Terms Used in Reliability Standards.”

Furthermore, page 1 of Appendix 5A to the NERC Rules of Procedure contains a chart identifying entities that must register. Please see the screenshot included as an attachment for reference (emphasis added):

Secondly, ACES and its Members have additional concerns with the proposed DER definition surrounding the phrase “including those connected behind the meter of an end use customer”. It is the opinion of ACES that by including the aforementioned phrase, the DT has created a situation wherein both Registered Entities and unregistered entities will now have compliance obligations under the purview of MOD-032-1. If our interpretation is correct then, in our opinion, this represents a gross overreach of NERC’s statutory authority. We believe this concern is best expressed in the 2nd paragraph on page 1 of the Technical Rationale which states (emphasis added):

“The Drafting Team (DT) has concerns that there may be challenges in collecting data for distributed energy resources (DER) connected to unregistered entities.”

Conversely, if the intent of this phrase is to require the NERC Registered Entity to collect data from non-registered entities, then doing so creates an insurmountable compliance burden and immeasurably increases the compliance risk for said NERC Registered Entity. In short, by what mechanism is the NERC Registered Entity able to require unregistered entities to provide data?

Additionally, what recourse does the NERC Registered Entity have if the unregistered entity is either unable or unwilling to provide said data at all or is unable or unwilling to do so in a timely manner to meet compliance deadlines? It is apparent that the DT shares our concerns as these very issues are enumerated within paragraph 2 on page 1 of the Technical Rationale which states:

“…this may place an unreasonable compliance risk on the TO/DP because any unregistered entities that connect DER to their systems have no compliance obligation to provide data to the TO/DP. As such, the DT recommends that NERC consider a range of options that could include expanding DP registration criteria or registering DER-only DPs to reduce or eliminate this potential DER data collection gap.”

Thus, we recommend modifying the DER definition as follows:

Distributed Energy Resource (DER)

Generators and energy storage technologies connected to the Distribution Provider’s system that are capable of providing Real Power and/or Reactive Power in non-isolated parallel operation with the Bulk-Power System.

Likes 0	
Dislikes 0	

Response

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

Answer	No

Document Name	
Comment	
SRP supports the comments provided by the North American Generator Forum (NAGF) to improve the definition.	
Likes 0	
Dislikes 0	
Response	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	No
Document Name	
Comment	
Providing the DP/TO/TP the authority to determine the appropriate levels of DER that would be impactful, or material, would ensure the needed flexibility and agility for systems with either large or small populations where one size does not fit all. • It is preferable to state a DER is designed to export Real Power to the DP's system, rather than "provides Real Power in non-isolated parallel operation with the Bulk Power System". Many DER installations are designed to provide power to a specific end-user with the ability to provide any excess power to the DP system. • The models provided to the PC/TP may be either specific to a DER unit (for larger installations) or utilize the NERC generic DER model, when small DER units are aggregated.	
Likes 0	
Dislikes 0	
Response	
Eric Sutlief - CMS Energy - Consumers Energy Company - 3,4,5 - RF	
Answer	No
Document Name	
Comment	
We recommend that a separate definition for Aggregate DER be developed. A distinction between individual units with compliance requirements and the representation of multiple units into an aggregate with differing compliance requirements will add clarity to what is expected in MOD-032 and TPL-001.	
Likes 0	
Dislikes 0	
Response	

Nick Leathers - Nick Leathers On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Nick Leathers	
Answer	No
Document Name	
Comment	
Ameren agrees with EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	

Concepts needed to improve the standard:

Providing the DP with the authority to determine what DERs are impactful will ensure flexibility and agility for large population standards where one size does not fit all.

Example Footnote 4 Revisions: For purposes of this item, the Distribution Provider to which **aggregated** DERs **is are** connected **is shall be for reporting responsible for providing aggregated DER composite model[s] using its sole engineering judgement based on criteria determined by the DP in conjunction with the TO/TP that contains generalized characteristics of the type of DERs identified by DER type under 9c DERs data, generally through coordination with to** the Transmission Owner**,**. **in accordance with PC/TP modeling data requirements and data reporting procedures developed under Requirement R1. The PC or TP may need to coordinate with the DP or TO to determine appropriate equivalent distribution system impedance.**

Clarify behind the meter DERs aren't may not necessary (and may not be feasible to monitor) unless in continuous parallel and designed to export power to the BPS.

Consider replacing "non-isolated parallel" with "continuous parallel" that can export real power to the BPS.

Consider modifying the DER definition with:

Generators and energy storage technologies connected to **the a** Distribution Provider's system **and designed to export Real Power in continuous parallel to the BPS.**

, including those connected behind the meter of an end use customer, that are capable of providing Real Power in non-isolated parallel operation with the Bulk-Power System.

Distribution Provider refers to the NERC glossary definition, rather than an entity meeting the NERC registration criteria.

Clarify unregistered entities are not included in MOD-032 DERs.	
Likes 0	
Dislikes 0	
Response	
Mark Garza - FirstEnergy - FirstEnergy Corporation - 4, Group Name FE Voter	
Answer	Yes
Document Name	
Comment	
FirstEnergy has no concerns.	
Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
PG&E is not providing any input for Question 1.	
Likes 0	
Dislikes 0	
Response	
Hayden Maples - Hayden Maples On Behalf of: Jeremy Harris, Evergy, 3, 5, 1, 6; Kevin Frick, Evergy, 3, 5, 1, 6; Marcus Moor, Evergy, 3, 5, 1, 6; Tiffany Lake, Evergy, 3, 5, 1, 6; - Hayden Maples	
Answer	Yes
Document Name	
Comment	
Evergy supports and incorporates by reference the comments of the North American Generator Forum (NAGF) on question 1	

Likes 0	
Dislikes 0	
Response	
Bobbi Welch - Midcontinent ISO, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC) 2022-02 Modifications to MOD-032 Draft 3	
Answer	Yes
Document Name	
Comment	
The **ISO/RTO Council Standards Review Committee (SRC)**[1] supports the Distributed Energy Resource (DER) definition proposed by the drafting team, understanding that the intent is to keep the definition generic, like many other definitions in the NERC Glossary of Terms (e.g., Distribution Provider, Disturbance Monitoring Equipment, Load, etc.). [1] For purposes of these comments, the SRC includes the following entities: CAISO, ERCOT, IESO, ISO-NE, MISO, NYISO, PJM and SPP.	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	
Comment	
ERCOT joins the comments submitted by the ISO/RTO Council (IRC) Standards Review Committee (SRC) and adopts them as its own. In addition, ERCOT notes that the proposed DER definition uses the term "Bulk-Power System," while the discussion of that portion of the definition on page 3 of the Technical Rationale uses the term "Bulk Electric System." ERCOT recommends that the Technical Rationale be revised to match the proposed DER definition.	
Likes 0	
Dislikes 0	
Response	
Elizabeth Davis - Elizabeth Davis On Behalf of: Thomas Foster, PJM Interconnection, L.L.C., 2; - Elizabeth Davis	
Answer	Yes
Document Name	

Comment	
PJM supports the IRC SRC comments.	
Likes 0	
Dislikes 0	
Response	
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; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	Yes
Document Name	
Comment	
Tacoma Power agrees with the proposed DER definition. However, in order to apply this definition in the context of the MOD-032 Standard, Tacoma Power recommends a phased-in implementation based on DER modeling thresholds (see comment for Question 3).	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Roger Perkins - Southern Maryland Electric Cooperative - 1,3	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Ronald Hoover - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5, Group Name DTE Energy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Isidoro Behar - Long Island Power Authority - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Amy Wilke - American Transmission Company, LLC - 1	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Shannon Mickens On Behalf of: Joshua Phillips, Southwest Power Pool, Inc. (RTO), 2; - Shannon Mickens, Group Name SPP RTO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

2. Do you agree that the modifications for the proposed reliability standard address the scope of the SAR, modifications to MOD-032-1, in a cost-effective manner? If you do not agree, please provide alternatives that would address the SAR scope in a more cost-effective manner.

Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	

The potential size of the TO and DP data collection processes and methods could be immense and costly. Without clear boundaries DERs are potentially unbounded and could reach well into the distribution. NERC has suggested that data collection for residential rooftop systems down to 1.5 kVA are potentially within scope. Mandating data collection of such systems transfers the compliance burden to the DP versus NERC which is costly and inappropriate.

Providing the DP, in conjunction the TO/TP, have the latitude to set the criteria as necessary to ensure impactful DERs are properly captured.

Likes 0	
Dislikes 0	
Response	

Eric Sutlief - CMS Energy - Consumers Energy Company - 3,4,5 - RF	
Answer	No
Document Name	
Comment	

The expansion of the generation data collection requirements to include small-scale generation adds a burden to the utilities and is in conflict with the Michigan State policy. The current interconnection process for generation connected to the distribution system is well-established, and the collection of UFLS/ULVS load-shedding and dynamic data from these generators will require a significant change for future interconnections – information that is generally not available to homeowners from their installers. For those who already have connection agreements, some dating back over 50 years, there is no means to re-collect this data. This solution is not likely to be cost effective given the uncertainty around the tools and information gathering necessary to collect the data on legacy generators in order to maintain compliance, and whether compliance is truly possible even with heavy investment. The standard would be better written to define parameters around the size of the unit, its connection, and its anticipated substantial impact on the BES as to whether such data collection is necessary.

If the aggregating of generation data to a single unit within the model data is acceptable, then that should be explicitly stated in a footnote along with what NERC accepted dynamic models may be used. In order to implement the DER definition within the scope of the implementation plan, Distribution Providers absolutely must have clarity on the technical scope of what modeling data will be required prior to implementation. If left to the Balancing Authority/TPs/etc. to discuss and determine the acceptable scope of model data and software requirements, data collection for the Distribution Providers and others responsible for compiling this data will not be left with enough time to meet the standard requirements.

Likes 0	
Dislikes 0	
Response	

Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	No
Document Name	
Comment	
Some DER entities connected to the DP system over 30 years ago and are still operating today. The data for these units may not be readily available and could be very costly to obtain. Additionally, even with good intentions, some DER may be missed when trying to identify and aggregate all DER. Since no provision has been provided to not be held liable if either of these is true, an allowance should be provided if the DP made a good faith effort to obtain all of the records.	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 6, 5, 1; Sarah Blankenship, Salt River Project, 3, 6, 5, 1; Thomas Johnson, Salt River Project, 3, 6, 5, 1; Timothy Singh, Salt River Project, 3, 6, 5, 1; - Israel Perez	
Answer	No
Document Name	
Comment	
SRP supports comments provided by North American Generator Forum (NAGF) that “Many of the technologies needed to provide the data referenced in the draft standard are not currently available and/or installed”.	
Likes 0	
Dislikes 0	
Response	
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; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	No
Document Name	
Comment	
The MOD-032 Standard should include the language from the Technical Rationale recognizing that there are situations where this data is unavailable and should instead be estimated and the limitations of data availability should be documented. In order to emphasize that a PC does not need to perform unreasonable effort to obtain data that is unavailable, Tacoma Power recommends adding this sentence from the Technical Rationale into the	

Measure for R4: “If this data is unavailable, then Planning Coordinator will work with DP and be able to use either estimated or default data and should provide evidence documenting the limitations of the data availability and the justification for the estimations used in the model”.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

We at ACES have an ongoing concern regarding the burden this will place upon the DP by requiring DPs to collect data for any DER connected to the DP’s system. The proposed draft establishes a zero MVA threshold for the collection of DER data for all resources "in non-isolated parallel operation with the Bulk Power System”. Per the Technical Rationale, this includes every residential solar and commercial rooftop solar customer on the DP’s systems.

Furthermore, as written, the proposed MOD-032-1 standard would include every electric vehicle (EV) that is capable of providing power to the BPS. Is the DP now expected to collect information from residential customers whenever said customer buys an EV? This is further compounded by the fact that every manufacturer of EVs has the freedom and flexibility to design their vehicles to meet their own independent specifications. Please consider the following hypothetical scenario:

An end-use residential customer buys a Tesla and has it connected to the grid. In an effort to reduce their electric bill, the customer connects their EV and enables it to discharge the battery during periods of high electrical demand. The end-use residential customer then decides to upgrade their vehicle and now buys a Ford F-150 Lightening. The F-150 potentially has a vastly different power output and battery discharge curve from the Tesla the customer previously owned. How is the DP expected to be able to provide accurate modeling data in such a scenario? Is the DP expected to require the end-use customer to get approval prior to buying a new vehicle?

In short, the lack of an MVA threshold for these resources goes beyond **any** previous precedent for a NERC Reliability Standard and places an unreasonable compliance burden on the DP.

Additionally, we are concerned that attempting to collect DER data at such a low level will place a huge strain on the already limited resources of our Members. This is especially compounded by the fact that, at present, DERs owned by end-use residential customers have not been clearly demonstrated to have a material impact on the reliability of the BPS.

In summary, we fear that by not establishing a non-zero MVA threshold, the currently proposed draft of MOD-032-2 may exhaust all available resources to the point that some entities may be forced to choose between compliance with this Reliability Standard or providing reliable electricity to end-use customers.

Therefore, ACES recommends modifying Section 4 Applicability as follows:

4. Applicability:

4.1. Functional Entities:

4.1.1. Balancing Authority

4.1.2. Distribution Provider

4.1.3. Generator Owner

4.1.4. Planning Authority/Planning Coordinator (hereafter referred to as “Planning Coordinator”)

4.1.5. Resource Planner

4.1.6. Transmission Owner

4.1.7. Transmission Planner

4.1.8. Transmission Service Provider

4.2. Facilities

4.2.1. Bulk Electric System (BES) Facilities; and

4.2.2. Non-BES Distributed Energy Resources connected at a voltage of 20 kV or above with:

4.2.2.1. Gross individual nameplate rating greater than 10 MVA. Or,

4.2.2.2. Gross facility aggregate nameplate rating greater than 10 MVA.

Likes 0	
Dislikes 0	

Response

Lidija Efremova - Lidija Efremova On Behalf of: Emma Halilovic, Hydro One Networks, Inc., 1; - Lidija Efremova

Answer	No
Document Name	

Comment

Cost impacts are not fully known. No assessment could be made at this moment where there is no clear identification on the exact criteria for data collection.

Likes 0	
Dislikes 0	

Response

Casey Perry - PNM Resources - 1,3 - WECC,Texas RE

Answer	No
Document Name	

Comment
PNM & TNMP requests the MVA threshold establishment for a DER prior to assessing the cost effectiveness of implementation.

Likes 0	
Dislikes 0	

Response

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group

Answer	No
Document Name	

Comment
The potential size of the TO and DP data collection processes and methods could be immense and costly. Without clear boundaries DERs are potentially unbounded and could reach well into the distribution. NERC has suggested that data collection for residential rooftop systems down to 1.5 kVA are potentially within scope. Mandating data collection of such systems transfers the compliance burden to the DP versus NERC which is costly and inappropriate. Providing the DP, in conjunction the TO/TP, have the latitude to set the criteria as necessary to ensure impactful DERs are properly captured.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment
SMUD supports the comments provided by Tacoma Power.

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Allete - Minnesota Power, Inc. - 1

Answer	No
Document Name	
Comment	
Minnesota Power Supports MRO's NERC Standards Review Forum's (NSRF) comments.	
Likes 0	
Dislikes 0	
Response	
Diana Aguas - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	No
Document Name	
Comment	
CEHE does not support the changes made to MOD-032-1 because we believe that the cost to gather and report the level of data being proposed will far exceed the reliability benefit that will be provided through these modeling enhancements. Also, the addition of behind the meter generation to the DER Definition will add cost and burden on us due to the scope of data that is required to be collected from individual households within the DPs footprint.	
Likes 0	
Dislikes 0	
Response	
Jessica Cordero - Unisource - Tucson Electric Power Co. - 1	
Answer	No
Document Name	
Comment	
Per question 1 above, would like more clarity for the DER proposed definition and separation of the DP Functional Entity and DP glossary term. Could result in additional testing and modeling burden for DER elements. Add further burden to PC/TP's identifying registered DP's and gathering modeling data as laid out in Attachment 1.	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	

Answer	No
Document Name	

Comment

AES Clean Energy agrees with and supports MRO NSRF comments that the DER definition should have thresholds that havebased on material impact to the reliability of the BPS. The aggregate 20 MVA of real power generation and aggregated to a Point of Interconnection of 60 kV and greater should be used for DER to align with the newly introduced Category 2 definition by NERC.. DER definitions without bounds could result in unintended consequences.

{C} {C}{C}These unintended consequences will include size and cost of data collection process and methods which cannot be cannot be fully comprehended without clear boundaries and thresholds for the DER definition. DPs that are required to submit this datamodeling data for DER resources could potentially have to spend a lot of time and resources in gathering the data from the DER owners.

Likes 0	
Dislikes 0	

Response

Broc Bruton - Oncor Electric Delivery - NA - Not Applicable - Texas RE

Answer	No
Document Name	

Comment

A large point of concern in previous draft comments has been related to the draft MOD-032-2's inappropriately placing reporting obligations and compliance responsibility on the Transmission Owner ("TO"). In the original draft of MOD-032-2, the standard was explicit that DER data is the responsibility of the TO when a DER is not associated with a NERC registered DP. Because unregistered entities have no obligation to provide this data to the TO, the current draft MOD-032-2 is essentially setting the TO up for non-compliance because the TO will have no ability to force the unregistered entities to provide the needed data.

- In the current draft, the drafting team has acknowledged this issue and clarified in its comments, the technical justification, and the standard to try to alleviate industry concerns.
- While the current draft of MOD-032-2 now explicitly states that the responsibility for reporting DER data is with the DP connected to the DER, there is also a note that this reporting will be accomplished "generally through coordination with the Transmission Owner."
    - Oncor's concern is whether a "failure of coordination" between the DP and TO could result in a shared violation of data reporting requirements?
    - If the answer is "yes," then Oncor has the following question: What constitutes a "failure of coordination"?
        - This concern further reinforces the need to clarify the definition of DP used throughout the standard, as it stands to reason that a "failure of coordination" is more likely with an unregistered DP that is not compelled to coordinate to supply DER data.
    - If the answer is "no," then the phrase "generally through coordination with the Transmission Owner" should be removed to alleviate this concern. The updated phrasing is still accurate but more concise: "For purposes of this item, the Distribution Provider to which DER is connected is responsible for reporting DER data in accordance with PC/TP modeling data requirements and data reporting procedures developed under Requirement R1."

Likes 0	
Dislikes 0	

Response
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF
Answer	No
Document Name	
Comment
Many of the technologies needed to provide the data referenced in this draft standard are not currently available and/or installed.
Likes 0	
Dislikes 0	
Response
Steven Taddeucci - NiSource - Northern Indiana Public Service Co. - 3
Answer	No
Document Name	
Comment
Cost-effectiveness can not be determined.
Likes 0	
Dislikes 0	
Response
Andy Thomas - Andy Thomas On Behalf of: John Sturgeon, Duke Energy , 5, 6, 1, 1; - Andy Thomas
Answer	No
Document Name	
Comment
Duke Energy supports implementation of EEI Question 2 responses.
Likes 0	
Dislikes 0	
Response

Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation supports NAGF's comment "Many of the technologies needed to provide the data referenced in the draft standard are not currently available and/or installed".	
Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	
Many of the technologies needed to provide the data referenced in the is draft standard are not currently available and/or installed.	
Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	No
Document Name	
Comment	
PG&E does not have any comments on the cost effectiveness.	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	

Answer	No
Document Name	
Comment	
There are legacy DER that cannot meet the standard and should have exclusion criteria. Further, without a DER size identified, cost-effectiveness cannot be determined. As stated in the response(s) to the first round of comments, the DT is not providing a size in the proposed DER definition and that is left up to the PC/TP to determine.	
Likes 0	
Dislikes 0	
Response	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5, Group Name DTE Energy	
Answer	No
Document Name	
Comment	
No, if the TP and/or PC require the additional data such as Harmonics, Protection Element Status, or Inverter Fault Codes to also be recorded and included in the validation of models, this could require the installation of costly data recording equipment such as DFRs or additional metering.	
Likes 0	
Dislikes 0	
Response	
Kimberly Turco - Constellation - 6	
Answer	No
Document Name	
Comment	
There are legacy DER that cannot meet the standard and should have exclusion criteria. Further, without a DER size identified, cost-effectiveness cannot be determined. As stated in the response(s) to the first round of comments, the DT is not providing a size in the proposed DER definition and that is left up to the PC/TP to determine. Kimberly Turco on behalf of Constellation Segments 5 and 6	
Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

As written, we feel unclear on the Dynamic Aggregate Distributed Energy Resource date criteria #10. FirstEnergy suggest that the word “including” be replaced with “limited to” - to clarify definition of Dynamic Aggregation DER data requested. Criteria #10 would read:

Aggregate Distributed Energy Resource (DER) data **limited to** whether DER is subject to tripping in conjunction with UFLS and/or UVLS4.

Likes 0	
Dislikes 0	

Response

Roger Perkins - Southern Maryland Electric Cooperative - 1,3

Answer	No
Document Name	

Comment

SMECO agrees with ACES comments:

We are not clear on what the SDT is trying to say in the following:

From Section 4 of Attachment 2:

Section 3.1.4: documentation showing the ability to protect user authentication information for user-initiated electronic access applicable to Section 3.1.3 while in transit between the Cyber System outside the asset containing low impact BCS or SCI that supports a low impact BCS and

• The asset containing low impact BCS or SCI that supports a low impact BCS,

It seems that the bullet is an exact duplicate of the body of the explanation above the bullet? Is the SDT trying to cover communications between two (2) different LIBCS with this statement?

Likes 0	
Dislikes 0	

Response

Srikanth Chennupati - Entergy - 1,3,5,6 - SERC

Answer	No
Document Name	
Comment	
The addition of behind the meter generation to the DER Definition prevents this standard from being complied with in a cost-effective manner due to the scope of data that is required to be collected from individual households within the DPs footprint. Removing behind the meter generation from DER definition would reduce the scope of work required to comply with standard to something that is more cost effective.	
Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	
Answer	No
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Hayden Maples - Hayden Maples On Behalf of: Jeremy Harris, Evergy, 3, 5, 1, 6; Kevin Frick, Evergy, 3, 5, 1, 6; Marcus Moor, Evergy, 3, 5, 1, 6; Tiffany Lake, Evergy, 3, 5, 1, 6; - Hayden Maples	
Answer	Yes
Document Name	
Comment	
Evergy supports and incorporates by reference the comments of the Midwest Reliability Organization's NERC Standards Review Forum (MRO NSRF) on question 2	
Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Shannon Mickens On Behalf of: Joshua Phillips, Southwest Power Pool, Inc. (RTO), 2; - Shannon Mickens, Group Name SPP RTO	

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Amy Wilke - American Transmission Company, LLC - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jennifer Weber - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ronald Hoover - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Nick Leathers - Nick Leathers On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Nick Leathers	
Answer	
Document Name	
Comment	
Ameren will not comment on the cost effectiveness of the project.	
Likes 0	
Dislikes 0	
Response	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	
Document Name	
Comment	
No comment on the cost-effectiveness.	
Likes 0	
Dislikes 0	
Response	
Mark Flanary - Midwest Reliability Organization - 10	
Answer	
Document Name	
Comment	

N/A for MRO	
Likes 0	
Dislikes 0	
Response	
Tyler Schwendiman - ReliabilityFirst - 10	
Answer	
Document Name	
Comment	
RF does not comment on this.	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	
Document Name	
Comment	
Black Hills Corporation will not comment on cost effectiveness.	
Likes 0	
Dislikes 0	
Response	
Isidoro Behar - Long Island Power Authority - 1	
Answer	
Document Name	
Comment	
[Response is neither Yes nor No]	

It is recognized that Requirement R1 and the revised Attachment 1 are intended to provide the PC/TP flexibility in developing data requirements and reporting procedures that align with local practices and needs, so long as they include the items listed in the Requirement R1 Parts. However, the cost effectiveness of the proposed standard modifications cannot be determined until the steady-state, dynamics, and short circuit modeling data requirements and reporting procedures for the new DER requirements are actually developed. It is anticipated that significant changes to certain load forecasting practices will be required, as well as development of new/expanded processes to be able to forecast DER and translate DER data into power flow, dynamics and short circuit models. There may be significant costs / uplift borne by PCs, TPs and TOs/DPs to accomplish all of this.

Likes 0	
Dislikes 0	

Response

3. Given the explanation added in the Implementation Plan and in response to industry comments, do you agree with the Implementation Plan for proposed Reliability Standard MOD-032-2?

Srikanth Chennupati - Entergy - 1,3,5,6 - SERC

Answer	No
Document Name	

Comment

Due to the scope of work created by the requirement to include behind the meter generation in the data submittal it would not be possible for many DPs to complete this work in12 months as required for R2, R3, R4.

Likes 0	
Dislikes 0	

Response

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

Answer	No
Document Name	

Comment

See our comment above.

See our comment in response to Q2. Due to unclear expectations from this draft, FirstEnergy cannot support the implementation plan.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	No
Document Name	

Comment

Constellation aligns with NAGF comments

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	
Response	
Mohamad Elhusseini - DTE Energy - Detroit Edison Company - 5, Group Name DTE Energy	
Answer	No
Document Name	
Comment	
No, we do not feel that it is ample time to be able to comply with MOD-032-2 within 12 months of the approval of the Standard due to the TP and PC may not have the new data requirements indentified by the effective date of the Standard, therefore DPs may not have ample time to gather all the data for the DERs that are connected to their systems.	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	No
Document Name	
Comment	
AEP is unable to support the proposed Implementation Plan due to our concerns regarding the obligations themselves, and the challenges associated by obtaining data from entities with no obligations to provide it.	
Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	No
Document Name	
Comment	
Constellation aligns with the NAGF comments.	

Likes 0	
Dislikes 0	
Response	
Jennifer Weber - Tennessee Valley Authority - 1,3,5,6 - SERC	
Answer	No
Document Name	
Comment	

The added text (indented below) under the section titled “General Considerations” is unenforceable.

Transmission Owners (TOs)s and DPs would be expected to participate in PC/TP processes to change data reporting requirements related to DER developed during the 24 months prior to the effective date of Requirement R1 and should be able to start working on data collection processes and methods more than 12 months prior to the effective dates of Requirements R2, R3, and R4. In summary, this would give a full 36 months from FERC approval until data is required to be reported.

In reference to the first part of the first sentence - while the TOs and DPs COULD participate in the PC/TP process, they cannot be “expected to” as there is no requirement for them to do so until the standard is enforceable. Similarly, in the second part of the first sentence, they COULD be able to start working on data collection, but they are not required to do so. As such, the 36-month timeframe referred to in the second sentence is not truly correct and gives the perception of more time for implementation than is real.

As such, the implementation timeframe of 12 months after the effective date is too short and should be extended to at least 24 calendar months.

Likes 0	
Dislikes 0	
Response	
Patricia Lynch - NRG - NRG Energy, Inc. - 5	
Answer	No
Document Name	
Comment	

Due to many of the technologies necessary to provide the data required by this standard, are either not currently installed or even available, NRG does not support the implementation plan

Likes 0	
Dislikes 0	
Response	

Richard Jackson - U.S. Bureau of Reclamation - 1	
Answer	No
Document Name	
Comment	
Reclamation supports NAGF’s comment “Due to many of the technologies necessary to provide the data required by this standard either not currently installed or even available", Reclamation does not support the implementation plan.	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Andy Thomas On Behalf of: John Sturgeon, Duke Energy , 5, 6, 1, 1; - Andy Thomas	
Answer	No
Document Name	
Comment	
Duke Energy supports implementation of EEI Question 3 responses.	
Likes 0	
Dislikes 0	
Response	
Steven Taddeucci - NiSource - Northern Indiana Public Service Co. - 3	
Answer	No
Document Name	
Comment	
Given the complexity, the implementation plan should be extended to five years.	
Likes 0	
Dislikes 0	
Response	
Rachel Schuldt - Black Hills Corporation - 6, Group Name Black Hills Corporation - All Segments	
Answer	No

Document Name	
Comment	
Black Hills Corporation agrees with EEI's concerns that the expectations contained in MOD-032-2 (Attachment 1) regarding what DPs can provide go beyond what is currently possible for most DPs.	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	No
Document Name	
Comment	
Due to many of the technologies necessary to provide the data required by this standard, are either not currently installed or even available, NAGF does not support the implementation plan.	
Likes 0	
Dislikes 0	
Response	
Marcus Bortman - APS - Arizona Public Service Co. - 6	
Answer	No
Document Name	
Comment	
AZPS supports the comments submitted by EEI on behalf of their members: While EEI does not object to the proposed implementation plan as proposed, we are concerned that the expectations contained in MOD-032-2 (Attachment 1) regarding what DPs can provide go beyond what is currently possible for most DPs. (See our comments to Question 4, which describe what DPs are capable of providing to planners.)	
Likes 0	
Dislikes 0	
Response	
Christine Kane - WEC Energy Group, Inc. - 3, Group Name WEC Energy Group	

Answer	No
Document Name	
Comment	
WEC Energy group supports the comments of EEI.	
Likes 0	
Dislikes 0	
Response	
Daniel Gacek - Exelon - 1	
Answer	No
Document Name	
Comment	
Exelon supports the comments submitted by the EEI for this question.	
Likes 0	
Dislikes 0	
Response	
Diana Aguas - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE	
Answer	No
Document Name	
Comment	
CEHE does not support the proposed changes to MOD-032-2 and therefore cannot support the Implementation Plan. CEHE supports Edison Electric Institute's (EEI) comments on the expectations contained in MOD-032-2 specifically, the language in Attachment 1 (Item 9) does not align with what DPs can provide regarding the DER resources connected to their system.	
Likes 0	
Dislikes 0	
Response	
Mark Gray - Edison Electric Institute - NA - Not Applicable - NA - Not Applicable	
Answer	No

Document Name	
Comment	
While EEI does not object to the proposed implementation plan as proposed, we are concerned that the expectations contained in MOD-032-2 (Attachment 1) regarding what DPs can provide go beyond what is currently possible for most DPs. (See our comments to Question 4, which describe what DPs are capable of providing to planners.)	
Likes 0	
Dislikes 0	
Response	
Steven Rueckert - Western Electricity Coordinating Council - 10, Group Name WECC Entity Monitoring	
Answer	No
Document Name	
Comment	
WECC believes the Implementation Plan is too long for an issue that has been actively discussed for several years.	
Likes 0	
Dislikes 0	
Response	
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC	
Answer	No
Document Name	
Comment	
If no threshold limits are applied to the DERs for which data must be provided, then SMUD does not agree with the implementation plan because more time will be needed to allow entities to expand their modeling capabilities and to determine how to collect this data.	
Likes 0	
Dislikes 0	
Response	

Hayden Maples - Hayden Maples On Behalf of: Jeremy Harris, Evergy, 3, 5, 1, 6; Kevin Frick, Evergy, 3, 5, 1, 6; Marcus Moor, Evergy, 3, 5, 1, 6; Tiffany Lake, Evergy, 3, 5, 1, 6; - Hayden Maples	
Answer	No
Document Name	
Comment	
Evergy supports and incorporates by reference the comments of the Edison Electric Institute (EEI), the Midwest Reliability Organization's NERC Standards Review Forum (MRO NSRF), and the North American Generator Forum (NAGF) on question 3	
Likes 0	
Dislikes 0	
Response	
Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	No
Document Name	
Comment	
The MRO NSRF remains concerned the expectations contained in MOD-032-2 (Attachment 1) regarding what Distribution Providers (DPs) can provide goes beyond what is currently possible for most DPs. Specifically, the language in Attachment 1 (Item 9) does not align with what DPs can provide regarding the DER resources connected to their system. In most cases, DPs do not monitor those resources in real-time and most would need to deploy extensive upgrades to their system before they could provide the detailed information, even in aggregate, for DER performance (i.e., ride-through, voltage control and frequency control). While this will be possible in the future once Advanced Distribution Management Systems (ADMS) and Distributed Energy Resource Management Systems (DERMS) are more broadly deployed, such details may be impossible to provide for most DPs at this time.	
Likes 0	
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	No
Document Name	
Comment	
Exelon supports the comments submitted by the EEI for this question.	
Likes 0	

Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	No
Document Name	
Comment	
PNM & TNMP requests the MVA threshold establishment for a DER prior to assessing the cost effectiveness of implementation. PNM also supports EEI's comments regarding Distribution Provider monitoring capabilities listed in Attachement 9, criteria "d.".	
Likes 0	
Dislikes 0	
Response	
Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 6, 5, 1; Sarah Blankenship, Salt River Project, 3, 6, 5, 1; Thomas Johnson, Salt River Project, 3, 6, 5, 1; Timothy Singh, Salt River Project, 3, 6, 5, 1; - Israel Perez	
Answer	No
Document Name	
Comment	
SRP supports comments from MRO NSRF that the DER definition should have thresholds that have based on material impact to the reliability of the BPS.	
Likes 0	
Dislikes 0	
Response	
Allie Gavin - Allie Gavin On Behalf of: Michael Moltane, International Transmission Company Holdings Corporation, 1; - Allie Gavin	
Answer	No
Document Name	
Comment	
The proposed implementation plan may not be sufficient for the DP to provide all of the items identified in Attachment 1. Additionally, the information required in Attachment 1 Item 9d may not be available to the DPs based on the DPs/States requirements for data from DER entities to connect to the DP system. This item should include either a footnote or provision of - if available.	

Additionally, the requirement for DPs to determine and provide the appropriate equivalent distribution system impedance should be removed from Footnote 4. The method for locating the DER data should be left to the TO/DP so that the addition of DER data does not cause solution issues for the model.	
Likes 0	
Dislikes 0	
Response	
Nick Leathers - Nick Leathers On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Nick Leathers	
Answer	No
Document Name	
Comment	
Ameren agrees with EEI's comments.	
Likes 0	
Dislikes 0	
Response	
Dwanique Spiller - Berkshire Hathaway - NV Energy - 5	
Answer	No
Document Name	
Comment	
NV Energy remains concerned the expectations contained in MOD-032-2 (Attachment 1) regarding what Distribution Providers (DPs) can provide goes beyond what is currently possible for most DPs. Specifically, the language in Attachment 1 (Item 9) does not align with what DPs can provide regarding the DER resources connected to their system. In most cases, DPs do not monitor those resources in real-time and most would need to deploy extensive upgrades to their system before they could provide the detailed information, even in aggregate, for DER performance (i.e., ride-through, voltage control and frequency control). While this will be possible in the future once Advanced Distribution Management Systems (ADMS) and Distributed Energy Resource Management Systems (DERMS) are more broadly deployed, such details may be impossible to provide for most DPs at this time.	
Likes 0	
Dislikes 0	
Response	
Jessica Cordero - Unisource - Tucson Electric Power Co. - 1	
Answer	No

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Michael Johnson - Michael Johnson On Behalf of: Frank Lee, Pacific Gas and Electric Company, 3, 1, 5; Marco Rios, Pacific Gas and Electric Company, 3, 1, 5; Sandra Ellis, Pacific Gas and Electric Company, 3, 1, 5; - Michael Johnson, Group Name PG&E All Segments	
Answer	Yes
Document Name	
Comment	
PG&E is not providing any input for Question 3.	
Likes 0	
Dislikes 0	
Response	
Elizabeth Davis - Elizabeth Davis On Behalf of: Thomas Foster, PJM Interconnection, L.L.C., 2; - Elizabeth Davis	
Answer	Yes
Document Name	
Comment	
PJM supports the IRC SRC comments.	
Likes 0	
Dislikes 0	
Response	
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2	
Answer	Yes
Document Name	
Comment	

ERCOT joins the comments submitted by the IRC SRC and adopts them as its own.	
Likes 0	
Dislikes 0	
Response	
Bobbi Welch - Midcontinent ISO, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC) 2022-02 Modifications to MOD-032 Draft 3	
Answer	Yes
Document Name	
Comment	
The SRC believes the 36-month proposed implementation period should be sufficient.	
Likes 0	
Dislikes 0	
Response	
Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Roger Perkins - Southern Maryland Electric Cooperative - 1,3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	

Response	
Ronald Hoover - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Isidoro Behar - Long Island Power Authority - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Broc Bruton - Oncor Electric Delivery - NA - Not Applicable - Texas RE	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Ruchi Shah - AES - AES Corporation - 5	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
Tyler Schwendiman - ReliabilityFirst - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mark Flanary - Midwest Reliability Organization - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Pamela Hunter - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Hillary Creurer - Allete - Minnesota Power, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mike Magruder - Avista - Avista Corporation - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Amy Wilke - American Transmission Company, LLC - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Shannon Mickens On Behalf of: Joshua Phillips, Southwest Power Pool, Inc. (RTO), 2; - Shannon Mickens, Group Name SPP RTO	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Lidija Efremova - Lidija Efremova On Behalf of: Emma Halilovic, Hydro One Networks, Inc., 1; - Lidija Efremova	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Eric Sutlief - CMS Energy - Consumers Energy Company - 3,4,5 - RF	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
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; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	
Document Name	
Comment	
Tacoma Power concurs with the Implementation Plan change to allow 24-months for implementation of MOD-032-2. However, Tacoma Power is concerned that 24-months will not be sufficient to collect the data necessary for all DER resources. Specifically, with the change in the DER definition to include behind-the-meter data and the additional clarification from the SDT that the threshold for data collection is zero (essentially all DER), Tacoma Power recommends that additional time is needed for entities to determine how to collect this data. As other commenters have noted, data will need to be collected from entities which may or may not have the monitoring capabilities installed in their systems to capture this data. Coordination with these entities to determine responsibility for the monitoring equipment and then purchasing/installation of this equipment will take longer than 24 months. To address this concern, Tacoma Power recommends developing a phased-in implementation plan based on modeling thresholds. For example, within 24-months of the effective date of the Standard, provide DER data for aggregate 1 MW generation, and then a 36 month phased-in implementation plan for no threshold / all DER data. This longer phased-in implementation for all DER data would allow entities to sufficiently revise procedures for coordination with other entities while also expanding the modeling and monitoring capabilities.	

Proposed revisions to Implementation Plan:

Entities shall not be required to comply with Requirements R2, R3, and R4 relating to revised PC/TP data requirements and reporting procedures developed under MOD-032-2 Requirement R1 and Attachment 1 based on the following thresholds:

- until 12 months after the effective date of Reliability Standard MOD-032-2 for aggregate DERs at bus greater than or equal to 1 MW real power generation,
- until 36 months after the effective date of Reliability Standard MOD-032-2 for the remaining DERs connected to the BPS, regardless of real power generation.

Likes 0	
Dislikes 0	

Response

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

Nick Leathers - Nick Leathers On Behalf of: David Jendras Sr, Ameren - Ameren Services, 3, 6, 1; - Nick Leathers

Answer	
Document Name	

Comment

Ameren would like more clarification around the classification of Category 2 generators. It is not in the Venn diagram in the Technical Rationale. We do not support the changes, the responsibility should be on someone besides the utility.

Likes 0	
Dislikes 0	

Response

Constantin Chitescu - Ontario Power Generation Inc. - 5

Answer	
Document Name	

Comment

OPG supports NPCC Regional Standards Committee’s comments.

Likes 0	
Dislikes 0	

Response

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

Answer	
Document Name	

Comment

Proposed New Footnote 5 to address the limitation TOs and DPs often have regarding detailed data for IBR and DER resources they do not own or have the regulatory authority to collect (for Item 10 Steady State column and Item 11 Dynamics column and Item 3 Short Circuit column)

For purposes of this item, the TP/PCs are limited in the information that they can request from TOs and DPs for DER modeling purposes to information that TOs and DPs obtain through their interconnection process.

Likes 0	

Dislikes 0	

Response

Israel Perez - Israel Perez On Behalf of: Mathew Weber, Salt River Project, 3, 6, 5, 1; Sarah Blankenship, Salt River Project, 3, 6, 5, 1; Thomas Johnson, Salt River Project, 3, 6, 5, 1; Timothy Singh, Salt River Project, 3, 6, 5, 1; - Israel Perez	
Answer	
Document Name	
Comment	
SRP supports the additional comments from MRO NSRF.	
Likes 0	
Dislikes 0	

Response

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; Terry Gifford, Tacoma Public Utilities (Tacoma, WA), 1, 4, 5, 6, 3; - Jennie Wike, Group Name Tacoma Power	
Answer	
Document Name	
Comment	

Tacoma Power supports adequate modeling of DER. However, we are concerned the current proposal could actually result in less detailed transient study. Detailed dynamic models such as the composite load model for aggregate load are only used when the aggregate load exceeds 1-5 MW. Below this threshold, a static rather than a dynamic model is used.

Typically the level of aggregation for load and distribution generation is different than the point at which UFLS relays are placed on the actual power grid. For example, inside the WECC base case load/gen is typically listed at the high voltage side of a substation transformer. The substation transformer and distribution circuits are included by turning on composite load model. However, UFLS relays are often physically placed on individual distribution circuits and modeled as tripping a certain percentage of overall substation load. Under the proposed revisions, the highest level of load/gen aggregation that could occur would be at the location where the UFLS relay is physically installed. At a typical substation this could result in numerous loads that are too small to use the composite load model.

An additional concern with numerical simulations is many load buses in the WECC system are likely to have at least 6 different DER characteristics (e.g. IEEE-1547 2003, IEEE 1547a-2014, IEEE 1547-2018, IEEE 1547-2018 with Utility specific settings, distributed Hydro, other). Even when the aggregate DER at a bus exceeds 1.0 MW, many of the categories will have much less than 1 MW of each DER characteristic. For many of Tacoma Power's substation load models, there will be a single residential customer with less than 0.010 MW of solar generation with pre-2014 vintage inverters. We question whether attempting to include such small values into a transient simulation will actually provide a more realistic result.

Additionally, we should consider how this requirement may influence where utilities choose to place UFLS relays. In general, placing UFLS relays on distribution circuits rather than substation or transmission lines provides greater flexibility for avoiding undesired tripping of distributed generation or of equipment serving critical natural gas infrastructure. Rather than focusing on including both UFLS and DER into the MOD-032 data template, Tacoma

Power would prefer modifications to PRC-006 directing UFLS entities to consider the impacts of DER on UFLS locations. This would be similar to the requirement in EOP-011-4 to manage overlap between operator controlled load shedding and automatic load shedding.	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,Texas RE,SERC,RF, Group Name ACES Collaborators	
Answer	
Document Name	
Comment	
Thank you for the opportunity to comment.	
Likes 0	
Dislikes 0	
Response	
Lidija Efremova - Lidija Efremova On Behalf of: Emma Halilovic, Hydro One Networks, Inc., 1; - Lidija Efremova	
Answer	
Document Name	
Comment	
· At the moment, it is not entirely clear what performance related requirements are intended to be addressed under the “Dynamics” column for Aggregated DER resources. If all that is sought is what is specifically listed (i.e. whether DER is subject to tripping in conjunction with UFLS and/or UVLS), then we can accept. However the inclusion of the word “including” in the preceding phrase leaves the requirement wide open to interpretation, potentially seeking more details that could pose undue challenges to manage. It would be helpful to clarify this further, in particular to identify what performance measures or operational needs the “Dynamics” data is intended to address. · In addition to the above, consideration may be appropriate for exclusions, allowing grandfathering of existing projects and establishing capacity thresholds for DERs to exempt less impactful smaller projects (e.g. exempt < 100 kW?).	
Likes 0	
Dislikes 0	
Response	
Shannon Mickens - Shannon Mickens On Behalf of: Joshua Phillips, Southwest Power Pool, Inc. (RTO), 2; - Shannon Mickens, Group Name SPP RTO	

Answer	
Document Name	
Comment	
SPP recommends that bullet 9D language (in the Steady state section of Attachment 1) be added to the Dynamic section as well. We feel that this is applicable to Ride-through events, and this is the appropriate section to put the language in since it's associated with transient state characteristics.	
Likes 0	
Dislikes 0	
Response	
Casey Perry - PNM Resources - 1,3 - WECC,Texas RE	
Answer	
Document Name	
Comment	
PNM & TNMP requests the MVA threshold establishment for a DER prior to assessing the cost effectiveness of implementation. With an established threshold determined, Distribution Provider could be capable of monitoring parameters listed in Attachment 9 related to ridethrough, voltage control and/or frequency control or information that can be used to infer those capabilities for modeling purposes.	
Likes 0	
Dislikes 0	
Response	
Kinte Whitehead - Exelon - 3	
Answer	
Document Name	
Comment	
Exelon supports the comments submitted by the EEI for this question.	
Likes 0	
Dislikes 0	
Response	
Bobbi Welch - Midcontinent ISO, Inc. - 2, Group Name ISO/RTO Council Standards Review Committee (SRC) 2022-02 Modifications to MOD-032 Draft 3	

Answer	
Document Name	
Comment	

MOD-032 provides adequate clarity regarding DER modeling thresholds – Members of the SRC are aware of industry concerns that the currently proposed MOD-032 language could be construed to require modeling of individual DERs, regardless of size or impact to the BES. However, the SRC's understanding is that MOD-032 allows PCs and TPs to determine what degree of modeling granularity is needed as part of the modeling data requirements and reporting procedures that they jointly develop under Requirement R1.

The SRC's understanding is based on the language in Requirement R1 and on the structure of Attachment 1. More specifically, the drafting team's proposed structure for **Attachment 1, column 1, "steady state" item 9 Aggregate DER data** is similar to the existing structure used for **Attachment 1, column 1, "steady state" item 2 Aggregate Demand** (both items list a type of aggregate data, with subitems specifying more particular types of data). In addition, footnote 4 in Attachment 1 clarifies that the modeling data requirements and reporting procedures that are jointly developed under Requirement R1 will specify the required level of aggregation. To help alleviate industry concerns, the SRC requests that the drafting team clarify whether the SRC's understanding of this topic is correct.

Need to reinstate the Transmission Owner (TO) function – The TO has been removed from the modeling equation, yet there are times when there is no registered Distribution Provider (DP) and the Transmission Planner (TP) will still need to coordinate with the TO to obtain DER information. From a compliance perspective, there is a need to balance the responsibilities on both parties by requiring the TO to provide accurate and comprehensive DER data to the TP when there is no registered DP as illustrated below:

steady-state 2. Aggregate Demand [DP, TO]

steady-state 9. Aggregate Distributed Energy Resource (DER) data [DP, TO]

dynamics 5. Aggregate Demand [DP, TO]

Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	
Document Name	
Comment	

Texas RE recommends adding Battery Energy Storage Systems Data [GO] to the dynamics column in Attachment 1.

Likes 0	
Dislikes 0	

Response
Kennedy Meier - Electric Reliability Council of Texas, Inc. - 2
Answer	
Document Name	
Comment
ERCOT joins the comments submitted by the IRC SRC and adopts them as its own.
Likes 0	
Dislikes 0	
Response
Elizabeth Davis - Elizabeth Davis On Behalf of: Thomas Foster, PJM Interconnection, L.L.C., 2; - Elizabeth Davis
Answer	
Document Name	
Comment
In addition to supporting the IRC SRC comments, PJM understands and agrees with the proposed definition of a DER. However, we have concerns with the applicability of MOD-032 and DERs being defined (requesting additional clarification). For example, it would be beneficial to specify whether MOD-032 applies only to DER aggregations that are ≥20 MW with export capability to the Bulk Electric System (BES) or those that are 20 MW connected to 69 kV or above.
Likes 0	
Dislikes 0	
Response
Robert Jones - Seattle City Light - 1,3,4,5,6
Answer	
Document Name	
Comment
The proposed changes require entities to model aggregate DERs at substation buses. There needs to be a guideline or clarification on how to select a dynamic model for the aggregate DERs. Due to variety of devices on the system, the aggregate DERs would require entities to make assumptions on dynamic model parameters. Additionally, dynamic data may not be available for all equipment. What level of assumptions are reasonable and ensure the requirements of the standards are not violated? One entity’s assumptions may be different than other.
Likes 0	

Dislikes 0	

Response

Anna Martinson - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO Group	
Answer	
Document Name	

Comment

Recommend this project be delayed and work in tandem with Project 2024-01 ROP changes and / or put on hold until the ROP changes are made. Otherwise, industry is being asked to approve unbounded definitions with impacts that cannot be quantified.

The MRO NSRF does not agree with the language contained in Item 9 of Attachment 1 because most DPs do not have detailed information on the aggregated output of DERs on their systems. While it is possible to supply information on the aggregated capability of those resources and the aggregated types (i.e., solar, battery, diesel generator, etc.) they do not have real time monitoring of those facilities or have the ability to provide aggregated models that might approximate what is possible to supply for BPS connected IBRs. To address our concerns, we offer the following changes to Item 9 and Footnotes 2 and 4 under Attachment 1.

9. Aggregate Distributed Energy Resource (DER) data [DP]

a. Location (bus from item 1)

b. Cumulative Real power capability name plate capacity

c. Percentage of DER by type (solar, battery, diesel generator, etc.)

d. DER capabilities related to ridethrough, voltage control and/or frequency control or information that can be used to infer those capabilities for modeling purposes.

Footnote 2:

2. Aggregate Demand [DP]

a. Cumulative real and reactive power

b. Percentage of in-service status

The MRO NSRF supports the use of generic, aggregate DER models for analyzing the impact of “small” DERs as we believe this is adequate to reliably approximate and model the impact of “small” DERs. Even if the DP was able to provide discrete information concerning every DER on its system, it is unlikely their PC or TP would be able to use it in its planning model.

Therefore, the need for individual DER models should be reserved for “large” DERs as specified in the Planning Coordinator’s jointly developed (with its TPs) steady-state, dynamics, and short circuit modeling data requirements and reporting procedures for their area.

Requirement R1 allows each TP to define what level of granularity is needed to reliably model DERs in its TP area. To obtain industry consensus, it would be helpful for the SDT to clarify and emphasize this as industry remains concerned that the language is open to interpretation.

To that end, the MRO NSRF recommends NERC host a Technical Conference like the one recently held in Washington DC to advance PRC-029 (generator ride-through for IBRs). More conversation is needed to obtain a meeting of industry minds. Once there is agreement as to what data is

needed to adequately model DERs, it will be easier for the SDT to propose draft language that reflects that common vision. In the absence of that, industry may continue to talk past each other and make little progress.

An existing framework that may serve as a model is that used for low impact BES Cyber Assets. While BES Cyber Assets are defined as assets that "would affect the reliable operation of the Bulk Electric System," they are not part of the BES itself. If "small (low impact) DERs are intended to be viewed the same way, it may be worthwhile to look at the compliance framework for "low impact" BES Cyber Assets and see whether and how some of these principles may be applied in designing a compliance framework for low impact DERs, particularly the absence of a requirement to maintain a discrete list of low impact cyber assets.

Attachment 1: Data Reporting Requirements

While Attachment 1, column 1, "steady-state," items 9b, 9c and 9d clearly fall under "Aggregate DER data," the proposed language could be interpreted as requiring explicit information for each individual DER. Therefore, the SRC requests the SDT clarify that the information being requested is to be provided at the aggregate level to avoid alternate interpretations. Sample language below:

b. Cumulative Real power capability

c. Percentage of DERs by type (solar, battery, diesel generator, etc.)

d. Cumulative DER capabilities related to ride-through, voltage control and/or frequency control or information that can be used to infer those capabilities for modeling purposes.

Likewise, while Attachment 1, footnote #2 clearly states that, "For purposes of this item [i.e., item 2], aggregate Demand is the gross Demand aggregated at each bus," the proposed language could be interpreted as requiring explicit information for each individual DER. Therefore, the SRC requests the SDT clarify that the information being requested is to be provided at the aggregate level to avoid alternate interpretations. Sample language below:

2. Aggregate Demand [DP]

a. Cumulative real and cumulative reactive power*

b. Percentage of in-service status*

Likes 0	
Dislikes 0	

Response

Amy Wilke - American Transmission Company, LLC - 1

Answer	
Document Name	

Comment

ATC supports the comments developed by the MRO NSRF.

Likes 0	
Dislikes 0	

Response

Hayden Maples - Hayden Maples On Behalf of: Jeremy Harris, Evergy, 3, 5, 1, 6; Kevin Frick, Evergy, 3, 5, 1, 6; Marcus Moor, Evergy, 3, 5, 1, 6; Tiffany Lake, Evergy, 3, 5, 1, 6; - Hayden Maples	
Answer	
Document Name	
Comment	
Evergy supports and incorporates by reference the comments of the Edison Electric Institute (EEI), the Midwest Reliability Organization's NERC Standards Review Forum (MRO NSRF), and the North American Generator Forum (NAGF) on question 4	
Likes 0	
Dislikes 0	
Response	
Joshua London - Eversource Energy - 1, Group Name Eversource	
Answer	
Document Name	
Comment	
Eversource, in line with EEI, does not agree with some of the components in Attachment 1 Item 9 because most DPs do not have detailed information on the aggregated output of DERs in line with the requirements in the subparts of this item. While it is possible to supply information on the reported aggregated name plate capacity of the DER resources and identify those aggregated resources by type (i.e., solar, battery, diesel generator, etc.), DPs do not have real time monitoring of those facilities, and thus cannot provide accurate information regarding their current capabilities or specific performance criteria. Eversource suggests the following changes in boldface: a. Location (bus **or buses** from item 1) **b. Real power capability Reported aggregate name plate capacity (i.e. inverter or machine) as provided to the Distribution Provider during the Interconnection Process. Note: *Resources that are not in continuous parallel operation are not included in the aggregate models provided. (e.g.: EVs (vehicle to grid operation), backup generation for non-grid purposes, etc.)*** **c. Reported aggregate name plate capacity by** DER type (solar, battery, diesel generator, etc.) **NOTE: Eversource, contrary to EEI, is in favor of the current language that makes up letter D, with a slight modification** **D. Estimated** DER capabilities related to ride through, voltage control and/or frequency control or information that can be used to infer those capabilities for modeling purposes.	
Likes 0	
Dislikes 0	

Response
Tim Kelley - Tim Kelley On Behalf of: Charles Norton, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Foung Mua, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Kevin Smith, Balancing Authority of Northern California, 1; Nicole Looney, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Ryder Couch, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; Wei Shao, Sacramento Municipal Utility District, 3, 6, 4, 1, 5; - Tim Kelley, Group Name SMUD and BANC

Answer	
Document Name	

Comment
SMUD supports the comments provided by the MRO NSRF and believes that a technical conference would be beneficial to this project to help bridge the gap of technical differences on how DERs are tracked, monitored, and modeled.

Likes 0	
Dislikes 0	

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

Answer	
Document Name	

Comment
WECC suggests changes to Requirement R4 to be consistent with other Standards (and Projects currently underway) by replacing “Electric Reliability Organization or its designee” with “Compliance Enforcement Authority (CEA)”. M4 and the VSLs would need adjustments as well if adopted. In Attachment 1- WECC suggests capitalizing “interconnection-wide” in first use in second sentence. Is there a “bus number, name, and/or identifier” for DER? If so, does the DP and TO “assign” or are they assigned by the TP and PC? There are several instances of terms being capitalized in the Attachment 1 listing of data reporting requirements that should not be capitalized as they are not defined. And other terms that are defined need capitalized (e.g. Real Power). “Ride-through” was recently defined in Order 901 efforts. Is the intent of the DT to use that definition? If not, what does term that mean? What does Aggregate DER mean versus DER? How would one define the bus number/name or aggregate?

Likes 0	
Dislikes 0	

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

Answer	

Document Name	

Comment

EEI appreciates the changes made to Attachment 1 since the prior draft of this standard, however, what is contained in Attachment 1 still does not reflect what most DPs can provide at this time. We further note that even the Reliability Guideline titled DER Data Collection and Model Verification of Aggregate DER notes that DER interconnections generally do not contain requirements that include “high and low time-resolution data collection”, the guideline further notes that such change will take considerable time to implement and will require state regulator directives to accomplish given these resources fall outside of NERC’s jurisdiction. It is also important to recognize that existing resources, already interconnected to the distribution system, may never be able or otherwise obligated to provide the level of data and modeling envisioned.

EEI further notes that the above referenced guideline additionally recommends that TOs and DPs install expanded monitoring equipment that currently doesn’t exist; making compliance at the level envisioned not possible at this time. Moreover, DPs do not monitor these resources in real-time and most would need to deploy extensive upgrades to their system before they could provide the detailed information envisioned under MOD-032-2 Draft 3. Expectations that DPs will be capable of providing aggregate DER models that yield accurate disturbance ride through (i.e., ride-through, voltage control and frequency control) is impractical and goes beyond what is contained in FERC Order 901. Nevertheless, in the future after DPs have installed Advanced Distribution Management Systems (ADMS) and Distributed Energy Resource Management Systems (DERMS) broadly, such details will be possible to provide but such requirements are impractical at this time.

To address our concerns, we suggest the following edits in boldface below:

Attachment 1; Item 1

EEI does not agree with the language contained in Item 9 of Attachment 1 because most DPs do not have detailed information on the aggregated output of DERs in line with the requirements in the subparts of this item. While it is possible to supply information on the reported aggregated Name Plate Capacity of the DER resources and identify those aggregated resources by type (i.e., solar, battery, diesel generator, etc.), DPs do not have real time monitoring of those facilities or have the ability to provide aggregated models that will accurately define performance during BPS system disturbances. Moreover, DPs are not DER owners, and therefore do not have models for DER resources. It is also important to note that DPs generally do not conduct EMT studies on DER interconnections or require such models be provided as a condition of interconnection. To address our concerns, we offer the following changes (in boldface) to Item 9 of Attachment 1 below to better define what DP can provide:

9. Aggregate Distributed Energy Resource (DER) data [DP]

a. Location (bus from item 1)

b. Reported Aggregate Name Plate Capacity as provided to the Distribution Provider during the Interconnection Process. Note: *Resources that are not in continuous parallel operation are not included in the aggregate models provided. (e.g.: EVs (vehicle to grid operation), backup generation for non-grid purposes, etc.)*

c. Reported Aggregate Name Plate Capacity by DER type (solar, battery, diesel generator, etc.)

d. Aggregated composite DER models that approximate the performance of aggregated DERs on their system.

Footnote 4:

For purposes of this item, the Distribution Provider to which **aggregated** DERs **are** connected **shall be responsible for providing aggregated DER composite model[s] using engineering judgement that contains generalized characteristics of the type of DERs identified by DER type under 9c to** the Transmission Owner.

Proposed New Footnote 5 to address the limitation TOs and DPs often have regarding detailed data for IBR and DER resources they do not own or have the regulatory authority to collect (for Item 10 Steady State column and Item 11 Dynamics column and Item 3 Short Circuit column)

For purposes of this item, Transmission Owners and Distribution Providers are limited in the information that they can provide to Planning Coordinators and Transmission Planners for modeling purposes. This includes but is not limited to models of individual unregistered IBR and DER resources they do not own or have the regulatory authority to collect.

Likes 0	
Dislikes 0	

Response

Hillary Creurer - Allete - Minnesota Power, Inc. - 1

Answer	
Document Name	

Comment

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

Likes 0	
Dislikes 0	

Response

Diana Aguas - CenterPoint Energy Houston Electric, LLC - 1 - Texas RE

Answer	
Document Name	

Comment

The standard as written **places an unsustainable compliance burden** on TPs, TOs, TOPs and DPs. The standard does not address the challenges a NERC registered entity (TP/TO/DP) will experience with collecting DER data from behind the meter facilities connected to us as DPs or TOs. CEHE supports EEI's comments that the modifications made to MOD-32-1 continue to obligate DPs to provide detailed data that exceeds their ability to obtain. Unregistered DER owners have no obligation or requirement under NERC standards to provide data for modeling. Requiring DPs to provide modeling data for equipment TPs/DPs do not own and have no means of acquiring data will leave TP/DPs in a position where we may fail to comply with the standard through no fault of our own despite our best efforts. CEHE supports EEI's comments concerning DPs not having the capability to monitor DER performance such as voltage ride through, voltage control, and/or frequency control information that can be used to infer those capabilities for modeling purposes. CEHE also supports EEI's proposed changes to item 9 and footnote 4 modifications under Attachment 1.

Likes 0	
Dislikes 0	

Response

Daniel Gacek - Exelon - 1

Answer	
Document Name	
Comment	

Exelon supports the comments submitted by the EEI for this question.

Likes 0	
Dislikes 0	
Response	

Tyler Schwendiman - ReliabilityFirst - 10

Answer	
Document Name	
Comment	

RF supports changing the applicability from Load Serving Entity to Distribution Provider.

This project needs to consider requirements from FERC Order 901 in any subsequent postings.

To address non-BES IBRs, we recommend aligning the Applicability Section with the registration efforts of “Project 2024-01 IBR Registration and Standards Applicability Glossary Update”.

Likes 0	
Dislikes 0	
Response	

Marcus Bortman - APS - Arizona Public Service Co. - 6

Answer	
Document Name	
Comment	

AZPS supports the comments submitted by EEI on behalf of their members:

EEI appreciates the changes made to Attachment 1 since the prior draft of this standard, however, what is contained in Attachment 1 still does not reflect what most DPs can provide at this time. We further note that even the Reliability Guideline titled DER Data Collection and Model Verification of Aggregate DER notes that DER interconnections generally do not contain requirements that include “high and low time-resolution data collection”, the guideline further notes that such change will take considerable time to implement and will require state regulator directives to accomplish given these resources fall outside of NERC’s jurisdiction. It is also important to recognize that existing resources, already interconnected to the distribution system, may never be able or otherwise obligated to provide the level of data and modeling envisioned.

EEI further notes that the above referenced guideline additionally recommends that TOs and DPs install expanded monitoring equipment that currently doesn't exist; making compliance at the level envisioned not possible at this time. Moreover, DPs do not monitor these resources in real-time and most would need to deploy extensive upgrades to their system before they could provide the detailed information envisioned under MOD-032-2 Draft 3. Expectations that DPs will be capable of providing aggregate DER models that yield accurate disturbance ride through (i.e., ride-through, voltage control and frequency control) is impractical and goes beyond what is contained in FERC Order 901. Nevertheless, in the future after DPs have installed Advanced Distribution Management Systems (ADMS) and Distributed Energy Resource Management Systems (DERMS) broadly, such details will be possible to provide but such requirements are impractical at this time.

To address our concerns, we suggest the following edits:

Attachment 1; Item 1

EEI does not agree with the language contained in Item 9 of Attachment 1 because most DPs do not have detailed information on the aggregated output of DERs in line with the requirements in the subparts of this item. While it is possible to supply information on the reported aggregated Name Plate Capacity of the DER resources and identify those aggregated resources by type (i.e., solar, battery, diesel generator, etc.), DPs do not have real time monitoring of those facilities or have the ability to provide aggregated models that will accurately define performance during BPS system disturbances. Moreover, DPs are not DER owners, and therefore do not have models for DER resources. It is also important to note that DPs generally do not conduct EMT studies on DER interconnections or require such models be provided as a condition of interconnection. To address our concerns, we offer the following changes to Item 9 of Attachment 1 below to better define what DP can provide:

9. Aggregate Distributed Energy Resource (DER) data [DP]

a. Location (bus from item 1)

b. Reported Aggregate Name Plate Capacity as provided to the Distribution Provider during the Interconnection Process. Note: *Resources that are not in continuous parallel operation are not included in the aggregate models provided. (e.g.: EVs (vehicle to grid operation), backup generation for non-grid purposes, etc.)*

c. Reported Aggregate Name Plate Capacity by DER type (solar, battery, diesel generator, etc.)

d. Aggregated composite DER models that approximate the performance of aggregated DERs on their system.

Footnote 4:

For purposes of this item, the Distribution Provider to which aggregated DERs are connected shall be responsible for providing aggregated DER composite model[s] using engineering judgement that contains generalized characteristics of the type of DERs identified by DER type under 9c to the Transmission Owner.

Likes 0	
Dislikes 0	

Response

Jessica Cordero - Unisource - Tucson Electric Power Co. - 1

Answer	
Document Name	

Comment	
For question 3 above, no issue with the phased-in implementation approach and effective date. Disagreement with the DER definition and use of DP within definition, as with questions 1 and 2 above.	
Likes 0	
Dislikes 0	
Response	
Wayne Sipperly - North American Generator Forum - 5 - MRO,WECC,Texas RE,NPCC,SERC,RF	
Answer	
Document Name	
Comment	
Attachment 1, Dynamics column item 10 - seems to be missing the entity responsible. [DP?]	
Likes 0	
Dislikes 0	
Response	
Andy Thomas - Andy Thomas On Behalf of: John Sturgeon, Duke Energy , 5, 6, 1, 1; - Andy Thomas	
Answer	
Document Name	
Comment	
Duke Energy supports implementation of NAGF Attachment 1, Dynamics, Column 10 response (missing functional entity – DP). Duke Energy also supports implementation of EEI Question 4 responses.	
Likes 0	
Dislikes 0	
Response	
Isidoro Behar - Long Island Power Authority - 1	
Answer	
Document Name	

Comment
It is recognized that Requirement R1 and the revised Attachment 1 are intended to provide the PC/TP flexibility in developing data requirements and reporting procedures that align with local practices and needs, so long as they include the items listed in the Requirement R1 Parts. However, from a compliance perspective, how to satisfy the modeling requirements identified in MOD-032-2 Attachment 1, Steady State column item #9, part “C” (DER type (solar, battery, diesel generator, etc.)) is not entirely clear. This requirement needs be more clearly defined (either in the standard or in the Technical Rationale) so that entities can have confidence that their data requirements established to meet Requirement #1 are sufficient. Question for the SDT: is the expectation that compliance with Attachment 1, Steady State column item #9, part C could be satisfied with specific / discrete modeling or itemization of DER types within simulation models (i.e., several DER generator types added to each bus), an aggregate “composite of DER types” at each bus, or would documentation outside of the simulation models be acceptable? Or, would any of the above alternatives be acceptable from a compliance perspective? We did not identify any additional clarity offered on MOD-032-2 Attachment 1, Steady State column item #9, part C in the Technical Rationale document. One recommendation would be to expand on this item within the Technical Rationale to ensure clarity for compliance purposes. We identify the same concern above for MOD-032-2 Attachment 1, Dynamics column item #10 (Aggregate Distributed Energy Resource (DER) data including whether DER is subject to tripping in conjunction with UFLS and/or UVLS). This requirement needs be more clearly defined (either in the standard or in the Technical Rationale) so that entities can have confidence that their data requirements established to meet Requirement #1 are sufficient. For example, would documentation outside of the simulation models be sufficient to demonstrate “whether DER is subject to tripping in conjunction with UFLS and/or UVLS”?

Likes 0	
Dislikes 0	

Response

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

Answer	
Document Name	

Comment
PG&E provides input that the Dynamics column item 10 seems to be missing the entity responsible as they are struck out in the redline [DP?].

Likes 0	
Dislikes 0	

Response

Jennifer Weber - Tennessee Valley Authority - 1,3,5,6 - SERC

Answer	
Document Name	

Comment
The various requirements in Table 1 all give the applicable functions for the requirements, e.g. TO, RP, GO, etc. However, all the designations have been removed for the new requirement 10 under the “dynamics” column in the “redline” version. Note that the DP designation shows up in the “clean” version but is shown as deleted in the “redline” version. In the Technical Rationale document in the section titled “Rationale for Applicability Section,” we appreciate the DT’s recognition of the industry’s concerns over unregistered entities having no compliance obligation to provide data to the TO/DP. However, the requirements are being left in place and the concern is basically being ignored because “the process to modify NERC registry criteria and register new entities is beyond the scope of Project 2022-02 and would unnecessarily delay the implementation of DER data requirements.” This is basically a cop-out by the DT. While it is understood, and agreed, that modifying NERC registry criteria and registering new entities is beyond the scope of Project 2022-02, the DT should not be moving forward with attempting to place requirements on the industry that may not be implementable. If modifying NERC registry criteria and registering new entities is required to implement the new requirements, then the DT should notify NERC that they cannot move forward until this is done. Otherwise, the industry is being placed in a “no-win” situation in that they have requirements being enforced that they cannot meet. Remove the sub bullet related to the Distribution Provider. Like the response for question 1, removing the words “connected to the Distribution Provider’s system” doesn’t affect the definition and removes the confusion. If you are trying to use this to say it includes sub-transmission voltages, just say that; including DP language makes it difficult to figure out the intent.

Likes 0	
Dislikes 0	
Response	
Alison MacKellar - Constellation - 5	
Answer	
Document Name	
Comment	
Constellation aligns with the NAGF comments	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 5	
Answer	
Document Name	
Comment	

Referencing Footnote 4, the SDT's newly added content in the Technical Rationale states "previous references to data collection efforts or passing through data by the DP/TO from these unregistered entities was removed from the standard language as it could add compliance risk on the DP/TO without any compliance obligation on the unregistered entities." Despite this acknowledgement, the SDT goes on to state "there is great value in moving forward with the standard with the registered DP as the responsible entity for DER data as this will vastly improve the amount of data that is available to the TP/PC." The Technical Rationale further states "where an unregistered DP (an entity not meeting the NERC registration criteria) is interconnected to the system of a registered entity (DP or TO), the DP/TO should coordinate with the unregistered DP to ensure the availability of information associated with DER that may be connected to the unregistered DP's system" and that "this effort would be considered as a best practice, even if not specifically required by the MOD-032." By taking these passages in their entirety, the Technical Rationale not only considers these efforts as a best practice, but also expects that they be executed, which is essentially an obligation of inference. Simply put, there are expectations set in the Technical Rationale which are not established within the obligations, and that is type of compliance risk that goes beyond the acknowledgement made within the Technical Rationale. In addition, AEP does not believe that "best practices", well-meaning as they may be, should be included in a Technical Rationale. Rather, they should be provided in Reliability Guidelines as "recommended practices."

AEP continues to believe that the best path forward for this proposed standard would be for those entities providing DER data to be registered as Functional Entities. 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.

Likes 0	
Dislikes 0	

Response

Kimberly Turco - Constellation - 6

Answer	
Document Name	

Comment

Constellation aligns with NAGF comments

Kimberly Turco on behalf of Constellation Segments 5 and 6

Likes 0	
Dislikes 0	

Response

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

Answer	

Document Name	
Comment	
FE supports EEI comments and edits made to Attachment 1 Criteria #9 steady-state entry which states: 9. Aggregate Distributed Energy Resource (DER) data [DP] a. Location (bus from item 1) b. Reported Aggregate Name Plate Capacity as provided to the Distribution Provider during the Interconnection Process. Note: Resources that are not in continuous parallel operation are not included in the aggregate models provided. (e.g.: EVs (vehicle to grid operation), backup generation for non-grid purposes, etc.) c. Reported Aggregate Name Plate Capacity by DER type (solar, battery, diesel generator, etc.) d. Aggregated composite DER models that approximate the performance of aggregated DERs on their system.	
Likes 0	
Dislikes 0	
Response	
Ronald Hoover - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	
Document Name	
Comment	
BPA would like to remind NERC that there is currently a data collection gap for entities that are not registered, as they are not required to submit data to their Distribution Provider or Transmission Owner. BPA suggests that NERC create a new registration type or other means to address the gap.	
Likes 0	
Dislikes 0	
Response	
Roger Perkins - Southern Maryland Electric Cooperative - 1,3	
Answer	
Document Name	

Comment
Thanks the SDT for their hard work and allowing us to provide feedback.

Likes 0	
Dislikes 0	

Response

Duane Franke - Manitoba Hydro - 1,3,5,6 - MRO	
Answer	
Document Name	

Comment
1) For MOD-032-2, the “Aggregate Distributed Energy Resource (DER) data, including whether DER is subject to tripping in conjunction with UFLS and/or UVLS” in #10 of the “Dynamics” column of attachment 1 should probably be more clearly defined, as to what data is exactly required here? 2) For #1 of the “Short Circuit” column in MOD-032-2 attachment 1, should it also designate the responsibility of this to [DP] in addition to GO, RP, and TO and refer to foot note-4?

Likes 0	
Dislikes 0	

Response

Srikanth Chennupati - Entergy - 1,3,5,6 - SERC	
Answer	
Document Name	

Comment
none

Likes 0	
Dislikes 0	

Response