NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Industry Webinar

Project 2022-02 Modifications to TPL-001 and MOD-032

October 30, 2023

RELIABILITY | RESILIENCE | SECURITY




Agenda

- Presenters
  - Standard Drafting Team
    - Chair, John Schmall, Electric Reliability Council of Texas, Inc. (ERCOT)
    - Member, Pat Quinn, Great River Energy
    - Member, Alexander Stewart, Bonneville Power Administration
  - NERC Staff
    - Ben Wu (Project Developer)
    - Scott Barfield-McGinnis (Principal Technical Advisor)
- Administrative Items
- Project 2022-02 Status
- Proposed Revisions
- Next Steps
- Questions and Answers

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  - Comments must be submitted during the formal posting
- Q&A Session
  - Q/A feature or the raise hand feature

Standard Drafting Team (SDT)

Name	Organization/ Company
John Schmall (Chair)	ERCOT
Jonathan Hayes (Vice Chair)	Southwest Power Pool
Patrick Quinn	Great River Energy
Josie Daggett	Western Area Power Administration
Hassan Baklou	SDG&E
Zach Mansell	Tennessee Valley Authority
Qiushi (Cho) Wang	The AES Corporation
Patrick Dalton	Midcontinent Independent System Operator (MISO)
Alexander Stewart	Bonneville Power Administration
Joshua Pierce	Southern Company Services
Mohit Singh	Exelon

Project Status

- At the January 19, 2022 Standards Committee (SC) meeting, the SC accepted the Standard Authorization Requests (SARs) and authorized soliciting for members for the SARs Drafting Team (DT).
- At the April 20, 2022 SC meeting, the SC appointed chair, vice chair, and members to the Project 2022-02 Modifications to TPL-001 and MOD-032 SARs DT.
- At the May 17, 2023 SC's meeting, the SC authorized initial posting for (Phase One) industry comment and voting.
- The initial posting started on May 31, 2023 and ended on July 14, 2023 with 41.82% approval while the Implementation Plan received 41.48% approval from the industry.
- Current posting period: October 6 – November 20, 2023 with the formal ballot for the final 10 days, November11 – November 20, 2023.

Background

- Project 2022-02 addresses multiple SARs related to transmission planning and modeling data and analysis. Phase I addresses MOD-032-1 in data collection and phase II will address TPL-001-5.1 in accuracy of transmission system planning assessments.
- Origin of the Phase One (MOD-032-1) SAR
  - Submitted by NERC System Planning Impacts of Distributed Energy Resources Working Group (SPIDERWG) on December 15, 2021.
- Industry Need
  - Close reliability gaps caused by large distributed energy resources (DERs).
- Purpose or Goal
  - Revise MOD-032-1 to address gaps in data collection for the purposes of modeling aggregate levels of DERs in planning assessments.
  - Provide clarity and consistency for data collection across PCs and TPs when coordinating with the DP to gather aggregate load and aggregate DER data.

Distributed Energy Resource (DER) Definition

Generators and energy storage technologies connected to the Distribution Provider's system that are capable of providing ~~active power~~Real Power in non-isolated parallel operation with the Bulk Electric System.

- Distribution Provider refers to the NERC glossary definition, not the NERC registered entity.

Changes from draft 1:

1. Use "Real Power" as defined in the NERC glossary instead of "active power".
2. Add a specific note clarifying that the use of "Distribution Provider" in the DER definition refers to the NERC glossary definition rather than a NERC-registered entity.

- The SAR scope included a specific item for the SDT to consider addition of a DER definition to the NERC glossary.
- The proposed DER definition aligns with the intent of the SPIDERWG working definition for DER and should therefore be appropriate for other current and future SARs that may be proposed by the SPIDERWG.

DER Definition Rationale

- The SDT review and consideration of alternative DER definitions utilized in industry is documented the Technical Rationale.
- The language “generator and storage technologies” is intended to exclude sources may only transiently inject Real Power.
- The language “connected to the Distribution Provider’s system” is intended to avoid ambiguities associated with defining a distribution system while leveraging a currently defined NERC glossary term.
- The language “Real Power” is intended to include only those facilities that may be exporting power to the power system or offsetting load.
- The language “in non-isolated parallel operation with the Bulk Power System” is intended to exclude facilities that will not have an impact to the BES (because they are not electrically connected to the BES) and therefore are not of interest from a BES-reliability perspective (e.g. back-up generation that only operates when a facility is disconnected from the grid).

Applicability

- Dual Applicability to Planning Authority (PA) and Planning Coordinator (PC)
  - The SDT concluded this is appropriate because the approved and posted NERC Rules of Procedure documents still use both terms.
  - Explanatory paragraph included in MOD-032-1 refers to synchronization between registration criteria and the NERC functional model - was removed from draft 2 because the NERC functional model is obsolete and was never formally approved.

4.1.4 Planning Authority and Planning Coordinator (hereafter collectively referred to as "Planning Coordinator")

~~This proposed standard combines "Planning Authority" with "Planning Coordinator" in the list of applicable functional entities. The NERC Functional Model lists "Planning Coordinator" while the registration criteria list "Planning Authority," and they are not yet synchronized. Until that occurs, the proposed standard applies to both Planning Authority and Planning Coordinator.~~

- Load-Serving Entity (LSE) was replaced with Distribution Provider (DP)
  - LSE removed from NERC registry criteria.
  - The DP will be required to provided data items previously required to be provided by the LSE.
  - No change from draft 1.

Modifications to MOD-032 Attachment 1

- Minimum DER data expected to be necessary for adequate DER representation – draft 2:
  - Removed reactive power capability data obligation.
  - Simplified sub-bullets.
- Maintained approach from MOD-032-1:
  - More detailed sub-bullets only presented in the "steady-state" column.
- PC/TP flexibility in data requirements and reporting procedures for DER:
  - Explicitly reference to R1 in footnote 4.
  - Reflects local data accessibility and practices.

steady-state

9. Distributed Energy Resource (DER) data[4] [DP, TO where DER is directly connected to the TO system and not through a DP~~(when DER is not associated with a registered DP)~~][5]
   a. Location (bus from item 1) ~~and if DER feeder is subject to UFLS and/or UVLS~~
   b. Real power capability ~~(minimum and maximum)~~
   ~~c. Reactive power capability (minimum and maximum)~~
   ~~d.~~c. Generator type (solar, battery, etc.)
   ~~e.~~d. ~~In-service date or other information to be used to make assumptions about~~ DER capabilities related to ride-through, voltage control and/or frequency control or information that can be used to infer those capabilities for modeling purposes.

[4] The joint PC/TP modeling data requirements and reporting procedures developed per R1 will specify data flow processes and the required level of aggregation. The PC or TP may need to coordinate with the DP or TO to determine appropriate equivalent distribution system impedance~~The TP/PC modeling data requirements and reporting procedures may require either aggregated or unaggregated data as necessary for local practices and the TP/PC may need to coordinate with the DP/TO to determine appropriate assumptions for equivalent distribution system impedance~~.

Inclusion of Data Related to UFLS/UVLS

- Accurately representing DER tripping as part of UFLS and UVLS operation is essential to assessing the design of these programs.
- The SDT concluded that the impact of DER tripping due to UFLS and UVLS was associated with dynamic studies, so this item was moved to the "dynamics" column in draft 2.

dynamics

10. Distributed Energy Resource (DER) data including whether DER is subject to tripping in conjunction with UFLS and/or UVLS [DP, TO where DER is directly connected to the TO system and not through a DP~~(when DER is not associated with a registered DP)~~]

- The SDT considered recommendations from the following approved documents published by NERC SPIDERWG:
  - Reliability Guideline: Recommended Approaches for UFLS Program Design with Increasing Penetrations of DERs
  - White Paper: DER Impact to Under Voltage Load Shedding Program Design

Inferring DER Capabilities

- Knowledge of DER capabilities related to ride-through, voltage control and frequency control are critical to representing DER in BES reliability assessments.
  - MOD-032-2 allows TP/PC flexibility in developing requirements and reporting procedures to most efficiently obtain this information.
  - Such DER capabilities can be inferred by the in-service date as described in the Technical Rationale and recommendations included in the approved Reliability Guideline: DER Data Collection for Modeling in Transmission Planning Studies (draft 2 removes explicit reference to in-service date from Attachment 1).

e.d. ~~In-service date or other information to be used to make assumptions about~~ DER capabilities related to ride-through, voltage control and/or frequency control or information that can be used to infer those capabilities for modeling purposes.

DP/TO DER Data Obligations

- DER data obligation assigned to the DP or TO to which the DER is connected.
- Footnote 5 is intended to address potential gaps by requiring DPs and TOs to request DER data from unregistered DPs that are connected to their systems.
- Since there is no compliance obligation for unregistered entities, data collection gaps may still exist. However, the SDT concluded that moving forward with MOD-032-2 provides substantial improvement with respect to ensuring DER data is available for inclusion in PC and TP studies.
- The SDT recommends that NERC consider options to reduce or eliminate potential DER data collection gaps as noted in the Technical Rationale.

Distributed Energy Resource (DER) data[4] [DP, TO where DER is directly connected to the TO system and not through a DP~~(when DER is not associated with a registered DP)~~][5]

[5] Where DER is connected to an unregistered Distribution Provider, the next closest electrically connected registered entity (DP or TO) shall request DER data and pass through available information. An unregistered Distribution Provider is an unregistered entity meeting the NERC Glossary of Terms definition of Distribution Provider. This footnote is also applicable to item 10 under the "dynamics" column.

Inclusion of Demand Clarification

- Collecting and modeling a net demand that incorporates offsets due to output from DER is not consistent with a modeling framework that explicitly represents DER (no change from draft 1).
- Demand data obligation assigned to the DP, through coordination with the TO or as specified by PC/TP requirements per footnote 2.

steady-state

2. Aggregate Demand[2] [DP~~, TO (when a Demand is not associated with a registered DP)~~]

dynamics

5. Demand [DP~~, TO (when a Demand is not associated with a registered DP)~~]

[2] For purposes of this item, aggregate Demand is the gross Demand aggregated at each bus under item 1 that is identified by a Transmission Owner as a load serving bus rather than the net Demand that incorporates offsets due to output from Distributed Energy Resources. A Distribution Provider is responsible for providing this information, generally through coordination with the Transmission Owner or as specified in the joint PC/TP modeling data requirements and reporting procedures developed per R1.

Implementation Plan

		Date
FERC approval/NERC Board Approval		TBD
Definition Effective Date	+2 years from FERC approval	TBD
Definition Effective Date (Without Gov Authority)	+2 years from NERC Board Approval	TBD
MOD 032 Req 2,3,4	+1 year from the effective date	TBD
MOD 032 Effective Date (Gov Authority)	+2 years from FERC approval	TBD
MOD 032 (Without Gov authority)	+2 years from NERC board approval	TBD

Implementation Plan

Initial Performance Dates

- Entities shall not be required to comply with Requirements R2, R3, and R4 relating to revised Planning Coordinator/Transmission Planner data requirements and reporting procedures developed under MOD-032-2 Requirement R1 and Attachment 1 until 12 months after the effective date of Reliability Standard MOD-032-2.
- Entities shall continue to comply with Requirements R2, R3, and R4 related to Planning Coordinator/Transmission Planner data requirements and reporting procedures developed under MOD-032-1 Requirement R1 and Attachment 1 during the phased-in compliance period for MOD-032-2.
- No change from draft 1: As noted in the consideration of industry comments, TOs 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 R1 and should be able to start working on data collection processes and methods more than 12 months prior to the effective dates of R2, R3, and R4.

Next Steps

Next Steps

- Posting
  - Project Page 2022-02
  - Comment period October 6 – November 20, 2023 and formal ballot for the final 10 days, November 11 – November 20, 2023
- Point of contact
  - Ben Wu, Senior Standards Developer
  - Ben.Wu@nerc.net or call 470-542-6882
- Webinar posting
  - Three business days
  - Standards Bulletin

Questions and Answers