

# Unofficial Comment Form

## Project 2020-06 Verification of Models and Data for Generators

**Do not** use this form for submitting comments. Use the [Standards Balloting and Commenting System \(SBS\)](#) to submit comments on Draft 2 of Reliability Standard **MOD-026-2 – Verification of Dynamic Models and Data for BES Connected Facilities** by **8 p.m. Eastern, Wednesday, January 18, 2023**.

Additional information is available on the [project page](#). If you have questions, contact Senior Standards Developer, [Chris Larson](#) (via email), or at 404-446-9708.

### Background

The NERC Inverter-based Resource (IBR) Performance Task Force (IRPTF) performed a comprehensive review of all NERC Reliability Standards to identify any potential gaps and/or improvements. The IRPTF discovered several issues as part of this effort and documented its findings and recommendations in the IRPTF Review of NERC Reliability Standards White Paper, which was approved in March 2020 by the Operating Committee and the Planning Committee (now part of the Reliability and Security Technical Committee (RSTC)). Among the findings noted in the white paper, the IRPTF identified issues with MOD-026-1 and MOD-027-1 that should be addressed. The RSTC endorsed the standard authorization request (SAR) on June 10, 2020.

Consistent with the IRPTF recommendations, the scope of the proposed SAR includes revisions to NERC Reliability Standards MOD-026-1 and MOD-027-1. These standards require, among other things, Generator Owners to provide verified dynamic models to their Transmission Planner for the purposes of power system planning studies. The project proposed revisions to MOD-026-1 and MOD-027-1 to clarify requirements related to IBRs, and to require sufficient model verification to ensure accurate generator representation in dynamic simulations. The IRPTF recommended revisions to clarify the applicable requirements for synchronous generators and IBRs.

Additionally, the potential risk of increasing amounts of reactive power being supplied by nonsynchronous sources was identified in NERC's 2017 Long-term Reliability Assessment. In response to the concern, the Planning Committee (PC) assigned the System Analysis and Modeling Subcommittee (SAMS) to study the issue. The SAMS developed the Applicability of Transmission-Connected Reactive Devices white paper, which was approved by the PC at its December 2019 meeting. The PC Executive Committee approved the SAR on February 11, 2020. Recommended revisions to MOD-026-1 and MOD-027-1 outlined in the SAR were undertaken within the scope of this project.

Please provide your responses to the questions listed below, along with any detailed comments.

## Questions

1. Do you agree as a whole that Draft 2 of MOD-026-2 is an improvement to Draft 1? If you do not agree, please provide an explanation.

- Yes  
 No

Comments:

2. Do you agree the language proposed in MOD-026-2 Requirement R1? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

- Yes  
 No

Comments:

3. Do you agree the language proposed in MOD-026-2 Requirements R2 and R3? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

- Yes  
 No

Comments:

Recommend the following language modification to clarify that asset owners (not interconnecting TOs) are responsible to provide the verified models.

R2: For synchronous generation identified in Section 4.2.1 or 4.2.2 or a synchronous condenser identified in Section 4.2.4.1, *the asset owner (Generator Owner or Transmission Owner) shall provide a verified positive sequence dynamic model(s), with associated parameters, and accompanying information that represents the in-service equipment of the Facility to its Transmission Planner, in accordance with MOD-026-2 Attachment 1.*

4. Do you agree the language proposed in MOD-026-2 Requirements R4 and R5? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

- Yes  
 No

Comments:

Recommend the following language modification to clarify that asset owners (not interconnecting TOs) are responsible to provide the verified models.

R4: For inverter-based resources (IBRs) identified in Section 4.2.3, FACTS devices identified in Section 4.2.4.2, and VSC HVDC identified in Section 4.2.5.2, *the asset owner (Generator Owner or Transmission Owner) shall provide a verified positive sequence dynamic model(s), with associated parameters, and accompanying information that represents the in-service equipment of the Facility to its Transmission Planner, in accordance with MOD-026-2 Attachment 1.*

5. Do you agree the language proposed in MOD-026-2 Requirement R6? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

- Yes  
 No

Comments:

-R6 asks for GO or TO to provide an EMTP model to **its** Transmission Planner. In the case of HVDC/VSC a second Transmission Planner might be connected to the other end of the HVDC/VSC and will also need to have access to this EMT model. Furthermore, this Transmission Planner might use a different EMT software requiring a different EMT model from the GO or TO. We believe a note should be added indicating this.

-6.3 does not indicate what to do in the case an existing facility's manufacturer is out of business (for instance, in the case an EMTP model was not delivered at commissioning). A generic model (based on the technology used or site tuned) should be allowed for those cases.

6. Do you agree the language proposed in MOD-026-2 Requirements R7, R8, and R9? If you do not agree, please provide your recommendation and, if appropriate, technical or procedural justification.

- Yes  
 No

Comments:

7. The SDT believes the language of MOD-026-2 addresses the issues outlined in the 2 SARs in a cost effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost effective approaches, please provide your recommendation and, if appropriate, technical or procedural justification.

- Yes  
 No

Comments:

8. The SDT proposes a 1-year implementation plan for Requirements R1, R7, R8, and R9, with an additional 3 years for compliance with Requirements R2-R6 for newly applicable Facilities. For existing Facilities, the Implementation Plan proposes the 10-year reoccurring periodicity is maintained from the date of previous model verification. Do you agree with the proposed implementation plan timeframes? If you think an alternate timeframe is needed, please propose an alternate implementation plan with detailed explanation.

- Yes  
 No

Comments:

9. Provide any additional comments on the standard and technical rationale for the SDT to consider, if desired.

Comments: