Summary Response to Comment Themes for MOD-026-2 Draft 3
May 22, 2025

- The requirement for IBR and synchronous generation limiters and protection has been reduced from earlier drafts to excitation limiters, over/under-voltage, out-of-step, over/under speed, over/under frequency, and volts per Hertz which the drafting team (DT) believes could be activated during severe system transient or extreme events. These have presently available standardized models in commonly used simulation software tools.

- IBR and synchronous generation limiters and protection could be activated during severe transients when voltage or frequency goes beyond no-trip zones. Dynamic simulation studies run by Transmission Planners (TP) are not restricted by the no-trip zones of PRC-024, so having models of these limiting and protection functions, even if compliant with the no-trip zones, is still necessary. The reliability benefit is that these functions could be activated during severe system transient events and, therefore, verified modeling of these should be required if in service so that TP simulations accurately portray system performance.

- To address several comments about IBR and synchronous generation limiters and protection, the obligation of Generator Owners (GO) to supply excitation limiter and protective function model data is now contingent on the TP's request for that data under Requirement R1, Part 1.1.

- Limiter and protection modeling data is not necessarily available to the TP from MOD-032, PRC-019, or PRC-024. MOD-032 does not specifically mention limiters and protection in its attachment. PRC-019 addresses coordination between limiters and protection, but is not a requirement to supply modeling data to the TP. PRC-024 only requires protection settings to be reported if settings are inside the no-trip zone (Requirement R3) or upon request (Requirement R4).

- To guarantee a means of large-disturbance model validation of IBRs, which has been and continues to be the chief objective of MOD-026-2, EMT model verification and validation, and use of the EMT model as the reference against which the positive sequence model is validated, is proposed to be a requirement for all non-legacy IBRs, that is, IBRs that are in service as of the enforcement date of the EMT model requirement, now Requirement R3.

- The EMT modeling requirement, now Requirement R3, may be achieved on an individual project level. Automated EMT model test tools are under development that will enable convenient comparison between EMT and positive sequence model responses. These model test tools will automate a series of voltage and frequency trajectories that will test individual IBR project EMT and positive sequence models for their large disturbance performance, including ride-through performance based on PRC-029 attachments. No large-scale EMT system simulations are required to do these evaluations.

- EMT modeling is necessary to more thoroughly evaluate IBR ride-through capability and performance. It has been documented in several NERC event reports that positive sequence modeling is able to simulate some of the mechanisms of ride-through failure, but not as many as EMT modeling.