

New or Modified Term(s) Used in NERC Reliability Standards

Background:

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. The terms proposed below are intended to be used in MOD-026-2 and other inverter-based resource related standards.

Term(s):

Power Electronic Device (PED): Any device connected to the ac power system through a power electronic interface that generates or transmits active power or reactive power, or absorbs active power for the purposes of re-injecting it at a later time. This term excludes any load.

Inverter-Based Resource (IBR): Any source of electric power consisting of one or more Power Electronic Devices (PEDs), that operates as a single resource, supplies primarily active power, and connects to the Bulk Power System. An IBR plant/facility includes the Power Electronic Devices, and the equipment designed primarily for delivering the power to a common point of connection (e.g. step-up transformers, collector system(s), main power transformer(s), and power plant controller(s)).

Technical Rationale and Considerations:

- A Power Electronic Device is inclusive of multiple technologies that use a power electronic interface, and is not limited to generators. Power Electronic Device examples include type 3 wind generators, type 4 wind generators, solar photovoltaic inverters, battery energy storage inverters, variable-speed pumped hydro inverter, high-voltage direct current (HVDC) converters, static synchronous compensators (STATCOM), static VAR compensators (SVC), and other inverter/converter connected FACTS devices, as these technologies are also connected to the grid via a power electronic interface.
- Inverter-Based Resource examples include type 3 wind, type 4 wind, solar photovoltaic, battery energy storage, and variable-speed pumped hydro. There is a desire by the SDT to maintain a precedent that IBRs are considered “generating resources”, so the IBR term includes the phrase “primarily supplies active power”. Therefore, an HVDC system or a transmission-connected FACTS device (STATCOM, SVC, etc.) would not be considered an IBR.
- NERC Glossary terms apply to use in NERC Reliability Standards. NERC has a different focus than IEEE. "Power Electronic Device" was chosen as an alternative to the IEEE term "IBR unit" to differentiate the two terms.
- There is a need to distinguish between the individual “device” and the “resource/facility” as a whole, in order to allow the requirement language to be applied at device level or facility level. Hence, the two definitions for PED and IBR. The phrase “IBR plant/facility” refers to a facility in the common meaning.
- Battery energy storage system (BESS) will be considered as a PED/IBR independent of whether or not the device is operating in the charging or discharging mode.