

## Description of Current Draft

This is the first draft of the proposed Glossary Terms posted for a formal comment period and initial ballot.

Completed Actions	Date
Standards Committee approved Standards Authorization Request (SAR)	September 24, 2020
SAR posted for comment	December 16, 2020 – January 14, 2021

Anticipated Actions	Date
45-day formal comment period with initial ballot	November 16, 2023 – January 4, 2024
10-day final ballot	January 2024
NERC Board adoption	February 2024

## 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):

**Inverter-Based Resource (IBR):** A source (or sink in the case of a charging battery energy storage system (BESS)) of electric power that is connected to the electric power system (transmission, sub-transmission, or distribution system), and that consists of one or more IBR Unit(s) operated as a single resource at a common point of interconnection. IBRs include solar photovoltaic (PV), Type 3 and Type 4 wind, BESS, and fuel cell.

**IBR Unit:** An individual device, or a grouping of multiple devices, that uses a power electronic interface(s), such as an inverter or converter, capable of exporting Real Power from a primary energy source or energy storage system, and that connect together at a single point on the collector system.

## Background

- The drafting team (DT) utilized the IEEE 2800-2022 definitions as an initial basis for the IBR terms for the NERC Glossary of Terms and adjusted, as necessary. The DT acknowledges the efforts of the P2800 Wind and Solar Plant Interconnection Performance Working Group and IEEE members in developing those definitions.
- The IBR and IBR Unit definitions are intended to describe the technology and which types of technologies are considered IBR. An IBR is not defined by where it is connected or the size of the IBR. Therefore, the definitions do not define the applicability for Reliability Standards, voltage connection level, or facility capability level (MW/MVA). The applicability of IBR will be defined in the Applicability section of the respective Reliability Standards. Additionally, this is the DT's reasoning to include the phrase "connected to the electric power system (transmission, sub-transmission, or distribution system)," while excluding specific voltage connection and MW values within the IBR definition.
- There is a need to distinguish between the individual "IBR unit or device" and the "IBR plant/facility" as a whole, so that standards or requirements can be written for each, as necessary. Hence, the two definitions for IBR Unit and IBR.
- The term IBR is synonymous with the term "IBR plant/facility." An IBR includes the IBR Units, and the equipment designed primarily for delivering the power to a common point of interconnection (e.g., step-up transformers, collector system(s), main power transformer(s), power plant controller(s), reactive resources within the IBR plant, and a voltage source converter high-voltage direct current (VSC HVDC) system with a dedicated connection to the IBR).
- An inverter is a power electronic device that inverts DC power to AC sinusoidal power. A rectifier is a power electronic device that rectifies AC sinusoidal power to DC power. A converter is a power electronic device that performs rectification and/or inversion.
- IBRs have traditionally been considered "generating resources." An IBR is not a HVDC system (except for a VSC HVDC with a dedicated connection to an IBR), flexible ac transmission systems (FACTS) (e.g., static synchronous compensators (STATCOM) and static VAR compensators (SVC)), or any resources that are not inverter-based, e.g., gas and steam power plants with synchronous generators. The DT's intent with the phrase "IBRs include" is to articulate a specific list of IBRs. Therefore, other technologies not listed would not be considered an IBR.
- A hybrid IBR (e.g., BESS and solar PV) or collocated portions of a facility that are IBR (e.g., a BESS at synchronous generation facility) are considered an IBR.
- IBRs are capable of exporting Real Power and may also be capable of providing Reactive Power.
- Battery energy storage systems (BESS) are considered an IBR unit or IBR independent of whether the device is operating in a charging, idle, or discharging mode.
- The Project 2020-06 DT intends to use the Glossary Terms of IBR Unit and IBR for MOD-026-2. Additional standards development projects and related standards that may use these defined terms include:
  - Project 2020-02 Generator Ride-through (new PRC-029, modified PRC-024)
  - Project 2021-01 Modifications to PRC-019 and MOD-025
  - Project 2021-04 Modifications to PRC-002 (new PRC-028)

- Project 2022-04 EMT Modeling
- Project 2023-01 EOP-004 IBR Event Reporting
- Project 2023-02 Performance of IBRs (new PRC-030)
- Distributed Energy Resources (DER) related projects that may or may not need to use IBR/IBR Unit if they end up with their own definition)
  - Project 2022-02 Modifications to TPL-001 and MOD-032 (DER)
  - Project 2023-05 FAC-001/FAC-002 DER
  - Project 2023-08 MOD-031 Demand and Energy (DER)