

Considerations of FERC Order 901 Directives

Directive Language	Consideration of Directives
<p>P 85: “Pursuant to section 215(d)(5) of the FPA, we adopt the NOPR proposal to direct NERC to include in the new or modified Reliability Standards technical criteria to require registered IBR generator owners to install disturbance monitoring equipment at their buses and elements, to require registered IBR generator owners to provide disturbance monitoring data to Bulk-Power System planners and operators for analyzing disturbances on the Bulk-Power System, and to require Bulk-Power System planners and operators to validate registered IBR models using disturbance monitoring data from installed registered IBR generator owners’ disturbance monitoring equipment. We agree with NERC that updating Reliability Standard PRC-002-2 to apply to registered IBRs for disturbance monitoring data collection, including recording sequence of events, digital faults, synchronized phasor measurements, inverter oscillography, inverter and plant-level fault codes, and data retention, could be one way to accomplish this directive. We further agree with the findings in NERC reports (e.g., a lack of high-speed data captured at the IBR or plant-level controller and low-resolution time stamping of inverter sequence of event recorder information has hindered event analysis) and direct NERC through its standard development process to address these findings.”</p>	<p>The directive is addressed by new Reliability Standard PRC-028-1 which applies to</p> <ul style="list-style-type: none"> • BES IBRs – Inclusion I4 of BES definition • Non-BES IBRs - Either have or contribute to an aggregate nameplate capacity of greater than or equal to 20 MVA, connected through a system designed primarily for delivering such capacity to a common point of connection at a voltage greater than or equal to 60 kV. <p>The drafting team determined that introducing inverter-based resource monitoring requirements to Reliability Standard PRC-002 may create unintended consequences to purpose of Reliability Standard PRC-002 and may lead to industry confusion. Hence, a new Reliability Standard PRC-028-1 for monitoring requirements for Inverter-Based Resources is created instead of revising the Reliability Standard PRC-002.</p> <p>The Reliability Standard PRC-028-1, Requirements R1 through R6 obligates Transmission Owner and Generator Owner of Inverter-Based Resources to install Disturbance Monitoring Equipment to record sequence of event recording (SER), fault recording (FR), and dynamic disturbance recording (DDR) data at various places within the Inverter-Based Resource.</p> <p>The Reliability Standard PRC-028-1, Requirement R7 obligates Transmission Owner and Generator Owner of Inverter-Based Resources to share recorded data with Transmission Planner, Planning Coordinator, Transmission Operator, Balancing</p>

	<p>Authority, Reliability Coordinator, Regional Entity, or NERC upon request.</p>
<p>P 86: “As a general matter, we agree with ACP/SEIA regarding the need to balance the burden to generator owners of collecting and providing data collected by disturbance monitoring equipment with the benefit of that data to reliability. Thus, in developing the directed data collection requirements, we direct NERC to consider the burdens of generators collecting and providing data, while assuring that Bulk-Power System operators and planners have the data they need for accurate disturbance monitoring and analysis. Likewise, regarding CAISO’s request that the Commission direct NERC to consider requiring registered IBRs to provide additional data, we agree that such data collections may be warranted, and direct NERC to consider through its standards development process whether additional IBR data points (e.g., telemetry collections or other automated platform integrations) are needed to further enhance real-time visibility of Bulk-Power System operations.”</p>	<p>The directive is addressed in the Reliability Standard PRC-028-1 which strikes a balance between recommendations from various NERC disturbance reports, comments received from industry including two inverter OEMs, available data recording technology, cost burden, reliability need, as well as use of collected data to aid with event analysis, model validation etc.</p>
<p>Paragraph 226: Although we are not directing NERC to include implementation dates in its informational filing and are leaving determination of the proposed effective dates to the standards development process, we are concerned that the lack of a time limit for implementation could allow identified issues to remain unresolved for a significant and indefinite period. Therefore, we emphasize that industry has been aware of and alerted to the need to address the impacts of IBRs on the Bulk-Power System since at least 2016. The number of events, NERC Alerts, reports, whitepapers, guidelines, and ongoing standards projects more than demonstrate the need for the expeditious implementation of new or modified Reliability Standards addressing IBR data sharing, data and model validation, planning and operational studies, and performance requirements. Thus, in that light, the</p>	<p>The implementation plan addresses Reliability Standard PRC-028-1 becoming effective on the first day of first calendar quarter from the effective date of Commission order approving the PRC-028-1. In addition, a phased-in approach is provided for Inverter-Based Resources that are in commercial operation before the effective date of this standard, with all Inverter-Based Resources in commercial operation before the effective date of this standard are required to fully comply with Requirements R1 through R7 by January 1, 2030.</p> <p>Recognizing circumstances beyond Entity’s control (e.g., supply chain delays associated with the procurement, engineering, installation, or commissioning of disturbance monitoring equipment, inability to secure scheduling outages) which may</p>

Commission will consider the justness and reasonableness of each new or modified Reliability Standard's implementation plan when it is submitted for Commission approval. Further, we believe that there is a need to have all of the directed Reliability Standards effective and enforceable well in advance of 2030 and direct NERC to ensure that the associated implementation plans sequentially stagger the effective and enforceable dates to ensure an orderly industry transition for complying with the IBR directives in this final rule prior to that date.

prevent the installation of Disturbance Monitoring Equipment per the time allowed at Inverter-Based Resources that are in commercial operation before the effective date of PRC-028-1, the implementation plan includes a process for requesting an extension from compliance dates.

Inverter-Based Resources entering commercial operation after the effective date of PRC-028-1, Entities are required to comply with Requirements R1 through R7 within 15 calendar months following the effective date of the standard or commercial operation date, whichever is later.

For more details, see the PRC-028-1 Implementation Plan.