



# Grid-connected inverter field requirements





## Overview

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PRC-029-1 establishes minimum ride-through criteria for frequency and voltage excursions, mandating that IBRs remain connected and operational through defined disturbance profiles. This closes a longstanding reliability gap that has been reported in numerous NERC disturbance reports.

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On July 24, 2025, the Federal Energy Regulatory Commission (FERC) issued Order 909 approving NERC PRC-029-1, introducing new frequency and voltage ride-through performance requirements for inverter-based resources (IBRs). This standard, alongside the newly adopted PRC-024-4 for synchronous.

New US regulations for grid-tied inverters are set to take effect in January 2026, impacting manufacturers, installers, and consumers by introducing enhanced safety, cybersecurity, and grid support functionalities for a more resilient and modern power system. The landscape of solar energy is.

for real-time control and power system stabilization. Furthermore, cybersecurity requirements can introduce delays and challenges in this regard. Existing standards [4; 5] in this broad area are in different stages of adoption. At present these standards focus primarily on grid-following (GFL).

The Universal Interoperability for Grid-Forming Inverters (UNIFI) Consortium is co-led by the National Renewable Energy Laboratory, the University of Texas-Austin, and the Electric Power Research Institute. This material is based upon work supported by the U.S. Department of Energy's Office of.

This document applies to all inverter-based generation connected to the distribution systems of National Grid. All such inverter-based generation must meet the ride through and trip requirements set forth in this document. In the interim period while IEEE P1547.1 is not yet revised and published.

NLR provides strategic leadership and technical expertise in the development of



standards and codes to improve the integration, interconnection, and interoperability of electric generation and storage technologies. Performance standards are critical to building a clean and modern grid—they.



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### [Specifications for Grid-forming Inverter-based Resources](#)

The purpose of the UNIFI Specifications for Grid-forming Inverter-based Resources is to provide uniform technical requirements for the interconnection, integration, and interoperability of GFM IB

### [Grid Connected Inverter Reference Design \(Rev. D\)](#)

The high efficiency, low THD, and intuitive software of this reference design make it fast and easy to get started with the grid connected inverter design. To regulate the output current, for ...



### [Grid Standards and Codes , Grid Modernization , NLR](#)

The goal of this work is to accelerate the development of interconnection and interoperability requirements to take advantage of ...

## Grid-connected photovoltaic inverters: Grid codes, topologies and

Comparison of grid codes requirements, inverter topologies and control techniques are introduced



in the corresponding section to highlight the most relevant features to deal with ...



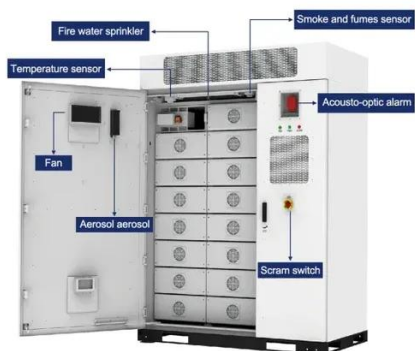
### [» New US Grid-Tied Inverter Regulations: Your 2026 Guide](#)

New US regulations for grid-tied inverters are set to take effect in January 2026, impacting manufacturers, installers, and consumers by introducing enhanced safety, ...



### [Inverter Source Requirement Document of National Grid](#)

All such inverter-based generation must meet the ride through and trip requirements set forth in this document.



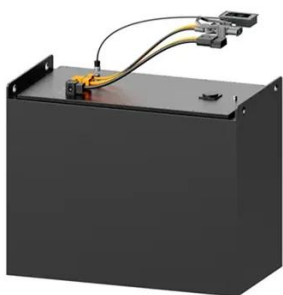
### **Grid Code Compliance**

With our deep expertise in more than 50 grid interconnection standards, we ensure that your inverters and converters meet grid interconnection ...



## Navigating NERC PRC-029-1: A Field Guide for Inverter-Based ...

PRC-029-1 establishes minimum ride-through criteria for frequency and voltage excursions, mandating that IBRs remain connected and operational through defined ...

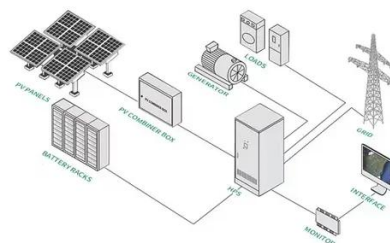


### [Specifications and Interconnection Requirements](#)

Some system operators and research and regulatory organizations have already published their versions of technical requirements for GFM ...

## Grid Code Compliance

With our deep expertise in more than 50 grid interconnection standards, we ensure that your inverters and converters meet grid interconnection requirements, including reactive power ...



### [UNIFI Specifications for Grid-Forming Inverter-Based ...](#)

This document defines a set of UNIFI Specifications for GFM IBRs that provides requirements from both a power system-level as well as functional requirements at the inverter level that are ...



## Specifications and Interconnection Requirements

Some system operators and research and regulatory organizations have already published their versions of technical requirements for GFM capability. This page tracks most recent versions ...



## Grid Standards and Codes , Grid Modernization , NLR

The goal of this work is to accelerate the development of interconnection and interoperability requirements to take advantage of new and emerging distributed energy ...



## Contact Us

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