

## Kongres Container

# Grid-connected inverter factory

✓ LIQUID/AIR COOLING

✓ INTELLIGENT INTEGRATION

✓ PROTECTION IP54/IP55

✓ BATTERY /6000 CYCLES



## Overview

---

What is a grid-forming inverter?

Grid-forming solutions address these challenges by providing flexible and resilient responses to grid disturbances, enhancing overall grid stability and energy security. Siemens Energy is at the forefront of this transition, leading the way with cutting-edge grid-forming inverters that deliver essential grid stability, inertia, and resilience.

Can inverters operate in GFM mode while grid connected?

Using inverters operating in GFM mode while grid connected has been demonstrated to enhance system stability with high penetrations of renewable resources. AES can provide direct access to the grid operator to change control setpoints for the regulation service as needed and at any time.

How are inverter-based power supplies transforming the grid?

The shift towards inverter-based power supplies, including renewables, batteries, and other solutions, is transforming the role of power electronics in the grid. Unlike traditional synchronous generators, these technologies are not physically synchronized to the grid, leading to new challenges in maintaining grid stability and security of supply.

What is the difference between grid-forming and grid-following inverters?

Grid-forming inverters actively regulate voltage and frequency, providing stability and resilience, whereas grid-following inverters depend on existing grid conditions to operate effectively. This distinction highlights the crucial role of grid-forming technology in enhancing grid reliability amidst the evolving energy landscape.

How do grid-following inverters work?

Grid-following inverters operate under the assumption that the grid voltage is tightly controlled by other generators, relying on this stability for their

operation.

Do emerging grid-forming inverters improve dynamic system stability?

Emerging grid-forming (GFM) inverters damp out grid frequency swings at high penetrations of renewables and have shown to significantly improve dynamic system stability compared to GFL controls.<sup>1,2,3</sup> This white paper describes the capabilities and solutions offered by AES' grid-forming inverters.

## Grid-connected inverter factory

---

## Contact Us

---

For catalog requests, pricing, or partnerships, please visit:  
<https://drugiswiatowykongrespolakow.pl>