Declaration of Two-Phase Operation Compatibility for Sigenergy 3-Phase Inverters

This is to declare that Sigenergy 3-phase hybrid inverters and the accompanying three-phase Energy Gateway are capable of operating in installations where only **two phases** are available, with a **120° phase shift** between them — a common scenario in rural areas. The firmware must be V100R001C21SPC108 or higher for this functionality to be realized.

Partial Phase Operation

In such two-phase configurations, the Sigenergy 3-phase inverter utilizes the two available phases to generate power. However, because one of the three input/output phases remains unused, the total power output of the system is **limited to two-thirds (2/3)** of the inverter's rated capacity. When only two of the three AC phases are connected, the **Sigenergy system automatically detects the absence of the third phase** as during initial steps of commissioning, system is set for 2 phase operation. The inverter's internal software and control logic then safely limit operation to the two connected phases. This ensures:

- **Safe and balanced (as required) power delivery** across the two active phases
- **Protection of internal power electronics**

For example:
If a 15 kW Sigenergy 3-phase inverter is installed on a two-phase supply **(with a 120° phase difference),** the inverter will operate at a maximum of **10 kW**.
This reduction is normal and expected behavior due to the absence of the third phase.

Both Neutral lines continue to Neutral bar and Earth to the Earth bar link inside the gateway or Main Switch Board.

Generator Compatibility Note

Important: This configuration is **not compatible with 3-phase generators**. Generators designed to deliver balanced 3-phase output typically rely on all three phases being equally loaded. Operating such a generator with one phase unused (as in a two-phase Sigenergy setup) may lead to unstable voltage output, mechanical stress, overheating, or permanent damage to the generator.

Summary

- Sigenergy 3-phase inverters can operate on two phases with a 120° phase shift.
- Output is limited to 2/3 of rated capacity (e.g., 10 kW from a 15 kW inverter).
- This configuration is **not suitable for 3-phase generators** due to unbalanced load conditions.

Sincerely,

Sigenergy Service team

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