

# Frequency shift function in Sungrow Hybrid inverters - Explanation

## Disclaimer

The material in this document has been prepared by Sungrow Australia Group Pty. Ltd. ABN 76 168 258 679 and is intended as a guideline to assist solar installers for troubleshooting. It is not a statement or advice on any of the Electrical or Solar Industry standards or guidelines. Please observe all OH&S regulations when working on Sungrow equipment.

## Overview:

In all Gen 3 onwards Sungrow Hybrid inverters, it is possible to connect a 3<sup>rd</sup> party grid inverter to the backup loads i.e. AC coupling.

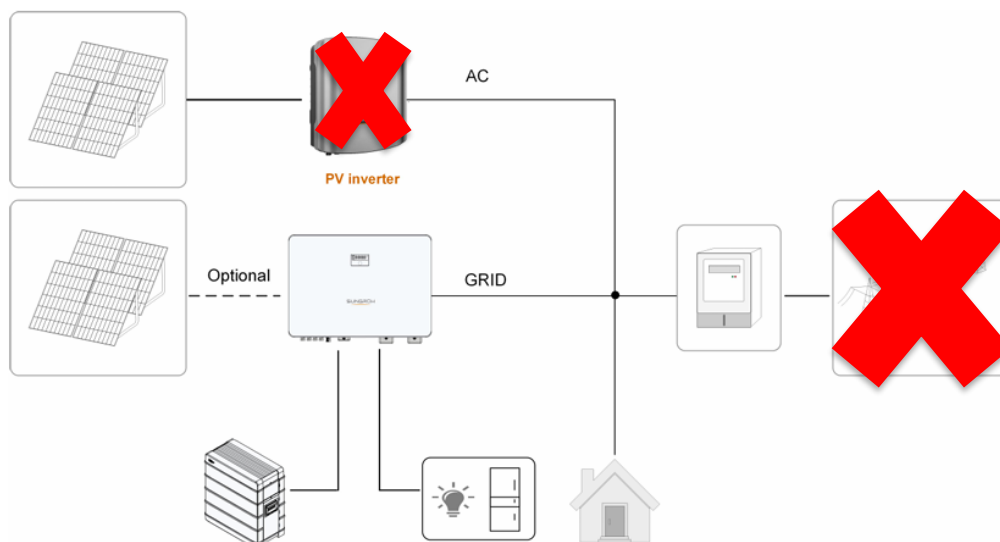
In this configuration, the 3<sup>rd</sup> party grid inverter will normally remain on during blackouts.

## Special limitations:

- The 3<sup>rd</sup> party inverter must not be larger (AC per phase) than the Sungrow Hybrid.
- The 3<sup>rd</sup> party inverter must be able to respond to 'Frequency Shift'.

## How it works:

In a normal AC coupled scenario (shown below), if there is a blackout, the grid inverter will shut down because it has lost its grid reference.

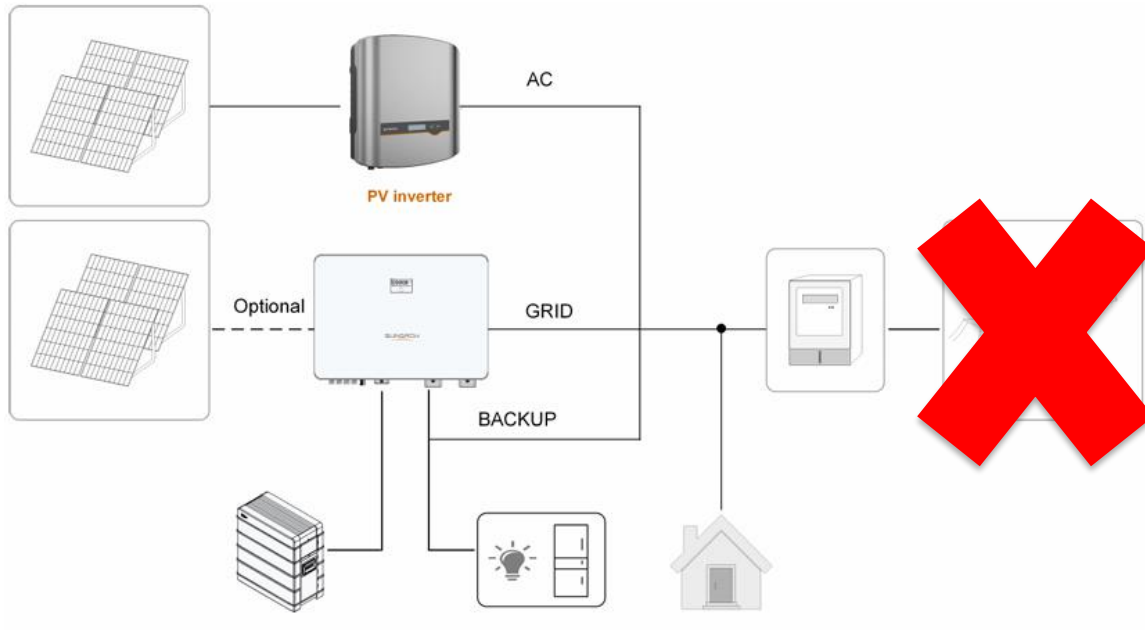


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However, if the 3<sup>rd</sup> party inverter is connected to the backup circuits (shown below), it can remain on.

In the backup/blackout mode, the Hybrid becomes 'grid forming' and will push 230VAC/50Hz out of the backup port.

The 3<sup>rd</sup> party grid inverter senses grid voltage and frequency and remains on.

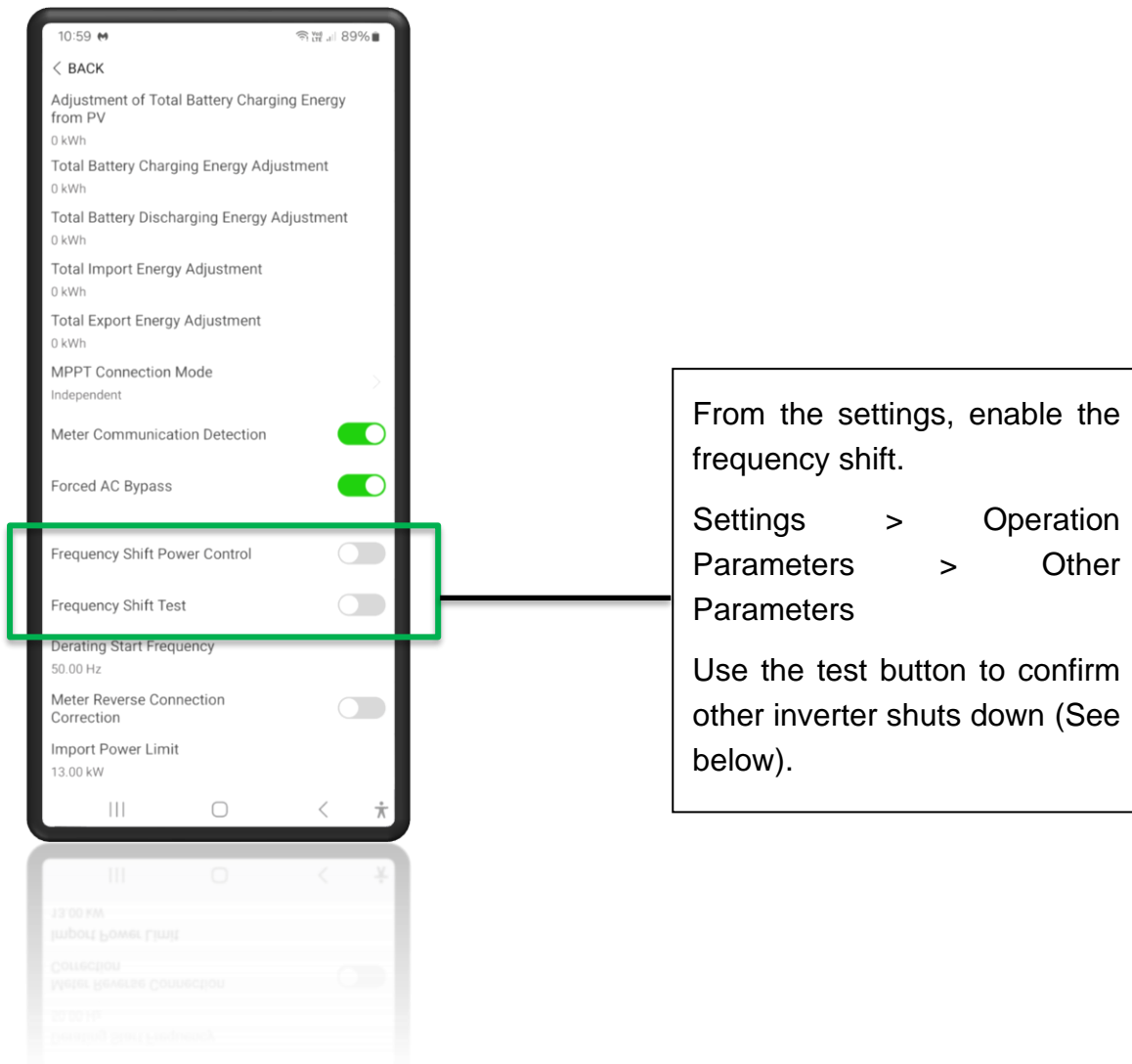


**Frequency shift operation:**

Because the system is not allowed to produce more power than is being consumed, it must ramp down the output.

In order to ramp down the 3<sup>rd</sup> party inverter, the output rises to 52 Hz, which will shut down the 3<sup>rd</sup> party inverter until the output frequency resumes to 50 Hz.

## Settings:



## Testing:

- Ensure that the battery is below 80% SOC, and/or there are ample loads.
- Switch off the grid supply so that the hybrid goes into backup mode.
- The 3<sup>rd</sup> party inverter should remain on.
- Enable the 'Frequency shift test' button and confirm the frequency rises to 52 Hz and the 3<sup>rd</sup> party inverter shuts down.
- Once confirmed, switch the test function back off and restore AC power.

If the issue still persists, please take photos testing on site and contact Sungrow Service Department on 1800 786 476 or email to [service@sungrowpower.com.au](mailto:service@sungrowpower.com.au).