FRANKLINWH

Franklin Battery: Plug-and-Play Solution, simplifying Victoria's Emergency Backstop Mechanism

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Abstract

The state of Victoria has introduced new requirements for newly installed solar systems. Starting from October 1, 2024, all new and upgraded solar systems must have network connectivity (preferably via Ethernet instead of Wi-Fi) and be connected to their designated server.

This requirement aligns with Victoria's new regulatory mandate—the Solar Emergency Backstop Mechanism. Solar systems that fail certification testing will not be eligible for installation. Furthermore, photovoltaic (PV) inverters must comply with emergency dispatch instructions, including limiting grid export power and shutting down during critical situations.

Background and Introduction

All newly installed and upgraded solar systems must support network connectivity and pass the Client Software Interface Protocol for Australian Smart Inverters (CSIP-Aus) certification test to ensure proper communication with the designated server. Additionally, only devices approved by the relevant DNSP are allowed to connect to the grid.

If homeowners upgrade or replace an existing system, the entire system must comply with the Emergency Backstop Mechanism. Any non-compliant devices that do not meet CSIP-Aus standards must be removed; otherwise, the solar system will not function properly.

As a provider of safe and reliable home energy storage solutions, FranklinWH offers a home energy management system compatible with all inverter models available on the market. FranklinWH System does not require any modifications to pre-existing inverters and is fully compliant with AS/NZS 4777.2:2020 standards. It does not require support requests for the Emergency Backstop Mechanism and can be installed as a plug-and-play solution.

Overview of the Emergency Backstop Technology

Scenario:

On sunny days, solar power generation is high, and when household energy consumption is low, the excess energy generated by multiple households can exceed grid capacity. Poor control of this excess energy may result in large-scale blackouts in the region.

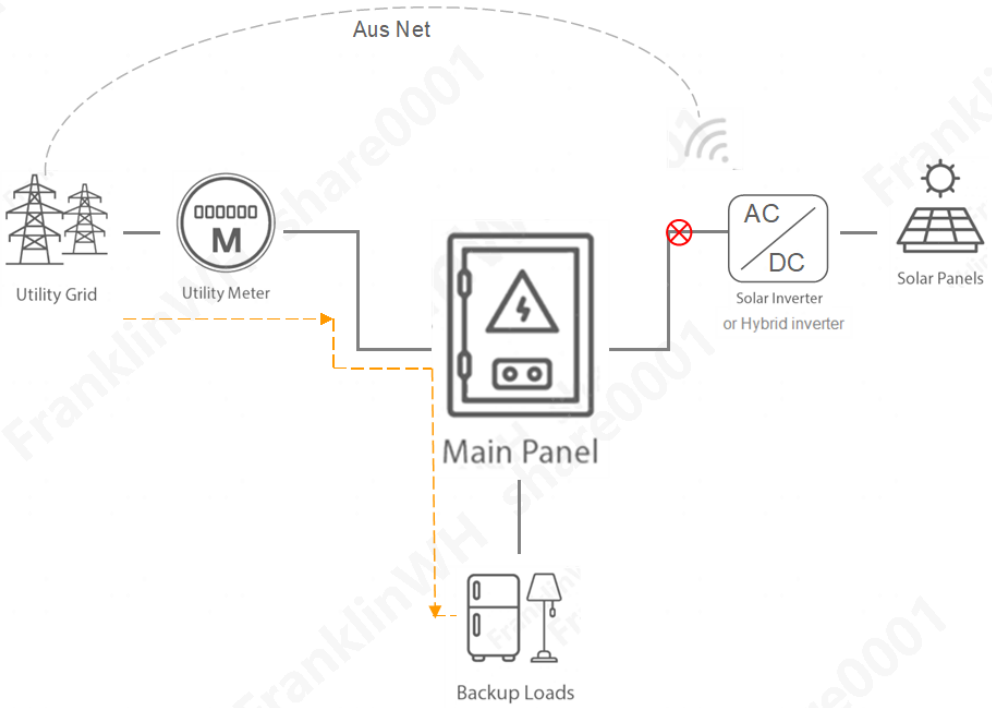
To maintain grid stability, the Victorian government has introduced the Solar Emergency Backstop Mechanism, with the following key requirements:

- Solar systems must pass the CSIP-Aus client software communication certification test to ensure compatibility with the designated server.
- Only equipment approved by the relevant DNSP is allowed to connect to the grid.
- Certified solar equipment must comply with dispatch instructions issued by the DNSP.

Application Scenarios and Case Analysis

Impact on Homeowners:

- When AEMO detects excessive regional PV generation, it will issue commands to reduce grid export power, impacting homeowners' revenues.
- In cases of network instability or disconnection between PV equipment and the 4G network, the system will automatically reduce export power, again affecting homeowners' revenues.
- In extreme cases, such as exporting far beyond the limit, PV inverters will be shut down. If homeowners rely on PV or hybrid inverters, they will be forced to draw power from the grid, resulting in unexpected costs.



Picture 1： Costs of drawing power from the utility after the photovoltaic inverter is controlled to shut down

Impact on Installers:

- The installation of a new solar system ideally takes around 30 minutes to complete testing, but in some cases, the process can extend up to a week, significantly reducing installation efficiency.

There are two primary registration and testing approval processes:

In-band Registration Process

- Requiring device registration via the manufacturer's portal or platform, entering the National Metering Identifier (NMI) and other necessary details.
- The commissioning process includes a series of performance tests. Under optimal conditions, this takes approximately 30 minutes. If load and generation conditions are not met, testing may repeatedly cycle, extending up to a week before results are finalized.

Out-of-band Registration Process

- Requiring generating a 40-character Long Format Device Identifier (LFDI), registering the device through the portal, selecting a software communication client, and correctly inputting the LFDI.

- The full commissioning process follows the same performance testing steps as the in-band registration, taking around 30 minutes under optimal conditions, or extending up to a week if test conditions are not met.

Picture 2：Up to 1 week to complete the commissioning with DNSPs

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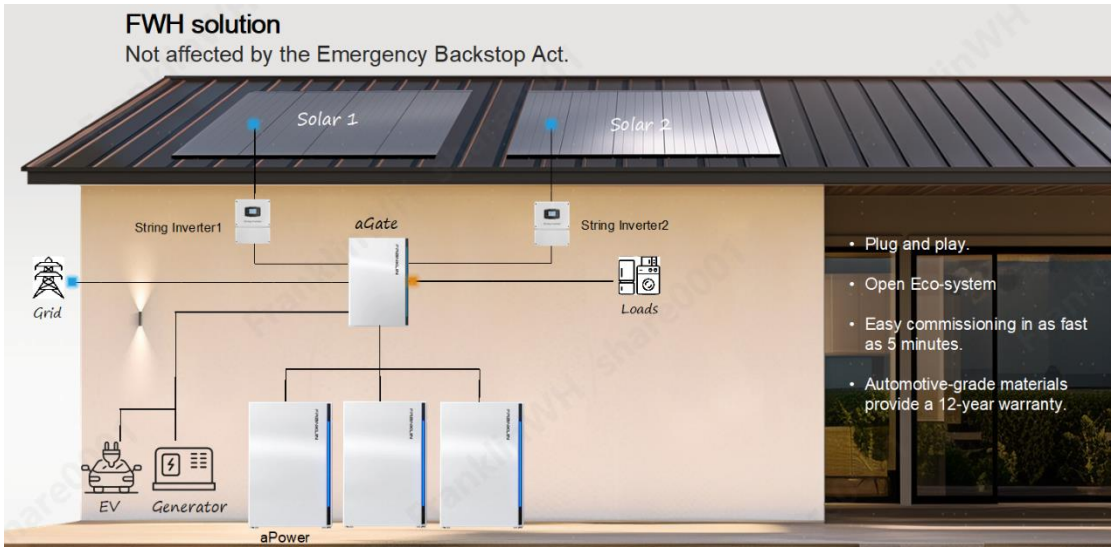
FranklinWH Solution: Detailed Technical Explanation

- FranklinWH offers an AC-coupled solution, which is agnostic to all inverter models on the market. The entire system complies with **AS/NZS 4777.2:2020 standards** and does not require support requests for the Emergency Backstop Mechanism, ensuring plug-and-play installation.
- Even when PV export is restricted, the FranklinWH System can still leverage battery storage for **Time-of-Use (TOU) benefits**.
- In emergency scenarios where PV generation is curtailed, hybrid inverters may cease operation, and hybrid PV-storage systems fail to supply household loads. Homeowners are then forced to draw electricity from the grid, producing additional costs. However, **with FranklinWH's AC-Coupled solution, battery storage remains**

operational, continuing to supply AC power to household appliances.

- In cases where the PV system is shut down and grid power is lost, hybrid inverters cannot immediately take over the load. In contrast, **the FranklinWH System ensures seamless transition, maintaining uninterrupted power supply for household loads**.
- FranklinWH's commissioning process is simple, requiring as little as **five minutes** to complete system setup, with no need for modifications to existing PV systems.



Picture 3: Franklin Whole Home Solution

Conclusion

The FranklinWH solution remains unaffected by the Emergency Backstop Mechanism. With advantages including **open ecosystem compatibility, rapid installation, and superior reliability**, FranklinWH is committed to providing users with efficient, safe, and reliable energy storage solutions.