# Emergency Backstop mechanism

Queensland householders and businesses love solar – we've got some of the highest rates of solar energy uptake in the world!

While this is great for reducing carbon emissions and customer power bills, if too much solar power is exported back into the electricity grid by customers at certain times, it can cause problems for the electricity network.

## Why do we need an emergency backstop mechanism?

The overall demand for electricity from the grid is falling, particularly in the middle of the day when large amounts of electricity is being generated from solar systems and exported back into the electricity grid. This is creating a challenge referred to as 'minimum system load'. Thankfully the grid can handle large amounts of solar and there are a range of actions that network operators implement to ensure our system stays safe and secure.

As Queensland is connected to the national electricity grid, changes in the balance between supply and demand can be managed across the network by the Australian Energy Market Operator (AEMO), Powerlink Queensland, Energex and Ergon Energy Network. However, modelling by AEMO has found that if the connection between Queensland and the national electricity grid is interrupted when there are very low levels of demand and high levels of solar output, there is a risk that some parts of the electricity network in Queensland could experience blackouts.

To reduce this risk, and allow more solar to be safely connected to the network, a new emergency measure has been established that can be used as a last resort, after all other actions have been taken, to keep our power supply secure. This emergency measure is referred to as the 'emergency backstop mechanism'.

## What is the emergency backstop mechanism?

From 6 February 2023, all new and some replacement inverter energy systems (like rooftop solar PV), with aggregated capacity of 10kVA and above, will need to have a generation signalling device (GSD) fitted that will enable the inverter to receive a signal to switch off. The signal is sent to the GSD from Ergon Energy Network and Energex's powerline signalling system, known as Audio Frequency Load Control (AFLC). For larger sites with multiple inverters, including embedded networks, installers have the option of using a GSD on each inverter or installing a single GSD connected to a Demand Response Controller.

Some exclusions apply to the requirement to install a GSD – including inverter energy systems where the inverter is solely supplied by a battery, and any inverter energy systems installed at a location that is not serviced by the AFLC system.
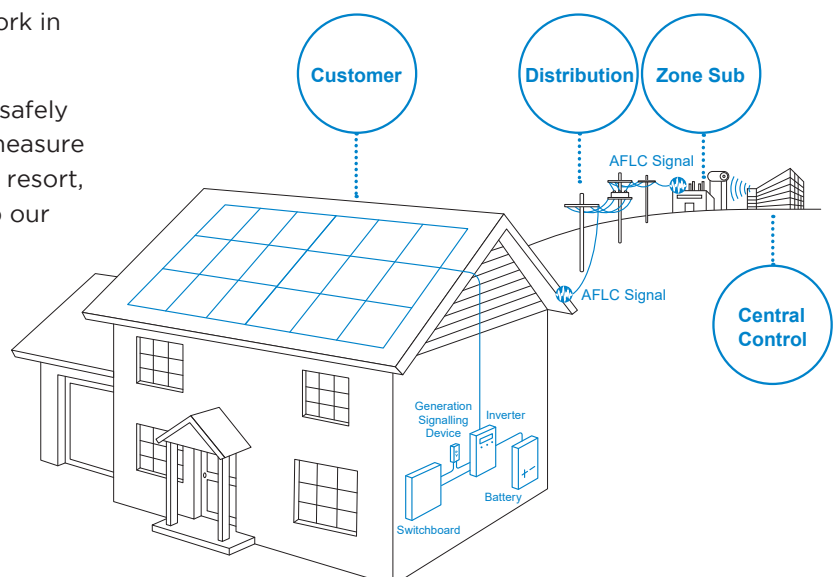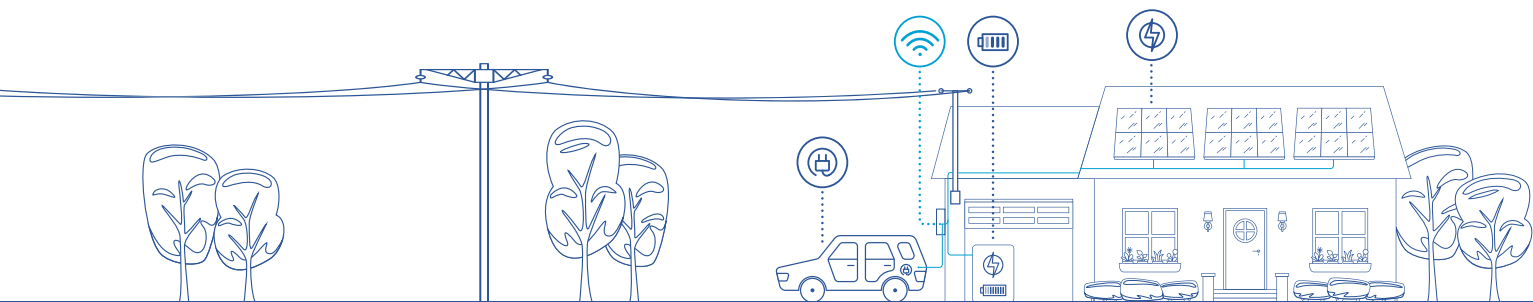
## How will the emergency backstop mechanism be activated?

The emergency backstop mechanism will be instigated by Ergon Energy Network and Energex under the direction of AEMO in alignment with the Distribution Authorities set out by the Department of Energy and Public Works, to help maintain a safe and secure network. This will only occur in response to specific network emergency conditions, such as when the main electricity connection between Queensland and the National Electricity Market (NEM) is offline at the same time there are high levels of PV generation being exported back into the grid. It cannot be operated under any other circumstances, and it will only be instigated after various other mechanisms available to the network operators have been implemented.

## What happens when the emergency backstop mechanism is implemented?

When the signal is sent, the inverter will shut down, ceasing all electricity generation including any electricity for self-consumption. This will not interrupt the electricity supply to your premises from the grid.

Your electricity consumption during the event will be charged as per your electricity tariff. When the emergency event is over, a signal will be sent to the inverter which will return it to normal operation. The GSD has a fail-safe mechanism that will return the inverter to normal operation if it does not receive the "on" signal after 4 hours.

## How long and how often will the emergency backstop mechanism be implemented?

Queensland has separated from the national grid only five times in the last 10 years, with connectivity typically restored within a short period of time. This means the chances of an 'emergency event' occurring is very low and it may only occur once per year or less. Even though the risk is low, system operators must plan to be able to manage these events as the impact is significant.

## What stops me just disconnecting the GSD?

Under Australian Standards, removing the GSD will cause the inverter to disconnect from the grid. As the likelihood of the GSD being activated is extremely low, there is no reason to interfere with the GSD. It is also a condition of your connection contract with your electricity network provider that the GSD must be installed, and remain installed.

## Are there costs involved?

The GSD hardware costs around $70, plus the cost of installation.

## Will I receive notice when the emergency backstop mechanism is activated?

No. Activating the emergency backstop signalling may be required at short notice, so it's not possible to provide real time notification. You can nominate to receive a post event notification from AEMO at www.aemo.com.au/subscribe.

## I have opted for a dynamic connection agreement – do I need to install a GSD?

Yes – a GSD will be required regardless of whether you have a dynamic connection agreement. The requirement to install a GSD will be reviewed after 12 months and take into account progress towards implementing dynamic control of inverters.

## Where can I find more information?

Talk to your installer or visit:
- www.ergon.com.au/emergencybackstop or
- www.energex.com.au/emergencybackstop.

For information about how AEMO manages high roof top solar generation, view here:
https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/power_system_ops/consumer-fact-sheet.pdf

For more information visit
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