# Why does my battery discharge to the grid, or charge from the grid?

***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.*

## The short answer:

The short answer is that as long as the system has been installed and configured correctly, it doesn't.

## The long answer:

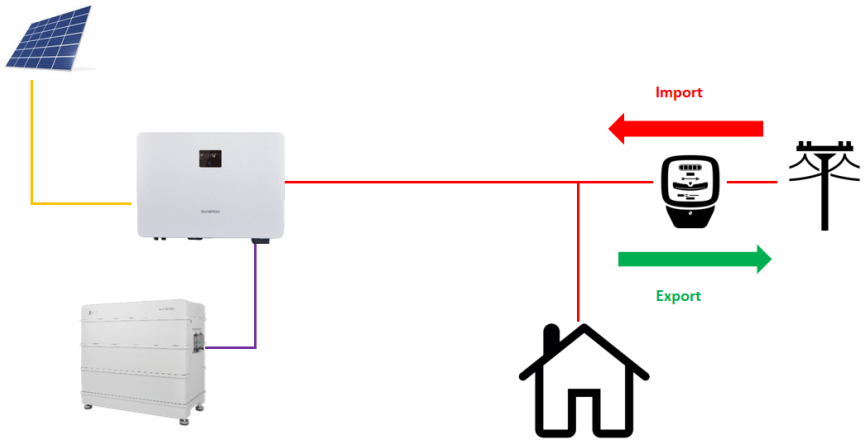
The internal control and management systems will not allow the battery to do what it's not supposed to do.

### How it works:

The energy meter is central and will sense energy flow to and from the house i.e. import and export.

When the energy meter detects energy flowing out to the grid, it switches on the charging circuits.

When the energy meter detects energy flowing from the grid to the house, it switches on the battery discharge circuits.

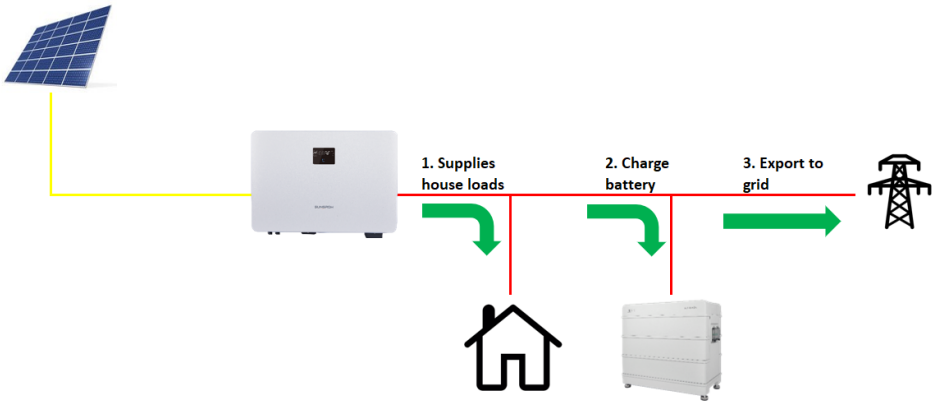


## Charging:

There is a protocol that the BMS (Battery management system) follows to ensure the optimisation of surplus solar energy.

The charging protocol is:

1. Supply house loads
2. Charge battery
3. Export to grid




The battery will *only** charge when the solar is producing more energy than the loads are consuming.

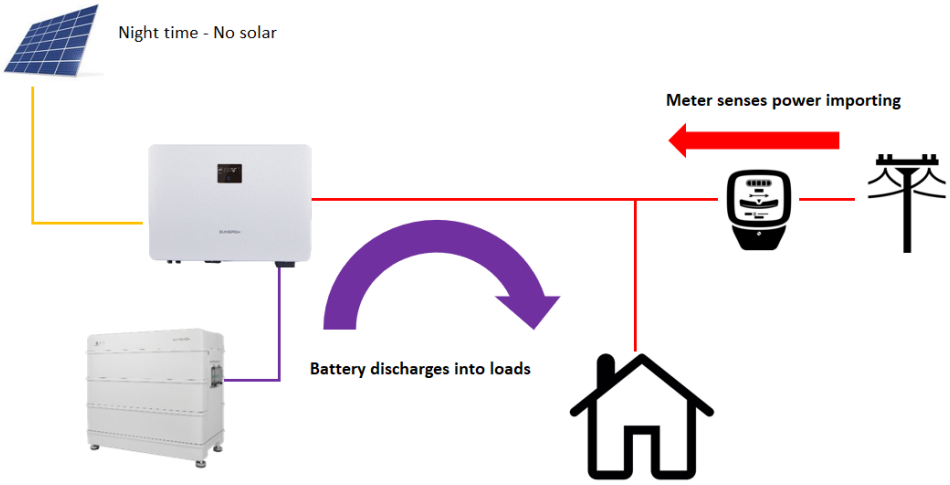
The battery will *only** discharge when the loads are consuming from the grid.

*Exceptions are:

- When the battery charge falls below the minimum allowable SOC set by the BMS, the battery will be force charged from the grid until the SOC reaches the minimum.
- If the end user switches on the ‘Forced charge’ setting.

## Discharging:

The battery will only normally discharge when the energy meter senses power coming from the grid (and there is charge available in the battery).




## Fluctuating loads:

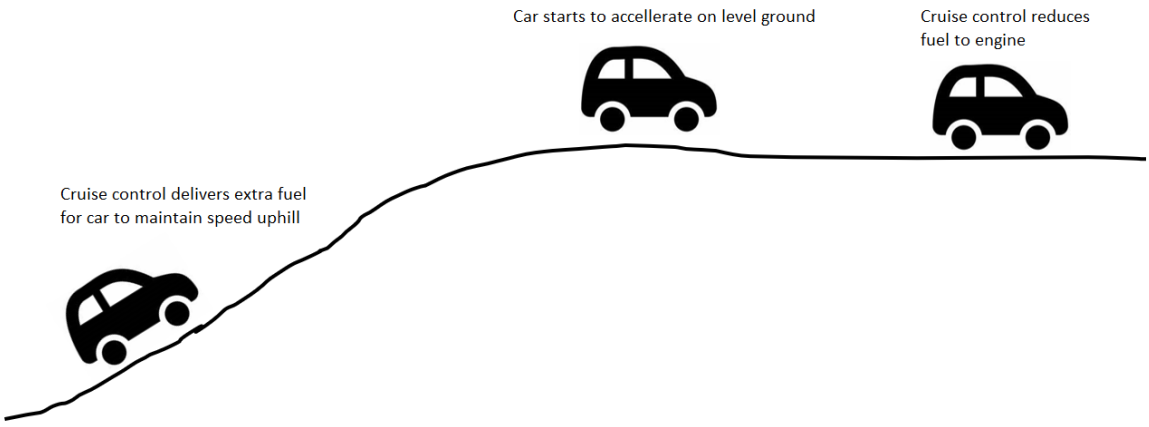
In the normal operation of electrical appliances, they will be switched on and off by the end user, or in the case of heating and cooling, a thermostat will control loads on and off.

The constant fluctuation means that the BMS will constantly have to increase or decrease battery charge or discharge to match the energy profile.

The meter will need to register energy flow ***before*** a command can be given to the BMS to either increase or decrease charging/discharging.

As the battery ramps up and down rather than sudden surges, the system may charge from the grid or discharge to grid momentarily.

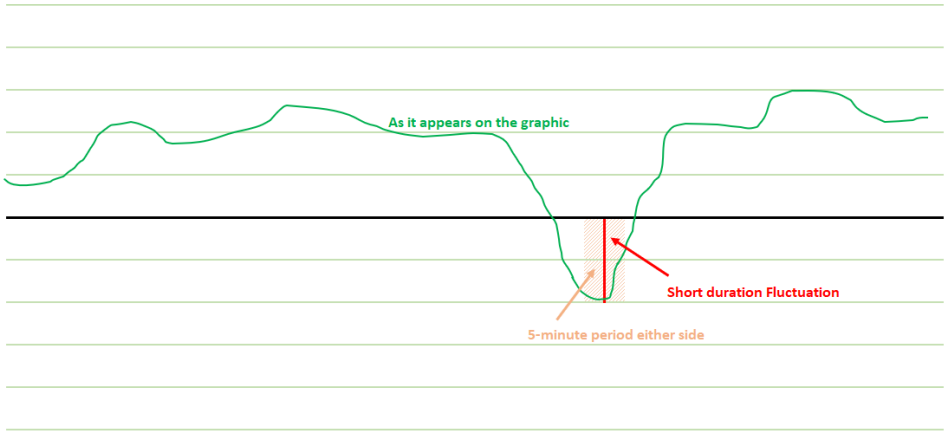
This isn't unlike cruise control on your car.



## iSolarCloud:

The iSolarCloud uploads data in 5-minute intervals to the cloud.

This means that to give a graphical presentation, iSolarCloud fills in gaps in the data. This means that small fluctuations can appear larger than they are.




## Data transmission:

Sungrow dongles are a wireless transmitting device that transmits on the WiFi frequency of 2.4 GHz and is used for *indicative purposes only*.

The effective max distance is 10m through clear air and line of sight.

In some cases, due to obstacles between the dongle and the customer's modem, the signal may be weak.

Alternatively, if there are other WiFi devices being used, this can attenuate the signal further.

In the cases of weak signal, the data upload speed will reduce, and in some cases, data may be missed.

Once again, the iSolarCloud will fill in the gaps, making the displayed data appear different from what's actually happening.

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.