

Why your solar inverter shuts down or reduces power?

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Why does my inverter shut down?

All inverters sold within Australia are required to comply with the Australian grid standards.

Under the standard, the supply voltage, the power cables, and the inverter must comply with certain voltage limits.

Grid Voltage (AS/NZS 3112):

Under the standards, the grid voltage must be 230 Volts AC with a tolerance of -6% and +10%.

This means that your supply voltage must be between 216 Volts and 253 Volts.

AC wiring:

The AS/NZS 4777 standard stipulates that the 'Voltage Rise' on the AC cable between the point of supply and your inverter must be no more than 2% (which at the upper limit of 253 Volts will equal to 5 Volts).

Inverter standards (AS/NZS 4777):

Inverters must operate at a higher voltage than the grid in order for the energy to flow from the inverter. So for an inverter to be at an operation level when the supply voltage is 253 Volts (including a voltage rise of 2%), the AC output of the inverter would have to be higher than 253 Volts, plus the 2% voltage rise (5 Volts).

In other words, if the supply voltage is at 253 Volts, the inverter AC output must be at least 258 Volts or higher.

However, the 4777 standard states that the maximum 10-minute AC over-voltage of an inverter is 258 Volts, (with some grid operators mandating 255 Volts). At this point the inverter must either de-rate or shut down to comply with the standards.

This can result in a situation where the grid voltage is complaint at 253 Volts, the AC wiring is complaint at 2% voltage rise, and the inverter is compliant at 258 volts. But the inverter is switching off or reducing power.

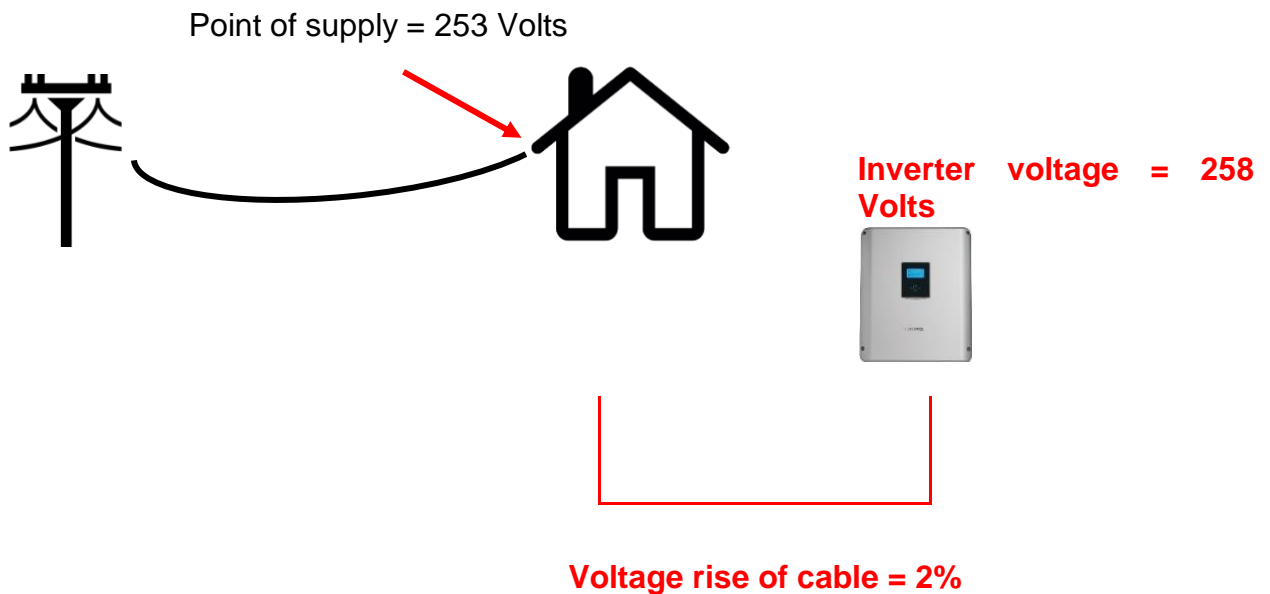


Figure 1

As can be seen from the above diagram, there are cases where all parts of an installation are compliant, but the inverter must still either de-rate or shut down.

In these cases, there is nothing the installer or the inverter manufacturer can do that is within the standards to resolve the problem.

The grid operator may be able to reduce the street voltage which may solve the problem. **Sungrow suggest that in these cases, you contact your energy Supplier.**