

# How does anti-islanding work?

Regarding the letter in December issue titled “Confusion over PV Inverter anti-islanding” (page 8), when a black-out occurs, would there not also be potential interactions with other PV inverters also connected to the same branch of the grid? How do the inverters “know” that the main supply from the grid has disconnected when there are other generators (ie, other PV systems) also connected? (P. H., Warwick, Qld)

- This is a complex topic – more so than most people realise. Multiple techniques can be used to detect islanding. You can read about them in this Wikipedia entry, under “Islanding detection methods”: <https://en.wikipedia.org/wiki/Islanding>

These techniques mostly have the same principles at their root, namely, that the effective grid impedance seen by the inverter rises significantly when the large generators which provide the bulk of the power are disconnected.

There is also the fact that large generating stations are locked to a very consistent frequency (ie, close to 50Hz), and no matter what the inverter’s output does, it cannot shift that frequency. However, within an ‘island’, each inverter is driving a much larger proportion of the remaining ‘grid’, and so can slightly shift the frequency.

It’s interesting to note that the Wikipedia page claims that there is no real need for inverters to have ‘anti-islanding’ provisions. According to whoever wrote the page, research shows that islands cannot stably exist for very long, and this does not present workers with any hazards that they are not already exposed to.