

3 phase solar panels

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There is an awful lot of confusion (and misinformation) out there about the practicalities of installing solar on a house that has a 3 phase supply. So I've written this post to clear up the confusion.

Connecting solar power to a 3 three-phase supply is entirely possible. But you need to decide how you are going to connect your solar system to the grid. Your 3 options are:

- 1) connect your solar system to only one of your supply phases with a single-phase solar inverter.
- 2) connect your system into all 3 phases of your supply with a single, 3-phase solar inverter
- 3) connect your system into all 3 phases with 3 separate single-phase inverters.

Here's what you need to consider in deciding which option to go for:

Now that Feed In Tariffs are generally between 6 and 10c per kWh, compared to an electricity price of 30c or more, naturally people installing solar want to self consume as much of their solar energy as possible and minimise the flow of exported solar electricity.

So most of the emails I get these days about 3 phase worry that if they choose option 1 they will lose out. They worry that any electricity they use on the 2 phases that are not connected to solar will all be imported at 30c per kWh no matter how much solar they are generating on the solar phase.

I have personally never seen an installation where this happens. All the 3 phase meters that I have seen take into account the sum of all the electricity being used on all the phases and then subtract that from the amount of solar energy being generated to calculate the import or export amount for billing. i.e. if you are on a stingy FiT, they don't penalise you financially for having a single-phase inverter on a 3 phase supply.

But to muddy the waters, I have seen evidence and heard from some installers that say they have seen 3 phase meters that have been configured to only calculate exports based on the solar phase. So buyer beware!

Three-phase load balancing

Having said the above, it is important to note that it is not unusual for the demand across phases to be unbalanced; i.e. a lot more load on one or two of the phases. For solar financial payback, this is less of an issue (due to the summed billing) however, from a technical perspective, balancing consumption and generation across the phases is a good thing for power quality.



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