

Solar PV FAQs

Energex Limited
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Version Control

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1.0	01/07/2016	Initial
2.0	10/05/2017	Update after implementation of new connection standard in 2016
3.0	23/06/2017	Additional questions from S Pitt
4.0	27/10/2017	Review by D Comber

Contact details

Energex Limited
Phone: 13 12 53
Email: custserve@energex.com.au

GPO Box 1461 Brisbane QLD 4001
26 Reddacliff Street Newstead QLD 4006
Telephone 13 12 53
www.energex.com.au

Energex Limited ABN 40 078 849 055

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Frequently Asked Questions

Solar System and Metering

Question:

What do I need to do if I want to install a solar photovoltaic (PV) system on my property?

Answer:

Before you commence the installation of a solar PV system at your business or premises, you must gain permission from Energex to connect it to the network by lodging a Network Connection Application. This is to ensure your solar PV system does not adversely impact the network or other customers, and helps ensure it will operate properly.

You can allow your solar retailer or installer or any other third party to lodge the Network Connection Application and agree to the terms and conditions of the connection on your behalf. Alternatively, you can lodge a Network Connection Application yourself through the [Customer Portal](#) on the Energex website.

Question:

When can I arrange the installation of a solar PV system on my property?

Answer:

You, or your applicant, will first need approval from Energex via mail or email, depending on what contact method was nominated in the application. How long this process takes will depend on the total inverter capacity applied for and other factors. Your solar retailer will be able to guide you.

Question:

I have to replace a failed inverter. Does my inverter and electrical installation need to comply with the current connection and technical standards?

Answer:

Essentially, yes. Whenever changes need to be made to your system, the installer or electrical contractor is obliged under legislation to ensure all wiring and replacement components meet current standards. This could create additional costs above the cost to replace the failed component.

However, if the inverter is being replaced under warranty with one of the same brand, series and model, it doesn't necessarily have to comply with current connection standard. If not under warranty, the replacement inverter will need to comply with the current connection standard.

Question:

I want to install a battery. What are Energex's requirements?

Answer:

Application

If it's proposed to install the battery with the new solar PV system, this should be detailed in the Network Connection Application.

If you propose to add a battery to your existing PV system, or install a battery only, a new application will need to be lodged, incorporating the battery details.

A battery can be charged from the grid, a PV system or other generating unit at any time. However, its ability to provide power to your premises is determined by the feed-in tariff your premises is on, if any (see below),

If your battery operates in stand-alone mode, i.e. is physically and electrically isolated from the grid, Energex doesn't impose any requirements. However, your installation will still need to comply with the relevant standards for stand-alone battery installations.

Feed-in tariff requirements

If your PV system is on the 44 cents/kWh feed-in tariff, any battery system connected to it must not be able to supply power to the premises while the PV system is operating, other than during a grid outage. In addition, the battery must not be capable of exporting to the grid at any time. More details are available on the [Department of Energy and Water Supply website](#).

If your system is eligible for an electricity retailer feed-in tariff, or is not eligible for a feed-in tariff, there is no restriction that Energex is aware of as to how your battery operates, other than not exporting to the grid during a grid outage.



Solar PV Technical Queries

Question:

Energex has approved the installation of the solar photovoltaic (PV) system so who is responsible for making sure my PV system works properly?

Answer:

Energex has given approval on the basis that your solar PV system and its installation is compliant with the Energex connection standard as well as Australian Standard AS 4777 for technical requirements and AS 5033 for installation requirements.

Energex provides no guarantee that any PV system connected to its network will operate as intended. Energex is responsible for maintaining the voltage at the network connection point within the regulatory requirements.

If you find your PV system is not working properly, refer to your inverter manual or contact your solar installer or other electrical contractor. If they test the system and your electrical installation and they can find no reason for the poor performance, they should develop a written report of the issue and their testing and/or checking outcomes, and leave that report in your meter box.

They, or you, should then phone Energex on 13 62 62 (24 hours a day) and report the issue. Provided that written report is in the meter box, Energex will then visit to conduct an investigation, The visit could take up to 20 business days to occur.

Energex may or may not find a cause of your system's poor performance. If we find a cause on our network, we will take all steps to address that cause. However, Energex still provides no guarantee about your system's performance. If we find a suspected cause within your premises, we will advise you to discuss this with your solar installer or electrical contractor.

Question:

My electricity bill has increased and it appears my solar PV system is not generating the amount of electricity it used to generate. What can Energex do?

Answer:

Energex is not responsible for billing (your electricity retailer is responsible). However, there may be one or more reasons for the bill changes:

- (1) Your electricity usage has increased, e.g. you are using your air conditioner more than normal or you've had extra people in the house.
- (2) Your PV system has generated less power per day over the winter or extended overcast period.
- (3) Your PV system may be tripping off regularly, and subsequently staying off for short periods. Please read our response to the FAQ above.

- (4) Your PV inverter or other component may have a fault and may no longer be operating, even though your panels are still working. Look for a fault light, code or message on your inverter. If you discover a fault, contact your solar installer or an electrical contractor.

Question:

I am not getting the financial return I was expecting from my solar PV system and I have been advised by my solar installer that my inverter is tripping due to network issues. What should I do?

Answer:

If your solar installer has tested your PV system and electrical installation and found no reason for the inverter to be tripping, they, and you, should follow our guidance in the first answer above.

It is also possible that the financial return you were promised by a salesperson was inflated, or at least worked on a best-case scenario.

Be aware that your inverter is designed to trip when necessary to protect it, your switchboard and appliances from voltage excursions. Tripping does not always indicate a fault or network issue.

Question:

What impact does the reactive power control requirement of 0.9 power factor have on my PV generation and export?

Answer:

This requirement reduces the voltage impacts of PV systems on the electricity network and helps many solar PV systems generate and export more electricity on average per day than they otherwise would have. For some PV systems, it will reduce the average daily generation and export volume by a small amount.

Question:

Why is my inverter ramping down at times?

Answer:

There could be two reasons for this:

1. If your inverter has been set for minimal export (or to zero export), and the PV generation starts to exceed the electricity demand on the same tariff in the premises, the inverter will ramp down to ensure the minimal amount or no electricity is exported to the grid.
2. Newer inverters have the potential, if enabled, to respond to changes in power quality within the premises or from the grid. The inverter may still have the manufacturer's default settings enabled for Volt-watt response mode. This response mode needs to be changed to the power factor or Volt-var reactive modes to comply with our connection standard. You will need to contact your solar installer to investigate further and change the settings if relevant.

Question:

My inverter is tripping off at times.

Answer:

One cause may be your service wire and consumer mains is a considerable length and it causes the voltage rise from the network connection point (typically the pole or pillar) to be greater than 2% at times - which is the maximum voltage rise in the Australian Standards. Your solar installer should have checked this condition prior to installing your PV system. You need to refer this issue to your solar installer.

The new connection standard for inverters will trip the inverter when the voltages exceed 257 Volts (10 minute average) or 260 Volts (for 2 second). If your inverter trips above this level it does not comply with the connection standard, please contact your solar installer.

If your service wire and consumer mains sizing are within the 2% voltage rise limit and your system is still tripping, this may be a sign of high voltage on the Energex network and you should contact Energex to investigate.

Question:

How do I know that my inverter is set up correctly?

Answer:

You should ask the installer for a copy of the settings that have been applied and keep this as a record of compliance. The installer has an obligation, as your agent, to ensure the correct settings are applied in accordance with the connection standard and the network connection contract with Energex that you, or someone else on your behalf, entered into.

On the day of installation of your PV system, you need to be home, and should ask the installer to thoroughly brief you on the shutdown and restart procedures, fault signs that you should look out for, and all the components.

A failure to comply with the connection standard may result in poor operation of your inverter and elevated voltages in your home, both of which can have costly impacts (eg premature failure of appliances).

Where relevant, your solar retailer or installer should provide you with a copy of the network connection contract entered into on your behalf. You should familiarise yourself with the technical conditions, and particularly the obligations you have under that contract.

Question:

Do I need a single-phase or 3-phase inverter?

Answer:

If you are considering buying a solar PV system and your electrical installation is wired for 3-phase, or could be economically upgraded to 3-phase, we encourage you to consider the benefits of installing a 3-phase inverter, particularly for inverters rated above 3 kVA.

Although 3-phase inverters are more expensive than single-phase inverters, spreading the inverter capacity across more than one phase will likely result in more stable operation, with less problematic voltage excursions and nuisance tripping.

This may provide a higher output of PV generation and longer life for your PV system, leading to a better investment return.

More specifically, the connection standard requires that if your inverter will be rated greater than 10 kVA and/or will be set to export more than 5 kVA, then it needs to be a 3-phase inverter. A 3 phase inverter may be installed up to 15kVA with automatic approval.

If you have a 2-phase electrical installation, we encourage the use of two single-phase inverters to spread the inverter capacity across both phases.

The connection standards also require that if the voltage rise from the network connection point to the proposed inverter is above 2%, then a 3-phase inverter must be installed. If the electrical installation is not 3-phase, or unable to be made 3-phase, other actions will have to be taken to reduce the maximum voltage rise to 2% or less.

Question:

Why is my inverter screen not working or showing an error code, or why is a fault light on?

Answer:

Please refer to your inverter manual or contact your solar installer for advice.

Question:

I have a Fronius inverter which has a fault screen showing “state 567”. What does this mean?

Answer:

Please refer to the inverter manual or contact your solar installer for advice.

Question:

My inverter has a code indicating a “Grid fault”.

Answer:

Please refer to your inverter manual or contact your solar installer for advice. This message indicates one of a number of possibilities, including:

- The grid voltage or impedance has been raised, most likely by other PV systems in your area exporting to the grid (the issue will likely soon pass and the inverter will likely restart),
- There is an outage on the grid (there will obviously be no power in your home, but when grid supply is restored, your inverter will likely restart), or
- There is a fault in the electrical circuit connected to your inverter (contact your solar installer or electrical contractor).

