

Why you do NOT use Inverters with Solar Power systems...

What is an Inverter?

An Inverter is an electronic Circuit which converts Battery Voltage into mains voltage. Example 12V DC (*Direct Current*) from the Battery, is converted to 240V AC (*Alternating Current*) by an Inverter. Massive amounts of energy can be wasted in this conversion.

Why do some people use an Inverter?

They use an Inverter because they forget that all the appliances are DC. They always used the AC to DC converter with their appliance, because ONLY 240V AC came out of the house socket and so feel that they Must put the AC 240v into the converter, so that it can be converted back to DC for the appliance. Of course the Solar Power system is already DC so does NOT need any converter. To convert it from 12V DC to 240V AC, just so that you can use the 240V AC converter to change it back to DC is not only very inefficient but probably very stupid from a POWER SAVING point of view.

Here is an example of what happens before you installed PV panels and after, when you use an Inverter and without an Inverter. Look at the amount of watts you will need in each case, to operate the same Mobile Phone from each system.

Before Solar, you only had AC 240V:

AC 240V --- into AC to DC Converter --- DC 12V --- into Mobile phone
5 watts --- Loss of heat energy --- 1 watt --- into Mobile phone

Solar Without Inverter:

DC 12V Solar --- DC 12V --- into Mobile phone
1 watt --- 1 watt --- into Mobile phone

Solar With Inverter:

DC 12V Solar -- Inverter to AC 240V -- into AC to DC Converter -- DC 12V -- into Mobile phone
10 watt -- Heat Loss 5watts -- Loss of heat energy -- 1 watt -- into Mobile phone

Another example to indicate the difference, using a UPS on you computer.

With a 7 amp hour battery in your UPS you have 20 minutes back up time for your computer. The battery provides 12V at 25 amps (300 watts) into the Inverter. The Inverter puts 300 watts of AC into the computer power supply, where it is converted to 18 watts DC and fed into the mother board.

NOW take away the UPS and Inverter. The mother board needs only DC, direct from the battery.

It does NOT use any 240V AC. So the computer uses 18 watts directly to the mother board. 18 watts is 1.5 amps. So now the SAME battery that gave you **20 minutes** back up in the UPS will give you more than **4 HOURS** back up when used WITHOUT the Inverter. **Why would you want to use an Inverter???**

In your house, nearly all your appliances are using Microchip technology. This requires 12V DC power, as you would get from a battery. Today's appliances are mostly DC and manufacturers supply appliances together with an AC to DC converter. You will notice that a power supply, which converts the House 240V AC to 12V DC, is supplied with many items, like Mobile phones, Lap top computers, printers, LCD TVs, cameras, etc.. The manufacturers do this because they know that your House has 240V AC type Electricity and you will need the converters to turn 240V AC back into battery voltage, for microchip use .

Sometimes the DC converter is inside the appliance, like a computer, for instance. This conversion of Power, back to DC, at the Appliance, is also very inefficient and Wastes a lot of Power, which can easily be saved, by using the DC directly.

DC Motors are also much More efficient than AC motors and use much less power for the same amount of Work done.

It is not just that DC systems are more efficient, but more that AC systems, are very, very, inefficient. AC power is used, because DC Power can not be transmitted along vast distances, required for the National Grid. Therefore, the outlet, from the National Grid, in your House, will have to be AC to reach your house.

Now, Solar Power is on your roof, so does not have to travel any distance to reach you.