Solar panels:

Solar panels are also better known as Photo Voltaic panels, abbreviated PV. Those panels contains multiple PV cells which generates the electricity. When (sun)light reflect on the panel (cell) the electrons are forced going in one direction which generates electricity in Direct Current. The generated electricity can now be passed through to other electrical devices in the circuit. So when you have more panels / cells you can generate more power.

Charge Controller:

When the PV panels generates electricity, the charge controller charges the connected battery’s and/or power devices. It regulates the voltage that is needed to fill the battery pack that is connected to the charge controller while it also gives power to the power consuming device(ses). When the sun is not shining the charge controller will manage the battery so that it will not undercharge, when the battery is going to be undercharged the charge controller will cut of the power so that it protects the battery.

Battery System:

You can connect several types of battery types to a charge controller, if the charge controller is rated for it. A typical battery has 12 Volts, and is rated an amount of Ampere. When you connect 2 battery’s together you have sum of the Amps of the 2 battery’s. If you connect battery’s in series you get the sum of Volts, i.e. when you have 2 12 Volt 100 Ampere battery’s in series you will get an total of 24 Volts and 200 Ampere.

DC power:

DC stands for Direct Current, DC is a type of how electricity flows. With DC power there is no switching between polarity like AC power. DC power is more efficient than AC power because with AC power the current flows over the skin of the conductor instead of flowing throughout the whole conductor. The disadvantage of DC current is that it is not very well suitable for long distances.

Inverter:

An inverter is used for changing the type of current, like DC power to AC power or visa versa. For the use of an inverter in a solar system it is common to use a DC to AC converter because the devices you want to power is mostly rated for 230 volts AC. The inverter changes the DC current from the panels / battery’s with transformers to AC current so you can connect it to the power grid.

AC power:

AC stands for Alternating Current. AC power has a switching polarity, most common it is switching with 50Hz. That means that the current is switching polarity 50 times per second. Because the volts are higher and it is alternating, the electricity can travel much further. AC current is the most common type of energy we know these days. We power almost everything with it, i.e. you plug your coffee machine in the wall outlet (230V in europe). The coffee machine has a AC&#x3df;DC converter so it can power the heating element.