

Photovoltaic Technology

What is Photovoltaic Technology?

Electricity can be generated directly from the sun using photovoltaic (PV) panels, installed in a sunny position on a roof. However, the sun doesn't have to be shining for them to work - any daylight will generate electricity.

How does it work?

Solar PV cells produce what is known as direct current electricity from the sun. This can be used to recharge batteries or power equipment. A building will require more power than a single cell can provide, so cells are grouped together. This is called a solar array, or sometimes referred to as a PV array. This is what most people refer to as a solar PV panel.

The best PV system to use is a grid-connected system - one which is connected to the national grid. It is necessary to use an inverter to change the type of electricity generated from direct current to alternating current. An inverter will be fitted by your installer if you want a grid connected system.

This allows you to use electricity whenever you like, even when it is dark or you need more electricity than the panel can generate. When the electricity required in the building is more than the unit can provide, you will use electricity from the national grid. When your panel is generating more electricity than you need, the surplus electricity is fed into the national grid. The national grid therefore is like a huge battery. Selling electricity into the national grid is also known as two-way metering.

Is it for my community building?

PV panels are best mounted on a south-facing roof so you will need to assess the location of your building for suitability. You can now get roof tiles which are PV units, so if you are considering re-roofing your building, you might want to comprehensively insulate and re-tile with PV tiles.

Small PV units can be a good solution for providing light and power away from the grid, such as in an outbuilding.

How much will it cost?

Prices start at around £7,200, for 6m² of solar panels, connected to the grid, generating up to 600kWh a year, worth up to £60 if you manage to use all of it in your community building.

How can I get funding?

You can apply for funding for a community building PV project from the E.ON SOURCE fund and you can find out more information and apply online on this website.

Grants might also be available from the DTI's Low Carbon Buildings Programme - see www.lowcarbonbuildings.org.uk or call 0800 915 7722 for more details.

Where can I find out more?

A list of accredited installers is available at:
<http://www.lowcarbonbuildings.org.uk/info/installers/find/installerfind>

Case Study

A village hall in regular use took a holistic view of their energy generation. They installed not one, but three micro-generation technologies.

They installed a solar PV array for electricity, solar water heating for heat and water and a wood pellet boiler for back up. They previously had gas heating. The total cost of the project was £32,000. This makes the hall carbon neutral - all their energy is from a renewable source.