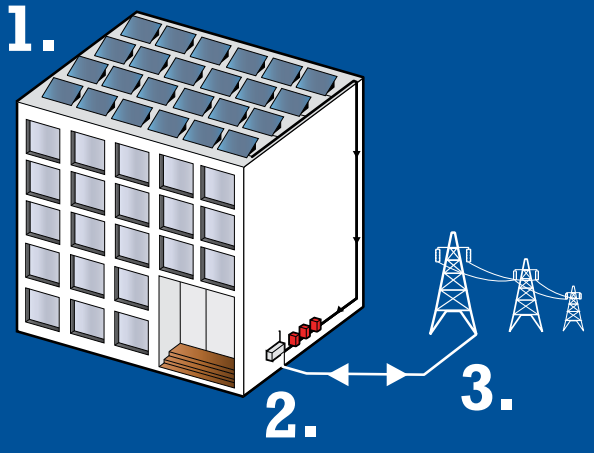
How solar energy works

Solar Photovoltaics (solar electricity)

1. Photovoltaic modules can be mounted on the roof of buildings in many different ways. The cells in the modules convert daylight into DC electricity. This process is silent and has no moving parts.

2. The DC electricity flows to a set of inverters. The inverters convert the DC electricity to AC. The AC electricity is then sent through the main distribution board for use in the building.

3. When more electricity is generated than is being used in the building, the excess can be exported to the grid. At night, or when the demand is higher than the PV system can supply, electricity is imported from the grid.



www.wesupportsolar.net

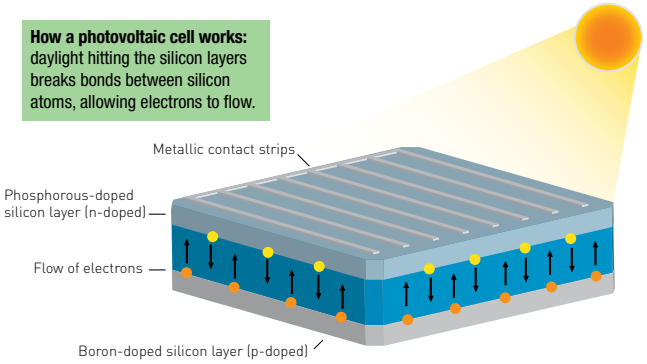
Solar PV - key facts

UK Photovoltaic manufacturers association

The world is currently dependent on fossil fuels for energy. There are two major issues which makes this unsustainable. First, fossil fuels are finite and will eventually run out. Secondly, when burned they release large volumes of carbon dioxide (CO_2) into the atmosphere, destabilising the planet's climate.

Solar photovoltaic technology is a clean, reliable and readily available alternative. It is used to create carbon emission free electricity by using silicon cells (semi-conductors) which produce electric power directly from daylight. When light shines on the semi-conductor, the electric field across the junction between these two layers causes electricity to flow. The greater the intensity of the light, the greater the flow of electricity.

How a photovoltaic cell works: daylight hitting the silicon layers breaks bonds between silicon atoms, allowing electrons to flow.



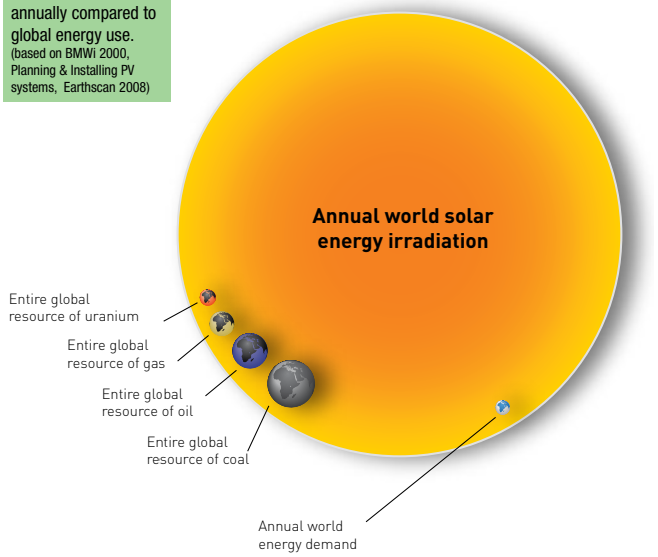
The earth receives a continuous power input from the sun of 120,000 terawatts. An unimaginably huge amount of energy which completely dwarfs the capabilities of fossil fuels or nuclear fission; and it is clean and free.

Use of solar PV has increased dramatically over the past ten years. Last year, Belgium and the Czech Republic each installed more than ten times the solar PV capacity installed in the UK.

In 2008, Germany alone installed 1.5 GWp of solar PV. That's the equivalent of 750,000 domestic solar PV roofs in a single year. By contrast, in 2008 the UK installed just 0.3% of this figure or the equivalent of just 2,200 domestic solar PV roofs.

We are barely scratching the surface of the huge potential of solar PV technology in the UK. Independent research carried out by Element Energy for the 2008 Renewable Energy Strategy consultation suggested that the feed-in tariff could deliver over 18 TWh from non domestic solar PV alone by 2020. That's more than the predicted output of the proposed Severn Barrage and to a quicker timescale.

Approximate energy content of solar radiation reaching the earth's surface annually compared to global energy use.
(based on BMWi 2000, Planning & Installing PV systems, Earthscan 2008)



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