



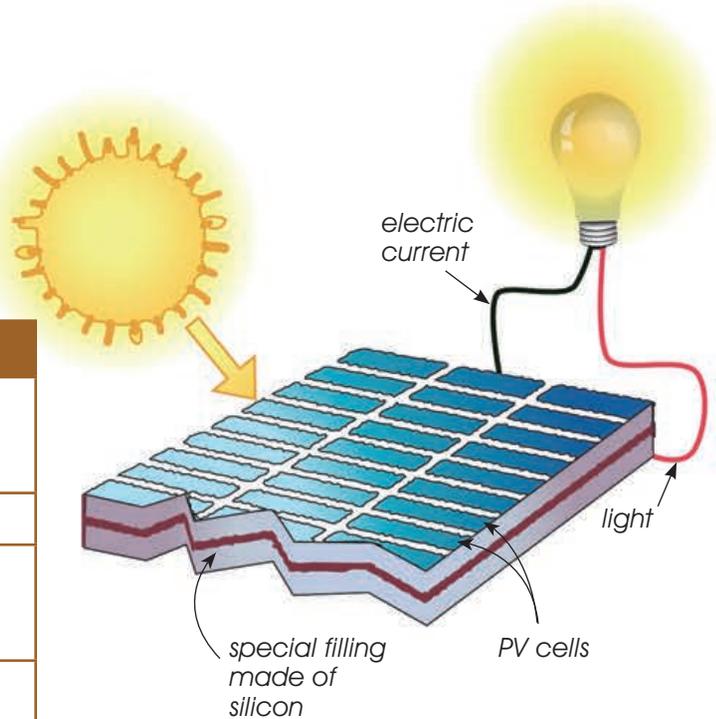
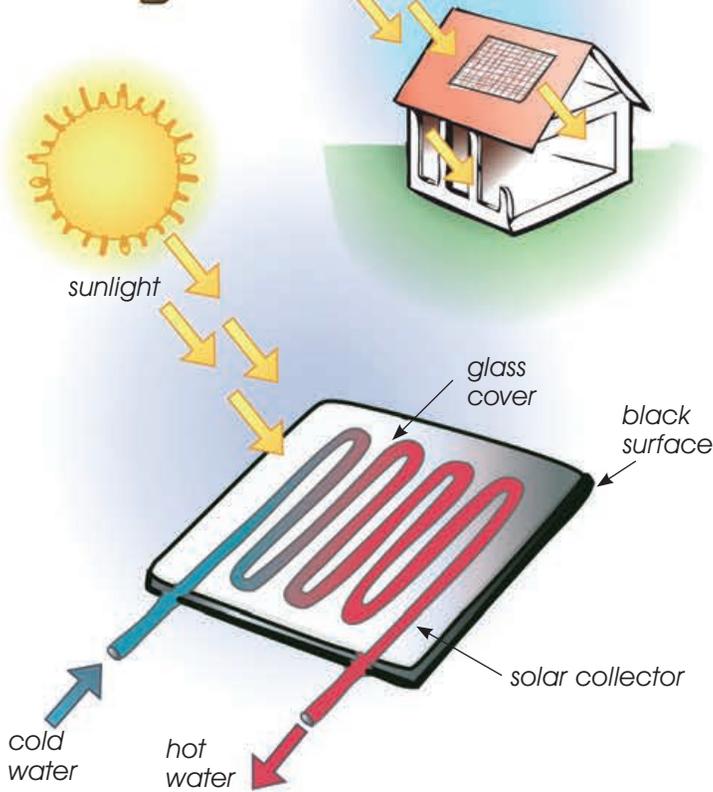
SOLAR ENERGY - FACT SHEET 6 SIDE A

Solar energy is energy from the sun.

We **see** this energy as **light** and **feel** this energy as **heat**. Glass allows the sun's energy to pass into a building reducing the need for heating and lighting inside the building. We can reduce our energy bills by designing houses and buildings to make the most of solar energy. We can also use **solar panels**.

SOLAR PANELS – PIPED WATER

- ◆ Cold water is pumped into the solar collector
- ◆ The black surface absorbs heat and warms the water
- ◆ The warmed water is then pumped into the boiler for the house
- ◆ Less energy will then be needed by the boiler as the water is pre-warmed



SOLAR ENERGY FACTS

What are PV panels made from?	Thin layers of silicon underneath a sheet of glass
How long do PV panels last?	About 20 years
How much of the UK's total electricity is currently supplied by solar energy?	Very, very little
Do solar panels work at night?	No
Can solar panels work on cloudy days?	Yes, but they only produce about 1/3 of the power
Where is the biggest solar power station?	In the Mojave desert in California
Where is Europe's first thermal solar power station?	Near Seville in Spain

SOLAR PANELS - PV CELLS

Some solar panels are made up of lots of PV or photovoltaic cells. These cells change sunlight energy directly into electricity.



A solar air heating system warms ten new homes in Kingussie, Strathspey. The homes were built by the Albyn Housing Association and act as a demonstration project. The project allows a wide range of people to get the facts about solar energy and to see how it works.



photo from HIE



photo from HIE

Solar panels come in all different sizes! A solar panel and wind turbine have been installed at Holm Primary School, Inverness. They supply energy to a school computer.



photo from fotosearch.com

A solar power plant in the USA. It uses mirrors to focus sunlight onto a central tower. This is called a thermal solar power plant as it uses heat to change water into steam. The steam drives the generator.



ADVANTAGES OF SOLAR ENERGY

- ◆ Solar energy is renewable, it will never run out.
- ◆ Solar energy is clean and silent and does not harm the environment.
- ◆ Solar energy is available all over the World, in cities and in remote areas.
- ◆ There is no size limit - power can be produced from one small cell or from a huge solar farm.



DISADVANTAGES OF SOLAR ENERGY

- ◆ Solar energy is more expensive than fossil fuel energy, at the moment.
- ◆ Solar energy is only available during the day.
- ◆ Solar power plants are limited to areas with very sunny climates.
- ◆ New electricity lines and cables – a Supergrid – would be needed to connect Northern Europe with proposed solar power plants in Southern Europe.