



Making the world a greener place

Discover why renewable energy is important for the planet and some of the ways it can be created.

Global warming can seem like a gloomy subject, but the UK is making huge leaps forward in finding cleaner, greener energy sources to power our homes and factories. For part of last year, a record 25% of the country's electricity came from renewable sources, according to a new Government report. For the first time, renewable resources produced more energy than coal. The UK is also home to the world's biggest offshore (at sea or at some distance from the shore) wind farm and Europe's biggest floating solar park. So, what is renewable energy, and why do we need it?

What is renewable energy?

Renewable energy is generated from natural sources – such as sunlight, wind and water. These sources never run out, which is why they are called renewable. Unlike burning fossil fuels, such as coal, oil and gas, renewable energy does not harm the environment.

What are fossil fuels?

Burning fossil fuels harms the planet by releasing harmful greenhouse gases, such as carbon dioxide and methane, into the atmosphere. These gases act like a warm blanket, trapping in the Sun's rays and heating the Earth. This is called global warming. It leads to rising sea levels and dangerous weather changes that could be harmful to animals and people.

For more than 200 years we have powered our factories, homes and later, cars, using fossil fuels. These are non-renewable energy resources – meaning one day they will run out. Some experts believe that coal could completely run out in the next 250 to 500 years.

The downsides of renewable energy

Wind turbines and solar panels cost a lot of money and take up a lot of space. Some people who live in the countryside say that gigantic wind turbines dotted across the countryside spoil the beauty of the land.



Some people think wind farms spoil the countryside.

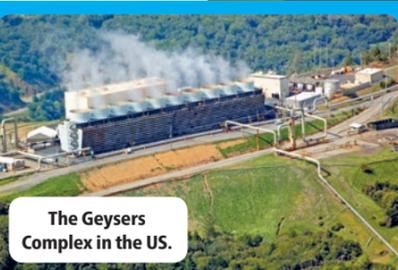
FOSSIL FUELS
Fossil fuels were formed over millions of years, from the remains of living things that died. Coal was formed from dead plants while crude oil and gas were formed from dead sea plants and animals.



Nestlé's Fawdon sweet factory uses biogas.

Biomass

Biomass is material, usually plant matter, which can be turned into energy. Decaying plant or animal waste is burned to produce a gas, known as biogas, that can be used as electricity. Nestlé's Fawdon sweet factory in Newcastle upon Tyne uses this technique to turn leftover sweets, such as Fruit Pastilles, into biogas. The sweets are sent to an anaerobic digester machine, where naturally occurring bacteria digest the waste, creating biogas. This gas provides electricity to power the factory.



The Geysers Complex in the US.

Geothermal

In some countries it is possible to use the Earth's natural heat to create electricity. Underground reservoirs of steam and hot water can be harnessed to power turbines that generate electricity. A turbine is a type of machine in which the pressure of a moving fluid is turned into mechanical energy, by causing a bladed rotor to turn. The largest geothermal plant in the world, The Geysers Complex, is located in California, US.

TURNING PEE INTO POWER
Researchers have come up with a way of turning urine into electricity. They use a microbial fuel cell that uses bacteria found in nature to break down urine, which in turn produce electrons that are converted into energy.



The London Array.

Wind

Energy from the wind turns special propellers on wind turbines. When the propellers spin they turn a generator. This generator creates electricity. The world's biggest offshore wind farm is the London Array located around nine miles off the coast of Kent. It covers an area of 39 square miles and produces enough electricity to power 500,000 homes.



A giant 40-tonne turbine is installed near Windsor Castle.

Water

Flowing water can be used to turn turbines that create electricity. As the turbines spin they turn an electric generator and this generator creates electricity. The Royal family has two huge water turbines next to Windsor Castle in the River Thames. These water turbines produce electricity for the castle and surrounding homes.

What can you do to help?

The fate of the planet is not just down to adults. Here are a few ways that you can help, too.



Turn off the taps

If you turn the tap off while brushing your teeth you can save up to 18 litres of water at a time. That means it isn't wasted down the drain.

Switch off the lights

Turn the lights off when you leave the room. This will save electricity.



Don't just throw it in the bin



Recycle everything you can. Recycling a tin can save more energy than making it again from scratch. It also saves enough energy to power a television for three hours.

Hop on your bike

See if you can walk or use your bike instead of taking the car to school. If you live far away see if you can share a car trip with your friends.



Grow your own food

Ask an adult for a plant pot and try growing some vegetables. Home-grown vegetables taste great and help the environment, because plants produce oxygen.



Solar

Solar panels use special cells to capture the Sun's energy. This light energy is known as photons. The energy is then converted into electricity to be used in homes. The biggest floating solar farm in Europe has been built on a reservoir near Heathrow Airport in London. It is the size of eight Wembley football pitches.



Solar panels on a reservoir near Heathrow.

POWERED BY THE SUN
Experts are trying to find ways to travel without harming the environment. The Solar Impulse 2 is currently attempting a record for only by the Sun. It has a wingspan of 72 metres covered in more than 17,000 solar panels.



Solar Impulse 2 is currently flying around the world.