Anesco™
AMAZING ENERGY

Creating a better future:
Why we need renewable energy

Contents

The future is green

The way the UK generates and uses energy to run our homes, power business and industry is changing.

Fossil fuels are on their way out and renewable power sources – such as solar panels and wind turbines – are coming into their own, as the UK moves towards a cleaner, greener energy network. One that is both sustainable and kinder to the planet.

In this special guide we explain why it is so important we make the transition to renewable energy, and take a closer look at renewable energy and some of the key technologies around today.

What is renewable energy?

Renewable energy – also known as clean energy – refers to power that is generated from a sustainable and naturally replenished source. For example, electricity that is generated by harnessing the power of the wind, tides and waves, and sunlight or heat that is found naturally occurring in the ground.

A power plant in the UK

Why do we need renewable energy?

The way we live and work has traditionally relied on fossil fuels - such as oil and coal – which have been extracted from the ground. But these sources of fuel take millions of years to form and are rapidly depleting.

The process of converting fossil fuels into energy also produces carbon, which is released into the atmosphere as carbon dioxide (CO2). The more CO2 that is released, the more heat that is trapped in the atmosphere, causing the Earth's temperature to rise. This is the reason CO2 is described as a 'greenhouse gas' and is a key contributor to global warming.

Increasing the amount of energy from renewable and low carbon technologies will secure the UK's energy supply and slow climate change.

Why is global warming a problem?

Scientists have warned that time is running out to prevent the Earth from heating to a catastrophic level.

While a change in temperature of 1 or 2 degrees may seem insignificant, one likely impact of this is an increase in the occurrence of natural disasters and intense weather events, such as flooding, droughts and wildfires.

Millions of people may be displaced from their homes if higher temperatures cause ice caps to melt and the seas to expand, putting low-lying countries at risk. Not to mention the huge impact that could be felt by wildlife and ecosystems across the world.

So, we need to act – and fast – and making the switch to renewable sources of power is one way we can lower the emissions being caused by the energy network.

Net zero carbon by 2050 – what does it mean?

The term ‘net zero’ has increasingly been used in recent years, in relation to action the UK is taking to tackle its carbon emissions.

In 2019, the UK became the first major economy in the world to set in law a commitment to ending its contribution to global warming. By 2050, the UK’s carbon emissions are to be ‘net zero’ – meaning a balance is achieved between the greenhouse gases being put into the atmosphere and those taken out.

When the net zero target was set, it was one of the most ambitious in the world and many other countries have since followed suit, setting their own legally-binding targets for achieving net-zero greenhouse gas emissions by 2050 at the latest. This includes France, Sweden, Denmark and New Zealand.

In April 2021, the UK government announced radical new climate change commitments that will see carbon emissions cut by 78% by 2035, 15 years earlier than planned.

Achieving net zero carbon emissions by 2050, and the new 2035 target will require major changes to be made across all areas of society including industry and commerce, roads and cycling infrastructure, waste and recycling, and how energy efficient our homes are.

Top 5 renewable technologies

There are many different types of renewable energy technologies available today, with new innovations continuing to emerge, the top 5 are:

1. Solar power

Solar remains one of the most popular renewable technologies in the world. Solar panels convert sunlight into electricity that can be used to power homes, vehicles, and businesses. They can be attached to any suitable rooftop or placed on frames within the ground.

As part of the transition to the UK becoming 'net zero', homeowners and businesses are encouraged to invest in solar on rooftops. This is a great way to contribute to a cleaner, greener world, whilst reducing personal energy costs.

Unfortunately putting solar panels on domestic and commercial rooftops is not enough to meet the heavy demand for energy the country needs, which is where solar farms come in.

2. Wind power

Wind turbines and solar power are the most commonly used renewable technologies in the UK.

Wind turbines generate electricity when their blades are turned by the wind. They can be placed on land (on-shore) typically on hills and open plains, or out at sea (off-shore). Aside from the importance of locating a wind farm in a location where there is a reliable source of wind, the safety of air traffic is paramount, ensuring that there is no risk of collision for aircraft or interference with radar equipment and aircraft instruments.

Aerial view of a solar farm in Wales


A windfarm in Scotland

3. Geothermal energy

Geothermal energy harnesses the heat that is naturally released and stored in the Earth. This heat can be captured and harnessed to generate electricity or be used for heating and cooling. The only example of a geothermal heat station in the UK is in Southampton as part of its District Energy Scheme. An 1800-metre borehole has been connected to an aquifer to store and provide heat to the city.

4. Hydro power

Hydro power refers to those systems that use water to spin turbines and in turn generate clean electricity. Complex systems will use reservoirs to circulate water. Hydro power needs wet and mountainous regions and within the UK most of the sites are located in Wales and Northwest Scotland.

5.Wave and tidal power

Wave and tidal power work by capturing the energy from the tides to generate electricity. While this form of renewable energy is not yet fully being exploited in the UK, the potential is being explored in many other countries, particularly as tides are more predictable.

Renewable energy in numbers

- In 2020, UK renewable generation increased by 11% outstripping fossil fuels for the first time.
- Between January and March 2020, almost half of the energy generated in the UK was from renewables. (Source Edie)
- Wind and solar are now the cheapest sources of energy
- Large-scale solar is just behind onshore wind generation on cost, according to projections by the government for projects starting in 2020, with battery prices plunging too.


A hydro electric dam in Scotland

Common questions

Why can't brownfield sites be used?

The term 'brownfield' land refers to land or premises that has previously been developed but has since become vacant, derelict or contaminated. It is in contrast to the term 'greenfield'.

Whilst brownfield sites are often highlighted as an alternative to greenfield land for a renewable development, most of the 20,000 or so brownfield sites within the UK are simply too small to make renewable energy viable and are typically used for residential developments.

There are many factors that are taken into consideration when deciding where to locate a renewable development, for which land composition, flood risk, impact on nature, and proximity to populated areas and a local grid network are but a few.

A 'brownfield' site

What is the impact on nature?

Many believe that the construction and management of a renewable development is detrimental to the ecosystems and the local environment that they occupy.

It is important to remember that as part of the planning process for a renewable development thorough investigation and consideration is given to the impact on wildlife.

Research has shown that rather than causing damage to the natural habitat, a renewable development, particularly in the case of solar, creates a haven for wildlife that even supports at-risk species that have suffered from the chemicals and machinery used in agriculture and the conversion of natural areas for urban use.

Solar PV panels also create a shelter from the rain as well as predators. Furthermore, keeping the public out of an area, combined with strict rules on grass cutting is also beneficial for wildlife, allowing insects to populate and pollinate the wild grasses and flowers giving the habitat a full summer season to flourish and ensure that the following year the habitat will come back stronger than before.

In some areas of the country this has led to an explosion in the numbers of butterflies, ladybirds and bees on site and hives are now being used in the area to make honey.

Whilst bird and bat boxes can often be found on a solar farm, allowing owls, kestrels and other varieties of endangered birds of prey to return numbers to make the most of the safe space provided for them.

A great example of how green energy and nature can cohabit successfully.

Anesco™
AMAZING ENERGY

0845 894 4444

www.anesco.co.uk

Anesco Ltd
The Green, Easter Park
Benyon Road, Reading RG7 2PQ