# How will we power the UK in the future?

Transcripts of the energy animations.

## Animation 1

[CAPTION: Where do we get our energy from?]

In one year, the UK uses the same amount of energy as it takes to make over 90 trillion mugs of tea.

If you line them all up next to each other, it’s enough to go from the earth to the moon and back, more than 8,000 times.

We get this energy from five main sources – oil, gas, coal, nuclear and renewables.

Oil provides around a third of all our energy.

4% of this oil allows us to cook, and heat our homes.

3% is used in other ways like heating offices.

13% is used by industry.

And a huge 80% powers our transport.

Natural gas is another major source - it also provides roughly one third of our energy.

36% is piped into our homes for heating and cooking.

14% is used in other ways like heating offices.

22% powers our industry.

And power stations convert around 28% into electricity.

Gas is one of four main energy sources that feed into UK power stations to generate electricity.

When all these sources combine they provide over a third of our energy input.

Electricity is the most versatile form of energy we know - and easy to use.

When energy is changed into another form, it’s normal to lose some energy.

For example, on average over half the original energy is lost when we generate electricity.

The rest powers millions of devices in homes, offices and industry.

There you have it. The whole UK energy system.

## Animation 2

[CAPTION: A world without fossil fuels?]

Fossil fuels have powered the UK for over 400 years – and are predictable, reliable sources that supply our energy just when we need it.

Today, coal, oil and gas provide 85% of all our energy.

But these sources take millions of years to form – and we’re using them very quickly.

What’s more, burning them produces carbon dioxide – so if we continue to burn them, we risk dangerously overheating the earth.

Imagine a world without fossil fuels.

Nuclear and renewables are the two remaining options.

Today they provide 14% of all our energy.

Nuclear power stations harness energy from splitting atoms to boil water and produce steam.

This steam then operates a turbine, which drives a generator to produce electricity.

About 7% of our energy is generated from nuclear today.

Nuclear power is reliable and predictable.

But unlike fossil fuels, it doesn’t produce carbon dioxide - so we could continue to use it for a long time.

If we build at least 60 large nuclear power stations, we could generate all the energy we need.

But nuclear power stations produce radioactive waste that’s difficult to store.

And it’s hard to adjust their supply of power flexibly according to how much we need.

In the next animation, we’ll explore renewable energy sources.

## Animation 3

[CAPTION: Can renewables power our future?]

The UK gets its energy from five main sources.

But we can’t keep using fossil fuels without risking dangerously overheating the earth.

Nuclear power could supply all our energy but has some disadvantages.

So could Renewables supply our energy in the future?

Today, we get 7% of our energy from a range of renewable sources.

Two of them could each supply all our energy on their own: solar and wind.

Solar power harnesses energy from the sun.

Covering around 4% of the UK in solar panels would produce all the energy we need.

But that’s the same land area as roughly 6 Londons.

Wind turbines harness energy from wind.

Covering around 5% of the UK’s land and sea with wind turbines would generate all the energy we need.

But that’s the same as about 8 Londons.

Solar energy and wind are natural resources that won’t run out.

But we can’t get energy this way when the wind is not blowing and the day turns to night.

Other renewable sources could provide some of our energy.

For example, we could burn plant material.

If we used roughly double the total UK land area, we could grow enough plant material to produce all our energy in this way.

But there would be nowhere for us to live and produce our food.

These are just some of the renewable options we could use to help power the UK in the future.

In practice we’ll need a mixture of energy sources.

The question for us all is how much of each?