GBESP
Green Skills and Careers
Powering our Planet

Building Spatial Intelligence

LET'S GO ZERO 2030

CALADEN

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Place

Blue Marble™

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Department for Education

LocatED

What you will learn today

At the end of this presentation, you will:

- Understand what renewable energy is
- Understand the benefits of renewable energy
- Learn how solar PV works
- Know how much of the UKs power comes from solar PV
- Have an awareness of job roles in the renewable sector

What is energy?

Energy is something we use every day, even if we don't think about it. It's really important in **modern** life, allowing us to live **comfortably** and **safely**.





Where does energy come from?

One technique used to generate energy is by burning **coal, oil, and gas**.

These are called **fossil fuels**.

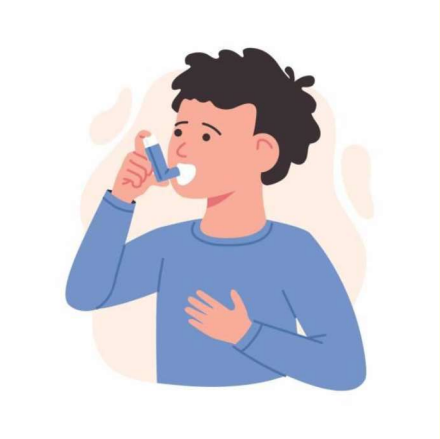
When fossil fuels are **burnt**, they produce very **high-temperature** heat.

This heat is used to boil water, creating high pressure steam that spins turbines connected to **electrical generators**.

What's bad about fossil fuels?

Harmful to the planet

Mining, extracting, and using fossil fuels releases harmful gasses into the air (**pollution**). This leads to **climate change**.



Harmful to life

Pollution is harmful to humans, animals, and plants. It can impact our health and make it harder to grow crops.

Unsustainable

Fossil fuels are a **finite** resource, meaning they will eventually run out, so we can't rely on them forever.

Is there a better way?

There are more places you can get energy from. Can you think of them?

Wind power

Hydro power

Solar power

What's good about renewable energy?

Sustainable

Renewable energy is energy made from **infinite resources**, meaning it will never run out!

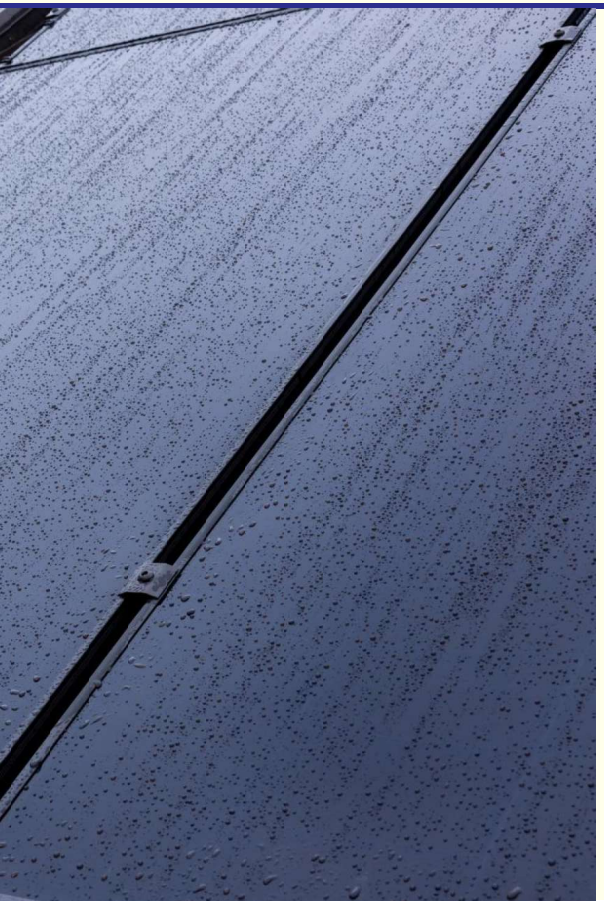
Clean

Renewable power plants create far **less pollution** compared to fossil fuel power plants. This is better for public health, plant life, and the planet!

Resilient

Once renewable power systems are set up, the energy they generate is essentially free.

Today's focus: Solar



Solar PV is the fastest-growing renewable energy technology in the world. Here's why:

- They can be installed on roofs of homes, schools, and businesses – meaning they can be added to the infrastructure we already have.
- Solar panels are quiet, reliable, and have very few moving parts, so they don't need as much maintenance once installed.
- Over time, solar tech has only continued to get better and more affordable (costs have decreased by 90% worldwide).

How do we get energy from the sun?

Solar panels turn sunlight directly into electricity using special materials called **semiconductors**.

When sunlight hits a semiconductor inside a **solar cell**, it frees tiny particles called **electrons** and allows them to move – this movement is what creates electricity.

1. Sunlight hits the solar panel and energises the electrons inside.
2. The electrons start moving, creating electricity.
3. An inverter changes the electricity into a usable form.
4. The electricity flows through wires to power our buildings and devices.

Let's do an activity

- Ask the students to stand up in the centre of the room.
- The room is now a solar cell.
- Each student represents one electron within the cell.
- When the curtains are closed, everyone must stand still.
- When the curtains open, everyone is free to move around.
- When the electrons are flowing, electricity is generated!

How much energy can solar provide?

Not so long ago, solar energy was a futuristic idea. But now, it's part of our every day lives:

- Over the course of 2025, over **6% of total electricity used in Great Britain** was generated using solar PV.
- On long, sunny days, when lots of solar energy is being generated all at once, over **30% of electricity in Great Britain** has been solar powered!
- That's **one in three** lights, one in three computers, one in three lava lamps – all powered by the sun!

See how much solar energy is powering the country right now:

National Grid: Live

How much energy can solar provide?

Guess how many solar panel installations were there in the UK last year:

- 1,480,000
- 48,500
- 980,000
- 1,735,000

The renewable energy sector

Renewable energy doesn't happen on its own — people **plan it, build it and look after it** every day.

Jobs in 2022 → Jobs in 2023

13.7 million (18% increase!) 16.2 million

In the UK, green jobs are growing 4x faster than the overall job market.

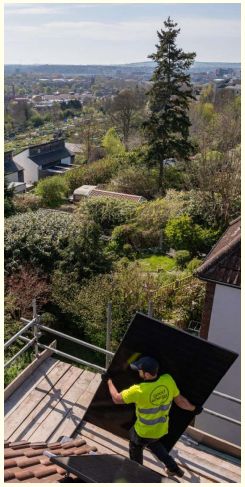
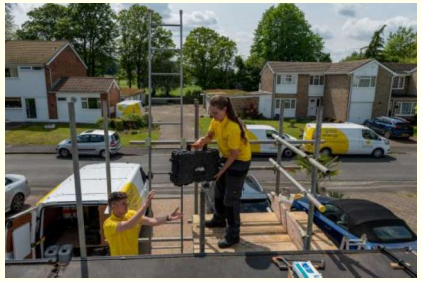
Could you work in the renewable sector?

There's a growing need for jobs in the solar sector:

- Solar panel installer
- PV design engineer
- Electrician specialising in renewables
- Climate scientist
- Energy analyst
- Maintenance technician







Could you work in the renewable sector?

If you like building things and working with your hands…

you could make a great **solar installer!**

Could you work in the renewable sector?

Solar installers:

- Fit solar panels onto roofs and other structures
- Work outdoors with a team
- Use problem solving to do their job safely
- Have to make sure panels are positioned to capture as much sunlight as possible
- Work hands-on, helping homes and businesses reduce their carbon footprint, one panel at a time!

Could you work in the renewable sector?

If you're a careful problem solver and like fixing things safely…

you could make a great **electrician or technician!**

Could you work in the renewable sector?

Electricians:

- Connect and wire up electrical systems so solar energy can be used inside buildings
- Test, check and troubleshoot systems to make sure everything is working properly
- Play a key role in turning solar energy into power we can actually use every day

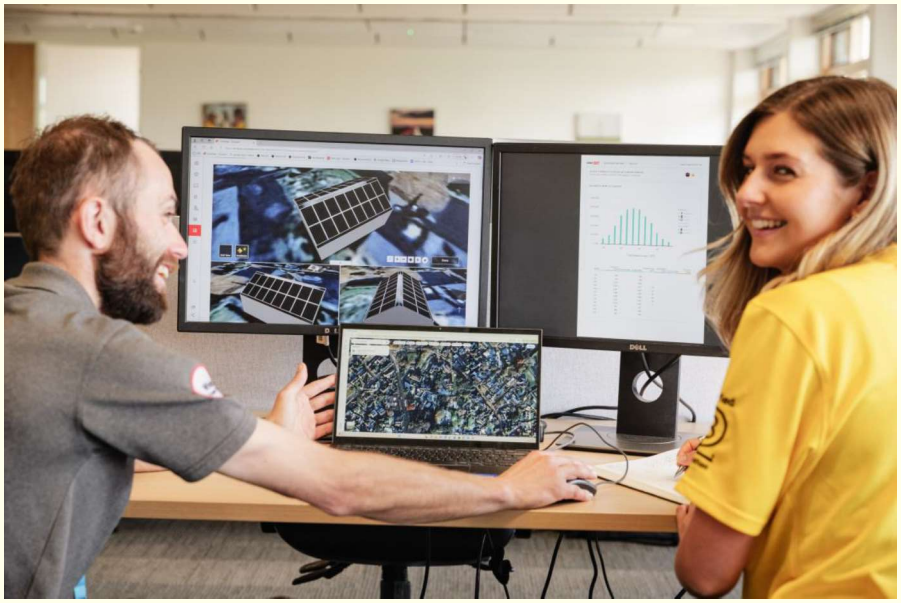
Technicians:

- Check, maintain and repair renewable energy systems
- Use tools and technology to find faults and keep systems running smoothly
- Help clean energy systems last longer and produce as much energy as possible

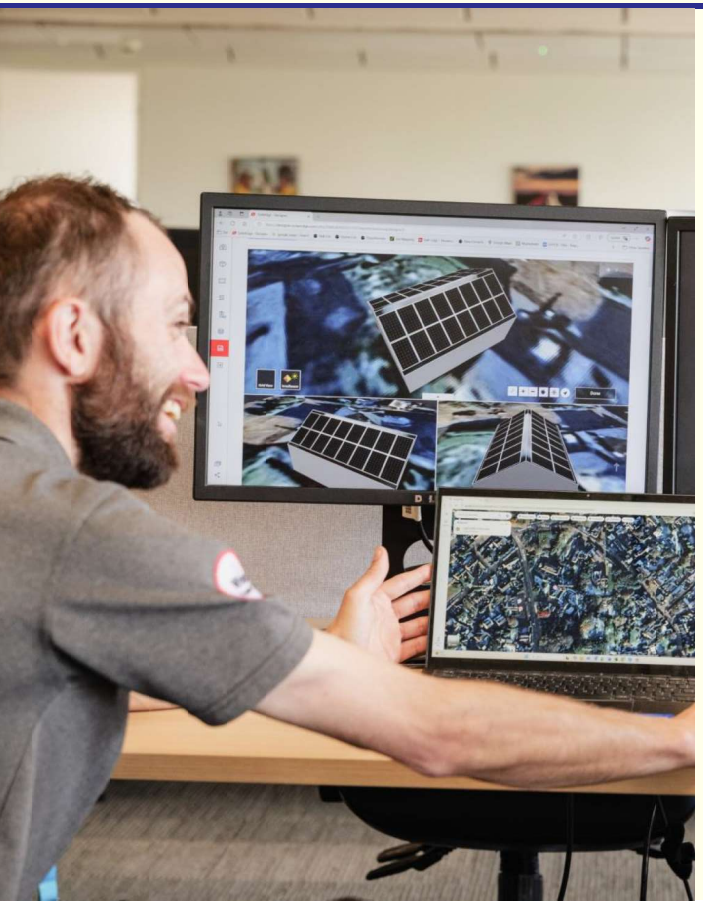
Could you work in the renewable sector?

If you enjoy designing or improving how things work with maths and science…

you could make a great **engineer!**



Could you work in the renewable sector?



Engineers:

- Design and plan how solar energy systems should work before anything is installed
- Use maths, science and problem-solving to make systems efficient and reliable
- Work out the best way to generate, move and use electricity
- Test ideas and improve technology so it works better and lasts longer
- Help shape the future of clean energy by designing smarter solutions

Could you work in the renewable sector?

If you enjoy spotting trends and answering questions using data…

you could make a great **energy analyst!**

Could you work in the renewable sector?

Energy analysts:

- Use data and numbers to understand how energy is being used
- Analyse patterns to see where energy is wasted or could be saved
- Help schools, homes and businesses use energy more efficiently
- Turn information into clear advice that helps people make better choices
- Show how small changes in energy use can add up to big reductions in pollution

Could you work in the renewable sector?

If you enjoy experiments and discovering new ideas…

you could make a great **climate scientist!**

Could you work in the renewable sector?

Climate scientists:

- Study the Earth's climate and how it is changing over time
- Use data, experiments and computer models to understand weather, oceans and temperatures
- Investigate how human activities, like burning fossil fuels, affect the planet
- Help explain climate change and its impacts to governments, schools and communities
- Provide evidence that helps people make decisions to protect the planet

Could you work in the renewable sector?

If you like organising, planning and helping teams work together…

you could make a great **project manager!**

Could you work in the renewable sector?

Project managers:

- Plan and organise renewable energy projects from start to finish
- Coordinate different teams, such as engineers, installers and electricians
- Make sure projects stay on schedule and within budget
- Solve problems and make decisions when plans need to change
- Help turn clean energy ideas into real projects that get built and used

What you now know

You should now:

- ✓ Understand what renewable energy is
- ✓ Understand the benefits of renewable energy
- ✓ Know how solar PV works
- ✓ Know how much of the UKs power comes from solar PV
- ✓ Have an awareness of job roles in the renewable sector

Questions


Cen 20.7
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LET'S GO
ZERO
2030
SCHOOLS
WORKING
TOGETHER
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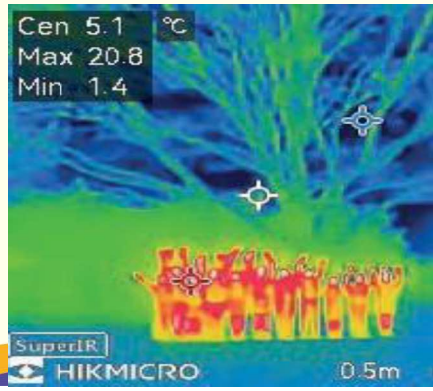
ZERO CARBON
Save the PLANET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Max 20.8
Min 1.4
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Barker

Thank you


Building
Spatial
Intelligence


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