

Can smart tech prevent climate change?

This is not a word-for-word transcript

Neil

Hello. This is 6 Minute English from BBC Learning English. I'm Neil.

Sam

And I'm Sam.

Neil

These days, our lives are filled with devices that were unimaginable only a few years ago – the sorts of things you read about in science-fiction novels, but never thought you'd own.

Sam

Yes, like those robots that vacuum your floor or voice-activated lights – we call many of these things 'smart tech'.

Neil

But while they can help with the little tasks at home, some people are wondering whether they can help fight climate change.

Sam

Yes, smart homes, regulating things like the temperature, are a step in the right direction. Using AI to learn when the house is occupied and the optimal time to fire up the heating, is one way to limit wasteful use of resources.

Neil

The problem comes from the origin of the energy which powers these home systems. If it's fossil fuels, then **digging them up** – an informal way of saying removing something from the earth - and burning them creates carbon emissions.

Sam

I suppose that's why many people are trying to find more renewable forms of energy to reduce their carbon footprint.

Neil

Well, it's interesting that you mentioned carbon footprint, because my question is about that today. How many tonnes of carbon dioxide are humans responsible for emitting into the atmosphere every year? Is it more than:

- a) 30 billion
- b) 40 billion; or
- c) 50 billion?

Sam

Well, Neil, that all sounds like a lot to me, but I'll go straight down the middle and say b – 40 billion tonnes.

Neil

OK, Sam, we'll find out the correct answer at the end of the programme. So you mentioned earlier that people are looking into ways to use more renewable energy, but there are also some problems with that form of energy production.

Sam

Yes – for example many of these technologies rely on certain weather conditions, which affect the level of energy production.

Neil

Dr Enass Abo-Hamed, CEO of H2go, is working on a project on Orkney, an island off the coast of Scotland, testing ways of storing renewable forms of energy. Here she is on BBC World Service programme Crowd Science, speaking with Graihagh Jackson, talking about the limitations of renewable energy sources.

Dr Enass Abo-Hamed - 750

Renewable energy is **intermittent** by its nature because it's dependant and relying on the weather. When the Sun shines and when the wind blows, and these by nature are not 24-hour 7 reliable constant.

And that means that demand doesn't always meet supply of renewables – it can mean that we get **blackouts**, but on the other hand, when the Sun is up and we are producing all that power or when the wind is blowing and were producing that power, we might not be able to use that energy - There's no demand for it and so it's wasted.

Sam

So, Dr Enass Abo-Hamed said the renewable energy is **intermittent**, which means that something is not continuous and has many breaks.

Neil

She also said that because there isn't always a steady stream of energy, we can get **blackouts** – periods of time without energy.

Sam

People like Dr Enass Abo-Hamed are trying to find solutions to make renewable energy storage devices – which would make the supply of energy more constant.

Neil

Smart tech can also help with this problem with renewable sources. Now, of course, not only can computers be used to design efficient models, but smart tech can also be used to improve performance after things like wind turbines have been installed.

Sam

Here is Graihagh Jackson, science broadcaster and podcaster, speaking about how smart tech can improve efficiency on BBC World Service programme, Crowd Science:

Graihagh Jackson – 11.38

Some engineers use something called a digital twin. This is really interesting, actually. This is where lots of sensors are attached to the wind turbine, so it can be modelled on a computer **in real time**. And then, using **machine learning**, you can then **simulate** what's happening to the wind turbine in specific weather

conditions. And this is important because it means they can make sure they're performing their best.

Neil

Graihagh Jackson used the expression **in real time**, which means without delay or live.

Sam

She also mentioned **machine learning**, which is the way computers change their behaviour based on data they collected.

Neil

And she also said **simulate** – produce a computer model of something.

Sam

So, while there are issues with the reliability of the source of renewable energy, it's clear that people are working on solutions such as energy storage to make sure there is always a supply.

Neil

And that computers can be used to design and operate technology as efficiently as possible.

Sam

Much in the same way that AI can be used in your home to make it run as efficiently as possible.

Neil

Yes – all in the hope of reducing your carbon footprint.

Sam

Which reminds me of your quiz question, Neil.

Neil

Yes, in my quiz question I asked Sam how many tonnes of carbon dioxide humans produce each year!

Sam

I went for b) 40 billion tonnes.

Neil

Which is... the correct answer! Well done, Sam!

Sam

Wow – I guessed right – but all three of those numbers sound really high! Let's recap the vocabulary from today's programme about smart tech and climate change, starting with **dig something up** – an informal expression to remove something from the ground.

Neil

Intermittent is used to describe something that is not continuous or steady.

Sam

Blackouts are periods of time without energy, for example electricity.

Neil

In real time means without delay or live.

Sam

Machine learning is the process by which computers learn and change behaviour based on data.

Neil

And finally, **simulate** means produce a computer model.

Sam

That's all for this programme. Bye for now!

Neil

Goodbye!

VOCABULARY

dig something up

excavate; remove something from the ground

intermittent

irregular; not continuous

blackouts

periods of time without electricity or energy

in real time

no delay; live

machine learning

way computers learn and adapt based on collated data

simulate

produce a computer model