**Text 52 HOW SAFE IS NUCLEAR ENERGY?**

The British government wants nuclear power to provide 25% of the UK's electricity needs by 2050. So as to get extra support in the Budget, Chancellor Jeremy Hunt announced he wants to reclassify it as "environmentally sustainable". The announcement follows a similar move by the EU in 2022.

The International Atomic Energy Agency says nuclear power plants are among "the safest and most secure facilities in the world". They are subject to stringent international safety standards. However, there have been a number of high-profile accidents which released large amounts of radioactive material into the environment. The worst nuclear accident in history was caused by an explosion at the Chernobyl nuclear power plant in Ukraine in 1986. More recently an enormous earthquake caused a tsunami which flooded the Fukushima nuclear plant in Japan in 2011, causing a partial meltdown of the reactor cores. Even under normal conditions, generating nuclear power produces hazardous radioactive waste which needs to be safely managed and stored for hundreds of years.

To generate nuclear power in non-military reactors, uranium atoms are bombarded by much smaller neutron particles. This causes the atoms to break down in a process called nuclear fission, which releases huge amounts of energy as heat. The heat is used to boil water, producing steam which drives turbines and generates electricity.

Like fossil fuels, nuclear fuels are non-renewable energy resources, but unlike fossil fuels, nuclear power stations do not produce greenhouse gases like carbon dioxide or methane when operated. Building new nuclear plants does, however, create emissions - through manufacturing the steel and all the other materials needed. But, altogether, the emissions footprint […] is still very low compared to coal and fuel.

There are currently six plants that can supply about 20% of UK electricity demand, with 15.5% generated this way in 2022. Most are at the end of their life, but the government wants to deliver up to eight new reactors overall. The Hinkley Point C plant is already under construction in Somerset, and the government has approved one more nuclear power plant on the Suffolk coast. Together these will be able to power 12 million homes in the UK. […]

However, critics of nuclear power say the new plants will take so long to come on stream they will be too late to help the UK meet its emissions targets or reduce energy prices for consumers. For example, Hinkley Point C is two years behind schedule – and is also expected to cost twice as much as originally planned – and the new approved station in Suffolk will take nine years to construct.

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