

CEN briefing note: nuclear

- **Nuclear power can play an important role in delivering energy security and the net zero target.** Nuclear energy provides firm zero-carbon power that is predictable and consistent. Alongside cheaper intermittent forms of power generation, such as wind and solar, nuclear power will help the UK reach net zero by 2050.
- **The [Civil Nuclear Roadmap](#) sets out the near-term steps and long-term ambition the Government has to secure the future of British nuclear power and reach net zero by 2050.** The roadmap includes the release of several consultations that will speed up planning and investment decisions, alongside targets that will encourage industry to base themselves in Britain.
- **Nuclear capacity in the UK has declined significantly over several decades.** The UK's nuclear electricity generation share has fallen from [27% in the 1990s to around 15% today](#). At its peak in the mid-1990s, the UK generated approximately 13GW of power from nuclear energy, but this has slipped to only around 6GW today. Nuclear's share of generation is expected to fall further until Hinkley Point C comes online later this decade.
- **Nuclear plants produce zero emission power with the lowest land footprint per MWh.** Firm nuclear power is useful to provide a consistent baseload, to supplement intermittent renewables. Nuclear power has a smaller footprint than other technologies, requiring only [0.3m²](#) per MWh, compared to 19m²/MWh for ground-mounted solar and 21m²/MWh for coal. However, renewables, particularly offshore wind, are considerably cheaper and so will likely provide the backbone of a decarbonised grid. Surplus energy, generated when demand is low, could be used to produce clean hydrogen.
- **The nuclear industry [supports 60,000 jobs](#).** The Nuclear Industry Association (NIA) estimates that almost 40% of direct employment in the civil nuclear sector occurs in the most deprived 25% of local authorities in England, and this figure rises to 48% in Scotland. Since more than half of civil nuclear jobs are in rural areas, well-paid nuclear roles also combat the rural-urban wage gap.
- **Nuclear is significantly more expensive than offshore wind or solar.** This is, in part, due to [excessive regulation in Britain](#), which goes above and beyond what is required in other nuclear-powered nations such as South Korea, Finland and France. In 2050, the Climate Change Committee - the Government's independent advisors on climate change - estimate that nuclear power will cost more than [twice as much as offshore wind](#). Hinkley Point C is the [second most expensive nuclear project](#) per MW of construction in the world, largely due to the financial model used which places all the risk on the private sector. The Government has since passed the Nuclear Energy

(Financing) Act 2022, which introduced a new financing model (Regulated Asset Base), whereby billpayers start to take on some of the risk.

- **Small Modular Reactors (SMRs) could offer a quicker route to getting nuclear power online** as they are made of standardised factory-manufactured parts delivered ready for assembly. However, the government competition to develop SMRs has been delayed, with successful projects not expected to be operational until the [mid-2030s](#).
- **The Government is the majority shareholder of Sizewell C.** To date the Government has committed £1.2 billion to support the project's development. In addition to the 500 people employed so far, Sizewell C has plans to award 70% of the value of construction to UK businesses, helping to create thousands more jobs. The project will also create 1,500 apprenticeships. Once operational, the plant will generate 3.2GW of electricity, equating to 7% of the UK's needs and enough to power up to 6 million British households for over 60 years. A final investment decision is due this year.
- **The Government launched Great British Nuclear (GBN) in 2023.** GBN is responsible for driving the delivery of new nuclear projects, co-funding and establishing a pipeline of large-scale and SMR projects. GBN holds the secretariat for the [Nuclear Skills Taskforce](#), which was set up to turbocharge skills activity in the sector. The [SMR competition](#) was launched by GBN to help deliver operational SMRs by the early 2030s. This will involve government funding, however, specific figures have not yet been confirmed.
- **The Nuclear Fuel Fund allocated £22.3 million of funding to eight projects.** These included innovations in Advanced Modular Reactors, enriched nuclear fuel, and SMR development.
- **The Government has bought the Wylfa site in Ynys Môn (Anglesey) to develop new large-scale nuclear.** The £160 million purchase was announced in the Chancellor's Spring Budget, and the Government has [since confirmed](#) this as their preferred site for the UK's third gigawatt-scale nuclear power station.