

Debate Pack

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By Nicole Watson,
Paul Bolton,
Nikki Sutherland

Civil Nuclear roadmap

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Summary

There are currently 9 operational reactors in the UK at 5 plants, which provide about 6.5 gigawatts (GW) of capacity. All but one of these plants are due to reach the end of their operating lives and be shut down before 2030. New reactors are proposed at different sites in the UK and are at different stages of development. Hinkley Point C is the only plant currently under construction, with an expected completion date between 2029 and 2031. Construction on Sizewell C in Suffolk is expected to begin in 2024, subject to a final investment decision (FID) and construction timelines.

The government has an ambition to increase nuclear capacity in the UK from around 6 GW to up to 24 GW by 2050, as set out in the [British energy security strategy](#) (April 2022).

In January 2024, the government published its [Civil Nuclear: Roadmap to 2050](#) which sets out “the pathway to a UK resurgence in civil nuclear, covering both the long-term strategy and the near-term enabling policies we are pursuing.” Key commitments include:

- Launching consultations on [Alternative Routes to Market for New Nuclear Projects](#) and a [new approach to siting nuclear](#).
- Publishing a [Nuclear Skills Taskforce](#) report alongside a Defence Nuclear Enterprise Command Paper, explaining how the government will “ensure our civil and military nuclear ambitions address shared challenges and opportunities”.
- Completing the [Great British Nuclear](#) (GBN)-led Small Modular Reactor (SMR) technology selection process, announcing which technologies will be supported to achieve FID by 2029.
- Seeking to reach FID on Sizewell C (SZC) before the end of this Parliament.
- Monitoring the construction of Reactor Units 1 and 2 at Hinkley Point C (HPC) by EDF Energy so that our first new nuclear project in a generation can come online later this decade.
- Publishing a response to the government’s [consultation on nuclear decommissioning and managing radioactive substances](#), including radioactive waste.

- Exploring a further large-scale reactor project and setting out timelines and processes this Parliament, subject to a SZC FID.
- Aiming to secure investment decisions to deliver 3-7GW every five years from 2030 to 2044, to meet our ambition to deploy up to 24GW of nuclear power by 2050.

The strategy was generally received positively by stakeholders in the nuclear industry. However, the Environmental Audit Committee published a letter raising concerns about the clarity of the government's strategy on small modular reactors.

This briefing provides background and statistics on nuclear energy in the UK; a summary of the government's Civil Nuclear Roadmap; and stakeholder commentary and Parliamentary material on the Roadmap.

1 Background

On 22 February 2024, a general debate on the [Civil Nuclear roadmap](#) will take place. This debate has been chosen by the Backbench Business Committee and is sponsored by Damian Collins MP.

1.1 Nuclear in the UK

The world's first civil nuclear power plant was opened at Calder Hall in Cumbria in 1956.¹ Following the opening of Calder Hall, a further 17 civil nuclear plants came online in the UK between the 1950s and 1990s, with the most recent – Sizewell B in Suffolk – opening in 1995.

Many older generation nuclear plants have now been decommissioned and the UK's nuclear electricity generation share has fallen from 25% in the 1990s to around 15% today.² There are currently 9 operational reactors in the UK at 5 plants, which provide about 6.5GW of capacity. Most of these reactors are due to reach the end of their operating lives and be shut down before 2030 (following some life extensions) as the table below shows.

Table 1 : Nuclear reactors currently operating in the UK

Location	Reactor type	Capacity (MWe) ³	First grid connection	Expected shutdown
Hartlepool	Advanced gas-cooled Reactor (AGR)	590 and 595	1983 and 1984	2026
Heysham	AGR	485 and 575	1983 and 1984	2026
Heysham II	AGR	2 x 620	1988	2028
Torness	AGR	595 and 605	1988 and 1999	2028
Sizewell (B)	Pressurised Water Reactor (PWR)	1198	1995	2025 ⁴

Source: World Nuclear Association, [Nuclear Power in the United Kingdom](#), Updated February 2024

¹ Calder Hall was a dual-purpose nuclear power plant which supplied the first nuclear power for the National Grid in addition to producing plutonium for military purposes.

² Department for Business, Energy and Industrial Strategy (2019), [Energy Trends: March 2019](#), p. 64; Department for Energy Security and Net Zero (2023). [Digest of UK Energy Statistics Annual data for UK, 2022](#), p. 5.

³ Unit of power – megawatt equivalent.

⁴ Subject to investment and feasibility studies, Sizewell B may be extended to 2055 (see [Civil nuclear: roadmap to 2050](#))

1.2

Plans for new nuclear

New reactors are proposed at different sites in the UK and are at different stages of development. Hinkley Point C is the only plant currently under construction, with an expected completion date between 2029 and 2031. Construction on Sizewell C in Suffolk is expected to begin in 2024, subject to an FID and construction timelines.

Nuclear power plants were also proposed at sites in Wales, Gloucestershire and Cumbria, but were cancelled.

For further background, see the Library Briefing [New nuclear power](#) (February 2021).

Hinkley Point C

Hinkley Point C (HPC) was granted final approval in 2016 for two reactors and is currently being built. It is the first nuclear power plant under construction in the UK for 25 years.

The plant is being built on a site on Somerset's north coast on Bridgwater bay adjacent to the previous Hinkley Point A and B nuclear power plants.

HPC will consist of two European Pressurised Water Reactors (EPRs), developed by the French companies [Framatome](#) (previously Areva) and [EDF Energy](#). Each reactor will be able to generate 1.6GW of electrical power, making HPC a 3.2GW power plant. This would power the equivalent of around 6 million homes.

HPC is being developed by NNB Generation company, a joint venture of EDF (66.5%) and China's state-owned China General Power (33.5%).⁵

Construction of HPC has suffered repeated delays and cost estimates have risen over the course of its construction. Its original cost estimate was £18 billion (in 2015 prices) with an expected completion date at the end of 2025. This [estimate was made in 2015](#), ahead of the [Final Investment Decision](#) which was taken in 2016.

The current estimated costs are £31 billion to £35 billion (in 2015 prices) with an expected completion date of 2029-2031.⁶

The main cause for of cost increases and schedule delays cited by EDF is the global pandemic. Giving evidence to the Science, Innovation and Technology

⁵ [Hinkley Point C: supply low-carbon energy to 6 million households in the United Kingdom](#).

⁶ World Nuclear News, [EDF announces Hinkley Point C delay and rise in project cost](#), 23 January 2024

Committee inquiry, [Delivering nuclear power](#) in November 2022 Paul Spence, Director of Strategy and Corporate Affairs at EDF, said:

“We have said that we think somewhere over 12 months of the 18 months of delay are attributable to the pandemic and the impacts it had in terms of the reduction in the number of people able to work on the site during that phase.”

Mr Spence also cited issues relating to HPC being a first-of-a-kind project and challenges related to restarting the UK’s nuclear industry, saying:

“when we made our first estimate, we assessed what we thought was the requirement to take an international design but make it suitable for UK regulations. To do that has actually required more material, more time and more engineering. That is the second big component in the cost increase. There were also some areas where the work has honestly been harder than we expected. In a first-of-a-kind project for 25 years [...] it has taken a big effort to restart the UK’s nuclear new build industry.”⁷

Sizewell C

EDF Energy plans to build two additional nuclear reactors at Sizewell in Suffolk (Sizewell C, SZC). SZC would be comprised of 2 EPR reactors with capacity of 3.2GW. SZC is expected to be completed in the mid-2030s, subject to an FID and construction timelines.⁸

The SZC project began as a joint venture between EDF Energy (80%) and CGN. However, the UK government purchased CGN’s stake in the project in June 2022 for £100 million. The government invested a further £700 million in September 2022 and negotiated with EDF to become 50-50 partners.⁹ An additional £341 million was announced in August 2023 to support pre-construction work.¹⁰

In September 2023, the government began a process to bring private equity investment into SZC using the [Regulated Asset Base \(RAB\)](#) framework, which was established under the [Nuclear Energy \(Financing\) Act 2022](#). The RAB model is a financial support mechanism legislated for nuclear in 2022, that covers capital interest payments during construction to reduce the risk taken on by developers. Commencing at the start of construction, it allows licensees to collect revenues from consumers via energy suppliers, at a rate regulated by Ofgem, to recover the costs of interest on capital. As with the [Contracts for Difference](#) model, a strike price provides certainty of the price received but

⁷ HoC, [Oral evidence: Delivering Nuclear Power, HC 626](#), 2 November 2022

⁸ Department for Energy Security and Net Zero (DESNZ) [Civil nuclear: roadmap to 2050](#), 11 January 2024

⁹ World Nuclear News, [UK government takes 50% stake, confirms backing for Sizewell C : New Nuclear](#), 29 November 2022

¹⁰ DESNZ and Great British Nuclear (GBN) [New steps will speed up Sizewell C preparations](#) 29 August 2023

will be reassessed every few years so nuclear operators can recover costs.¹¹ For further information, see the Library briefing [Nuclear Energy \(Financing\) Bill 2021-22](#) (January 2022).

When the Civil Nuclear Roadmap was published on 11 January 2024, the government had committed to £1.2bn of investment into SZC.¹² On 24 January 2024, it pledged a further £1.3 bn of investment, bringing the total to £2.5 bn.¹³

1.3

Small Modular Reactors (SMRs) and Advanced Modular Reactors (AMRs)

SMRs are small versions of nuclear reactors with an output of 300 megawatts (MW) or less. They are intended to consist of standard, components so they can be mass produced and quickly assembled with multiple ‘modules’. Further background on SMRs can be found in the POSTNote [Small Modular Nuclear Reactors](#) (July 2018).

Advanced Modular Reactors (AMRs) use novel coolants and/or fuels and typically have higher temperature outputs compared to conventional reactors.¹⁴

In the [Ten Point Plan for a Green Industrial Revolution](#), the government committed £385 million of investment in an Advanced Nuclear Fund, including up to £215 million into SMRs and up to £170 million for a research and development programme on AMRs.¹⁵

In the 2022 [British Energy Security Strategy](#), the government committed to taking at least one SMR project to final investment decision in the next Parliament.¹⁶ The Rolls-Royce 470 MW SMR76 has received the most UK Government support so far, receiving £210 million in 2021 that was matched by £280 million of private investment.¹⁷

For further information, see the POSTNote [Nuclear energy in the UK](#) (December 2022).

¹¹ Department for Business, Energy and Industrial Strategy (BEIS) [Revenue stream for the Nuclear RAB model: consultation](#)

¹² Department for Energy Security and Net Zero (DESNZ) [Civil nuclear: roadmap to 2050](#), 11 January 2024

¹³ DESNZ, [Further steps to prepare Sizewell C for construction](#), 24 January 2024

¹⁴ DESNZ, [Advanced Nuclear Technologies](#), 15 August 2023

¹⁵ Department for Business, Energy and Industrial Strategy (BEIS) [Ten Point Plan for a Green Industrial Revolution](#), 18 November 2020

¹⁶ DESNZ, [British Energy Security Strategy](#), 7 April 2022

¹⁷ Macfarlane-Smith, S. [Rolls Royce SMR Nuclear Academics Meeting](#) (PDF) 8 September 2021; Rolls-Royce SMR, [Rolls Royce and QIA announce nuclear investment](#), 20 December 2021

1 Nuclear generations

Generation is a term used to group types of nuclear reactors based on how advanced they are. Generation I includes Magnox reactors, Generation II describes the reactors in the UK's current fleet. Gen III reactors include the European Pressurised Reactor (e.g. Hinkley Point C) and are similar to earlier reactors (e.g. Sizewell B) but with enhanced thermal efficiency and a more standardised design and additional safety features. Generation IV reactors are currently mostly in a research phase and may have advanced safety, efficiency, fuel and waste features.

[Advanced Nuclear Technologies](#) (AMRs) include a range of technologies currently under development. They are typically smaller than conventional nuclear power station reactors and are designed to be fabricated in a factory then transported to the site, reducing costs and construction risk.

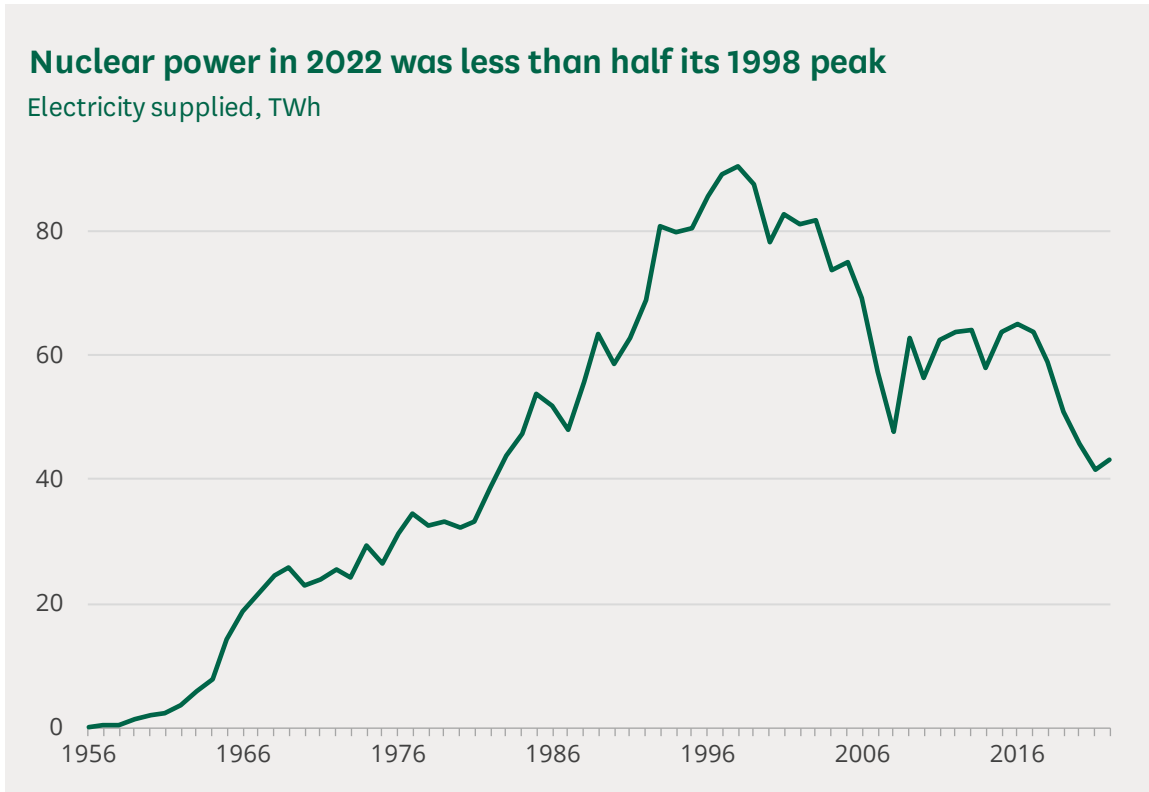
For further background, see the Library Briefing [New nuclear power](#) (February 2021) and the POSTNote [Nuclear energy in the UK](#) (December 2022).

1.4

Nuclear energy statistics

UK

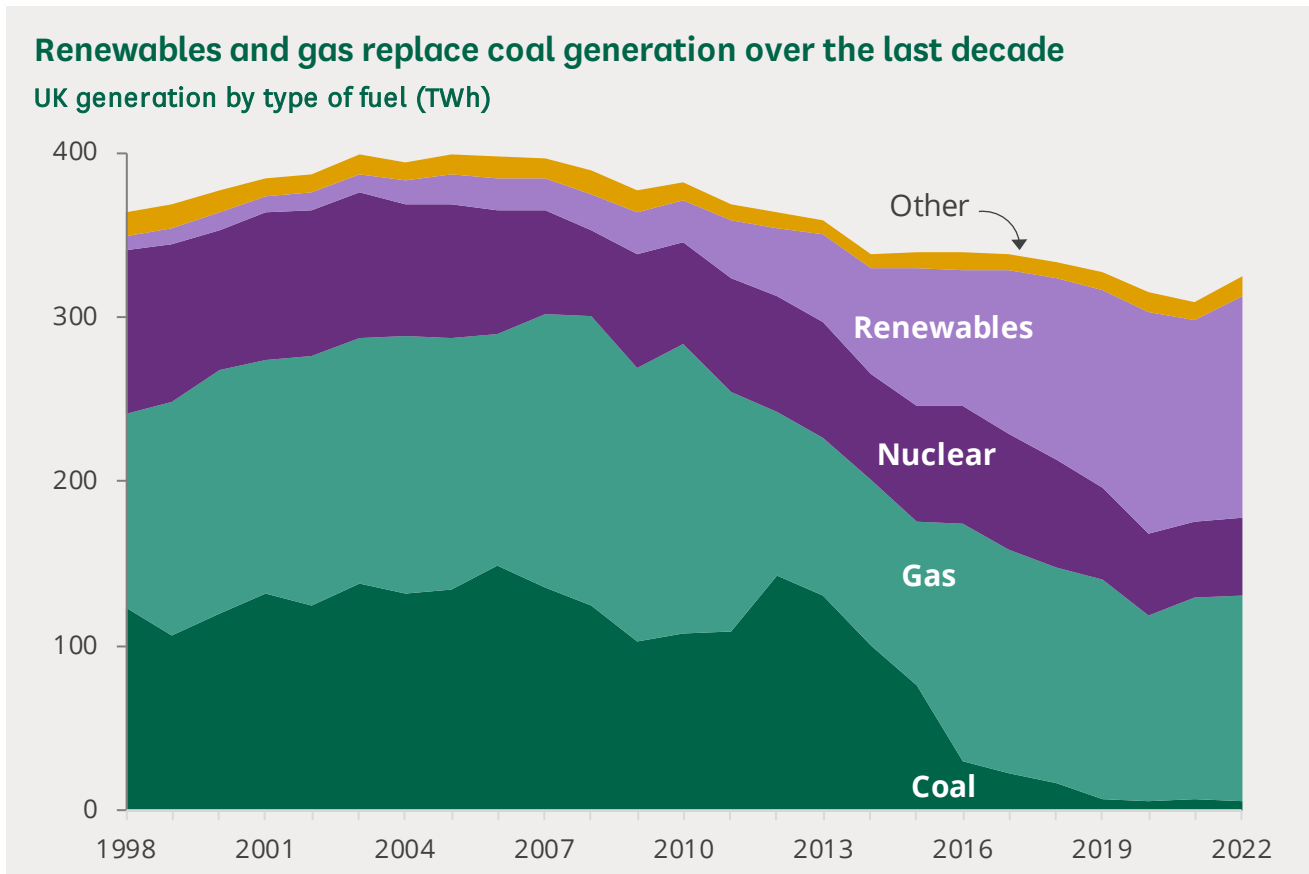
In 2022 the UK's nuclear power stations generated 43 terawatt hours (TWh) of electricity. The following chart shows that this was a small increase on 2021, but less than half its 1998 peak of 91 TWh. Nuclear output has fallen over time because of the closure of stations. Generation can be particularly low in individual years if there are large numbers of 'outages' when a reactor is temporarily shutdown. Nuclear produced just under 15% of the UK's gross electricity generation in 2020. The trend in this indicator is very similar to the total output shown in the following chart. The peak was in the mid-1990s when it produced more than 25% of UK's power.



Source: DESNZ, [Digest of UK energy statistics, 2023](#), and earlier, (Table 5.1.3)

In the first 11 months the amount of electricity supplied by nuclear power was down by 15% on the same period in 2022 due to a high number of outages.

The next chart looks at more recent data on the UK's generation mix. It shows that renewables have expanded rapidly over the past decade, overtaking nuclear generation in 2014 and gas in 2020. Low carbon generation (nuclear and renewables) made up 56% of the total in 2022.



Source: DESNZ, [Digest of UK energy Statistics](#), (Table 5.6)

The latest official energy projections were published in 2023 and assumed that 3.3 GW of new nuclear capacity would come online by the late-2020s with a similar amount starting in the mid-2030s.¹⁸ This amount is lower and later than in projections published three years earlier.¹⁹ The total 6.6 GW of new capacity would eventually more than make up for the closure of existing reactors, but nuclear capacity at the end of the 20230s would only be 0.3 GW above current levels.²⁰

In the 'reference scenario'²¹ nuclear generation falls up to the mid 2020s then gradually increases, reaching more than 50 TWh in the late-2030s. It makes up 13% of electricity supply in the late 2030s.²²

Nuclear power around the world

In 2022 there were thirty-one countries around the world with nuclear power. The US had the highest number of reactors with 93 followed by France and China with 56 and 54 respectively. The UK's 12 put it eighth highest. The

¹⁸ DESNZ, [Energy and emissions projections: 2022 to 2040 \(Annex I\)](#)

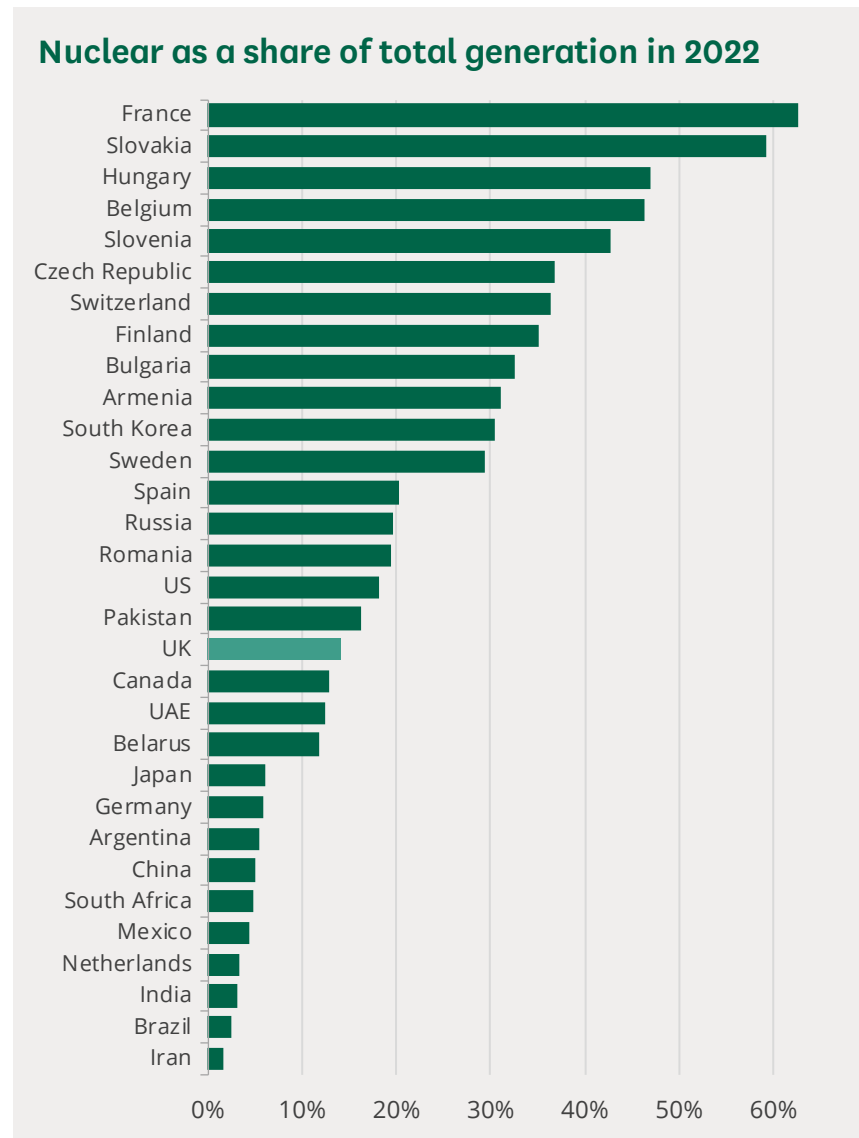
¹⁹ BEIS, [Updated energy and emissions projections: 2019](#)

²⁰ DESNZ, [Energy and emissions projections: 2022 to 2040 \(Annex I\)](#)

²¹ Central assumptions of fossil fuel prices and economic growth and all existing and planned policies (at the time)

²² DESNZ, [Energy and emissions projections: 2022 to 2040 \(Annex J\)](#)

following chart compares the proportion of generation from nuclear in countries with nuclear power.



Source: IAEA [Power Reactor Information System](#) (PRIS)

At the start of 2024 there were 58 nuclear reactors under construction around the world including the two at Hinkley Point C. The largest number being built were in China with 23, followed by India with eight.²³ At the end of 2022 there were 69 reactors planned for construction across eight different countries. 32 of these were in China. Russia had the next highest number with 18.²⁴

²³ IAEA [Power Reactor Information System](#) (PRIS), accessed 16 February 2024

²⁴ [Nuclear Power Reactors in the World 2023](#), IAEA

2

Civil Nuclear: Roadmap to 2050

The government has an ambition to increase nuclear capacity in the UK from around 6 GW to up to 24 GW by 2050, as set out in the [British energy security strategy](#) (April 2022).

On 11 January 2024, the government published its [Civil Nuclear: Roadmap to 2050](#) which sets out “the pathway to a UK resurgence in civil nuclear, covering both the long-term strategy and the near-term enabling policies we are pursuing.”²⁵

The strategy sets out the following commitments:

- Launching consultations on [Alternative Routes to Market for New Nuclear Projects](#) and a [new approach to siting nuclear](#).
- Publishing a [Nuclear Skills Taskforce](#) report alongside a Defence Nuclear Enterprise Command Paper, explaining how the government will ensure its civil and military nuclear ambitions address shared challenges and opportunities.
- Completing the [Great British Nuclear](#) (GBN)-led Small Modular Reactor (SMR) technology selection process, announcing which technologies will be supported to achieve FID by 2029.
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- Publishing a response to the government’s [consultation on nuclear decommissioning and managing radioactive substances](#), including radioactive waste.
- Exploring a further large-scale reactor project and setting out timelines and processes this Parliament, subject to a SZC FID.
- Aiming to secure investment decisions to deliver 3-7GW every five years from 2030 to 2044, to meet our ambition to deploy up to 24GW of nuclear power by 2050.

The strategy also included plans for a more streamlined approach to assessment and licensing processes. Regulation of nuclear power plants in the UK is undertaken by the Office for Nuclear Regulation (ONR), in collaboration with the Environment Agency (EA) and Natural Resources Wales. The generic design assessment (GDA) is a non-mandatory regulatory process used by the UK’s ONR and EA to assess the safety, security, and environmental implications of standardised nuclear reactor designs. Site

²⁵ DESNZ, [Civil Nuclear: Roadmap to 2050](#) 11 January 2024

specific licensing is managed by the ORN. The Civil Nuclear roadmap includes proposals to speed up the GDA, licensing, and permitting processes.

Alongside the strategy, the government launched a consultation into [Alternative routes to market for new nuclear projects](#), which will run until 4 April 2024. The consultation “aims to understand how government can support investment in advanced nuclear technologies and enable high value projects to be taken forward”.²⁶ The strategy expressed the government’s support for developers to engage with CfD or RAB financing models. The government said that it will also seek accession to [the Convention on Supplementary Compensation for Nuclear Damage \(CSC\)](#) to “enhance our Nuclear Third-Party Liability regime, supporting investment into the sector”.²⁷

Additional funding commitments in the strategy also include up to £300 million in UK production of High Assay Low Enriched Uranium (HALEU), the fuel required to power high-tech new nuclear reactors that are currently only commercially produced in Russia, as well as up to £10 million to accelerate the delivery of UK fuel cycle projects under the [Nuclear Fuel Fund \(NFF\)](#).

2.1

Great British Nuclear

In its energy strategy document [Powering up Britain](#) (March 2023), the government committed to launching [Great British Nuclear \(GBN\)](#), an arms-length body responsible for driving delivery of new nuclear projects. The measures required to launch GBN were passed in the [Energy Act 2023](#).

The government said that GBN is expected to “de-risk new nuclear development by, among other things, co-funding selected technologies through their development”, with the aim of providing greater certainty for investors.²⁸

GBN’s statutory role is to facilitate nuclear generation projects as a delivery body, with a long-term mandate to help implement government policies and its nuclear programme. Whilst it may facilitate projects, including by providing information and expertise to government, government will set the programme and related policies and take final decisions on all matters.

GBN’s first task is to administer a competitive process to select SMR technologies from around the world for deployment in the UK:

²⁶ DESNZ, [Alternative routes to market for new nuclear projects](#), 11 January 2024

²⁷ DESNZ, [Civil Nuclear: Roadmap to 2050](#), 11 January 2024

²⁸ DESNZ, [Energy Security Bill factsheet: Great British Nuclear](#), 1 September 2023

“This SMR technology selection process will underpin government’s commitment to two nuclear Project Final Investment Decisions during the next Parliament, with at least one of these being into an SMR project.”²⁹

Six companies have been successful in the initial stage of the competition and will be invited to submit bids for contracts. The second phase of the programme will be the progression of projects towards FID decisions in 2029.³⁰

Further information about GBN can be found in the government policy paper [Great British Nuclear: Overview](#) (July 2023) and in section 17.1 of the Library Briefing [Energy Bill \[HL\] 2022-23 Committee stage report](#) (September 2023).

2.2 Planning policy

Under the [Planning Act 2008](#), as amended by the [Localism Act 2011](#), major energy projects are considered ‘nationally significant infrastructure projects’ (NSIPs). They require ‘development consent’ from the Secretary of State for Energy Security and Net Zero and are not subject to normal local planning rules. In 2023, the government launched [a series of reforms to NSIPs](#) including creating a fast-track system for certain projects, moving to an outcomes-based approach to environmental issues, and committing to updating [National Policy Statements](#) (NPSs) more frequently. The NPSs guide decision-making on NSIPs.

Alongside these reforms, the [Civil Nuclear: Roadmap to 2050](#) includes a commitment to introduce a “new flexible approach to nuclear siting” subject to consultation on the new NPS and to grant nuclear generation projects “critical national priority status” in the planning system.³¹ The government said:

“Alongside this Roadmap the government is consulting on its proposed approach for determining how new nuclear developments could be sited beyond 2025. This is the first step towards developing a new nuclear NPS (EN-7). The government intends to consult on a draft of EN-7 in 2024 and to formally designate the new nuclear NPS in 2025.

Ahead of that, we have laid before Parliament and published the updated over-arching NPS (EN-1), which will apply to nuclear power alongside other nationally significant energy infrastructure once approved by Parliament and designated, which is expected early in 2024. [...] For the first time SMRs and

²⁹ GBN, [Great British Nuclear: Overview](#), 18 July 2023

³⁰ GBN, [Small Modular Reactors: competitive technology selection process](#), 18 July 2023

³¹ See section 2.2. of the Library Briefing [Planning for solar farms](#) (February 2024) for further information on planning policy for developments designated as “critical national priority” status.

AMRs generating heat and power will be brought into the planning policy framework in EN-7 alongside GW-scale projects.”³²

‘Critical national priority’ status means that the secretary of State should generally grant consent to low-carbon infrastructure projects, including nuclear.

Along with the Roadmap, the government launched a consultation on a new [approach to siting future nuclear power stations](#) on 11 January 2024, which is due to close on 10 March 2024.

2.3 Stakeholder commentary

The [Civil Nuclear: Roadmap to 2050](#) was generally received positively by stakeholders in the nuclear industry.

Gwen Parry-Jones, CEO of Great British Nuclear welcomed the Roadmap, stating:

“The Civil Nuclear Roadmap provides a framework for GBN to help deliver more safe, clean and affordable UK nuclear power to UK consumers. Together with industry, we will enthusiastically take up the role the government has set out for us in delivering and advising across the UK’s nuclear programme.”³³

Tom Greatrex, Chief Executive of Nuclear Industry Association praised the inclusion of both large and small reactors, saying:

“We will need both large and small nuclear at scale and at pace for our energy security and net zero future. Allowing developers to engage with the government about Regulated Asset Base funding models should also make it cheaper to finance projects, cutting costs to the consumer. Decisions on 3-7 GW in each five year period provide the greater clarity and predictability, which in turn enables supply chain investment and more UK content in the future fleet.”³⁴

Dr Fiona Rayment OBE FNucl, President of the Nuclear Institute, said that the roadmap represented a “strong signal from government on nuclear”, stating that “reaching 24GW by 2050 is achievable but challenging and recognising the need to address the skills and capability challenges in enabling this is key”.³⁵

³² DESNZ [Civil Nuclear Roadmap to 2050](#), 11 January 2024

³³ DESNZ, GBN, [Biggest expansion of nuclear power for 70 years to create jobs, reduce bills and strengthen Britain’s energy security](#), 11 January 2024

³⁴ World Nuclear News, [UK releases roadmap to quadruple nuclear energy capacity](#), 11 January 2024

³⁵ Nuclear Institute, [UK Government Nuclear Roadmap Published](#), 11 January 2024

Andrew Murdoch, UK Managing Director of Advanced Modular Reactor developer, newcleo, also welcomed the strategy and said that:

“newcleo is ready to invest billions of pounds of private money in the UK and create thousands of high value jobs in local communities with our innovative reactors.”³⁶

However, other stakeholders raised concerns about the readiness of SMR technology and the nuclear industry’s ability to deliver projects on time to meet Net Zero goals.

The Environmental Audit Committee (EAC) [published a letter to the Secretary of State for Energy Security and Net Zero](#) on 13 February 2024 raising concerns that the government’s policy on SMRs “needs clarity”:

“As a final investment decision on the first SMR is not expected until 2029, it is unlikely that the reactor project will be contributing generating capacity to the grid until 2035. The Government’s recently issued Civil Nuclear Roadmap suggests that as much as 24GW of generating capacity could be provided by 2050. This would include energy from fleets of SMRs, but also contemplates a path where investment decisions could deliver generating capacity as low as 12GW, leaving the Government’s overall strategy for the sector lacking clarity.”³⁷

The EAC highlighted mixed evidence submitted to its inquiry on [Small modular reactors in the transition from fossil fuels](#) with regards to the reduced costs of SMRs, urging the government to subject the programme to a value for money evaluation by the National Audit Office. It also highlighted evidence that the SMR designs being considered for deployment in the UK “would likely to result in a greater amount of waste for storage and reprocessing”.³⁸ The Committee noted that there is pressure to accelerate SMR technologies and emphasised the importance of ensuring that governance processes of the SMR programme are “sufficiently robust to ensure that regulatory procedures are not compromised”.³⁹

The government has not yet responded to the letter. Evidence submitted to the Committee can be found on the ESNZ committee’s page on [Small modular reactors in the transition from fossil fuels](#) (accessed 15 February 2024).

Dr Doug Parr, Chief Scientist for Greenpeace UK criticised the government’s commitment to nuclear, stating that the strategy:

³⁶ Build in Digital, [Putin drives UK’s energy policy to the nuclear option](#) 12 January 2024

³⁷ EAC, [EAC raises concerns that the Government’s direction on nuclear SMRs needs clarity](#), 13 February 2024

³⁸ EAC, [Correspondence: Letter from the FAC Chair to the Secretary of State for Energy Security and Net Zero, relating to small modular reactors in the transition from fossil fuels, dated 13 February 2024](#) (PDF), 13 February 2024

³⁹ EAC, [Correspondence: Letter from the FAC Chair to the Secretary of State for Energy Security and Net Zero, relating to small modular reactors in the transition from fossil fuels, dated 13 February 2024](#) (PDF), 13 February 2024

“will cause anxiety amongst communities who may be fingered as potential sites for new reactors, and it will cause more confusion, uncertainty and delay over the investment we need in the real solutions; renewable energy, efficiency and an upgraded grid.”⁴⁰

Jess Ralston, analyst at the Energy and Climate Intelligence Unit (ECIU) said the strategy could help to deliver investment in nuclear but cautioned that the strategy may have limited impact on energy security in the short term:

“The government investing millions of pounds of public money in nuclear should hopefully unleash further private sector investment and experts generally agree that we’ll need some new nuclear in the years ahead.

The challenge is the industry has a track record of running over budget and behind schedule, so this does little to boost the UK’s energy security any time soon.”⁴¹

⁴⁰ Energy Live News, [Energy industry responds to nuclear roadmap](#), 11 January 2024

⁴¹ ECIU, [Comment: Government plans nuclear power expansion](#), 15 January 2024

3 Parliamentary material

3.1 Debate

Westminster Hall debate - [Civil Nuclear Road Map and Wylfa](#)

HC Deb 23 January | Vol 744 c85WH-

3.2 PQs

[Nuclear Power](#)

Asked by: Rosindell, Andrew

To ask the Secretary of State for Energy Security and Net Zero, whether she has made a recent assessment of the efficacy of nuclear energy.

Answering member: Andrew Bowie | Department: Department for Energy Security and Net Zero

There is no credible pathway to net zero nor energy security without nuclear power. Nuclear complements intermittent technologies like wind and solar and reduce the risks created by the uncertainties of energy storage technologies. The Government's Civil Nuclear Roadmap, published yesterday, sets out the case for nuclear and presents the Government's long-term civil nuclear strategy to help deliver our ambition for up to 24GW of nuclear power by 2050.

HC Deb 12 January 2024 | PQ 7815

[Nuclear Power](#)

Asked by: Rosindell, Andrew

To ask the Secretary of State for Energy Security and Net Zero, if she will take steps to increase the UK's nuclear energy capacity.

Answering member: Andrew Bowie | Department: Department for Energy Security and Net Zero

The Civil Nuclear Roadmap, published yesterday, reconfirmed the Government's ambition to deploy up to 24GW of nuclear power by 2050. The Roadmap sets out key timelines for deployment and government decisions as

well as wider enabling policies. The Roadmap announced the Government's intention to explore a further GW-scale project after Sizewell C and its plans to make investment decisions concerning 3-7GW every five years between 2030 and 2044.

HC Deb 12 January 2024 | PQ 7814

3.3 Written statement

HC Deb 11 January 2024 | HCWS177

[Civil Nuclear Roadmap](#)

The Parliamentary Under-Secretary of State (Minister for Nuclear and Renewables), Andrew Bowie MP:

Today, we are publishing three key documents which signal the biggest expansion of nuclear power for 70 years and reinforce the UK's position as a leader in the civil nuclear renaissance: a Civil Nuclear Roadmap, a consultation on Alternative Routes to Market, and a consultation on a proposed policy for siting new nuclear power stations.

The measures we announce today will help to reduce electricity bills, support thousands of jobs and improve UK energy security. This includes exploring building a major new power station and investing in advanced nuclear fuel production. This sets us on a path towards deploying our huge ambition of up to 24 gigawatts (GW) of nuclear power in Britain by 2050 as part of a cleaner, cheaper, more secure energy system for the future.

The Civil Nuclear Roadmap is an unprecedented, world leading initiative that sends out an electrifying signal to the industry. It sets out our strategy for the deployment of the best new nuclear reactors in the UK, and how His Majesty's Government intends to work with the nuclear sector to deliver this ambition.

The Roadmap establishes our vision for a vibrant nuclear sector, providing detail on the policies we are pursuing to enable delivery, covering areas such as siting, regulation, financing, the joint work we are undertaking with defence nuclear colleagues to develop the required nuclear skills and supply chain in the UK, and how we are taking care of our nuclear legacy through policies on decommissioning and waste management.

We envision a vibrant, world-leading nuclear sector, setting the gold standard for other countries. Announcements we are making in the Roadmap include a commitment to reform the regulations, financing and decommissioning of civil nuclear to make it more streamlined and agile, removing red tape while retaining the UK's world-class standards of safety.

For example, these measures could cut the approval times for reactors that are already approved by overseas regulators by up to 50%.

We are also announcing our commitment to reduce global dependence on Russian fuel and grow the UK supply chain by investing £300 million, alongside industry, in British production of clean, green High Assay Low Enriched Uranium fuel for innovative new reactors, offering a commercial alternative to Russia for ourselves, and our allies and partners.

This is just the beginning of the UK standing at the forefront of nuclear innovation and excellence. The Roadmap also sets out our long-term ambition for nuclear, providing high-level timelines and key decision points for a wide range of nuclear technologies over the next decades, including Small Modular Reactors (SMRs), Advanced Modular Reactors (AMRs), and Gigawatt (GW) scale projects. In particular, it sets out our intention to explore a further GW-scale project after Sizewell C and our plans to make investment decisions concerning 3-7GW every five years between 2030 and 2044.

Advanced Nuclear Technologies, such as SMRs and AMRs, present the opportunity to decarbonise across the energy sector, from grid electricity through industrial heat to entirely new industries, such as the production of hydrogen and synthetic fuel.

Last year, we set up Great British Nuclear (GBN) as an arm's-length body responsible for helping deliver new nuclear projects and help lead our energy revolution. But we are also keen to harness innovation in the private sector and help developers bring forward new nuclear projects outside of GBN's on-going SMR selection process.

We are therefore today also launching our Alternative Routes to Market consultation with the aim to understand how government could support the private sector to bring forward advanced nuclear projects as well as explore the uses and services they could provide the economy.

Finally, in recognition of our enhanced nuclear ambitions and the exciting potential offered by Advanced Nuclear Technologies, we are launching a public consultation on a proposed new policy for siting new nuclear power stations.

This consultation marks an important first step in the process for developing a new nuclear National Policy Statement for England and Wales. The results of this consultation will be used to inform the drafting of the nuclear National Policy Statement document, which we intend to publish for further consultation. This will be part of the suite of energy National Policy Statements, and linked to the overarching energy National Policy Statement, which has recently been revised. Our intention is to designate the new nuclear NPS in 2025, subject to parliamentary processes. For the first time, we intend for the NPS to provide a planning policy framework for SMRs and AMRs as well as traditional Gigawatt scale power stations.

To achieve the UK's nuclear ambitions, the government believes that additional sites will be required for new nuclear projects, along with greater ongoing flexibility in the site selection process to enable new technologies.

In the siting consultation, we are excited to introduce a positive shift in approach. The new NPS will empower nuclear developers to identify potential sites for development, fostering developers' innovation and flexibility. While the existing designated nuclear sites may possess many inherent positive attributes potentially making them a consideration for future development, this change allows for exploration of diverse locations. By entrusting developers with this responsibility, we aim to streamline the process, encourage creative solutions, and enhance the overall efficiency of nuclear development, ultimately contributing to the growth and sustainability of the industry.

We propose that siting of new nuclear would continue to be constrained by robust criteria that determine where development can occur and developers would be empowered to undertake initial screening of sites based on the criteria, with advice from the regulators and statutory agencies.

It is our intention that safety will remain paramount, with the highest safety, security and environmental standards overseen by the independent nuclear regulator and environment protection agencies. Public consultation and community engagement would also remain an essential part of the process.

Copies of these three documents consultation will be published on GOV.UK. A copy of the Civil Nuclear Roadmap will be laid in the House. Copies of the consultations on Alternative Routes to Market and proposed policy for siting new nuclear power stations will be placed in the Libraries of the House.

4 Further information

Library and POST briefings:

- [Nuclear energy in the UK - POST \(parliament.uk\)](#)
- [Nuclear Energy \(Financing\) Bill 2021-22 - House of Commons Library \(parliament.uk\)](#)
- [New nuclear power - House of Commons Library \(parliament.uk\)](#)
- [Energy Bill \[HL\] 2022-23 Committee stage report - House of Commons Library \(parliament.uk\)](#)
- [Small Modular Nuclear Reactors - POST \(parliament.uk\)](#)
- [Nuclear power in the UK - House of Lords Library \(parliament.uk\)](#)

Select Committee inquiries:

- [Delivering nuclear power - Science, Innovation and Technology Committee](#)
- [What role can small modular reactors play in the UK's move away from fossil fuels? – Environmental Audit Committee](#)

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News items

Department for Energy Security and Net Zero and Great British Nuclear press release

11 January 2024

[Biggest expansion of nuclear power for 70 years to create jobs, reduce bills and strengthen Britain's energy security](#)

The Engineer

11 January 2024

[Civil Nuclear Roadmap plots pathway to 24GW capacity](#)

New Civil Engineer

11 January 2024

[Government publishes roadmap to reaching 24GW nuclear generation](#)

Energy Live News

11 January 2024

[Energy industry responds to nuclear roadmap](#)

Times [subscription required]

11 January 2024

[Mini nuclear plants to be built almost anywhere in UK - Planning rules are being relaxed to usher in a new atomic age based on small modular reactors](#)

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