KING & SHAXSON

Asset Management | Rewarding your Values

# THE REVIVAL OF NUCLEAR POWER

# RISING DEMAND

A key theme of 2025 within the energy sector has been the revival of nuclear power and its role in the provision of clean and sustainable energy. A core driver of this has been the increasing demand for energy driven by the so-called AI 'Hyperscalers' and their power-hungry data centres. This surge in electricity demand is threatening to place a strain on electric grids.

According to studies conducted by the International Energy Agency (IEA), the demand for electricity from AI-optimised data centres is projected to more than quadruple by 2030. In the United States, power consumption by data centres is on course to account for almost half of the growth in total electricity demand by 2030.[1] Nuclear can provide the base-load power, the minimum amount of electric power needed to supply the grid at any given time, which renewables cannot maintain in the absence of sufficient battery storage. In the face of energy security concerns, the need for 24/7 reliable power that is both clean and sustainable is the name of the game.

The start of the resurgence goes back to the end of 2024 when Microsoft and Constellation Energy announced a 20-year power purchase agreement (PPA) which included the reopening of Three Mile Island Unit 1. The deal will see Constellation Energy sell nuclear power to Microsoft to be used for the operation of data centres. For Constellation, it is the largest PPA that they have ever signed, and the CEO described the decision as "the most powerful symbol of the rebirth of nuclear power as a clean and reliable energy resource".[2] For many, this deal represents a turning point in the adoption of nuclear power.

> *"We have proven, at least with the nuclear power plants that are already in operation, that they are safe, efficient and absolutely necessary to keep the lights on at a time when new demand is growing, like data centres that require stable supply 24 hours a day"*
>
> *Ignacio Galán*
> *Iberdrola Executive Chairman*
> *World Economic Forum 2025*

---

[1] *AI is set to drive surging electricity demand from data centres while offering the potential to transform how the energy sector works - News - IEA*

[2] *Constellation Energy to restart Three Mile Island and sell the power to Microsoft*

*A rendering of Oklo's first nuclear power plant, dubbed the Aurora, that will be built at the Idaho National Laboratory. Image Source: Courtesy of Oklo, no copyright intended.*

# TECHNOLOGICAL SHIFT

A key motivation for big technology companies to strike nuclear deals is to achieve energy independence amidst increasing competition for power supply. This has seen the growth of small modular reactors (SMR), which enable these companies to guarantee stable, round-the-clock power that is carbon free. SMRs are much smaller than traditional nuclear plants, and the modular aspect means that the major component can be factory fabricated, transported and assembled on-site. This reduces construction time, simplifies installation and enables serial production. Their design therefore offers scalability and flexibility, stacking multiple units over time as demand grows.[3] Given that they are easier to site and scale, they are much more suited to be deployed across a range of locations where larger reactors are impractical, be it remote areas, industrial sites and energy-hungry facilities.

A corporate agreement signed between Google and Kairos Power, at the end of 2024, was the first of its kind to purchase electricity from a fleet of SMRs, utilising multiple deployments of a single advanced reactor. Google aims for up to 500MW of new, 24/7 carbon free power by 2035, with the first 50MW reactor expected to start supplying power by 2030.[4]

---

[3] *Small Modular Reactors - World Nuclear Association*

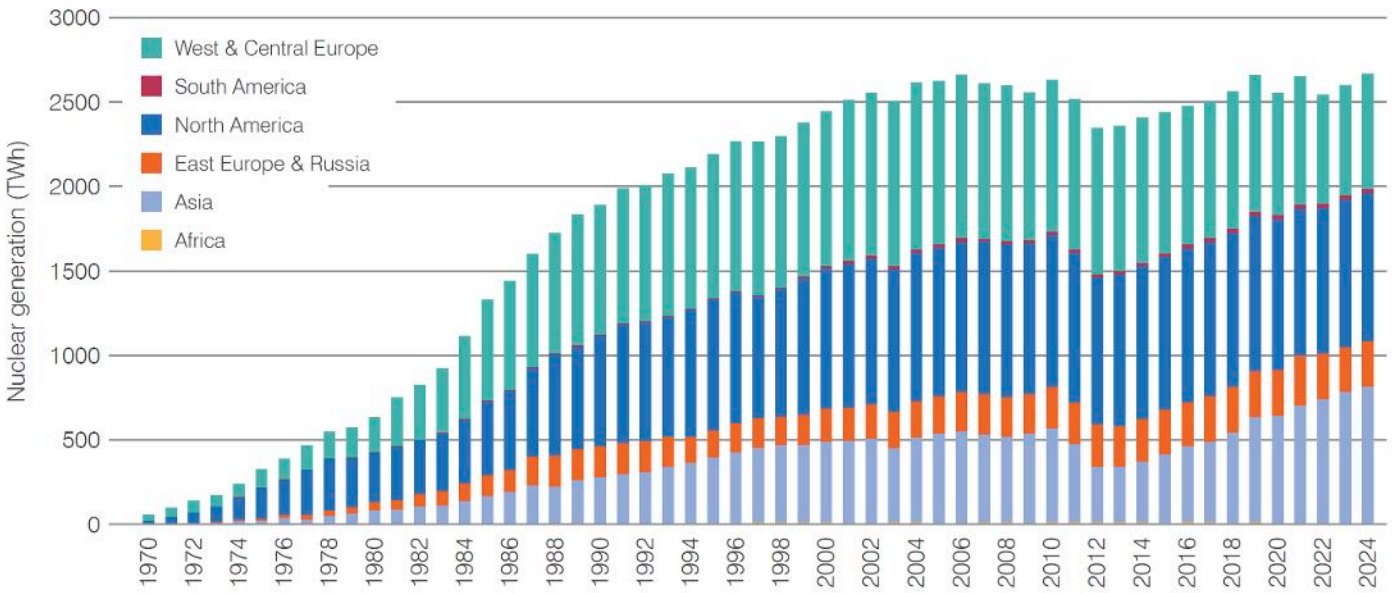
[4] *Google and Kairos Power Partner to Deploy 500 MW of Clean Electricity Generation - Kairos Power*

Deals such as these enable energy-intensive companies to be independent of external and variable grids which are more fossil fuel dependent for their constant power needs, working alongside more intermittent renewable deployment. The effect of this on listed companies has been stark, with SMR company Oklo, for example, returning 238% in 2025 despite having not yet earned any revenue.[5]

SMRs have been caught up in the AI hype, but it should not be forgotten that they remain largely early-stage, with designs under development and their commercial success not yet proven. Whilst they are expected to be significantly faster to build than traditional nuclear reactors, the times involved are still not trivial, and may still suffer overruns. The time-frames have not yet been proven. Another benefit of SMR is that they are expected to have enhanced safety and waste management features, but until this is proven these benefits remain an area of uncertainty that a range of stakeholders will need assurances on. If these concerns are addressed through successful deployments, then SMRs could play a major role in low-carbon energy supply, particularly for AI and digital infrastructure.

*Nuclear reactors generated a record total of **2667** TWh of electricity in 2024, for the highest level **since 2006.**[6] This is enough to power **987 million** homes annually.[7]*

**Global Nuclear Electricity Production**




*Source: World Nuclear Association and IAEA Power Reactor Information Service (PRIS)*

[5] *Source: Bloomberg*
[6] *World Nuclear Performance Report - World Nuclear Association*
[7] *Ofgem | Average Gas and Electricity Usage*

# GLOBAL GOVERNMENT DEMAND

The demand for nuclear power is not just coming from corporates, but has also been driven by national energy policies. In Europe, the European Commission has said that EU member states will require around €241bn in investments through 2050 to meet their nuclear energy plans.[8]

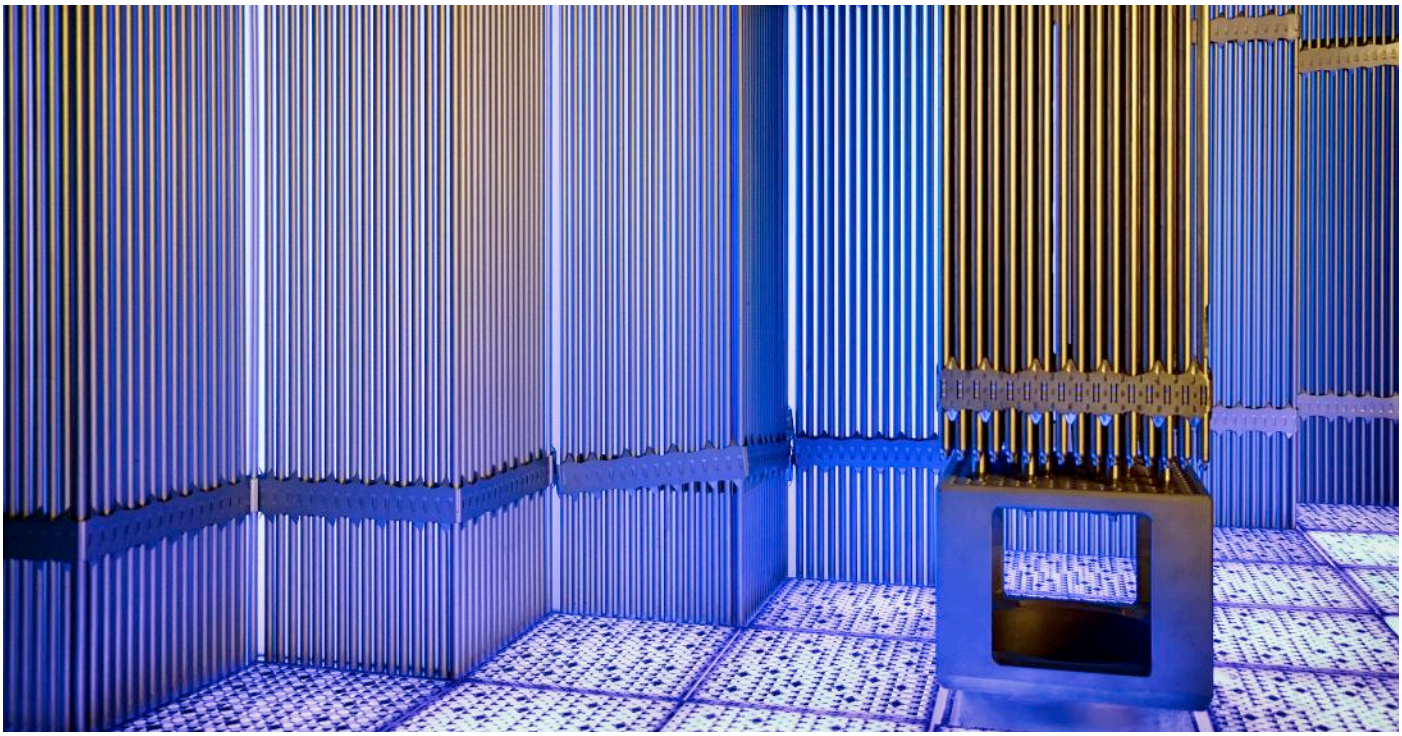
France, for example, plans to build 6 new nuclear reactors from 2027, at an estimated cost of €52 billion, whilst in the UK, Sizewell C is expected to cost £40 billion with the potential to power 6 million homes.

For European countries, alongside their green strategies, the desire for nuclear is also partially driven by a desire for energy independence and security, which was thrown into the spotlight after Russia's invasion of Ukraine.

In the UK, with the recent budget the government signalled even more of a push to utilise nuclear energy, building on its Modern Industrial Strategy and significant funding commitments for Sizewell C. This includes a push to reduce complex regulation, which has been a factor in cost and time overruns for previous projects. It will also include the development of pathways to incentivise investment in the sector, including the addition of nuclear power generation to the Green Financing Framework, making it eligible for Green Gilts and Green Savings Bonds.[9] Wylfa in Anglesey was also confirmed as the site for the country's first SMR project with Rolls-Royce, marking another major milestone in the deployment of nuclear technology.[10]

*Sizewell B: the UK's only operational Pressurised Water Reactor (PWR) located in Suffolk, providing about 3% of the UK's electricity. Sizewell C (a new twin reactor) will be built nearby.*

[8] *European Commission Estimates €241 Billion Needed For Nuclear Reactors By 2050 In New Report*
[9] *Budget 2025: Government to push for more nuclear and end oil extraction in North Sea | New Civil Engineer*
[10] *Autumn Budget 2025: Key energy sector announcements*



*Example of fuel rods inside a nuclear reactor.*

In Japan, the world's largest nuclear power plant is close to restarting for the first time since the 2011 Fukushima disaster, the aftermath of which saw all nuclear power stations shut down.

Before the accident, nuclear accounted for 30% of Japan's energy mix, and since then electricity costs for businesses have risen substantially. The new government has vowed to put nuclear at the centre of its future energy strategy, and the current target is 20% by 2040. The easiest way to achieve this is to restart old plants, and whilst it makes economic sense, Japan's unique and traumatic history with nuclear makes it a delicate decision. The fact that these policies are being pursued in-spite of the past highlights the attractiveness of utilising nuclear amidst the huge demand for cheap and low-carbon power that can be produced around the clock.[11]

Since Donald Trump's return to power, the US administration has been a driving force behind the nuclear resurgence, with a swathe of executive orders in May aimed at reinvigorating the industry. This included an ambition to quadruple capacity by 2050 through the construction of new reactors, the restarting of old reactors, and finishing partially completed projects whilst progressing SMR development. Encompassing this is a push to reduce regulatory risks, improve testing, explore technological improvements and build out domestic supply chains.[12]

In October, the US government announced a significant partnership with Westinghouse Electric (owned by Cameco Corporation and Brookfield Asset Management) to construct new reactors. With a total investment of at least $80 billion, the announcement provided further positive sentiment to the sector.[13]

---

[11] *In Fukushima's shadow: Japan's pivot back to nuclear | FT Film*

[12] *Key Takeaways from President Trump's Executive Orders on Nuclear Energy | Department of Energy*

[13] *US government and Westinghouse strike $80bn nuclear reactor deal*

# KEY TRADE-OFFS

There are many reasons why nuclear excitement has grown, but apprehensions remain. It is a low-carbon fuel source with emissions credentials that rival solar, hydro and wind without the intermittency risks.[14] But nuclear waste creates concern, particularly given long-life radioactivity, disposal challenges and risks of contamination or proliferation by bad actors and unstable regimes.

Uranium as a fuel source is very efficient, with energy density millions of times greater than fossil fuels, whilst it requires 34 times less land than solar per unit of energy. However, the mining of it risks environmental damage, and radiation exposure for workers and communities. There is also a dependence on a few countries for supply which brings geopolitical risk.

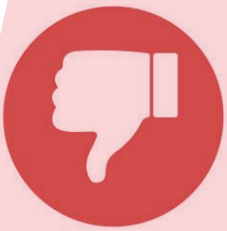
Given high profile historical accidents, safety is one of the key concerns surrounding the adoption of nuclear. However, technological advancements have improved safety features for large reactors, with passive safety features reducing human involvement whilst digital controls have improved efficiency and reduced waste.

Despite the perception, nuclear is the second safest energy source, as measured by deaths per energy produced, including major disasters such as Chernobyl and Fukushima.[15]

New wave technologies, such as SMRs, are expected to take this even further with increased efficiency and less waste, alongside reduced construction risks. Ultimately, despite headlines around cost and time overruns in construction, nuclear energy reduces the cost of electricity generation.

China has demonstrated economies of scale that countries can benefit from if they develop supply chains, standardise designs to improve construction and develop their knowledge and expertise.[16] In other parts of the world, a lack of these have been the biggest hindrances to time and costs.

- **Efficient**
- **Low-carbon**
- **Reliable (24/7)**
- **Second safest energy source**



- **Mining risks**
- **Long-life radioactivity**
- **Contamination risks**
- **Disposal Challenges**
- **Geopolitical risks**

*[14] Nuclear Energy - Our World in Data*
*[15] https://www.visualcapitalist.com/sp/gx03-nuclear-energy-generation/*
*[16] Five reasons to be excited about nuclear energy GB | WisdomTree Europe*

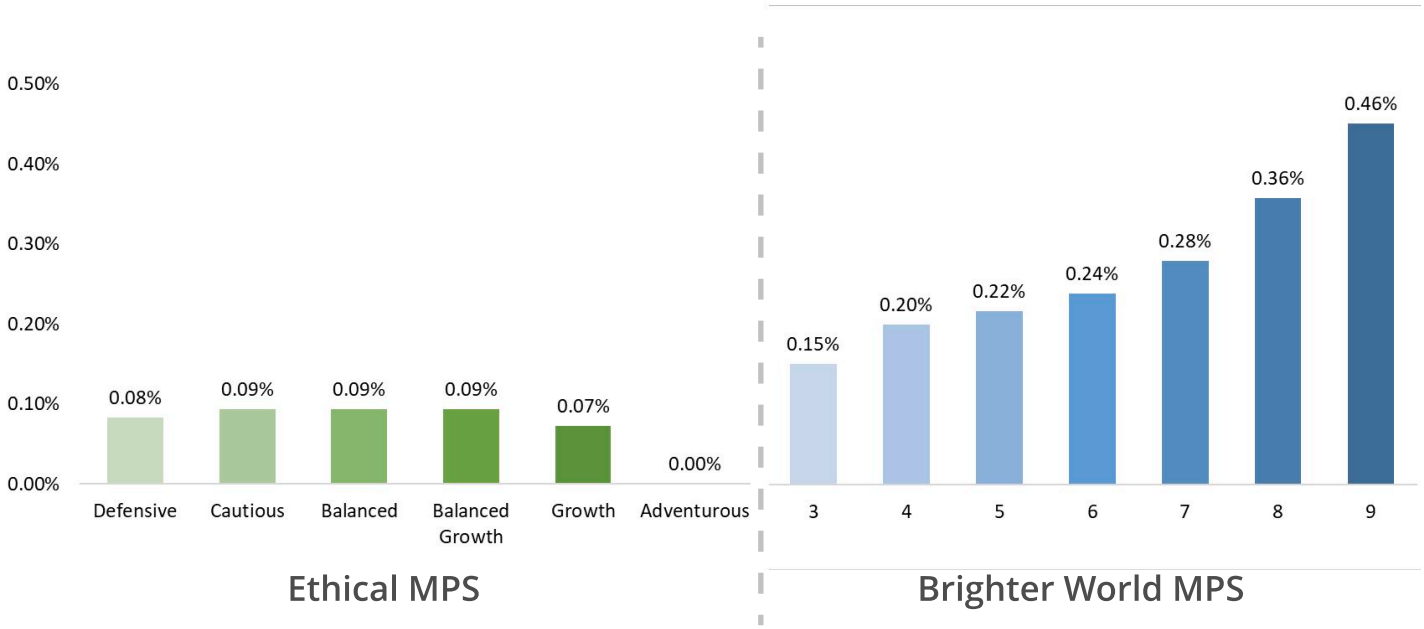
# NUCLEAR IN PORTFOLIOS

The screen in place for the model portfolios is based on areas of client interest, something that has evolved overtime, including views on nuclear power generation.

Last year, we removed our total exclusion of nuclear power production on our Ethical MPS. Noting the concerns of some clients, we introduced an exposure limit instead. This opened up a number of robust sustainable funds for inclusion into the model portfolios that had previously been excluded; in many cases, this was restricting funds for one or two holdings out of four or five hundred underlying companies. The Brighter World MPS has no limit.

Exposure within the portfolios is limited to a small handful of companies operating in stable economies where there is strong adherence to safety and established regulation. Many of these companies also have additional energy generation capacity, predominantly renewable energy.

Portfolios' nuclear energy generation exposure can be found below:




*The bar charts displays the Nuclear Energy Generation exposure within the equity sleeve of portfolios.*
*Source: Sustainalytics®*

*Copyright © Sustainalytics, a Morningstar company. All rights reserved. The information, data, analyses and opinions contained herein: (1) includes the proprietary information of Sustainalytics and/or its content providers; (2) may not be copied or redistributed except as specifically authorized; (3) do not constitute investment advice nor an endorsement of any product, project, investment strategy or consideration of any particular environmental, social or governance related issues as part of any investment strategy; (4) are provided solely for informational purposes; and (5) are not warranted to be complete, accurate or timely. The ESG-related information, methodologies, tools, ratings, data and opinions contained or reflected herein are not directed to or intended for use or distribution to India-based clients or users and their distribution to Indian resident individuals or entities is not permitted. Neither Morningstar Inc., Sustainalytics, nor their content providers accept any liability for the use of the information, for actions of third parties in respect to the information, nor are responsible for any trading decisions, damages or other losses related to the information or its use. The use of the data is subject to conditions available at https://www.sustainalytics.com/legal-disclaimers.*


# Contact Details

**King & Shaxson Asset Management**
1st Floor, 155 Fenchurch Street,
London EC3M 6AL

**www.kingandshaxsonethical.co.uk**
**T:** 020 7426 5960
**E:** ethical@kasl.co.uk

# Disclaimer

Information obtained in this publication has been taken from reliable sources. In most cases, the statistics and comments used are from the various publications from the mentioned companies, with the data being correct at the time of construction.

The information contained in this document is for general information purposes only and should not be considered a personal recommendation or specific investment advice. Nothing in this document constitutes an offer to buy or sell securities of any type or should be construed as an offer or the solicitation of an offer to purchase or subscribe or sell any investment or to engage in any other transaction. Please remember that the value of investments and the income arising from them may fall as well as rise and is not guaranteed. You may not get back the amount invested, especially in the early years.

King & Shaxson Asset Management Limited (Reg. No. 3870667) has its registered office at 1st floor, 155 Fenchurch Street, London, EC3M 6AL. The Company is registered in England and Wales and is part of the PhillipCapital Group. King & Shaxson Asset Management Limited (FCA Reg. No. 823315) is authorised and regulated by the Financial Conduct Authority, 12 Endeavour Square, London, E20 1JN.