



# The UK's Power Supply Challenge

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*Akseki & Co*

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## The UK faces a structural electricity supply challenge

- Demand is rising sharply as transport, heating, AI and data centres electrify, while legacy capacity is declining and grid investment has lagged.
- The question is not if Britain needs more power, but how to finance it at scale.

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## The current supply path is unlikely to be sufficient on its own

- Heavy reliance on low-load-factor renewables requires very large capacity expansion.
- Imports can help tactically but cannot solve the problem structurally.
- Nuclear remains the obvious choice but large-scale projects are capital-intensive and slow to deliver.

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## This comes at a difficult fiscal moment

- The UK is balancing weak growth, energy-security risks, decarbonisation commitments, defence pressures and limited fiscal headroom.
- Relying primarily on taxpayer-backed funding models for strategic generation risks constraining the pace of deployment.

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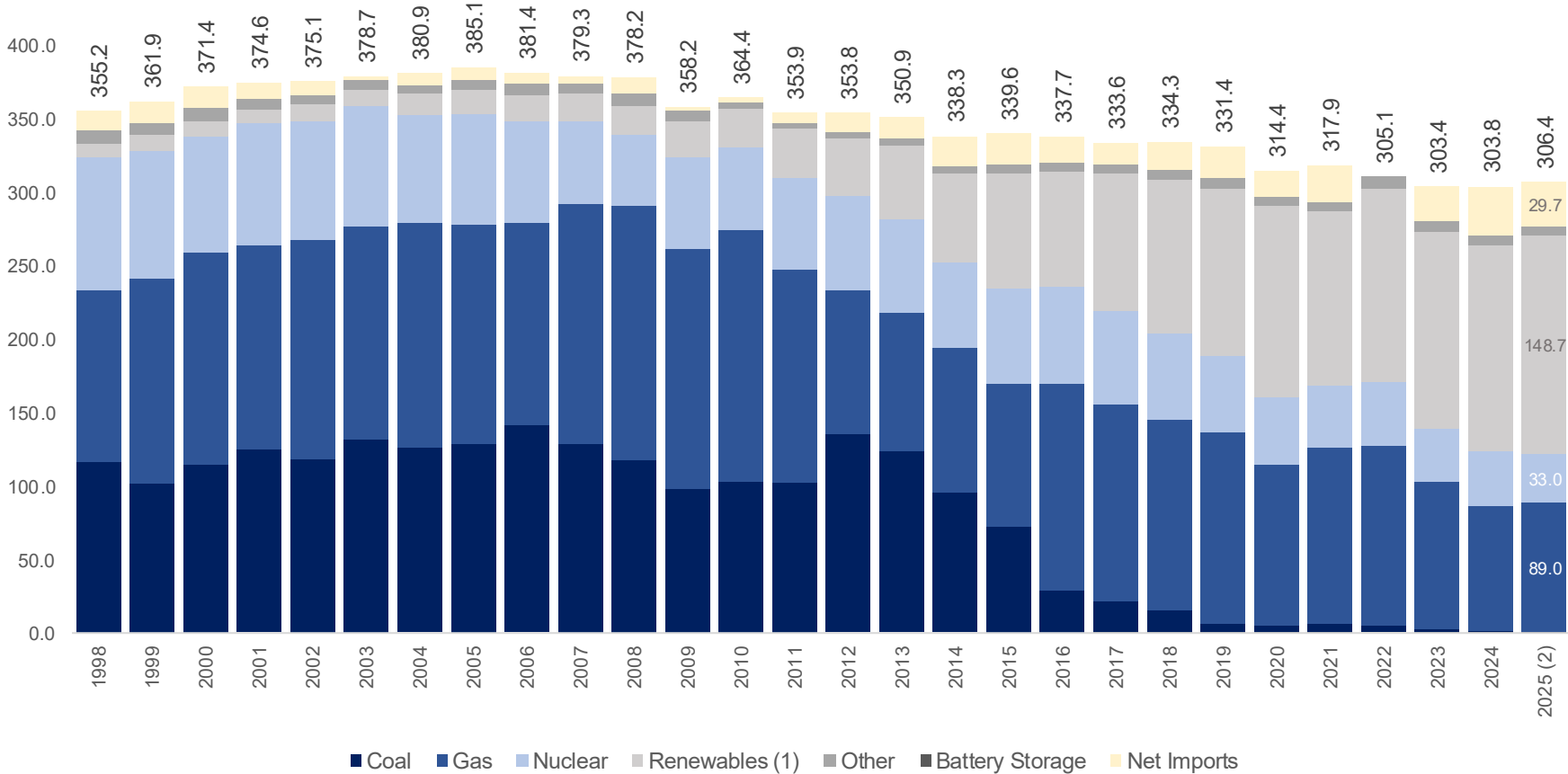
## The financing problem is therefore central

- The UK needs to move beyond seeing major energy projects solely as state-funded infrastructure and create structures that can attract larger pools of long-term private capital.

# Power Demand and Supply Context

Over the last decade and a half, electricity demand in the UK has been falling and shifting to renewables.

UK Electricity Supply by Fuel Type (TWh)

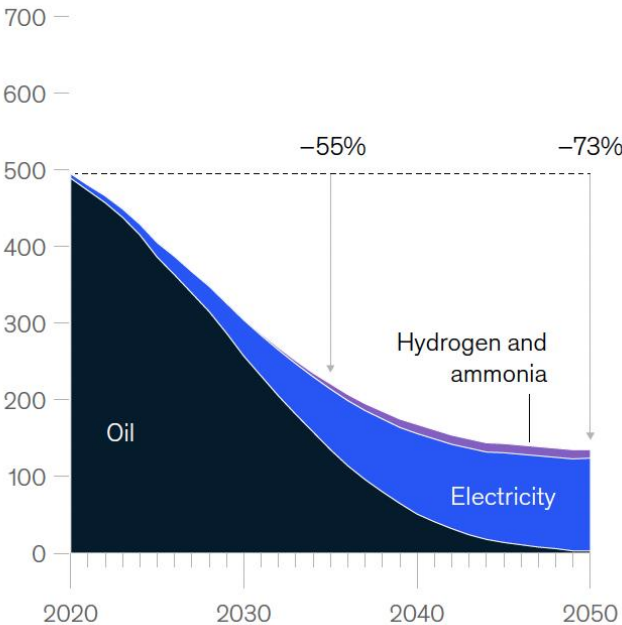


Source: UK Government.  
 (1) Wind, hydro, solar and biofuels.  
 (2) Provisional.

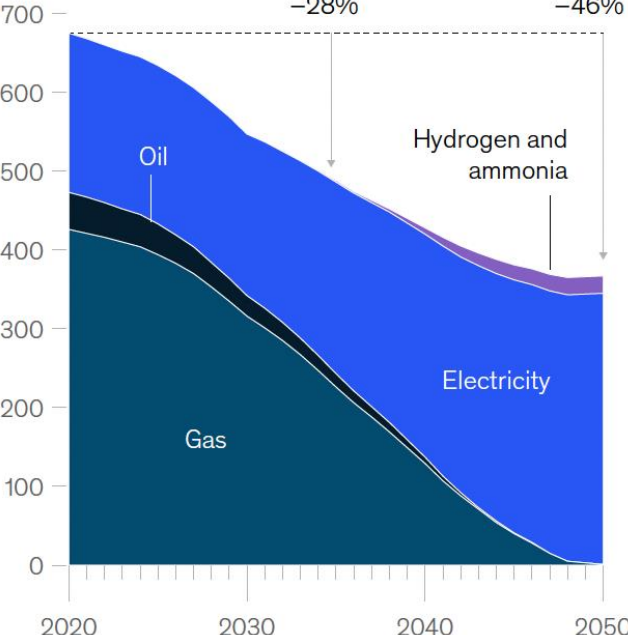
# Energy Transition Brings Pressure on the Supply Chain

Electricity demand is set to increase from ~300TWh to ~590TWh by 2035 and hit ~800TWh by 2050.

Surface transport consumption of energy, by source, terawatt-hour



Buildings' consumption of energy, by source, terawatt-hour

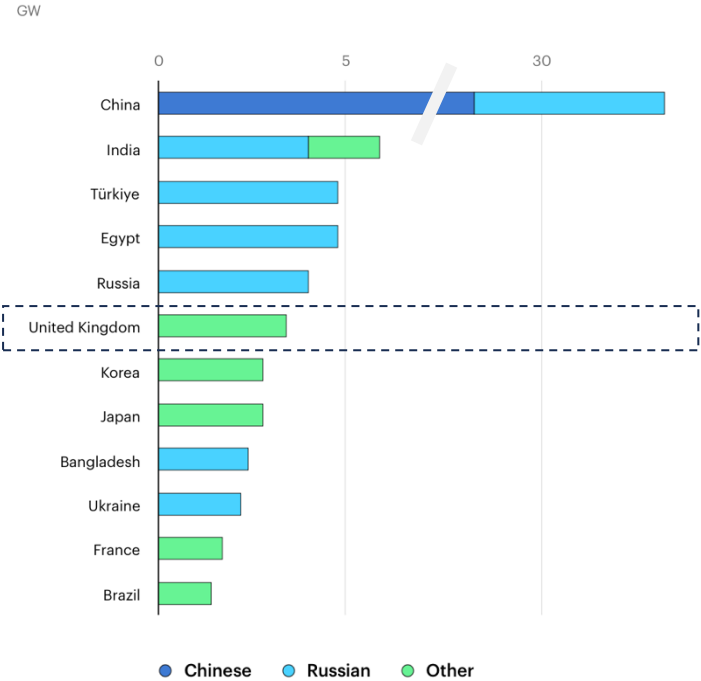


Source: The Sixth Carbon Budget: The UK's path to net zero, Committee on Climate Change, December 2020, McKinsey.

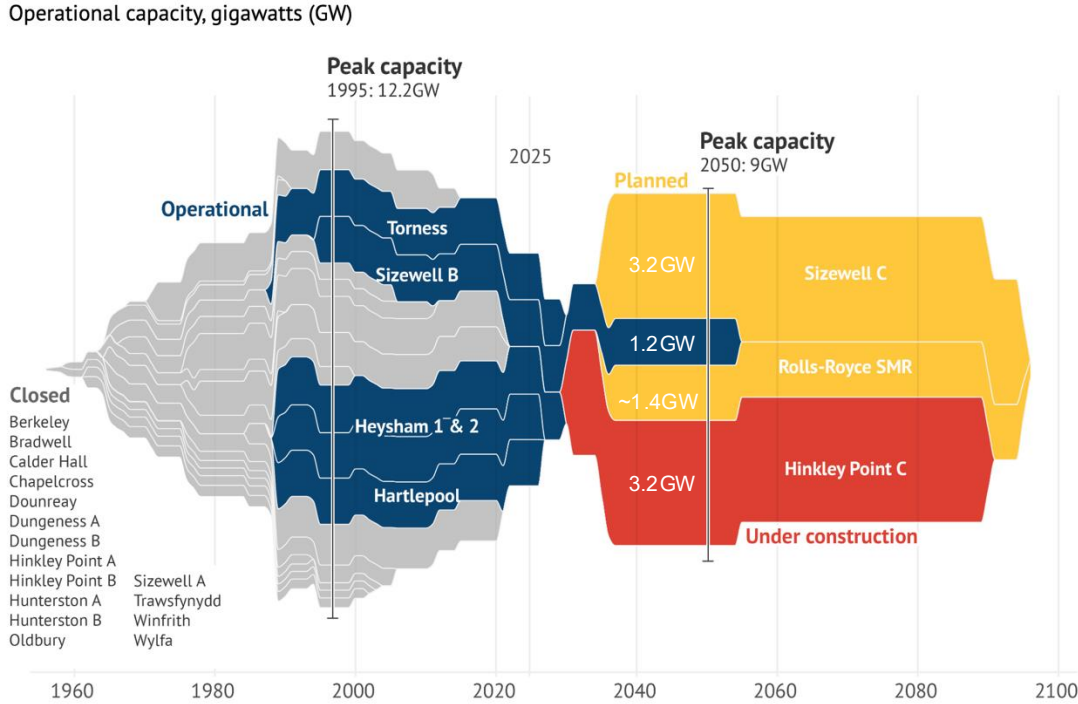
# Nuclear is the Obvious Answer, But...

The UK is trying to prevent a nuclear air pocket in the late 2020s while building a 2030s delivery platform. A 24GW nuclear target<sup>(1)</sup> may prove insufficient under a high electrification scenario.

Nuclear Power Capacity Under Construction by Region and Origin of Technology, as of December 2024



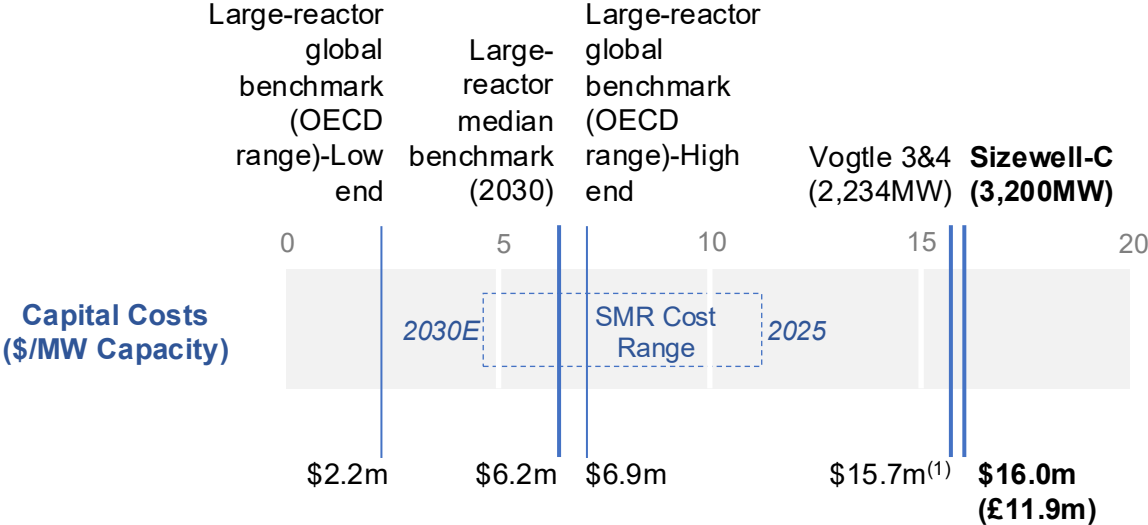
UK Nuclear Capacity



Source: World Nuclear Association and Carbon Brief analysis, IEA. (1) Department for Energy Security and Net Zero, 11 January 2024.

# How About Capital Costs?

Even the tame government nuclear targets present a formidable financing challenge.



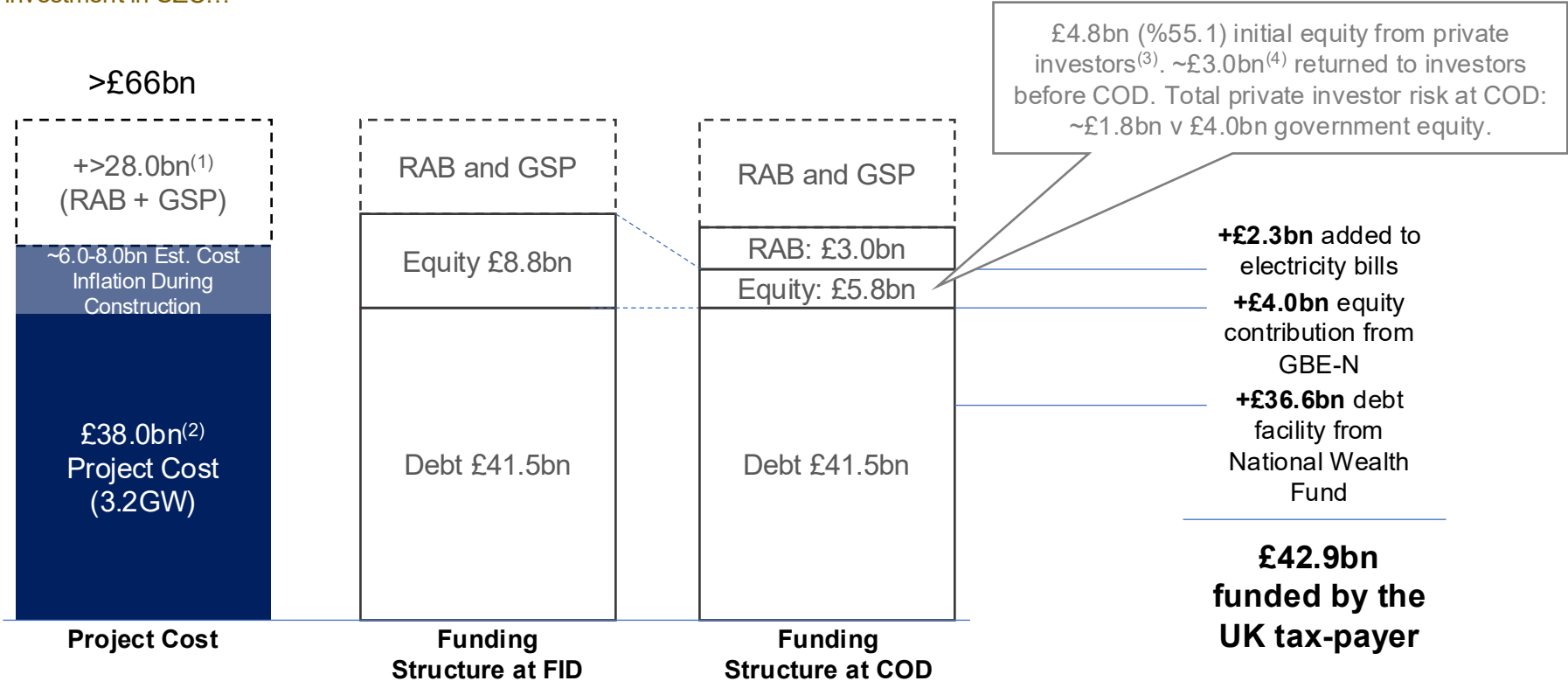
Source: World Nuclear Association, Sizewell-C, International Atomic Energy Agency.  
 (1) Delivered project cost.

# Sizewell-C Funding Structure

“Sizewell C, the first new nuclear project globally to be financed with independent, private financial investors...”

“RAB and GSP have been designed to overcome barriers to investment in SZC...”

In reality, the current model relies heavily on public balance sheet support, direct or contingent.



Source: Sizewell-C, National Wealth Fund, Centrica, UK Government.  
 (1) Based on the claimed 65% debt weight in project costs.  
 (2) In 2024 prices.

(3) EDF (12.5%), Centrica (15.0%), La Caisse (20.0%) and Amber Infrastructure (7.6%).  
 (4) Assuming Centrica's returns apply to other private investors in proportion.

# Demand Forecasts Require More Aggressive Capacity Build

To be able to supply 800TWh by 2050, the UK would need to sweat the lowest yielding assets and expand solar capacity 10.0x (3.4GW per annum) and wind capacity by 3.2x (7.1GW per annum).

	<b>2025 Installed Capacity</b>	<b>Run-rate Output Rate (%)</b>	<b>Required Capacity Expansion (x)</b>	<b>Required Capacity (GW)</b>	<b>2050E Power Demand (TWh)</b>	<b>Est. Cost (£/MW)</b>	<b>Est. Cost (£Bn)</b>
Solar	19.0	10.8%	10.0x	175.7	166.1	1.1	174.1
Wind	32.1	33.9%	3.2x	94.5	280.7	1.5	92.5
Hydro	1.9	21.6%	2.0x	3.8	7.2	5.2	9.9
Biomass	4.6	50.1%	1.0x	4.6	20.3	n.a.	n.a.
Nuclear	5.9	66.3%	4.1x	24.0	139.3	8.0	144.8
Gas	35.7	22.8%	1.5x	53.6	107.1	1.7 <sup>(1)</sup>	30.4
Net Imports	3.0		3.0x	9.0	79.2		6.0 <sup>(2)</sup>
	<b>102.2</b>			<b>368.9</b>	<b>800.0</b>		<b>457.7</b>



Source: National Grid, UK Government, Energy Trends: UK Renewables 18 Dec 2025, Akseki & Co estimates.

(1) Including carbon capture.

(2) Indicative investment cost of interconnectors in development.

# Difficult Time for the Government to Absorb More Infrastructure Risk

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## UK growth is fragile but not structurally broken

- A unique string of external shocks, amplified by poor domestic policy choices, translate into a prolonged period of low growth and high inflation.
- These don't necessarily translate into than permanent damage to the economy.

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## Energy prices are the key near-term risk

- The closure of the Strait of Hormuz and higher oil and gas prices create a major downside risk.
- If the energy prices ease, the UK economy is likely to stagnate but avoid recession, with inflation peaking around 3.5%.
- If energy prices rise further or stay elevated, recession risks would increase significantly.

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## Productivity under question

- There is general investor pessimism about the UK's economic productivity after a decade of poor performance.
- There are signs of improvement, including stronger capex, slower hiring, and resilient output, which could indicate productivity gains linked partly to AI adoption.
- It is uncertain whether these gains are cyclical or structural.

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## The fiscal outlook is challenging

- The UK faces fiscal pressures, including defence spending demands, political pressure for more investment, and difficult departmental spending settlements.
- Plan to reduce budget deficit to below 2% of GDP by 2030 is significant but ambitious.

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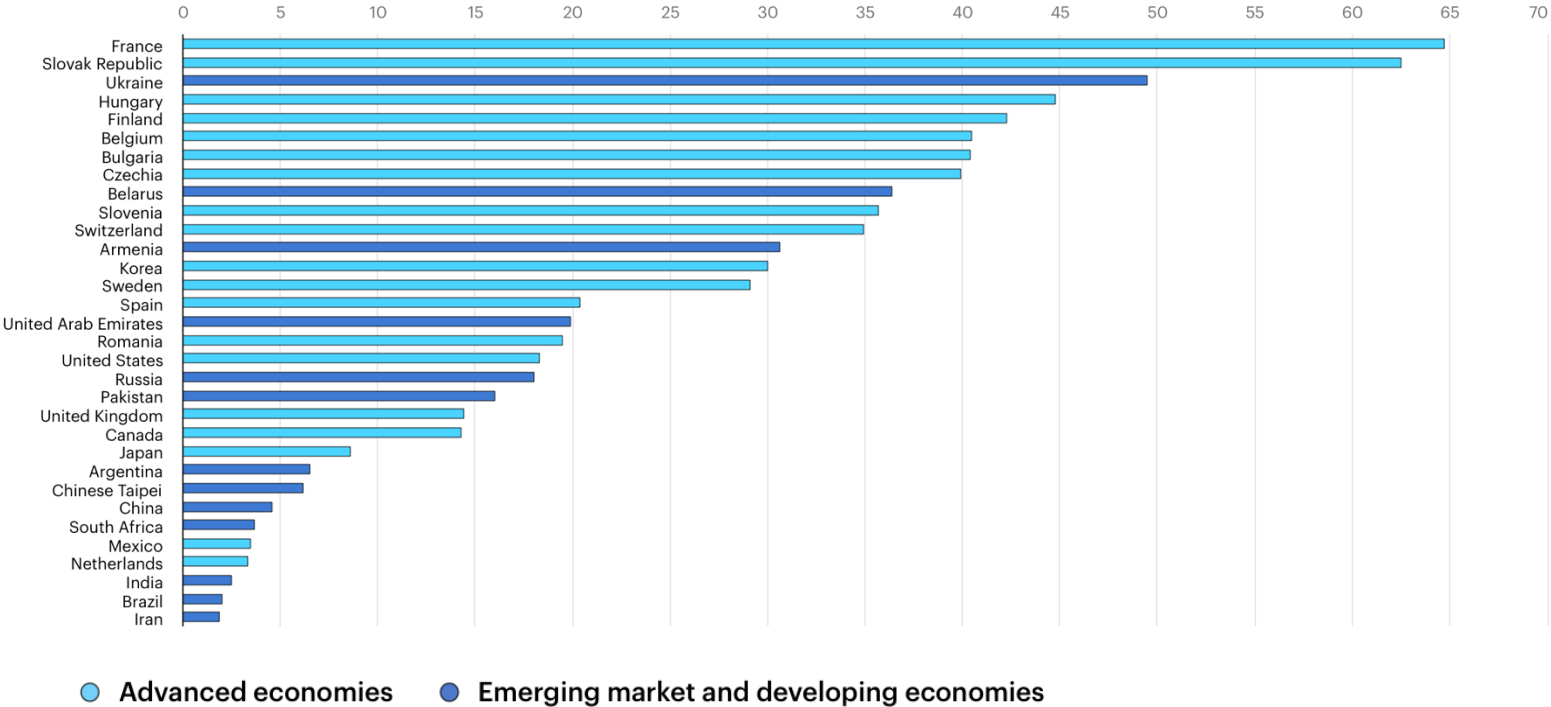
## Politics is a source of uncertainty

- Labour's poor local election results and internal pressure on Prime Minister Keir Starmer have raised political risk.



# Can We Take any Shortcuts?

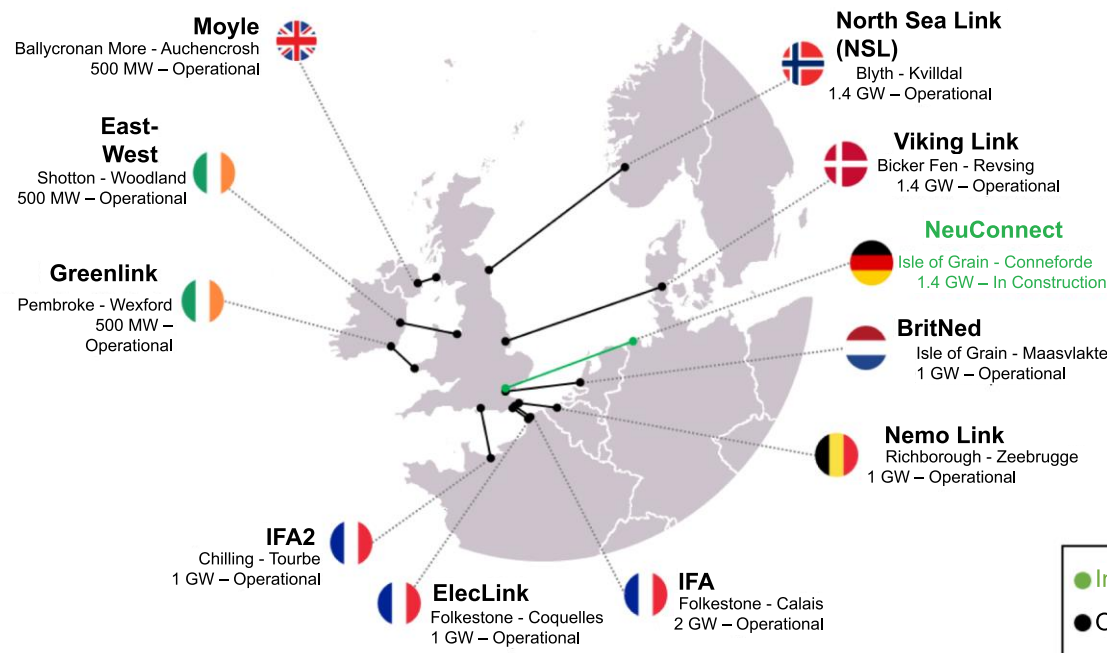
Share of nuclear energy in total electricity generation by country, 2023 (%)



Source: IEA.

# Import More Power?

- France's current nuclear fleet utilisation is about 68% on a simple annual capacity-factor basis.
- The capital cost of an electricity interconnector typically ranges between \$1.5 million and \$2.5 million per MW of capacity.
- A marginal 1 GW capacity would add around 8.8 TWh/year electricity supply.
- Aquind has been waiting for Development Consent for its 2GW project between England and France.
- Imported French power from predominantly nuclear production adds to the tactical supply mix at a moderate cost.



“...the regulators have now concluded that, at this stage, the conditions are not met for either regulator to grant regulatory approval for a new interconnector between GB and France.” – OFGEM/CRE, February 2025.

# Listed Vehicles Provide a Financing Alternative

## Listed infrastructure fund/ investment trust

Raises permanent equity on the stock market and invests in a portfolio of mostly operational or near-operational assets that deliver stable cash flows.

Relevant for operating renewables, storage portfolios, mature transmission-style assets, brownfield energy infrastructure, construction-complete assets sold down by a sponsor.

### Example: Greencoat UK Plc

Suitable for:

- Late-stage offshore wind,
- Grid-connected storage,
- Operational transmission assets,
- Carbon transport and storage assets once contracted and de-risked,
- Nuclear-adjacent assets after construction.

## YieldCo Vehicle

Usually more explicitly tied to a development sponsor. The sponsor builds or acquires projects, then sells the de-risked assets into the listed vehicle. The listed vehicle becomes a public-market outlet for recycling capital. Revenues must be contracted or quasi-contracted.

Relevant for Renewables with CfDs or long PPAs, battery portfolios with contracted revenues, gas or CCS infrastructure with availability-based contracts, Transmission or interconnector assets with stable revenue frameworks.

### Example: NextEra Energy Partners

Suitable for:

- Fleets of SMRs,
- Operational CCUS transport and storage networks under long-term user or regulated contracts,
- Packages of grid, storage and flexible generation assets.

## Listed regulated utility/ RAB model

This is the most important model for very large, essential, long-lived infrastructure. The listed parent raises equity and debt against a regulated asset base with an allowed-return regime set by the regulator.

Most relevant model for UK energy infrastructure because the UK's future bottlenecks are increasingly system assets, not just merchant generation.

### Example: National Grid Plc

Suitable for:

- Grid expansion,
- Strategic transmission corridors,
- Long-duration system infrastructure,
- CCUS backbone networks,
- Nuclear projects.

# Listed Regulated Vehicles to Access Broader Capital

## Why?

- RAB cash flow profile likely to be attractive to public market investors as it is to private financiers.
- Investment opportunity and upside for individuals instead of a "tax bill".
- Opportunity to breathe life into the LSE with large share offerings.
- Lowers immediate fiscal burden.
- Creates replicable financing platform.

## Example: National Grid Plc (96.2% Float)

### Market Capitalisation

Price per Share	GBP 12.55
Basic Shares	4,975.6
FD Shares O/S	<u>4,977.5</u>
FD Market Cap (GBPm)	62,467.8
+ Consolidated Debt	46,755.0
- Cash & Equivalents	-2,828.0
- Investments in Uncons. Subs	-624.0
+ Non-Controlling Interest	<u>31.0</u>
Enterprise Value (GBPm)	105,801.8

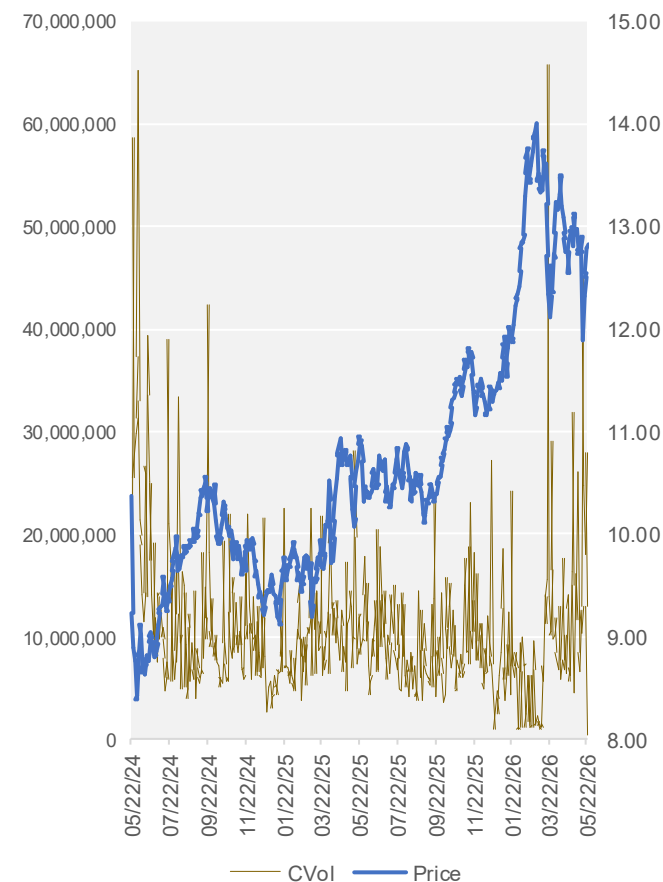
### Financial Highlights


2026P EBITDA	8,023.0
2027E EBITDA	9,214.4
2026P Net Income	3,241.0
2027E Net income	4,475.8

### Market Valuation

<i>EV/2026P EBITDA</i>	<i>13.2x</i>
<i>EV/2027E EBITDA</i>	<i>11.5x</i>
<i>P/E 2026P</i>	<i>19.2x</i>
<i>P/E 2027E</i>	<i>14.0x</i>

### NG-GB 2 Year Price Performance





Britain's future power challenge is not just an engineering problem. It is a capital formation problem. If the UK wants to build more nuclear, more grid and more strategic energy infrastructure without overwhelming the public balance sheet, it must create (or encourage creation of) vehicles that public markets can finance.



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