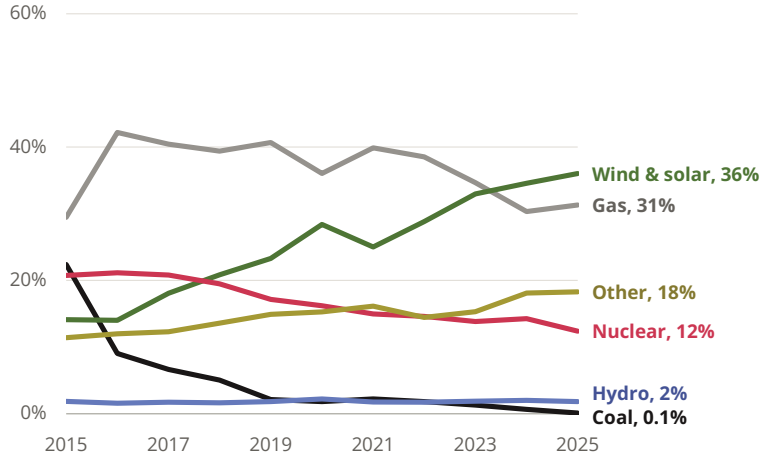
United Kingdom at a glance

The UK's transition has strong momentum from exiting coal and expanding renewables, grids and storage; it now faces the challenge of delivering a clean power system to break away from gas dependence.

Key transition conditions: Binding targets, mature finance and public support underpin delivery, but political contestation, infrastructure bottlenecks and the need for visible benefits slow the pace.

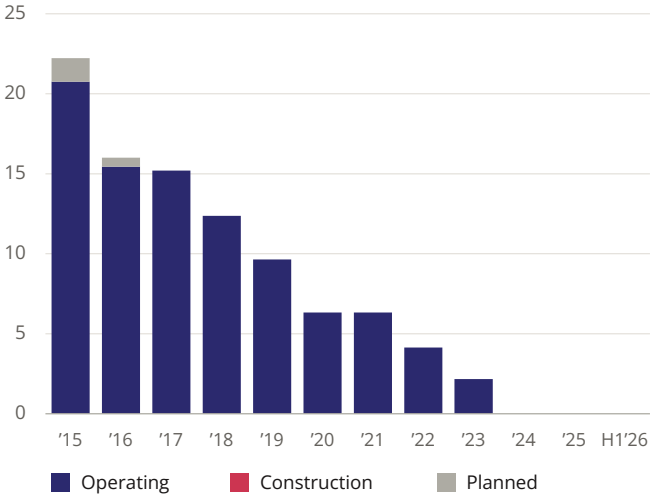
Electricity generation by source

2015–2025

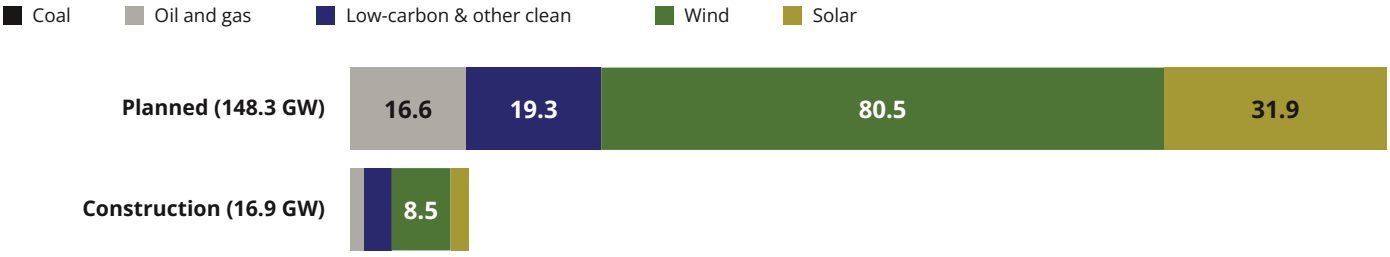


Coal capacity by status

GW, 2015–H1 2026



Capacity under development by source



Oil and gas 1.9, Low-carbon & other clean 4.0, Solar 2.5 GW (construction)

Power system landscape

Renewables supplied **52.1%** of generation in 2025, and power emissions are down 82% since 1990. Coal power ended in 2024, so almost all fossil generation is gas. Import dependence is 43.3%; the 2021–2025 crisis cost over £183bn.

Clean transition trends

Clean Power 2030 aims for an approximately **95%** clean system, with around 80% of generation from wind and solar. Battery storage capacity grew 509% from 2020 to 2025. Fewer than 2% of homes use heat pumps.

Enablers and bottlenecks

Carbon budgets, Contracts for Difference auctions and 74% public concern on climate underpin delivery. Yet about **£40bn** a year is needed to 2030 along with around 80 critical transmission projects, and planning and skills remain bottlenecks.

Opportunities for international cooperation with the *United Kingdom*

- **The 2027 G20 and 2028 G7 presidencies are an opportunity** to link clean energy with growth and security: grid investment, supply chains, development bank reform and coal-to-clean finance.
- **Coalition leadership can move pledges to delivery** through the Powering Past Coal Alliance and the Clean Energy Transition Partnership: clean power finance, grids and just transition.
- **North Seas Energy Cooperation offers a platform for offshore wind,** with a coordinated build-out towards 300 GW by 2050 and a spatial energy plan due in 2027.

Sources: *Ember annual electricity data; Global Energy Monitor annual capacity charge data and coal plant tracker data*

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This country profile was produced as part of the report *Powering Across Divides – Clean energy cooperation in a fragmented world*, published November 2026. The full report is available from **https://www.e3g.org/publications/powering-across-divides-clean-energy-cooperation-fragmented-world/**

United Kingdom's profile

Outline and domestic political economy context

The UK has significantly decarbonised its power sector, reducing emissions by 82% between 1990 and 2025.[1] This progress has been driven by increasing the share of renewables in the energy mix, including the development of a major offshore wind sector, while scaling down coal.[2] Renewable sources accounted for 52.1% of generation in 2025.[3] Renewable generation rose by 5.9% from 2024 to a record 153.0 TWh in 2025, driven by record output from wind, solar and bioenergy. Likewise, following the UK's completed coal phase-out in 2024, fossil fuel generation totalled 94.9 TWh in 2025 and remained at a historically low level, with almost all fossil generation coming from gas.[4]

The UK completed its coal-power exit in 2024 with the closure of Ratcliffe-on-Soar, its last coal-fired power station. However, gas remains a significant part of the power mix, and the UK is increasingly reliant on imported fossil fuels due to declining oil and gas reserves in the North Sea.[5] With reserves nearly depleted, the UK also faces the task of finding alternatives, including renewables as long-term domestic energy sources. Net energy imports accounted for 43.3% of total energy supply in 2025;[6] this import dependence leaves the UK vulnerable to fossil fuel price shocks, particularly for gas used in power generation and oil used in transport. The recent global energy crisis caused sharp increases in energy prices for businesses and consumers, costing the UK over £183 billion over the four years from 2021 to 2025.[7]

Through its Clean Power 2030 Action Plan, published under the previous Prime Minister Keir Starmer, the UK is working to produce enough clean electricity to meet annual demand by 2030, with unabated gas used only when essential – in practice, a system approximately 95% clean.[8] The National Energy System Operator pathways envisage around 80% of generation coming from wind and solar, with the largest buildout

[1] Office for National Statistics, 7 July 2026, **Measuring UK greenhouse gas emissions**
[2] Department for Energy Security and Net Zero, 28 March 2024, **2023 UK greenhouse gas emissions: provisional figures – statistical summary** (PDF)
[3] Department for Energy Security and Net Zero, 30 July 2026, **DUKES 2026 Chapter 5: Electricity** (PDF)
[4] Ibid.
[5] IEA, **United Kingdom: Electricity** (webpage, accessed 13 August 2026)
[6] Department for Energy Security and Net Zero, 30 July 2026, **DUKES 2026 Chapter 1: Energy** (PDF)
[7] E3G and Energy and Climate Intelligence Unit, 21 November 2025, **Cost of the fossil fuel crisis in the UK**
[8] Department for Energy Security and Net Zero, 13 December 2024, **Clean Power 2030 Action Plan: A new era of clean electricity – main report** (PDF)

in new offshore wind, supported by batteries, long-duration storage, interconnectors and consumer flexibility.[9] Delivering Clean Power 2030 requires approximately £40 billion of annual investment between 2025 and 2030, much of it private, including £30 billion for generation and £10 billion for transmission.[10] Around 80 critical transmission projects are also needed, while planning, grid connections, skills, ports and supply chains remain potential bottlenecks. Great British Energy provides a public investment and ownership vehicle, with its success dependent on mobilising private capital and accelerating projects with visible benefits.

Progress is being made to delink energy and gas pricing in the UK, reducing its exposure to price volatility. As of 2026, 15% of Britain's power generation is independent from the gas power price, because it is provided by 10 GW of operational renewable capacity.[11] By increasing the share of clean power through the Contracts for Difference scheme – a government-run mechanism which incentivises investment in low-carbon power infrastructure through auctions that secure a set electricity price per MWh for generators – the share of the market exposed to volatile gas prices is increasingly limited. A record amount of renewables capacity was procured in the latest Contracts for Difference auction round (AR7).[12]

With Andy Burnham serving as the UK's seventh prime minister in a decade, his government will be seeking to maintain investor confidence while pursuing an agenda capable of uniting a fragmented voter base; its political success is likely to be judged by reduced household bills, improved energy security, jobs and regional investment. Against this backdrop, the government faces pressure to support further North Sea fossil fuel development through projects and tie-backs under existing licences and to reconsider future licensing; approving production at the previously licensed Jackdaw gas field in October 2026, while a decision on the Rosebank oil field remains pending at time of writing.[13] However, additional domestic production would be insignificant compared with the global market and have little effect on domestic oil and gas prices. As the North Sea is a mature basin with depleting reserves, new investment is increasingly uneconomic and could require government support, while the region remains a stronghold for British offshore wind power.

The next phase of the transition depends on building a transmission network quickly enough to enable renewables to be built and used at the pace needed, as well as on electrifying heat and transport. The UK has made significant progress on storage, with a 509% increase in battery storage capacity from 2020 to 2025; in fact, together, the UK's

[9] National Energy System Operator, November 2025, **Future Energy Scenarios 2025: Pathways to Net Zero** (PDF)

[10] Department for Energy Security and Net Zero, 13 December 2024, **Clean Power 2030 Action Plan: A new era of clean electricity – main report** (PDF)

[11] Ember, 13 May 2026, **British power prices are increasingly independent from gas**

[12] Climate Change Committee, 24 June 2026, **Progress in reducing emissions: 2026 report to Parliament**

[13] Department for Energy Security and Net Zero, 21 October 2026, **Jackdaw gas field gets green light**; Institute for Government, updated 22 October 2026, **Jackdaw and Rosebank**.

operational and commissioned battery storage capacity will provide substantial support for peak demand.[14] This storage capacity, alongside increased end-user flexibility, will be essential to support incoming wind and solar projects.

Work is still needed to build the transition from gas to electric heating, with fewer than 2% of UK homes using heat pumps.[15] This is among the lowest rates in Europe, while high electricity prices weaken incentives to switch.[16] Reducing fossil gas use in heating will require more supportive and better-aligned policies to increase heat pump uptake, expand heat networks and improve building insulation. Wider electricity market reform and stronger distribution grids will also be needed to support the transition.

Beyond 2030, the UK government will need to address the hardest-to-decarbonise parts of the electricity system. The UK still plans to use gas power stations as backup when renewable output is low, and there are currently no major investments into alternative technologies. At the same time, much of the UK's existing nuclear fleet is due to retire over the next decade,[17] while annual electricity demand is predicted to increase from around 290 TWh today to as much as 785 TWh by 2050 – nearly three times' current levels – as transport, heating and industry become increasingly electrified.[18] That being the case, the UK will need to continue to expand renewable generation and supportive clean technology to maintain a decarbonised system long term.

Summary of key domestic transition factors

- **Enabling conditions include the UK's legally binding net zero target, statutory carbon budgets and independent scrutiny from the Climate Change Committee. It also benefits from mature financial markets, an established Contracts for Difference mechanism and the Clean Power 2030 driving objective.** The UK is substantially accelerating its low-carbon transition and, while unlikely to hit its clean power target by the original mission aim of 2030, it is estimated to meet this shortly after. Public opinion also provides a broadly supportive foundation for the transition, as 74% of the British public report concern about climate change in mid-2026,[19] and 63% say clean energy makes the UK more energy secure.[20]

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[14] RenewableUK EnergyPulse, 3 September 2025, **Stacking up the storage: where the UK battery market stands in 2025**

[15] Climate Change Committee, 24 June 2026, **Progress in reducing emissions: 2026 report to Parliament** (webpage, accessed 5 August 2026)

[16] Energy UK, 31 March 2026, **Energy UK Explains: The 'Spark Gap'** (webpage, accessed 2 September 2026)

[17] EDF Energy, 22 July 2026, **UK energy security supported by further nuclear power station life extensions** (webpage, accessed 2 September 2026). Heysham 1 and Hartlepool are now expected to generate until March 2030; the remaining advanced gas-cooled reactor fleet is also due to close on a rolling basis by around the end of the decade.

[18] National Energy System Operator, 14 July 2025, **Future Energy Scenarios 2025: Pathways to Net Zero** (webpage, accessed 2 September 2026)

[19] Ipsos, 7 August 2026, **3 in 4 Britons (74%) concerned about climate change today following heatwave summer** (webpage, accessed 13 August 2026)

[20] Energy UK, 10 June 2026, **Watt Communities Want: Six Insights into UK Public Opinion on Energy** (PDF)

- **The UK's transition is constrained less by the economic case for net zero policy than by political contestation, infrastructure bottlenecks and the capacity to translate investment into visible domestic benefits.** The economic case for net zero in the UK is proven, with the Climate Change Committee finding that the cost of net zero by 2050 will be less than a single fossil fuel price shock.[21] Public support also exists, however, its political durability will depend on whether the transition delivers tangible benefits through lower bills, consumer protection, community benefits from new energy infrastructure projects and credible support for workers and regions affected by fossil fuel decline. Additionally, the existing governance and financing frameworks for energy infrastructure must support the coordinated expansion of generation, transmission, storage and flexibility. Workforce skills training must be expanded and incentivised to support delivery, while investment in port infrastructure and domestic manufacturing capacity will be important for maximising the transition's contribution to UK economic growth.

Opportunities for international collaboration

1. **Connect clean energy with growth, security and industrial development on the world stage as part of the UK's 2027 G20 and 2028 G7 presidencies.** Both presidencies will be expected to address the energy crisis and geopolitical instability, while driving solutions for increased resilience. Springboarding from the crisis to developing resilient energy supply chains, the UK's agenda could prioritise grid investment, regional renewable deployment and supply chains, MDB reform to increase access to affordable clean energy finance, and finance for coal-to-clean transitions in emerging economies.

2. **Advance international clean energy partnerships to reinforce the UK's global leadership and influence.** Building on its domestic clean power ambitions, the UK is well positioned to advance international cooperation through the PPCA and CETP. It could do so through greater political engagement, technical assistance and implementation support, alongside an expanded role for the Global Clean Power Alliance Finance Mission in country platforms and initiatives such as the Climate Implementation Bridge (see Chapter 3); such work could help unlock innovative approaches to deploying existing finance and accelerate the clean energy transition internationally, while reinforcing the UK's credibility and influence as a global clean energy leader.

[21] Climate Change Committee, 11 March 2026, **Cost of Net Zero by 2050 less than a single fossil fuel price shock – CCC**

3. **Deepen UK engagement with the North Seas Energy Cooperation (NSEC) to accelerate offshore wind deployment and strengthen regional energy security.** Building on its offshore wind leadership and cooperation with European partners through NSEC, the UK can lead coordinated regional development towards the shared ambition of 300 GW of offshore wind capacity by 2050.[22] With the date and host of the next North Sea Summit still to be confirmed, there is an opportunity to shape an agenda that moves the cooperation from shared planning towards shared investment. A North Seas spatial energy plan endorsed at the Summit could provide a basis for accelerating both offshore wind deployment and cross-border infrastructure, strengthening both UK and European energy security.

[22] UK Government and North Seas countries, 24 April 2023, **Ostend leaders' declaration on the North Seas as Europe's green power plant**

ABOUT E3G

E3G is an independent think tank working to deliver a safe climate for all.

We drive systemic action on climate by identifying barriers and constructing coalitions to advance the solutions needed. We create spaces for honest dialogue, and help guide governments, businesses and the public on how to deliver change at the pace the planet demands.

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