UK energy

UK energy costs likely to halve by 2050, says system operator

Modelling by independent body Neso forecasts sharp fall in expenditure from 10% of GDP as shift to renewables continues

The National Energy System Operator released cost estimates covering a series of scenarios for how the UK can meet its 2050 net zero target © Justin Tallis/AFP/Getty Images

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Britain's energy costs are set to halve over the next 25 years as the shift to renewables cuts the multibillion-pound bill for imported oil and gas, according to the UK's energy system operator.

The National Energy System Operator (Neso), the new independent body that plans the country's electricity and gas networks, released cost estimates on Thursday covering a series of scenarios for how the UK can meet its 2050 net zero target — as well as the costs of falling short.

The analysis, which does not attempt to forecast household energy bills, will be welcomed by UK ministers who are committed to maintaining the net zero target, which was introduced by the previous Conservative government in 2019.

Before last year's general election, Labour politicians pledged to cut bills by £300 and unveiled measures in November's Budget intended to bring down annual costs by £150.

However, bills have risen under the Labour government, a development the Conservative opposition has blamed on climate policies.

Although none of Neso's transition scenarios map cleanly on to existing policy, all point to a sharp fall in energy-related spending as a share of GDP.

Total system costs, which are currently about 10 per cent of national income, decline to roughly 5-6 per cent by 2050 despite growing energy demand.

The reduction reflects a structural shift towards electrification: greater investment in renewable generation, grid infrastructure and electric vehicles steadily reduces the UK's reliance on imported fossil fuels.

Last year the country spent £50bn on oil and gas — mostly for transport, heating and industry — though this is less than half the level of 2022, when costs surged following Russia's full-scale invasion of Ukraine.

In the scenario closest to the government's ambitions, a system dominated by renewable electricity and which sees industry shift to hydrogen instead of gas, total energy costs rise to more than £350bn a year before falling back to about £220bn by mid-century.

In the near term, pursuing net zero appears more expensive than Neso's "Falling Behind" pathway, under which the UK continues to depend heavily on oil and gas.

The less ambitious option remains cheaper until about 2045, when two of the net zero pathways overtake it as fossil fuel spending declines.

Neso cautioned that the economic differences between all scenarios were less significant than the uncertainties surrounding future technologies and commodity prices.

A spokesperson for the Department for Energy Security and Net Zero said: "The findings make clear the risks if Britain does not act and sticks with the status quo.

“We risk falling behind in reaping the rewards of clean energy and therefore would be stuck relying on volatile global gas markets which leave families vulnerable to higher bills in the long run.”

Claire Coutinho, the UK’s shadow energy secretary, said the modelling demonstrated that “rushing to net zero is more expensive than moving at a slower pace”.

“Britain cannot afford to spend the next 25 years having uncompetitive electricity prices. We would continue to deindustrialise, miss out on the economic growth of AI and see living standards suffer,” the Conservative MP said.

Her party has pledged to repeal the UK’s Climate Change Act, which enshrines the 2050 net zero goal in law.

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