The Great Stagnation: Briefing 4

Energy

By David Turver

14 August 2026

Summary

- Energy is a fundamental input into a modern economy. There are no rich countries which have low levels of energy consumption.
- Unfortunately, a vast array of legislation and regulations, designed to achieve net zero carbon emissions by 2050, has led to a constrained energy supply, high energy prices and a rising regulatory burden.
- Over the last 20 years, Britain has pursued policies that have left us with the highest industrial electricity costs in the developed world. While it is fashionable to blame the UK's high electricity costs on the price of gas, UK gas prices are marginally below the International Energy Agency median.
- Though gas prices do have an impact on electricity prices, renewables subsidies, taxes on hydrocarbons and hidden backup, grid balancing and expansion costs have been major structural factors behind rising costs.
- High energy costs and regulation have contributed to a dramatic drop in consumption. Overall, UK energy consumption is down 29.2 per cent from its peak in 2005, and domestic electricity generation is down 26.5 per cent from its peak. Industrial energy consumption has fallen even more rapidly and is now 45.3 per cent lower than it was at its peak in 2004.
- Any analysis of the UK's growth slowdown that does not factor in higher energy costs and lower consumption is bound to be woefully incomplete.

About the author

David Turver is a retired engineer, project management professional, and consultant who writes about net zero and energy policy. He is the author of the Eigen Values Substack.

About the publication

This briefing is a version of a chapter that will appear in a forthcoming IEA book, *The Great Stagnation: Why Britain Stopped Growing*, along with contributions from other authors. Each chapter presents and analyses a distinct explanation for the decline in British economic growth over the last two decades.

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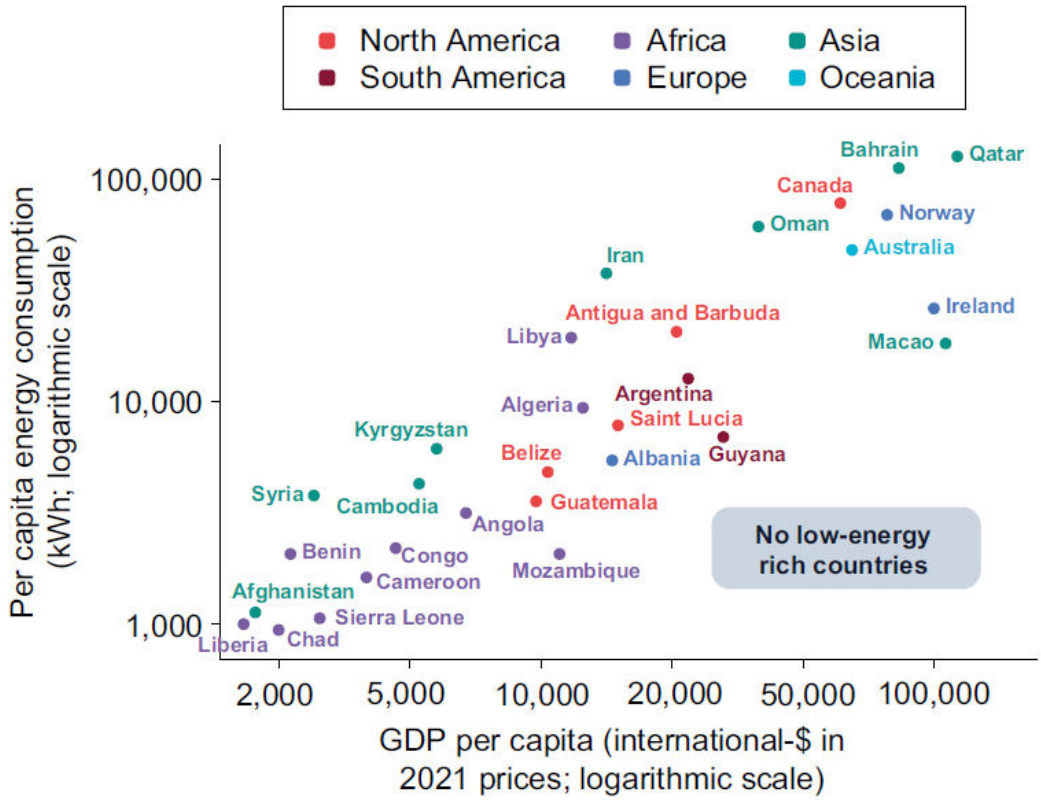
Introduction

One of the big reasons why Britain has stopped growing is energy. This briefing will explain why energy is important; describe the legislative labyrinth that has been created to impose net zero; itemise the resulting eye-watering subsidies for renewables and other 'clean' technologies; document the punitive taxes placed on hydrocarbons; set out the resulting high energy prices; and highlight the impact on growth and productivity.

Energy is important

As Figure 1 shows, there are no rich countries with low energy use. Energy is fundamental to the functioning of a modern economy. Primary industries such as steel-making, aluminium smelting, chemicals, ceramics and petrochemicals are highly energy intensive and require cheap and abundant energy to be competitive. More modern service industries such as AI are also energy intensive and has led the Big Tech companies to scramble for energy to power their giant data centres. For instance, Microsoft has entered into an agreement with US utility Constellation to reopen the Three Mile Island nuclear power plant.[1] Even relatively humble service industries such as food delivery rely on energy to be effective. The UK cannot hope to be a thriving, growing economy without cheap, reliable and abundant energy.

Figure 1: Energy use per person vs. GDP per capita, 2024



Source: Our World in Data (https://ourworldindata.org/grapher/energy-use-per-person-vs-gdp-per-capita?time=2024..latest).

[1] Constellation press release (https://www.constellationenergy.com/newsroom/2024/Constellation-to-Launch-Crane-Clean-Energy-Center-Restoring-Jobs-and-Carbon-Free-Power-to-The-Grid.html).

Legislating for energy suicide

Unfortunately, a vast array of legislation and regulations to enforce net zero has led to constrained energy supply, high energy prices and a vast regulatory burden that impact industry which is summarised in this briefing.

The legislative labyrinth began with the Gas Act 1986, which gave powers to the Secretary of State to impose mandatory carbon emissions reduction targets on gas transporters and suppliers. This legislation has since been strengthened through various measures including two Acts in 2000. The Utilities Act introduced the Renewables Obligation (RO) to force electricity suppliers to procure a certain percentage of their electricity from renewable sources. The Finance Act introduced the Climate Change Levy (CCL), which is a tax on energy use by businesses. Effectively, the CCL increases the cost of fossil fuels and hence operating costs for businesses, although some relief is available to businesses through Climate Change Agreements. The Finance Act 2011 amended the CCL legislation and introduced the Carbon Price Support mechanism, which is designed to top up the carbon price paid by electricity generators alongside the EU or UK Emissions Trading Scheme, which is yet another tax on energy.

The Energy Act in 2008 introduced Feed-in Tariffs (FiTs) and in 2013 effectively replaced the RO scheme with Contracts for Difference (CfDs) to drive extra spending on renewables. However, the most significant piece of legislation in 2008 was the Climate Change Act (CCA), which imposes the legal duty of the Secretary of State to set the carbon target for 2050. Originally, this was an 80 per cent reduction compared to the 1990 baseline but was amended in the last days of the May government by the 2050 Target Amendment Order 2019 to a 100 per cent reduction. The CCA also created the Committee on Climate Change (CCC) that effectively sets carbon budgets every five years to achieve the target. Environmental legislation forces government to set long-term targets in four priority areas: air quality, biodiversity, water and waste reduction. These targets are designed to align with and support the UK's broader Net Zero Strategy by driving systemic transformation across the economy. This environmental legislation together with extra legislation on the NHS means the public sector is tasked with imposing net zero on the rest of us. Pension legislation forces trustees to identify, assess and manage climate-related risks and opportunities to drive capital towards net-zero aligned investments. Environmental Impact rules force assessment of climate factors including greenhouse gas emissions as well as indirect, secondary, cumulative and long-term effects. This means including so-called Scope 3 emissions such as the emissions from burning the hydrocarbons produced from an oil or gas field.

Additional legislation forces companies and limited liability partnerships to ensure that climate risk is not just an ESG footnote but a central component of their financial reporting within their strategic report.

Tangled web of subsidies

The legislative labyrinth has led to a tangled web of subsidies designed to force expensive and intermittent renewables on to the grid. The Government periodically updates the Subsidy Control Transparency[2] database, which estimates the cost of all subsidies.

Analysts have calculated[3] the total cost of net zero and energy-related subsidies at £585bn over many years. This includes £260bn of renewable energy subsidies across Renewables Obligation Certificates (ROCs), CfDs and FiTs. There is a further £44bn to fund the Renewable Heat Incentive (RHI), which is essentially a scheme to incentivise farmers to burn wood to heat empty sheds.[4]

As well as being expensive, wind and solar renewables are of course intermittent, so there is a need to pay for backup when the sun is not shining and the wind is not blowing. The government has created the Capacity Market to provide this backup and encourage investment in new reliable power stations with a subsidy estimated at £72bn.

Subsidised renewable electricity is too expensive for industry, so there is another set of subsidies to compensate for high energy prices. The British Industry Supercharger Package for energy-intensive industries (EIIs) has been calculated to cost £51.4bn. This is designed to provide 'electricity price support' to around 370 energy-intensive businesses in sectors such as steel, paper and batteries.

There is an additional set of subsidies for Carbon Capture, Usage and Storage (CCUS) that make reliable power generation from gas less efficient and thus more expensive. £30bn has been allocated to the Dispatchable Power Agreement Business Model and another £16.7bn for the two carbon capture business models split equally between the Industrial Carbon Capture Business Model and the Waste Industrial Carbon Capture Business Model. In addition, £13bn has been allocated to the CCUS Transport and Storage Regulatory Investment model.

Another £3bn has been set aside for another thermodynamic war crime: green hydrogen. £2.3bn is forecast to be spent on the Hydrogen Production Business Model (also called HAR1), with another £589m on Hydrogen Transport hubs. The balance of the £3bn comprises various funds, accelerators and innovation schemes.

This tangle of subsidies adds costs to the whole economy and further costs are added through further subsidies designed to mitigate the impact of the first set of subsidies.

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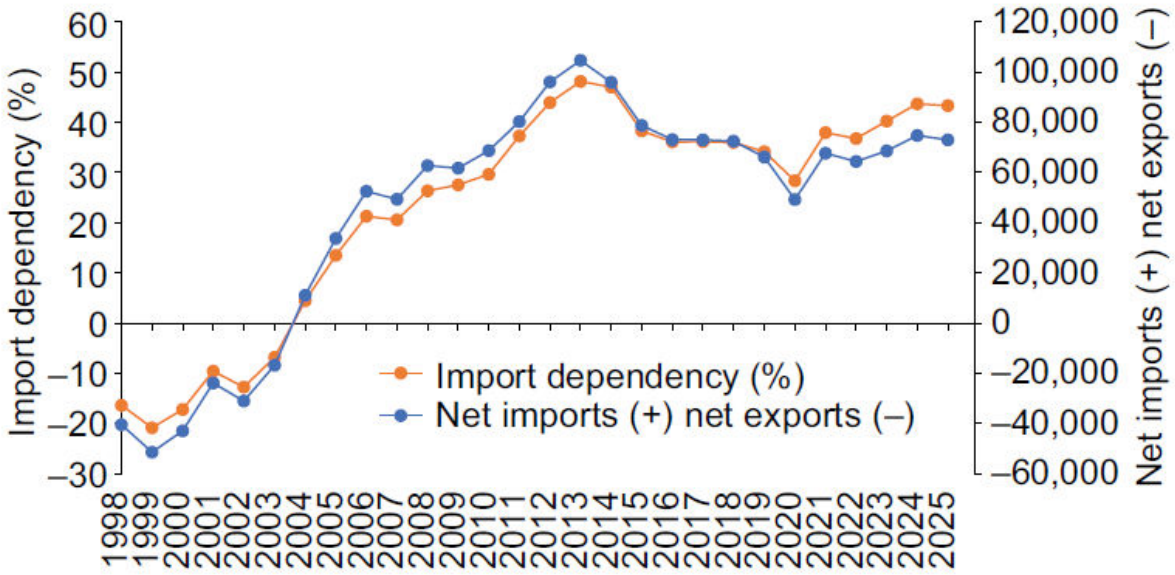
[2] Subsidy Control and Transparency Database (https://searchforuksubsidies.beis.gov.uk/schemes).
[3] Eigen Values Substack (https://davidturver.substack.com/p/now-theres-585bn-of-subsidies-galore).
[4] BBC report (https://www.bbc.co.uk/news/uk-northern-ireland-38301428).

Hydrocarbon taxes

To meet the carbon budgets set by the CCC, the UK must reduce consumption of hydrocarbons: coal, oil and gas. To that end, punitive taxes have been imposed on both their production and consumption.

Production taxes include the Ring Fence Corporation Tax, the Supplementary Charge, Petroleum Revenue Tax and the Energy Profits Levy. These taxes, combined with the moratorium on fracking and Ed Miliband's ban on new exploration licences in the North Sea, have accelerated the decline in domestic production and made the UK more reliant on imports (see Figure 2).

Figure 2: Energy net imports (mtoe) and import dependency (%)



Source: UK Energy Trends ET1.3 (https://www.gov.uk/government/statistics/total-energy-section-1-energy-trends). Note: Data for 2025 are provisional.

The production decline has led the OBR to forecast that oil and gas tax revenues will fall from £9.9bn in 2022/23 to just £0.3bn in 2030/31.[5] The impact of declining oil and gas production on the rest of the economy is discussed in more detail below.

Hydrocarbon consumption taxes are classified as environmental taxes by the ONS, many of which can be characterised as consumer taxes on energy.[6] These include direct taxes on fossil fuels that raised a total of £42.7bn in 2024, including the following:

- Fuel duty, a tax on petrol and diesel, raised £24.6bn.
- Emissions Trading Scheme, essentially a tax on burning hydrocarbons, raised £4.1bn.
- Climate Change Levy (CCL) raised £1.8bn.

[5] OBR oil and gas revenues (https://obr.uk/forecasts-in-depth/tax-by-tax-spend-by-spend/oil-and-gas-revenues/).
[6] ONS environmental taxes (https://www.ons.gov.uk/economy/environmentalaccounts/datasets/ukenvironmentalaccountsenvironmentaltaxes).

In addition, there are indirect taxes on fossil fuels that raised even more money in 2024:

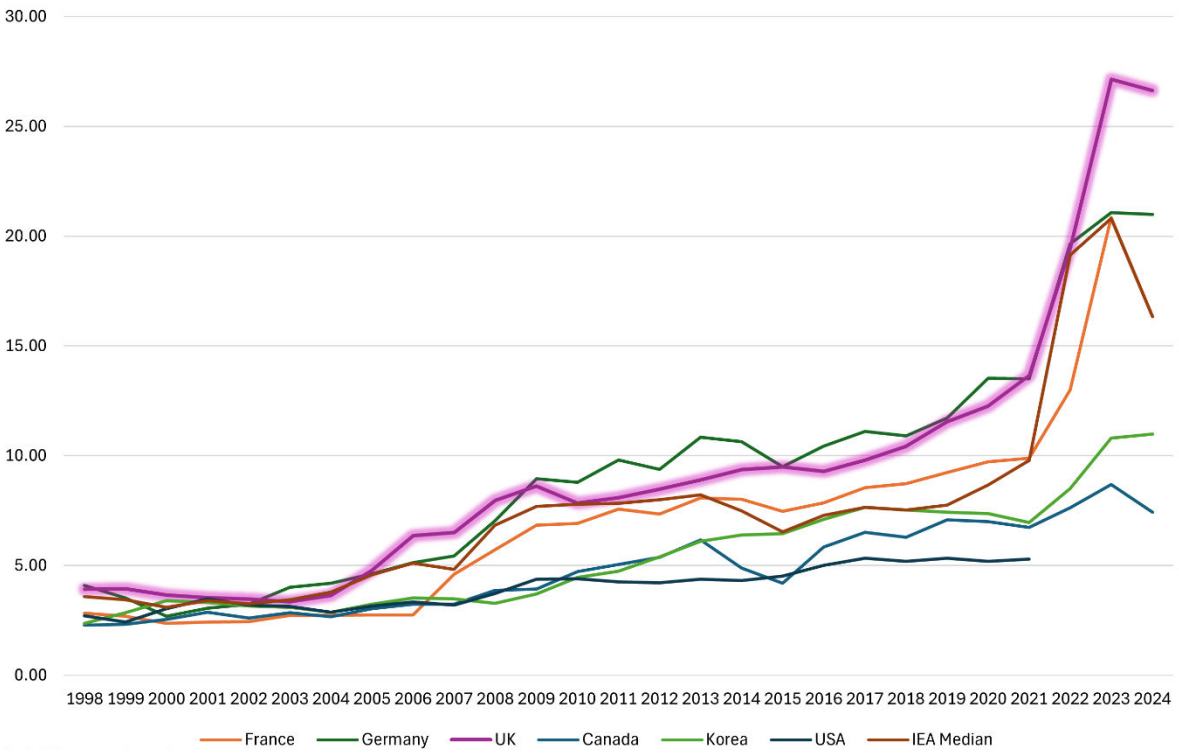
- Transport taxes such as Motor Vehicle Duty paid by businesses and households raised £8.1bn; until recently this tax did not apply to electric vehicles.
- Air Passenger Duty, a tax on flying, raised £4.2bn.

As can be seen below, the combination of subsidies for renewables and taxes on hydrocarbons conspires to make UK energy prices some of the most expensive in the developed world.

High electricity prices

Government statistics produced by the International Energy Agency (the other IEA) show the UK has the highest industrial electricity prices in the developed world (see Figure 3).

Figure 3: International industrial electricity prices (p/kWh)



Source: Eigen Values Substack (https://davidturver.substack.com/p/uk-industrial-electricity-prices-highest).

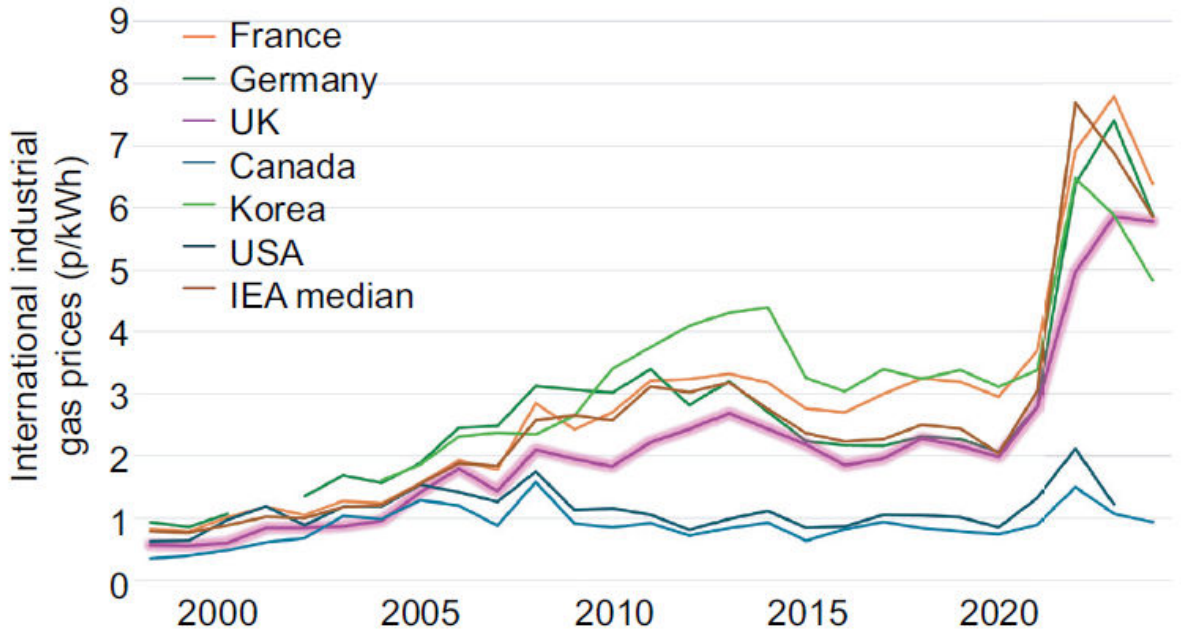
Note: that UK industrial electricity prices were around the IEA median from 1998 to 2005, but since 2014 the gap has widened so UK companies paid 63 per cent more than the IEA median in 2024.

It is fashionable to blame the UK's high electricity costs on the price of gas but Figure 4 shows that although UK gas prices are well above those in Canada and the US, they are marginally below the IEA median.

It is clear that it is not just gas that is driving UK electricity prices. Figure 5 plots the share of electricity supplied by source against gas and electricity prices.

We can see that gas prices remained relatively stable around 2p/kWh from 2008, the year of the Climate Change Act, to 2021 but electricity prices rose more than 50 per cent from under 8p/kWh to over 12p/kWh. During that period, the share of renewables (defined as hydro, bioenergy, wind and solar) went up from just over 5 per cent to over 37 per cent of electricity supplied. From 2022 onwards the energy crisis that began before the war in Ukraine caused gas prices to more than double and electricity prices followed suit.

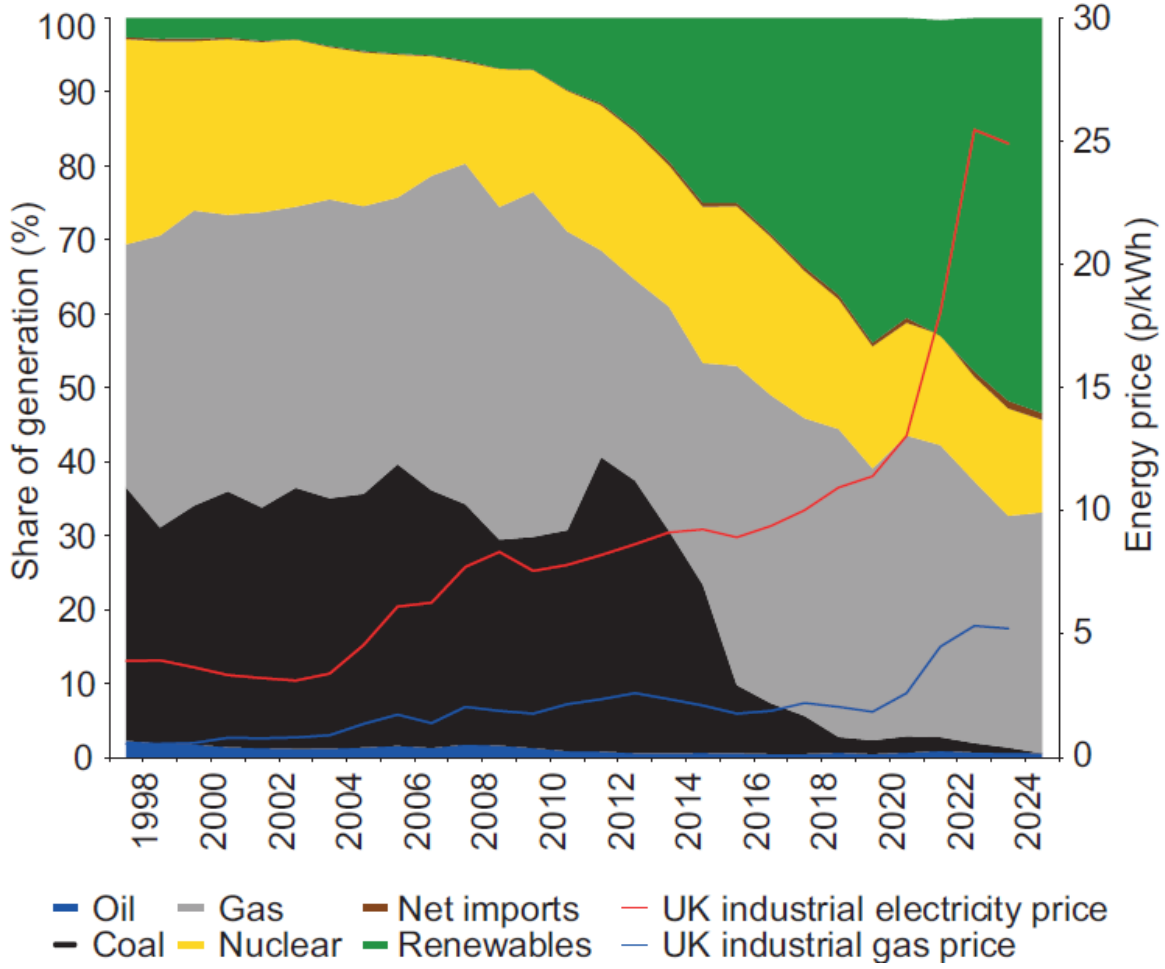
Figure 4: International industrial gas prices (p/kWh)



The impact on electricity prices from renewables subsidies, taxes on hydrocarbons and the hidden backup, grid balancing and expansion costs can now be examined in more detail.

The price of gas-fired electricity generated is also inflated by carbon costs. Figure 6 shows the fuel and carbon costs and the carbon costs as a share of the total, using data from Ember.

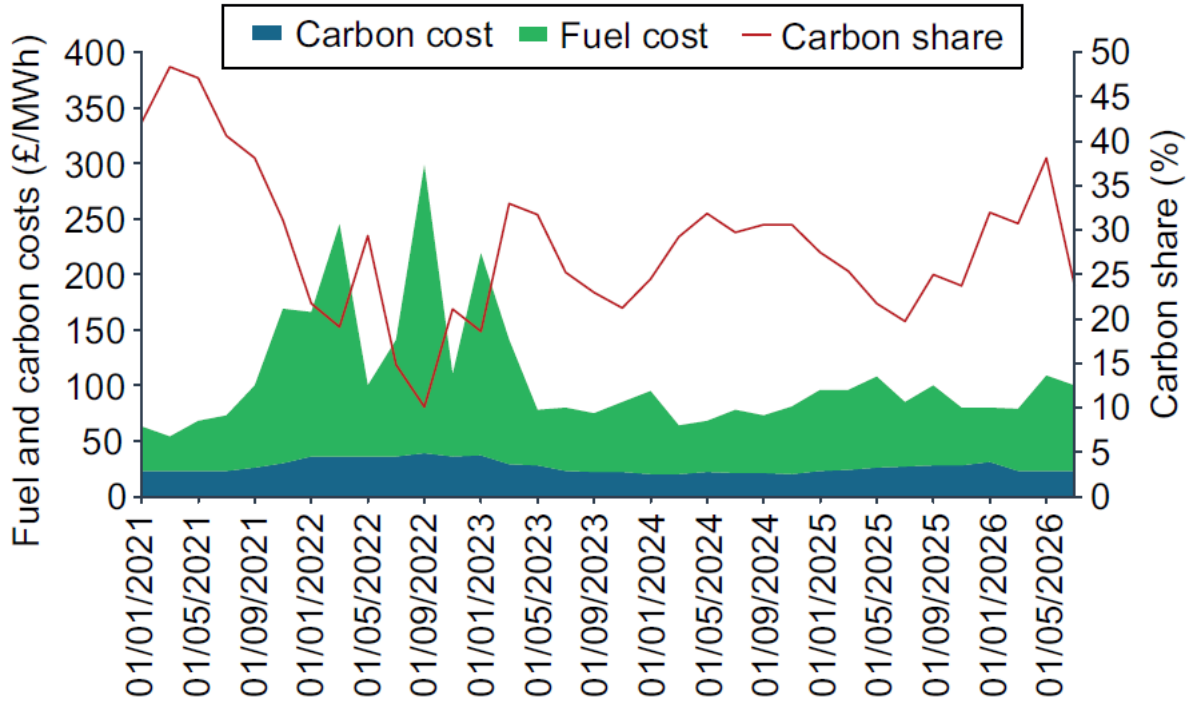
Figure 5: Share of electricity supplied by source (TWh), prices (p/kWh)



Source: Energy Trends ET5.1 Table 5c (https://www.gov.uk/government/statistics/electricity-section-5-energy-trends); international non-domestic energy prices QEP5.3.1 and 5.7.1 (https://www.gov.uk/government/statistical-data-sets/international-industrial-energy-prices).

Carbon costs comprise two elements. The first is the Carbon Price Support (CPS) mechanism, where prices have been held at £18/t since 2018. The CPS is due to be abolished in April 2028. The second part is the carbon cost arising from the UK Emissions Trading Scheme (ETS) and these costs fluctuate quite a lot.

Figure 6: Fuel and carbon costs (£/MWh) and carbon share (%)



Source: Ember European electricity prices and costs (https://ember-energy.org/data/european-electricity-prices-and-costs/#data-tool).

The total carbon costs fluctuated in a £35–40/MWh range from the beginning of 2022 to March 2023 before falling steadily to under £20/MWh in February 2024. Carbon costs then fluctuated in the £20–25/MWh range until April 2025 and then began to rise to £31.99/MWh in January 2026 after Prime Minister Starmer's announcement to align the UK and EU ETS schemes.[7] Carbon costs as a proportion of total costs reached a record 37.5 per cent in December 2025. More recently, ETS costs have fallen because Chancellor Merz called for the scheme to be reviewed.[8] These carbon costs artificially increase the cost of gas-fired electricity. Ironically, they also increase the cost of renewable electricity subsidised by Renewable Obligation Certificates (ROCs) because these generators receive their subsidies in addition to the market price of electricity, mostly set by gas.

Impact of renewables subsidies

As described above, there is a range of subsidies for renewables that further increase electricity prices. ROC-funded generators are awarded certificates for each unit of electricity generated in addition to the market price they receive for their output. Accordingly, electricity from these generators will always be more expensive than market rates, often set by gas. Even though this scheme is closed to new participants, the OBR shows the RO scheme cost £7.8bn in 2024/25 and the cost is forecast to rise

[7] UK and EU announce agreement to align ETS (https://www.endswasteandbioenergy.com/article/1918737/uk-eu-announce-agreement-align-ets).
[8] S&P Global Report (https://www.spglobal.com/energy/en/news-research/latest-news/energy-transition/021226-european-carbon-prices-slide-as-germanys-merz-says-eu-ets-may-need-revamping).

to £8.3bn in 2026/27.[9] About three quarters of the cost of the RO scheme has been temporarily moved from domestic electricity bills to general taxation from 1 April 2026. The cost of the RO scheme has not been removed from industrial electricity bills, but has been mitigated by various relief schemes.

FiTs are paid mostly to small solar installations. FiT generators are paid a fixed amount to generate electricity plus a smaller amount for the power they export (or are deemed to export) to the grid. Again, this scheme is closed to new entrants; however, analysis of Ofgem's latest report into the FiT scheme[10] shows it cost £1.8bn in 2024/25, or around £229/MWh, which is three times more than the market rate for CfDs in the same period[11] of about £76/MWh.

Finally, we have the CfDs scheme used for the now annual renewables auctions. Here, generators receive a fixed amount for the power they generate. They receive the market value, called the reference price, for their power and are then paid a top-up to the strike price of their contract. If market prices are above the strike price, they must pay back the difference. Analysis of data published by the Low Carbon Contract Company shows the CfDs scheme cost a record £2.96bn in 2025/26. The generation-weighted average strike price of electricity funded by CfDs was about £152/MWh in 2025/26 or more than double the £71/MWh average reference price for intermittent renewables. The cost of this scheme is likely to rise considering the high prices offered on 20-year index-linked contracts in the recent Allocation Round 7 (AR7) auction of new capacity.

The cost of all renewables under these schemes is higher than gas-fired electricity and much higher than gas-fired electricity unencumbered by carbon costs. The total cost of these subsidy schemes amounts to £12.5bn per year as shown in Table 1.

Table 1: Cost of subsidy schemes

Item	*Latest annual cost (£bn)*
Renewables Obligations (ROCs) (2024/25)	7.8
Contracts for Difference (CfDs) (2025/26)	2.9
Feed-in Tariffs (FiTs) (2024/25)	1.8
Total	12.5

According to the latest Energy Trends data,[12] we used 16.24 million tonnes of oil equivalent gas for electricity in 2025. This equates to about 188.9 TWh of gas used to generate 91.6 TWh of electricity or 31.5 per cent of total generation. At an average

[9] OBR Detailed Forecast Tables Receipts March 2026 (https://obr.uk/efo/economic-and-fiscal-outlook-march-2026/).
[10] Eigen Values Substack (https://davidturver.substack.com/p/fit-the-bill-feed-in-tariff-costs-2024-25).
[11] Low Carbon Contract Company (https://dp.lowcarboncontracts.uk/dataset/actual-cfd-generation-and-avoided-ghg-emissions).
[12] Energy Trends ET5.1 (https://www.gov.uk/government/statistics/electricity-section-5-energy-trends).

cost of 83p/therm or £28.33/MWh, this equates to a total fuel cost of £5.4bn or £58.43/MWh. Renewables subsidies alone of £12.5bn cost more than twice as much as the fuel for gas-fired generation. On a per MWh basis, renewables subsidies alone cost about £82/MWh, more than the fuel for gas-fired generation. The full cost of gas-fired generation will include an allowance for recovery of capital expenditure, but still renewables are much more expensive than electricity from gas unencumbered by carbon taxes.

Extra costs of renewables

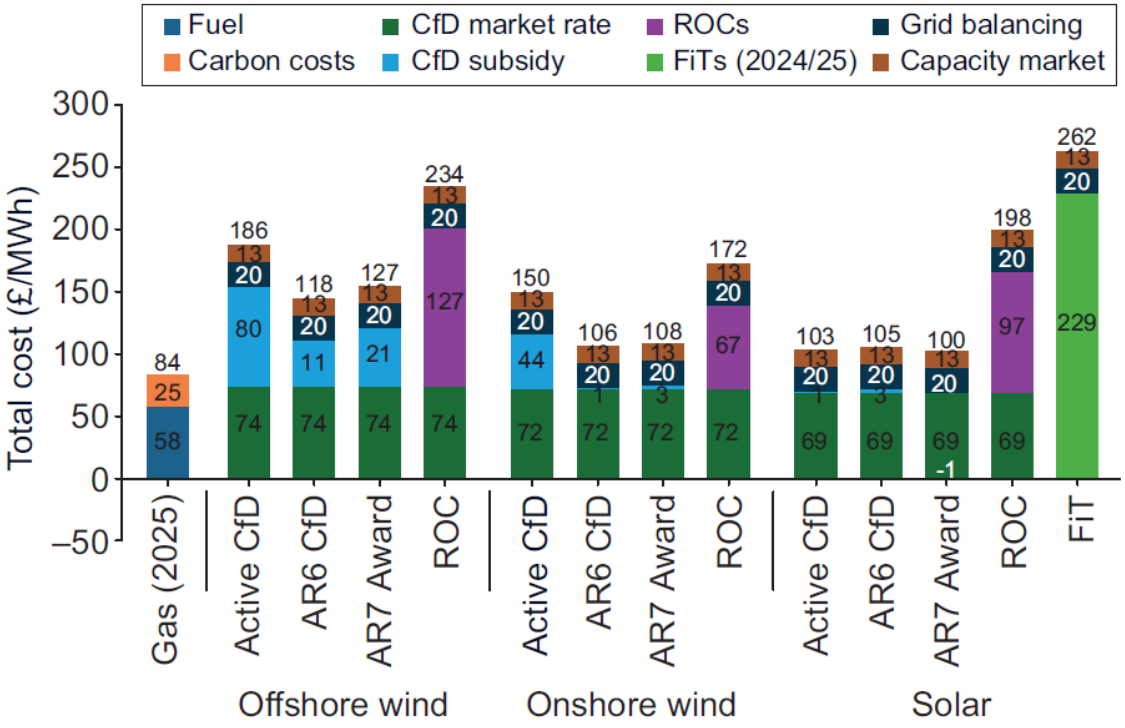
However, subsidies do not represent the full cost of renewables. First, because wind and solar are intermittent their output can fluctuate significantly so that sometimes they produce less than expected. At other times, wind and solar can produce more than demand or more than the grid can handle and wind farms are paid to curtail their output. The grid needs to be always balanced so gas generators are paid to fire up to compensate. NESO produce Monthly Balancing Services Summary reports and the data for 2024/25 show the cost of this service was £2.7bn.[13] In addition, according to the OBR, backup through the capacity market cost £1.3bn in 2024/25.[14]

If we attribute the balancing and backup costs to intermittent renewables (allowing an inflation adjusted £750m for the cost of balancing before renewables) the full cost of renewables can be seen in Figure 7.

The cost of grid balancing adds about £20 to the cost of intermittent renewables and backup from the capacity market about £13, together adding £33/MWh. The full cost of active CfDs for offshore wind including the strike price plus grid balancing and backup in 2025 was £186/MWh, onshore wind £150/MWh and solar £103/MWh. All these technologies were much more expensive than gas, even with a carbon tax added. The full cost of new capacity in the recent allocation rounds, AR6 and AR7, is also much higher than gas-fired power. It should be noted that the index-linked contracts in AR7 have been extended to 20 years, so billpayers will be paying more for longer. Renewables subsidised by ROCs and FiTs are even more expensive.

[13] NESO Balancing Costs (https://www.neso.energy/industry-information/balancing-costs).
[14] OBR Detailed Forecast Tables Receipts March 2026 (https://obr.uk/efo/economic-and-fiscal-outlook-march-2026/).

Figure 7: Total cost of electricity by technology and subsidy scheme, 2025 prices (£/MWh)



Source: Eigen Values Substack.

These extra costs are going to get much worse. NESO forecasts balancing costs to rise to £6.4–8.3bn by 2030[15] and the OBR forecasts Capacity Market costs to rise to £4.4bn per year in 2030/31.[16] We can therefore expect these extra costs of renewables to triple to over £12bn by 2030, again more than twice the current cost of gas used to generate electricity.

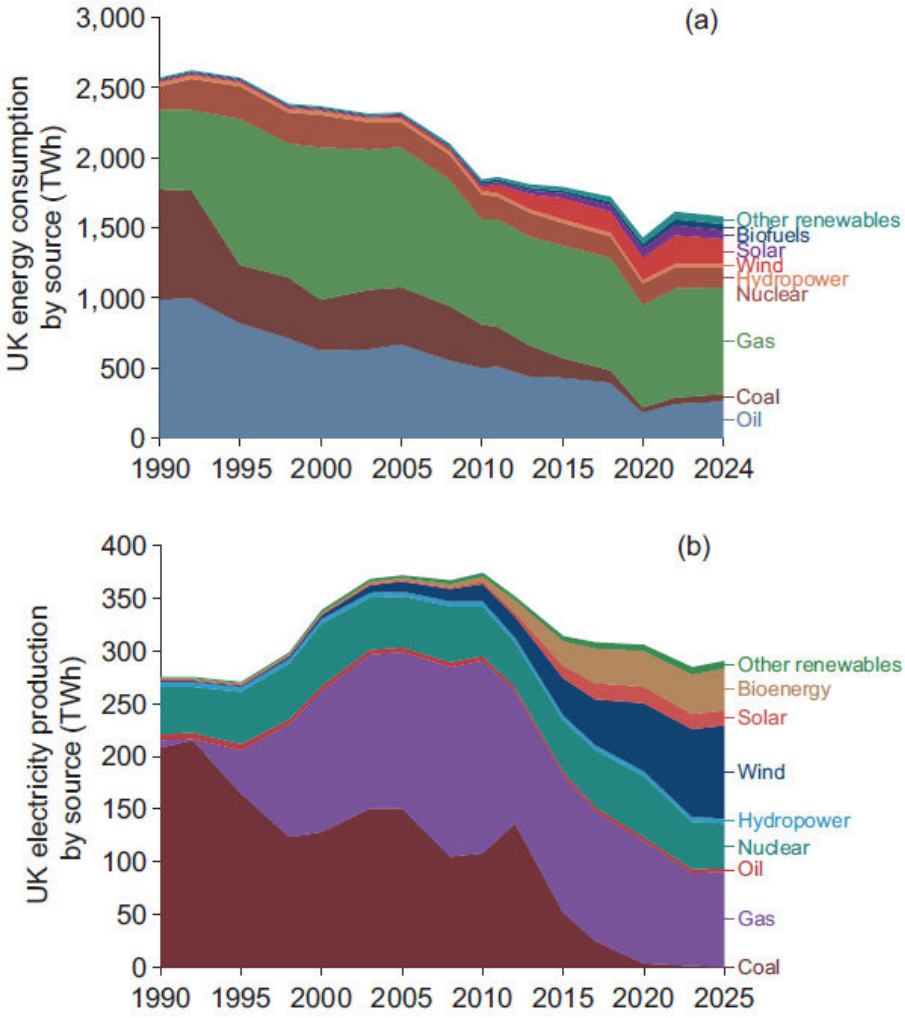
In addition, because renewables are geographically dispersed, they need extra spending on transmission lines to connect them to the grid. Ofgem has recently approved an initial £8.9bn of spending on the high-voltage electricity network.[17] They claim this is the first step of an £80bn programme to boost the electricity network capacity. They estimate this will add a further £74 to domestic electricity bills. NESO's Clean Power 2030 plan explained this money will be spent on 1,000 km of new onshore and over 4,500 km of offshore cables.[18] Most of this spending is clearly required to connect remote renewables so should be classified as a cost of renewables.

[15] Hidden costs of renewables going up (https://davidturver.substack.com/p/hidden-costs-renewables-going-up).
[16] OBR Detailed Forecast Tables Receipts March 2026 (https://obr.uk/efo/economic-and-fiscal-outlook-march-2026/).
[17] Hidden costs of renewables going up (https://davidturver.substack.com/p/hidden-costs-renewables-going-up).
[18] NESO Clean Power 2030 (p. 31) (https://www.neso.energy/document/346651/download).

When giving evidence to a recent ESNZ Select Committee, Rachel Fletcher of Octopus Energy explained that electricity bills would be 20 per cent higher in four or five years' time even if wholesale prices, largely set by gas, halve.[19] Chris Norbury, chief executive of E.On UK had a similar message when he said even if wholesale prices go to zero, bills would be where they are today because of the increase in non-commodity costs.[20]

The evidence that renewables subsidies, carbon taxes and the additional backup, grid balancing and expansion costs are driving electricity prices higher is overwhelming.

Figure 8: (a) Energy consumption by source, UK; (b) electricity production by source, UK



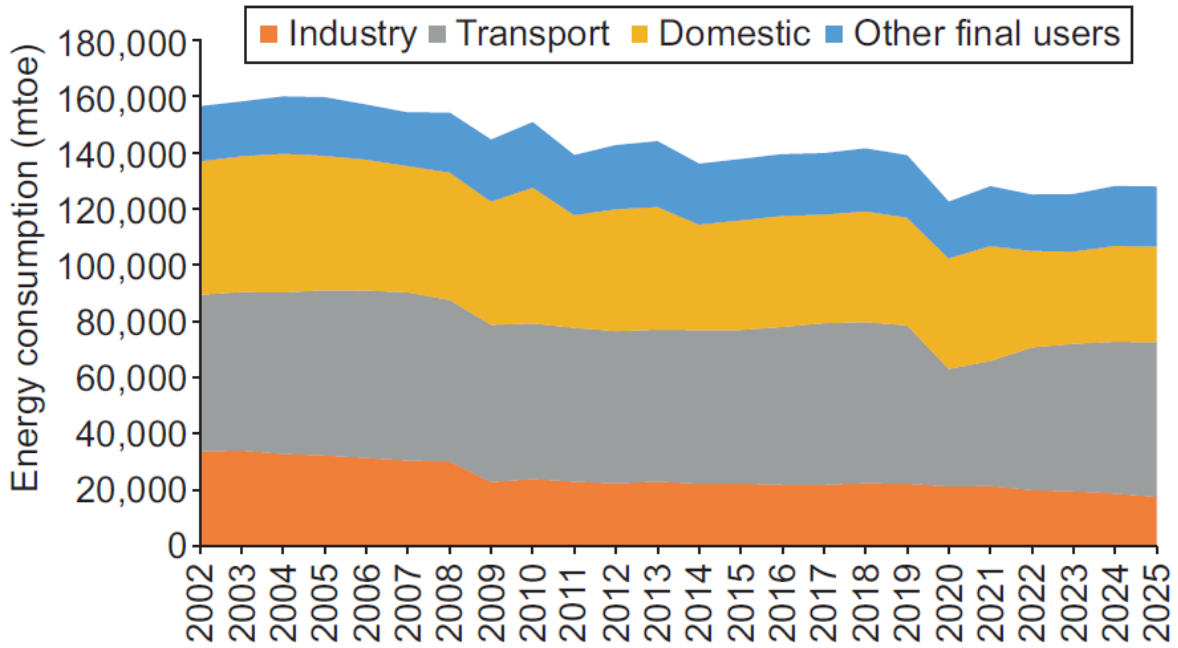
Source: Our World in Data: UK Energy Profile (https://ourworldindata.org/profile/energy/united-kingdom).
Notes: (a) 'Other renewables' include geothermal, biomass and waste energy. (b) 'Other renewables' include geothermal, wave, and tidal.

[19] Green levies to blame for rising energy bills, say suppliers (https://archive.is/CsOCn).
[20] The Guardian (https://www.theguardian.com/money/2025/oct/15/britain-biggest-energy-supplier-octopus-bills-on-track-to-rise-by-fifth-in-next-four-years).

Declining energy and electricity consumption

The combination of high energy prices and the legislative burden has led to a steady reduction in both overall energy use and electricity generation as shown in Figure 8. Overall UK energy consumption is down 29.2 per cent from its peak in 2005 and domestic electricity generation is down 26.5 per cent from its peak, also in 2005. Slightly different data from UK Energy Trends illustrated in Figure 9 show final energy consumption down 20.3 per cent overall since peaking in 2004.

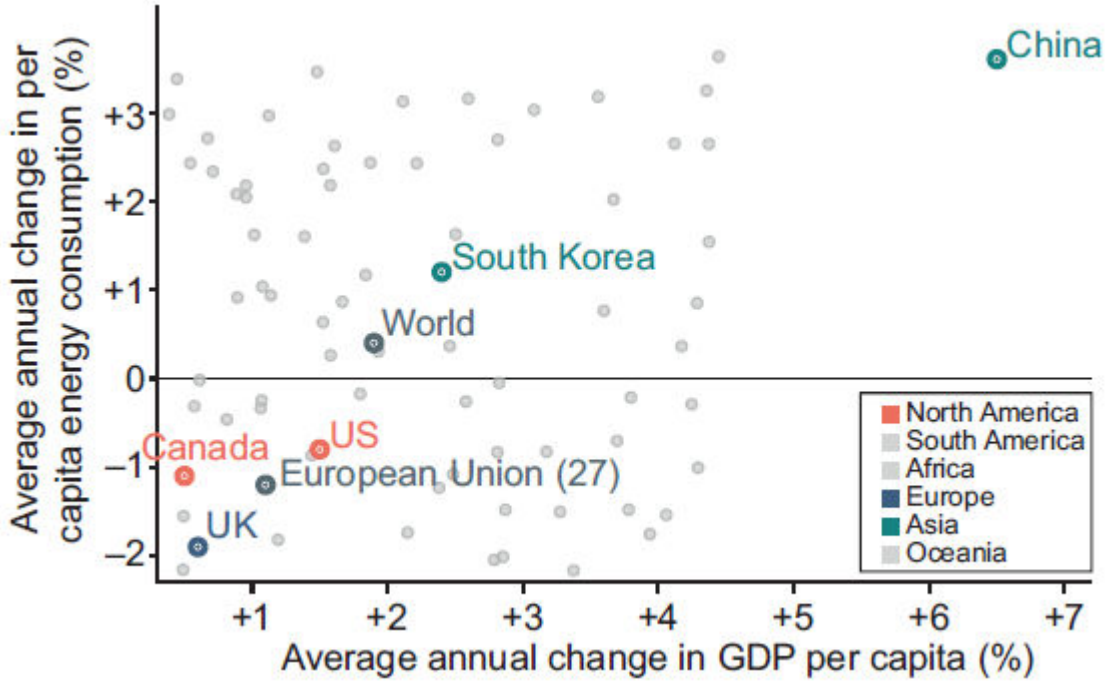
Figure 9: Total final energy consumption (unadjusted) by sector (mtoe)



Source: UK Energy Trends ET1.3 (https://www.gov.uk/government/statistics/total-energy-section-1-energy-trends).

The detailed sector data show industrial consumption is down 45.3 per cent since the peak total consumption in 2004. Domestic consumption is down 32 per cent. Transport energy consumption is down a more modest 3.6 per cent and other users (mostly service industries) are up a modest 1.3 per cent. It is hardly surprising the economy is struggling to grow when industrial energy consumption is collapsing.

Figure 10: Energy use per person vs. GDP per capita, 2008–24



Source: Our World in Data (https://ourworldindata.org/grapher/energy-use-per-person-vs-gdp-per-capita?stackMode=relative&zoomToSelection=true&time=2008..latest&country=OWID_WRL~CHN~KOR~GBR~OWID_EU27~USA~CAN).

Impact on growth and productivity

The impact of expensive, scarce energy has caused a drag on growth is demonstrated in Figure 10. The chart compares the change in per capita energy consumption to the change in GDP per capita over the period 2008–24.

The UK has reduced energy consumption by 2.4 per cent per annum. This is more than Canada, the EU27, Japan and the US. As a result GDP per capita has virtually stagnated, growing at just 0.4 per cent per annum, lower than the EU27 and all the other G7 countries except Canada. By contrast, world GDP per capita has been growing at close to 2 per cent per year and energy use per person has increased by about 0.5 per cent per annum. Asian countries such as South Korea and China have increased energy use even faster and have accordingly grown much faster. The UK's energy consumption per person is much lower than many other poorer countries such as Belarus, Bulgaria, Kazakhstan, Malaysia, Poland and Turkmenistan.[21] The UK economy will at best stagnate if the current energy austerity policies are maintained.

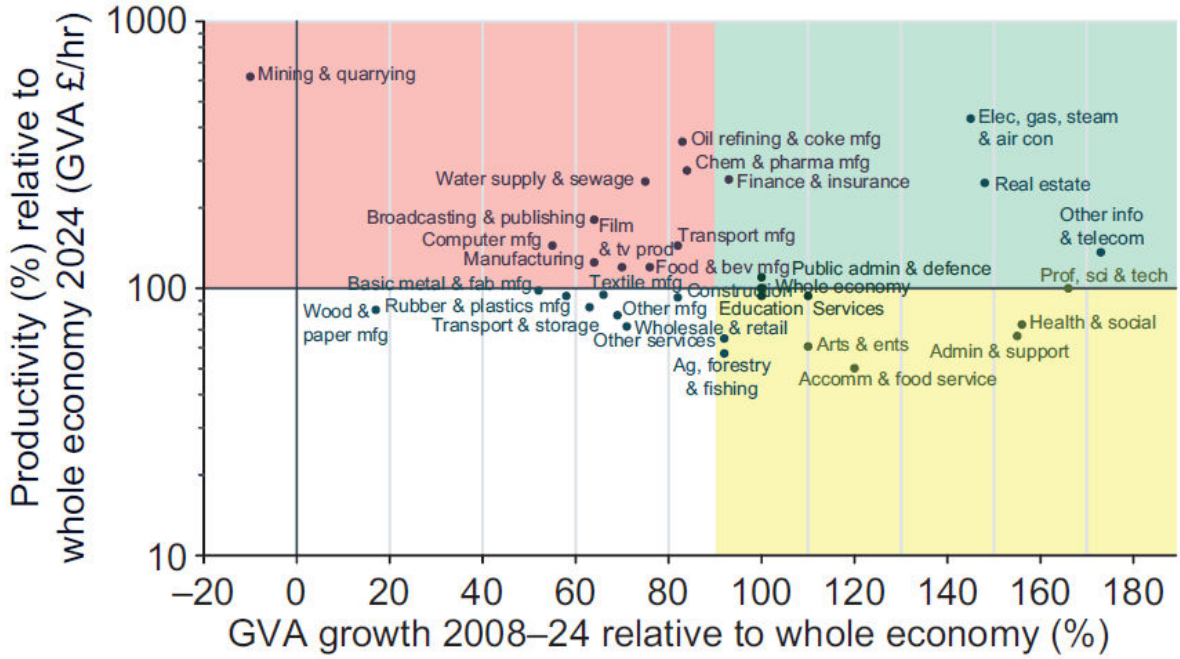
[21] OWID Energy use per person (https://ourworldindata.org/grapher/per-capita-energy-use?tab=line&country=CHN~GBR~TKM~BLR~KAZ~MYS~POL~BGR).

The reduction in energy consumption, particularly in industry has also taken its toll on productivity. Using ONS data, Figure 11 analyses the period from the beginning of the Climate Change Act in 2008 to 2024.

The *x*-axis shows the relative growth rate of different industry sectors over the period. The mid-point of 100 per cent represents the whole economy growth rate over the period. The *y*-axis shows the relative productivity of each sector in 2024 on a log-scale, with the mid-point of 100 per cent representing the whole economy.

The chart is divided into four quadrants. In the white quadrant we can see sectors such as wholesale and retail, agriculture, forestry and fishing and transport and storage are all growing more slowly than the whole economy and have below-average productivity measured by gross value-added (GVA) per hour worked.

Figure 11: Productivity vs. relative GVA growth by industry sector in 2008–24



Source: ONS Output per hour worked whole economy and section level industries (https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/datasets/outputperhourworkeduk); ONS Output per hour worked bespoke industries and division level (https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/datasets/outputperhourworkedbydivisionuk).

The yellow quadrant shows sectors such as accommodation and food service, health and social care, arts and entertainment are growing faster than the whole economy yet have lower-than-average productivity.

The green quadrant shows sectors such as real estate and information and telecommunications growing faster than the whole economy with above-average productivity.

Finally, the red quadrant shows sectors with above-average productivity growing more slowly or shrinking in absolute terms compared to the whole economy. The manufacturing sector has grown at two-thirds the rate of the whole economy, but the sector's productivity is 122 per cent of the whole economy. Included in this segment are mining and quarrying that contains oil and gas extraction where GVA has fallen in absolute terms by 7 per cent over the period, yet productivity is 637 per cent of the whole economy average. The red segment also includes oil refining as well as the chemical and pharmaceutical sectors, both of which have much higher productivity, 384 per cent and 292 per cent of the average, respectively. Transport manufacturing, which includes making cars and buses, is also a relatively high productivity sector at 141 per cent of the whole economy average. All these sectors have grown more slowly than the whole economy.

Looking in more detail, hours worked are down 9 per cent in mining and quarrying. High taxes on domestic oil and gas producers, coupled with the effective ban[22] on new exploration drilling have led to estimates of 1,000 jobs per month being lost in the oil and gas industry in the North Sea.[23] The economic impact of these job losses is far greater than the headline job losses because this sector creates more than six times the value added per hour worked than the whole economy.

There are also additional impacts further downstream in refining and petrochemicals, where hours worked are down 14 per cent. Grangemouth oil refinery closed in April 2025, with the loss of 400 jobs.[24] The oil-refining sector produces about four times the GVA per hour worked than the whole economy so again, the economic impact of these job losses is amplified. As well as producing fuels like petrol, diesel and kerosene that now must be imported, Grangemouth produced essential feedstock for the petrochemicals industry. These include ethylene, propylene and polymers such as polyethylene and polypropylene.[25] The chemicals and pharmaceutical industries create about three times the value added per hour worked than the whole economy, but total hours worked is down 2 per cent.

It should be noted too that hours worked per week are down 11 per cent in computer manufacturing, and 3 per cent in transport manufacturing which indicates there have been job losses over the period. While the job losses have been relatively modest, the loss of GVA is much more significant because these industries add so much more value per hour worked.

The loss of North Sea oil and gas production has a large economic impact on its own and even more impact that extends further along the value chain, hollowing out industries producing vital building blocks that society depends upon.
The productive sectors of the economy tend to be energy intensive and have been made less competitive by the imposition of high energy prices and the huge regulatory

[22] DESNZ news story (https://www.gov.uk/government/news/north-sea-future-plan-for-fair-managed-and-prosperous-transition).
[23] Robert Gordon University transcript (https://www.rgueti.com/wp-content/uploads/2025/12/North-Sea-industry-leader-says.pdf).
[24] Grangemouth to stop refining with 400 jobs lost (https://www.thechemicalengineer.com/news/grangemouth-refining-to-stop-next-year-with-400-jobs-lost/).
[25] About Grangemouth (https://www.ineos.com/sites/grangemouth/about).

burden. Moreover, these industries tend by their nature to be capital intensive. Expensive energy, high taxes and an onerous regulatory regime has led companies such as Ineos to abandon new investment in the UK.[26] As these companies move abroad Britain also loses out on investment that would lead to further growth.

Conclusion

Energy is the foundation stone of modern economies as demonstrated by there being no examples of rich countries that are low energy consumers. The UK has imposed a swathe of legislation that has increased the regulatory burden and made energy scarce and expensive. In particular, the focus on expensive and intermittent renewables and punitive taxes on hydrocarbons has given the UK the most expensive industrial electricity prices in the developed world.

As a result, energy and electricity consumption are in a steep downtrend and the economy is flatlining. Energy consumption in the industrial sector is plummeting and many of the most productive sectors in the economy are shrinking. We need look no further than its spectacularly unwise energy policy to find out why Britain has stopped growing.

[26] Jim Ratcliffe's energy empire abandons UK investment (https://archive.is/ROBK8).