Department for Energy Security & Net Zero

UK ENERGY IN BRIEF 2025

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This booklet summarises the latest statistics on energy production, consumption, prices and climate change in the United Kingdom. Figures are primarily taken from the 2025 edition of the “Digest of UK Energy Statistics”, published on 31 July 2025. Details of the Digest and other Department for Energy Security and Net Zero (DESNZ) statistical publications on energy and climate change can be found on pages 49 and 50 of this publication and are available at: https://www.gov.uk/government/organisations/department-for-energy-security-and-net-zero/about/statistics

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INTRODUCTION TO THE CHARTS AND TABLES

UK Energy in Brief aims to provide a summary of some of the key developments in the UK energy system: how energy is produced and used and the way in which energy use influences greenhouse gas emissions. It takes data from the main Department for Energy Security and Net Zero (DESNZ) energy and climate change statistical publications; the Digest of UK Energy Statistics, Energy Trends, Energy Prices, Energy Consumption in the UK, the annual Fuel Poverty statistics report and the quarterly Smart Meters report and statistical releases on emissions, and combines these with data produced by the Office for National Statistics and other Government Departments.

The booklet contains separate sections on the economics of the energy industry, overall energy production and consumption and trends in production and consumption of the major fuel sources, climate change and fuel poverty. Also discussed are developments in combined heat and power and renewable energy. Information is also given on energy efficiency and energy prices.

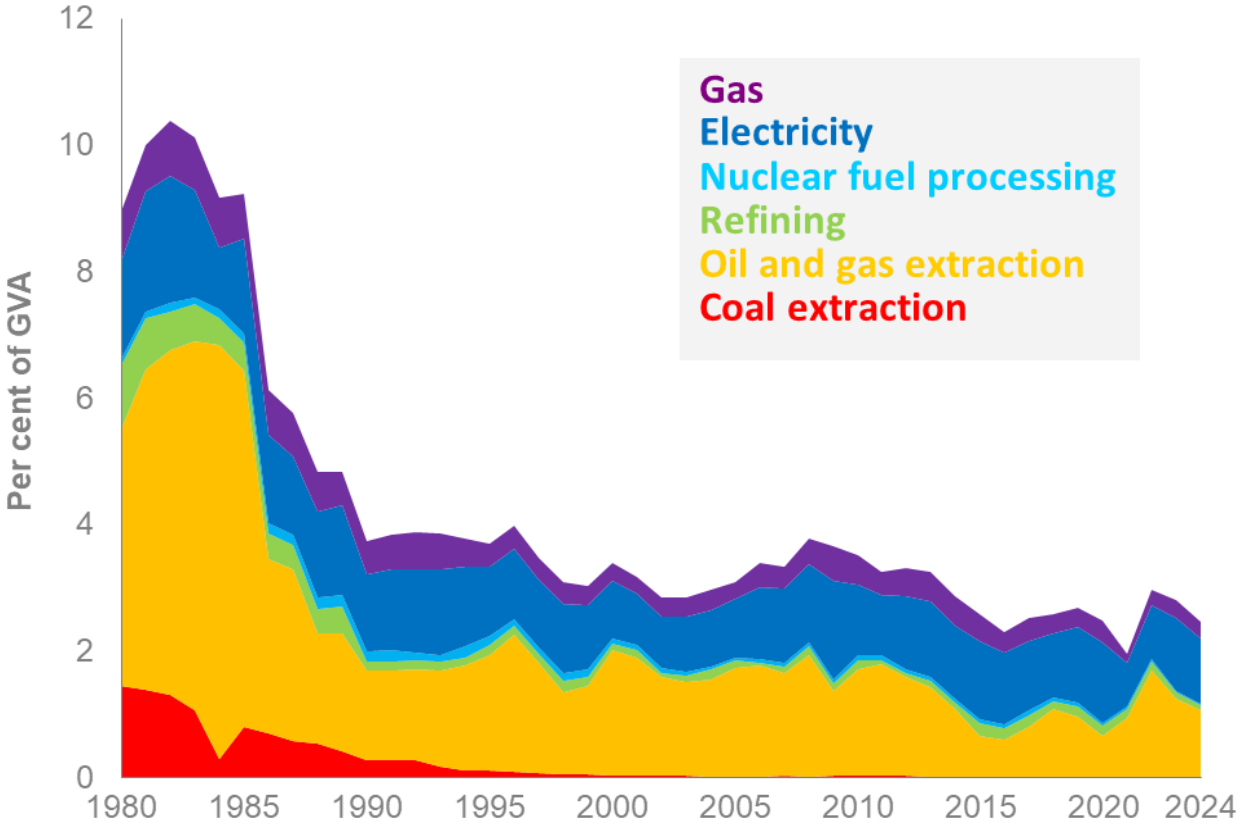
The detailed background data on energy production and consumption can be found in the Digest of UK Energy Statistics 2025 available at:
https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

Other statistical outputs produced by DESNZ and drawn on in this publication are listed on pages 49 and 50.

THE ENERGY INDUSTRIES' CONTRIBUTION TO THE UK ECONOMY IN 2024

- 2.4% of GVA (Gross Value Added).
- 158,400 people directly employed (5.6% of industrial employment) and more indirectly (e.g. in support of UK Continental Shelf production).
- 8.9% of total investment.
- 27.2% of industrial investment.

Contribution to GVA by the energy industries, 1980 to 2024

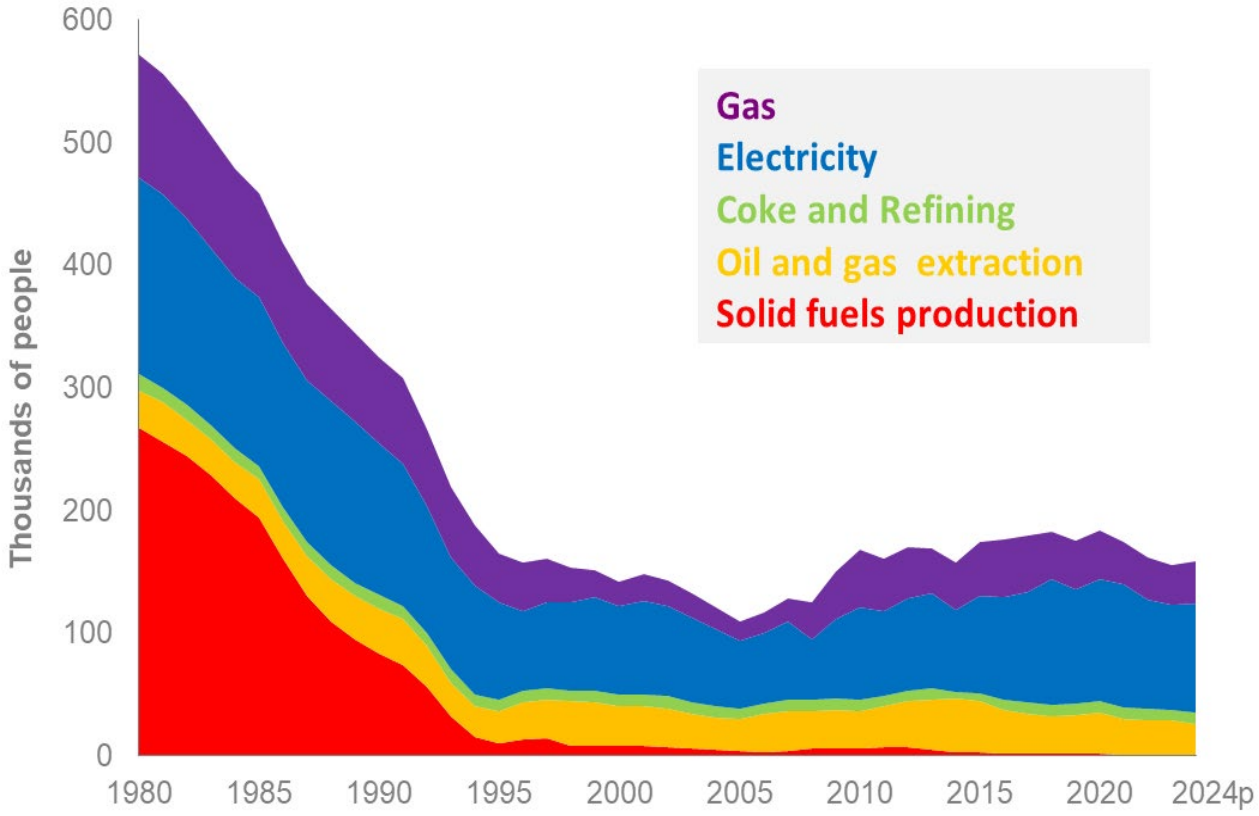


Source: Office for National Statistics

The contribution to the UK economy by the energy industries peaked in 1982 at 10.4%. In 2024, the contribution by the energy industries to the UK economy was 2.4% of GVA, down from 2.8% in 2023.

Despite its significant fall in 1986, oil and gas extraction has been the major energy contributor to the UK economy (with its value dependent both on production and the price of oil and gas). However, since 2014 electricity has become the major energy contributor. Of the energy total in 2024 electricity (including renewables) accounted for 43%, oil and gas extraction accounted for 41%, and gas accounted for 10%.

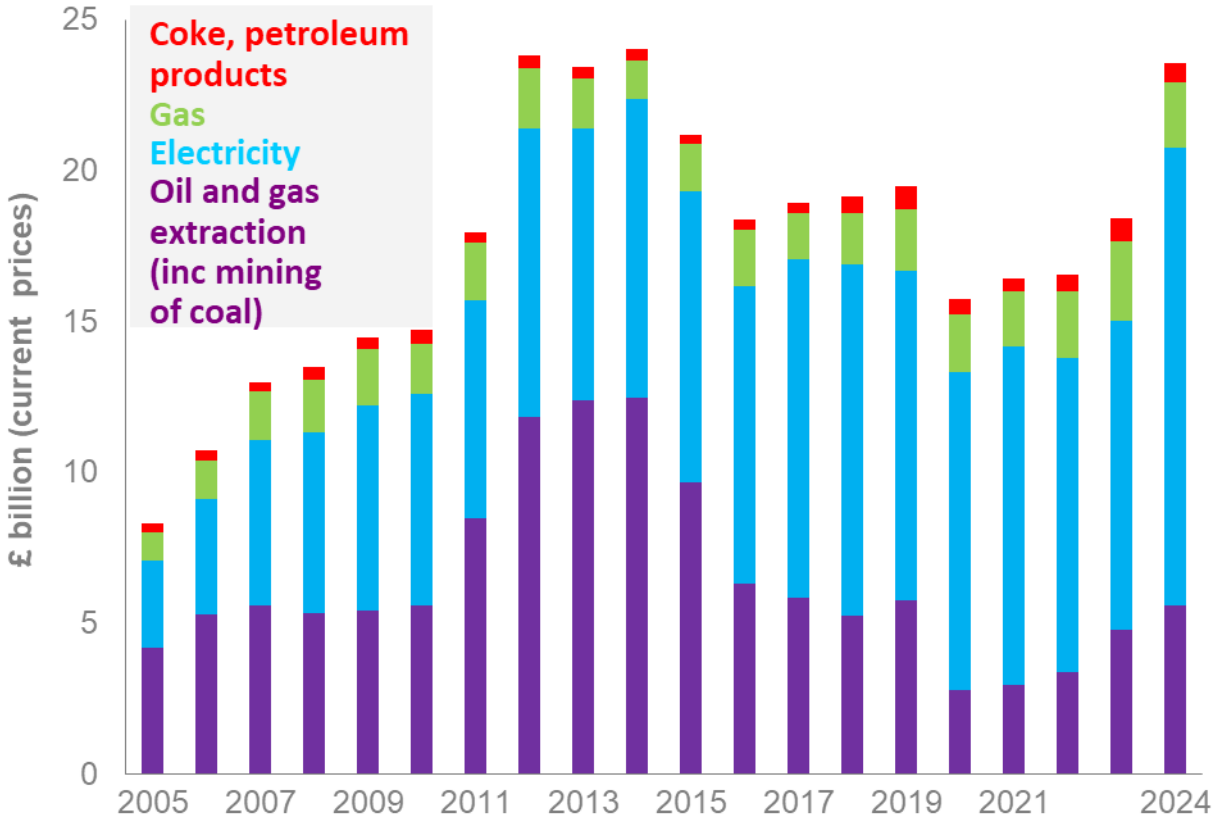
Trends in employment in the energy industries, 1980 to 2024



Source: Office for National Statistics (Data from 1996 onwards based on SIC 2007 classifications)

Employment in the energy production and supply industries fell rapidly throughout the 1980s and mid-1990s largely as a result of closures of coal mines. Between 1995 and mid-2000s employment declined more slowly but since 2006 it has increased gradually, driven largely by growth in the electricity and gas sectors. However, since 2020 employment in the energy industries has generally fallen back. In 2024 employment rose by 1.9% on the previous year to 158,400 which was 45% above the 2005 level and accounted for 5.6% of all industrial employment. Of the energy total in 2024 electricity (including renewables) accounted for 56%, gas accounted for 22% and oil and gas extraction accounted for 16%.

Investment in the energy industries, 2005 to 2024

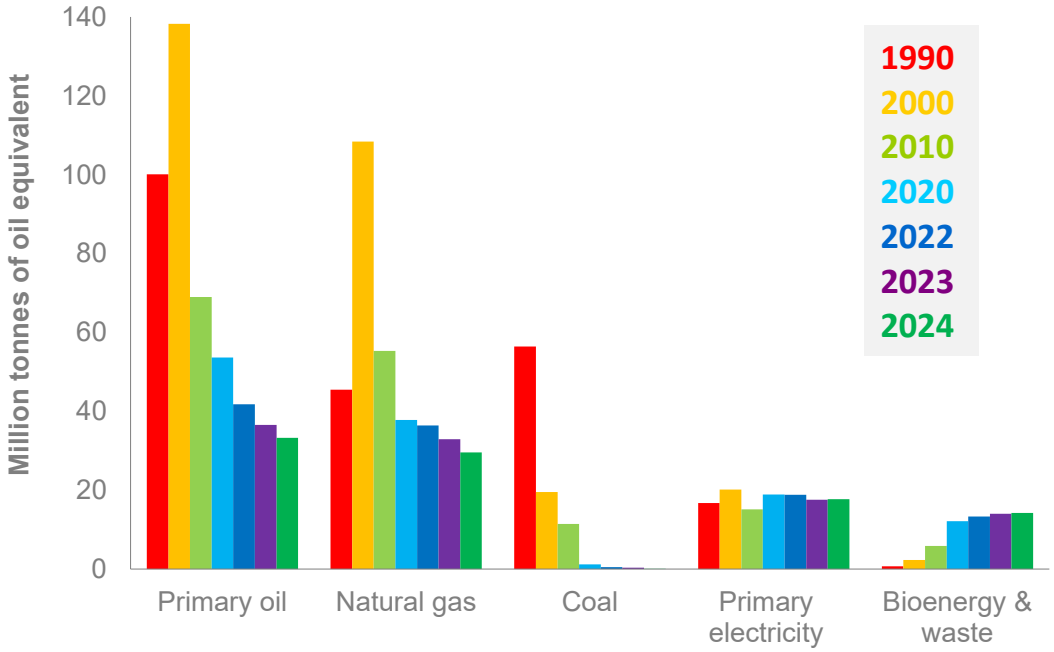


Source: Office for National Statistics

In 2024 investment in the energy industries at £23.6 billion (at current prices) was 28% higher than in 2023.

Of the total invested electricity contributed 64% (up 8.8 percentage points on 2023), oil and gas extraction (including a small proportion of less than 0.01% for coal extraction) contributed 24% (down 2.2 percentage points on 2023), gas contributed 9% (down 4.9 percentage points on 2023), with the remaining 3% in coke & refined petroleum products industries (down 1.6 percentage points on 2023).

Production of primary fuels, 1990 to 2024



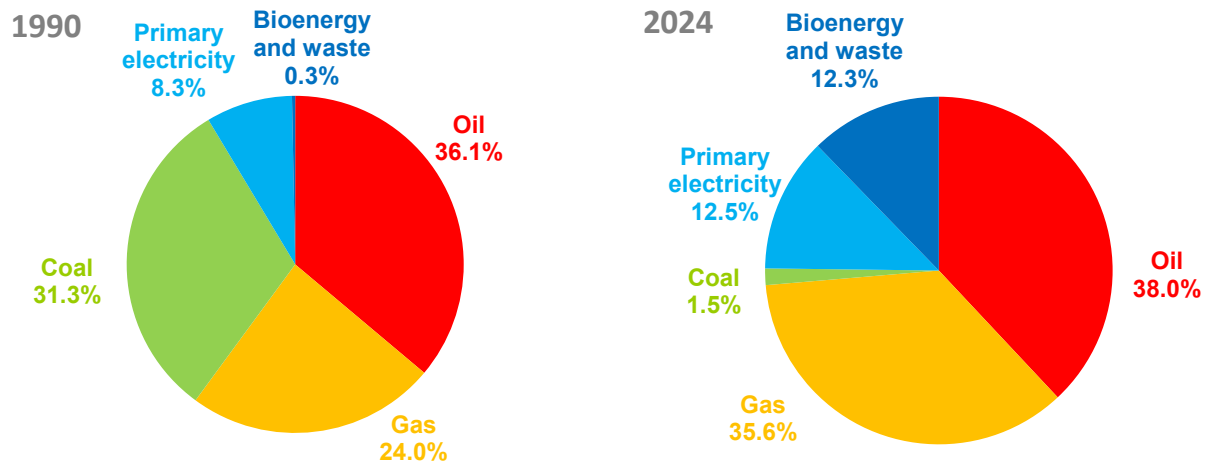
Million tonnes of oil equivalent

	1990	2000	2010	2020	2022	2023	2024
Primary oil	100.1	138.3	69.0	53.6	41.8	36.5	33.3
Natural gas	45.5	108.4	55.3	37.8	36.4	33.0	29.6
Coal	56.4	19.6	11.4	1.2	0.5	0.4	0.1
Primary electricity	16.7	20.2	15.1	18.9	18.8	17.6	17.7
Bioenergy & waste	0.7	2.3	5.8	12.1	13.3	14.0	14.2
Total	**219.4**	**288.7**	**156.7**	**123.6**	**110.8**	**101.4**	**94.8**

Total production of primary fuels, when expressed in terms of their energy content, fell by 6.5% in 2024 to a record low level of 94.8 million tonnes of oil equivalent. In 2024 output from coal, oil and gas were all at record low levels. The fall in 2024 was partially offset by rises in bioenergy & waste and renewables output which was boosted by increased capacity for offshore wind and solar technologies. Primary oil (crude oil and Natural Gas Liquids) accounted for 35% of total production, natural gas 31%, primary electricity (consisting of nuclear, wind, solar and hydro) 19%, bioenergy and waste 15%, while coal accounted for just 0.1%.

Total production increased rapidly between 1990 and 2000, mainly due to the growth of oil and gas. Production in 2000 was at record levels for natural gas, whilst in 1999 it was at record levels for overall energy and petroleum. Production has been on a general decline since 2000, but increased between 2015 and 2018, before falling again from 2019 onwards. Oil production is still 42% below pre-pandemic (2019) levels, whilst gas production is still 21% below pre-pandemic (2019) levels. Total production is now 68% lower than its peak in 1999. Since 2000, oil and gas production levels have fallen by 76% and 73% respectively reflecting the decline in output from the UK's mature continental shelf.

Inland energy consumption, 1990 and 2024



Note: Primary electricity includes nuclear, wind, solar, hydro and net imports.

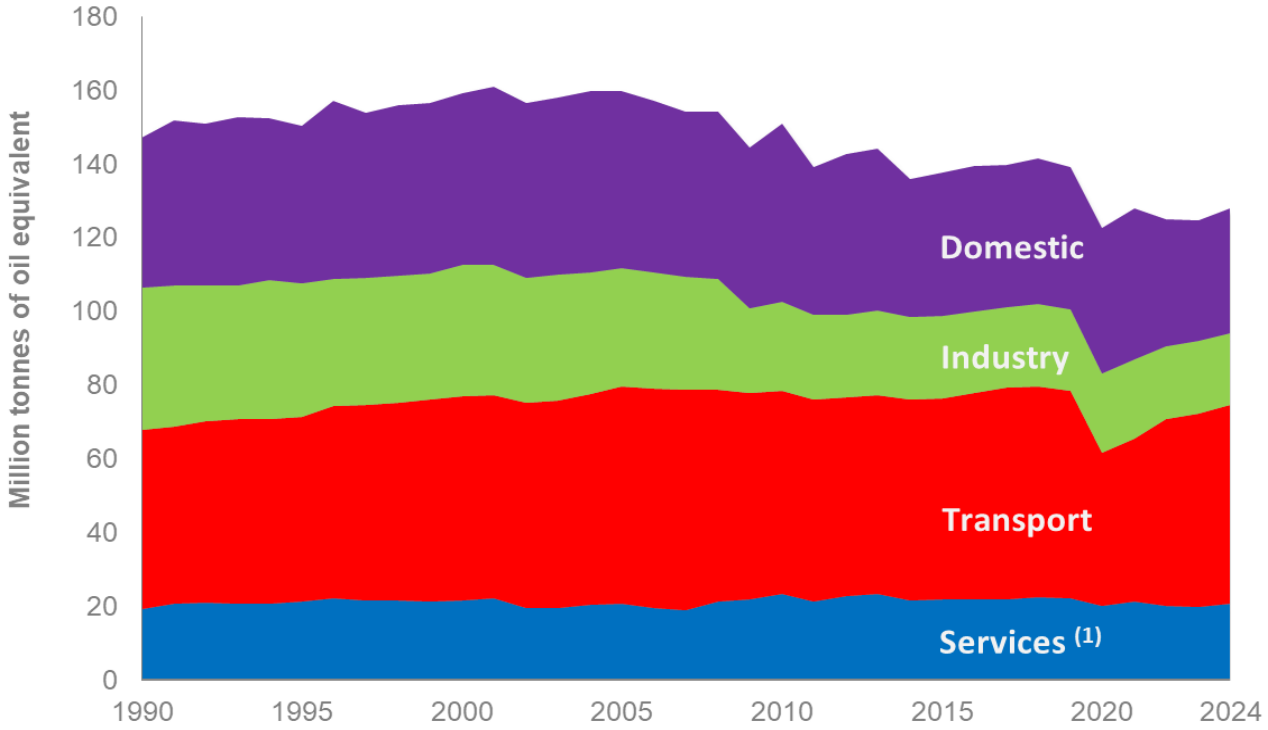
Million tonnes of oil equivalent

	1990	2000	2010	2020	2022	2023	2024
Total inland primary energy consumption[1]:	213.6	234.8	220.0	164.7	168.2	163.8	164.4
Conversion losses:		53.8	50.2	28.1	29.6	26.1	24.6
Distribution losses and energy industry use:	66.4	20.7	18.0	13.8	13.5	12.8	11.9
Total final energy consumption:	147.3	159.4	150.8	122.5	125.1	124.8	128.1
Final consumption of which:							
Industry	38.7	35.5	23.9	21.3	20.0	19.8	19.5
Domestic	40.8	46.9	48.3	39.4	34.4	32.7	34.0
Transport	48.6	55.5	55.3	41.7	50.7	52.5	54.0
Services[2]	19.2	21.5	23.2	20.1	20.0	19.8	20.6
Temperature corrected total inland consumption:	221.6	240.2	211.3	167.2	171.2	166.1	167.2

(1) Excludes non-energy use.
(2) Includes agriculture, commercial, public administration and miscellaneous.

Primary energy consumption rose by 0.4% in 2024 compared to 2023, with the small rise due to some easing from the higher energy prices in 2023. In 2024, the average temperature was 0.1 degrees Celsius lower than 2023; on a temperature corrected basis, primary energy consumption was 0.7% higher than in 2023. Since 1990, consumption of natural gas and primary electricity have risen, whilst consumption of oil and coal have fallen. However, since 2014, the growth in consumption of bioenergy and waste has increased by 88%.

Final energy consumption, 1990 to 2024



2024					Million tonnes of oil equivalent
	Industry	Transport	Domestic	Services[1]	Total
Coal & manufactured fuels	0.6	0.0	0.2	0.0	**0.8**
Oil	2.1	49.9	2.3	3.8	**58.2**
Gas	7.3	0.2	21.8	7.9	**37.1**
Electricity	7.1	1.2	8.1	7.0	**23.4**
Bioenergy and heat	2.4	2.5	1.6	1.8	**8.5**
Total	**19.5**	**54.0**	**34.0**	**20.6**	**128.1**

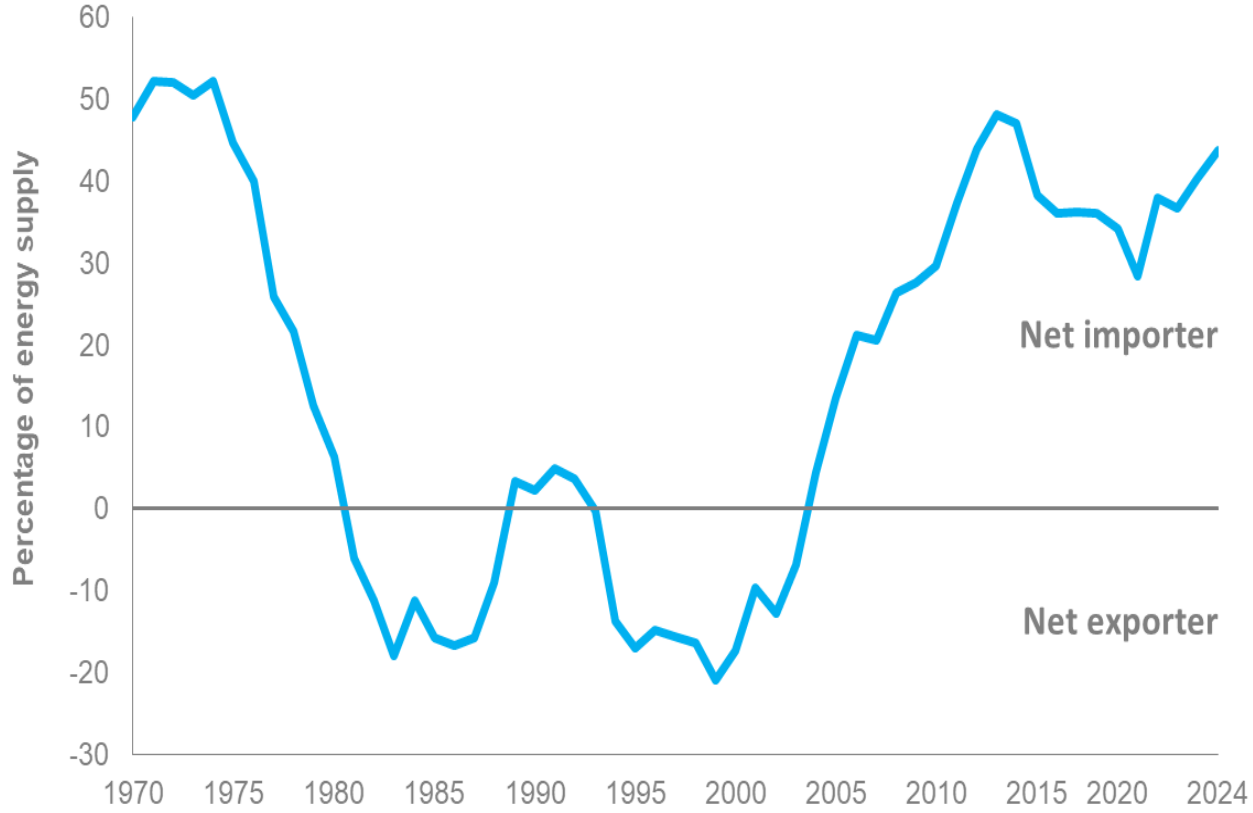
(1) Includes agriculture, commercial, public administration and miscellaneous.

Total final energy consumption (excluding non-energy use) was 2.6% higher in 2024 compared to 2023, with a rise in all sectors except industry. Domestic and services sector consumption both rose by 3.8 per cent, with average temperatures in 2024 marginally cooler than in 2023 as well some easing from the higher energy prices in 2023 likely contributing to the rise. Transport sector consumption rose by 2.9 per cent, with road transport (petrol and diesel) consumption rising by 0.2 per cent and air consumption rising by 7.9 per cent, but still remaining 4.0 per cent below pre-pandemic (2019) levels. Industrial sector consumption fell by 1.2 per cent, to the lowest level in at least 50 years.

Overall final energy consumption, when seasonally and temperature adjusted, was up by 3.0 per cent, with domestic consumption up by 5.0 per cent and transport consumption up by 2.7 per cent.

In terms of fuel types, final consumption of gas, the main fuel used for heating, rose by 4.3%. Oil use rose by 3.1%, bioenergy use rose by 2.7%, and electricity use rose by 0.8%.

Import dependency, 1970 to 2024

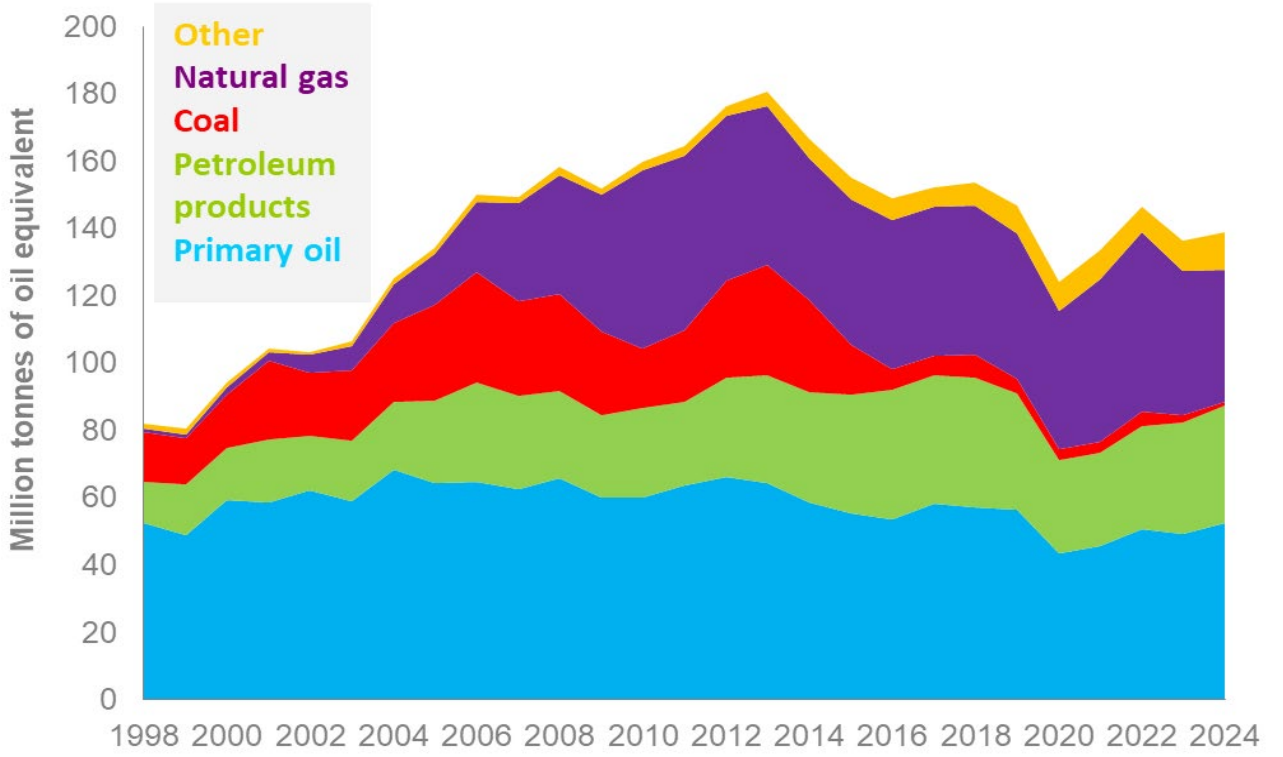


Percentage

	2000	2010	2020	2022	2023	2024
Coal	39%	52%	47%	94%	63%	30%
Gas	-11%	40%	46%	46%	46%	49%
Oil	-55%	15%	12%	37%	47%	52%
Total	**-17%**	**30%**	**28%**	**37%**	**40%**	**44%**

In the 1970's the UK was a net importer of energy. Following development of oil and gas production in the North Sea, the UK became a net exporter of energy in 1981. Output fell in the late 1980's following the Piper Alpha disaster, with the UK regaining a position as a net exporter in the mid 1990's. North Sea production peaked in 1999, and the UK returned to being an energy importer in 2004. In 2013 imports of petroleum products exceeded exports following the closure of the Coryton refinery. The UK is now a net importer of all main fuel types, although in 2022 became a net exporter of electricity for the first time in over 40 years to help meet demand in France from reduced nuclear output there, before reverting to a net importer again in 2023. In 2024, 43.8% of energy used in the UK was imported, up 3.4 percentage points on 2023.

Key sources of imports, 1998 to 2024



Note: Other includes manufactured solid fuels, bioenergy & waste and electricity.

Since 1999, when UK energy production peaked, there has been a sharp rise in imports. Over this period imports doubled, reaching a peak in 2013. In 2010 imports exceeded UK production, but because the UK still exported large volumes net imports remained below production levels. In 2021 imports exceeded UK production as the UK imported more fuel to meet increased demand following the COVID-19 pandemic, and again in 2022 as the UK's substantial Liquefied Natural Gas (LNG) regasification infrastructure operated as a land-bridge for increased imports, which were then exported to mainland Europe to help reduce its dependence on Russian gas. Imports again exceeded production in 2024.

In 2024 imports rose by 1.8%, with rises in imports of primary oil ,petroleum products, bioenergy and waste and electricity, but falls in imports of coal and gas.

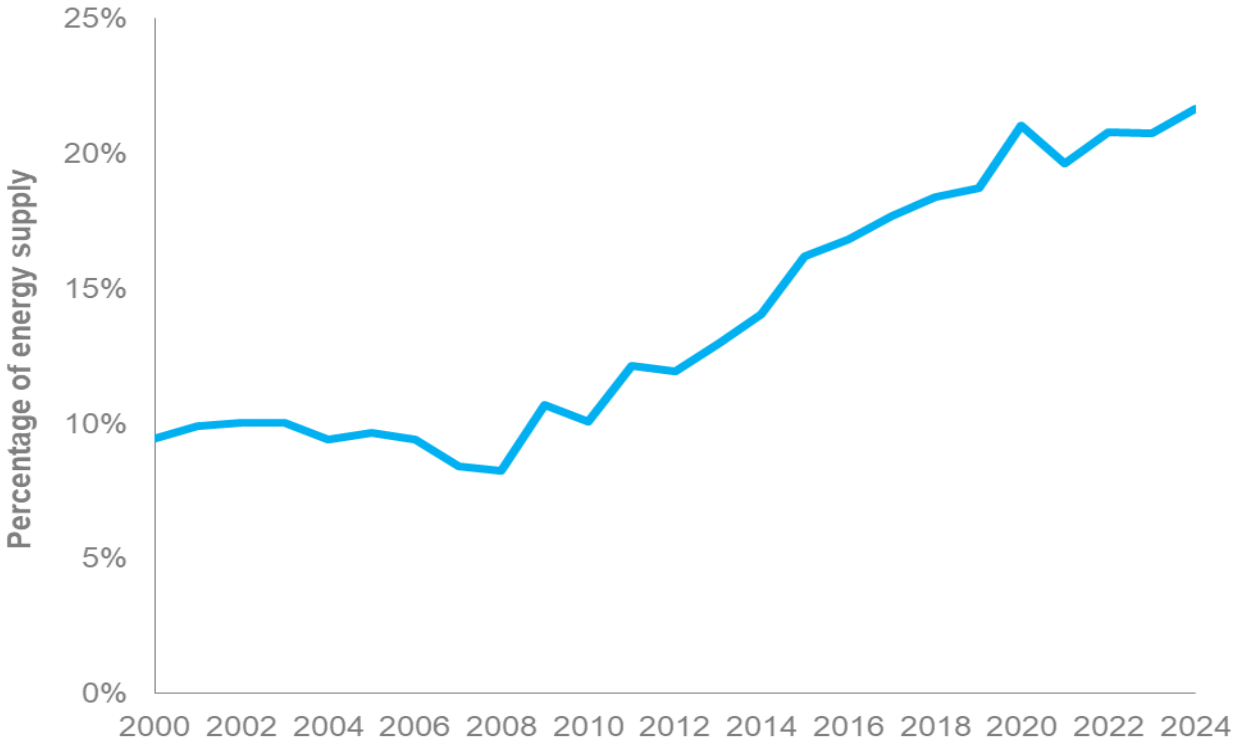
Imports are sourced from a wide variety of countries.

Crude oil: The key source of imports has historically been Norway, but in recent years the US has become the key source of crude oil imports. In 2024 the US accounted for 37%, whilst Norway accounted for 31% of UK crude oil imports.

Petroleum products: The UK imports a wide variety of petroleum products, while remaining a net exporter of certain fuels including petrol. Traditionally the Netherlands, which acts as a major trading hub, has been the largest source of imports. As such, the Netherlands is the largest supplier of transport fuels. Aviation turbine fuel is generally sourced from the Middle East.

Gas: Norway accounted for 76% of UK gas imports in 2024, up from 58% in 2023 with the pipelines from Belgium and The Netherlands used to export rather than import for the majority of the year. LNG accounted for 25% of UK gas imports in 2024 of which 68% was from the US, 8% was from Qatar and 7% was from Trinidad and Tobago.

Proportion of UK energy supplied from low carbon sources, 2000 to 2024



Percentage

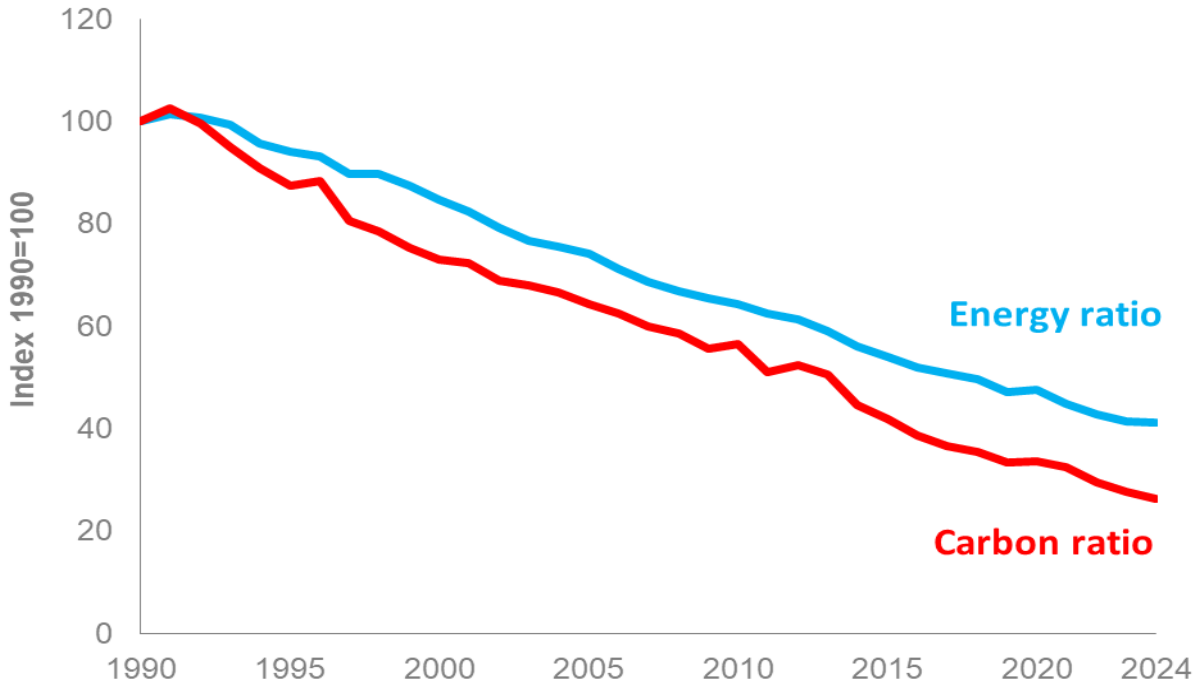
	2000	2010	2020	2022	2023	2024
Nuclear	8.4%	6.3%	6.5%	6.1%	5.4%	5.4%
Wind	0.0%	0.4%	3.9%	4.1%	4.3%	4.4%
Solar	0.0%	0.0%	0.7%	0.7%	0.8%	0.8%
Hydro	0.2%	0.1%	0.4%	0.3%	0.3%	0.3%
Bioenergy	0.9%	2.3%	7.4%	7.1%	7.2%	8.0%
Transport fuels	0.0%	0.6%	1.1%	1.4%	1.6%	1.7%
Heat pumps	0.0%	0.4%	0.7%	0.7%	0.8%	0.8%
Other	0.0%	0.0%	0.3%	0.3%	0.4%	0.4%
Total	**9.4%**	**10.1%**	**21.0%**	**20.8%**	**20.8%**	**21.7%**

In 2024 the UK obtained 21.7% of its primary energy from low carbon sources, up from 20.8% in 2023, with 37% of this from bioenergy, 25% from nuclear, and 20% from wind.

Energy supply from bioenergy rose by 11% due to an increase in generation from plant biomass which had been dampened in 2022 and 2023 by outages, whilst nuclear rose by 0.3%. Heat pumps rose by 5.5% but solar fell by 1.9% with capacity up by 13% but less sun hours than in 2023, which were at the lowest level recorded this century.

Energy supply from wind rose by 1.4% in 2024, with capacity up by 6.4% and wind speeds 0.1 knots higher than in 2023. Nine named storms affected the UK during 2024 commencing with three, Henk, Isha and Jocelyn, in January followed by a further five from Kathleen (early April) to Conall (late November), and ending with Darragh in December.

Energy and carbon ratios, 1990 to 2024



Index 1990=100

	1990	2000	2010	2020	2022	2023	2024
Primary energy consumption*	100	108.4	95.4	75.4	77.3	75.0	75.5
Carbon dioxide emissions	100	93.5	83.7	53.1	53.2	50.2	48.1
GDP	100	128.1	148.4	158.2	180.1	180.8	182.8
Energy ratio	**100**	**84.6**	**64.3**	**47.7**	**42.9**	**41.5**	**41.3**
Carbon ratio	**100**	**73.0**	**56.4**	**33.6**	**29.5**	**27.8**	**26.3**

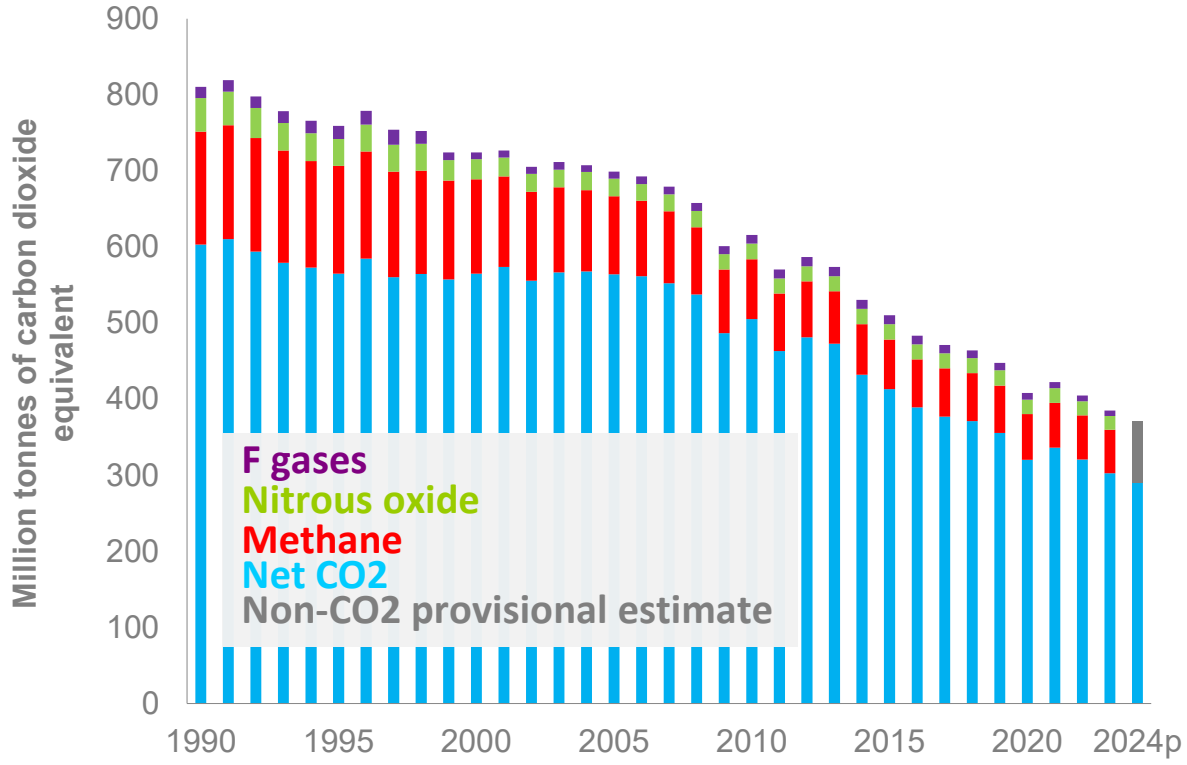
* Temperature corrected primary energy consumption.

The energy ratio is calculated by dividing temperature corrected primary energy consumption by GDP at constant prices, with the carbon ratio similarly calculated by dividing carbon dioxide emissions by GDP. Both ratios have fallen steadily, with the energy ratio declining by around 2½% per year and the carbon ratio declining at a faster pace of just over 3½% per year.

The downward trends are due to several factors, with improvements in energy efficiency and the decline in the relative importance of energy intensive industries affecting both ratios.

Carbon dioxide emissions were 4.1% lower than 2023 and are now 18% lower than 2019. In 2024 electrical supply emissions were down 15%, industry emissions were down 9%, and domestic transport emissions were down 2%. Buildings and products uses emissions were up 2% due to higher gas use likely driven by an easing of energy and other cost pressures. The largest driver of the long-term fall in emissions has been the decrease of emissions from power stations, due to the shift in fuel use from coal to gas and renewables.

Territorial greenhouse gas emissions by gas, 1990 to 2024



Million tonnes of carbon dioxide equivalent

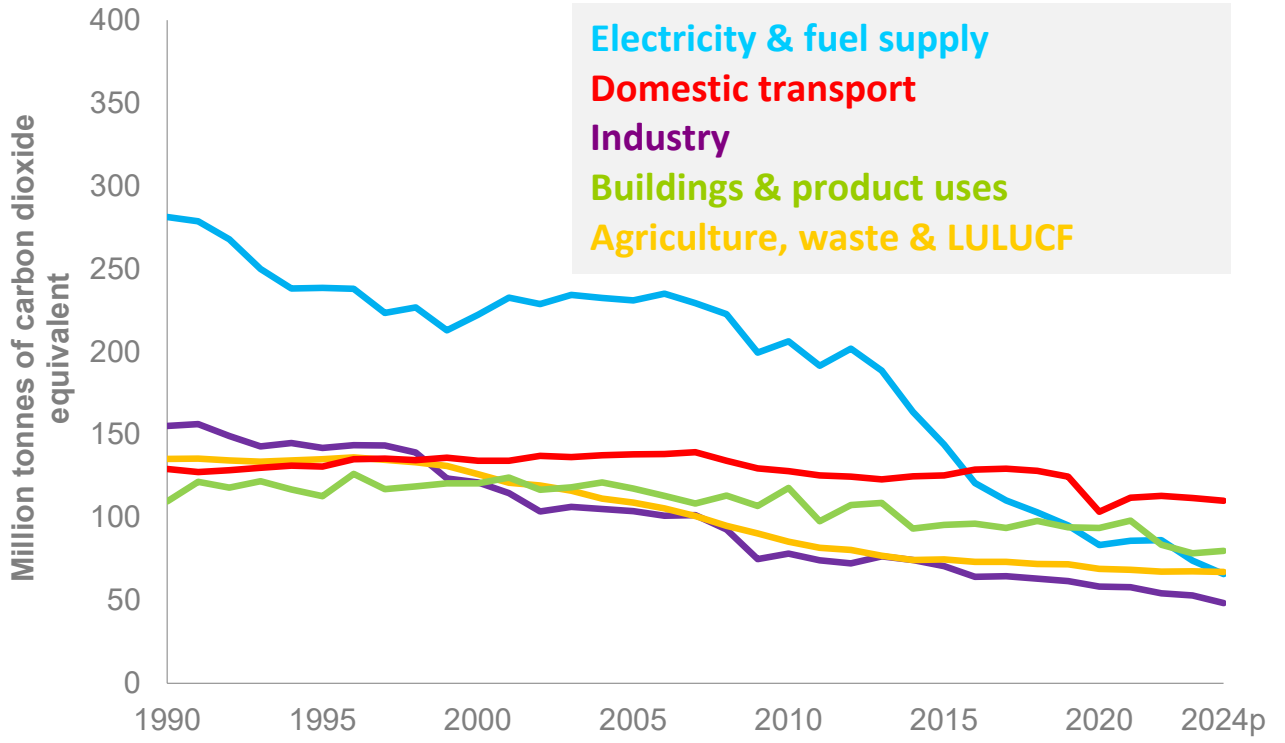
	1990	2000	2010	2020	2022	2023	2024p[1]
Net carbon dioxide (CO2)	603.3	565.2	505.2	320.5	320.8	302.8	290.4
Methane (CH4)	148.5	123.9	78.7	60.0	58.1	57.0	:
Nitrous oxide (N2O)	44.1	26.4	20.5	18.8	18.3	18.1	:
Hydrofluorocarbons (HFC)	12.1	6.4	10.5	8.2	7.1	6.6	:
Perfluorocarbons (PFC)	1.5	0.5	0.3	0.2	0.2	0.1	:
Sulphur hexafluoride (SF6)	1.2	1.9	0.7	0.4	0.3	0.3	:
Nitrogen trifluoride (NF3)	0.0	0.0	0.0	0.0	0.0	0.0	:
Non-CO2 provisional estimate	:	:	:	:	:	:	81.0
Total greenhouse gas emissions	**810.7**	**724.3**	**615.8**	**408.0**	**404.7**	**385.0**	**371.4**

Source: DESNZ (2023 final UK figures and 2024 provisional UK figures)
1 Provisional estimates are not made for individual non-CO2 gases separately.
: data not available.

Carbon dioxide (CO2) emissions in the UK are provisionally estimated to have decreased by 4.1% in 2024 from 2023, to 290.4 million tonnes (Mt), and total greenhouse gas emissions by 3.5% to 371.4 million tonnes carbon dioxide equivalent (MtCO2e). Total greenhouse gas emissions were 54.2% lower than they were in 1990.

This fall in 2024 is primarily due to decreased gas and coal use in the electricity supply and industry sectors.

Territorial greenhouse gas emissions by territorial emissions statistics sector, 1990 to 2024



Million tonnes of carbon dioxide equivalent

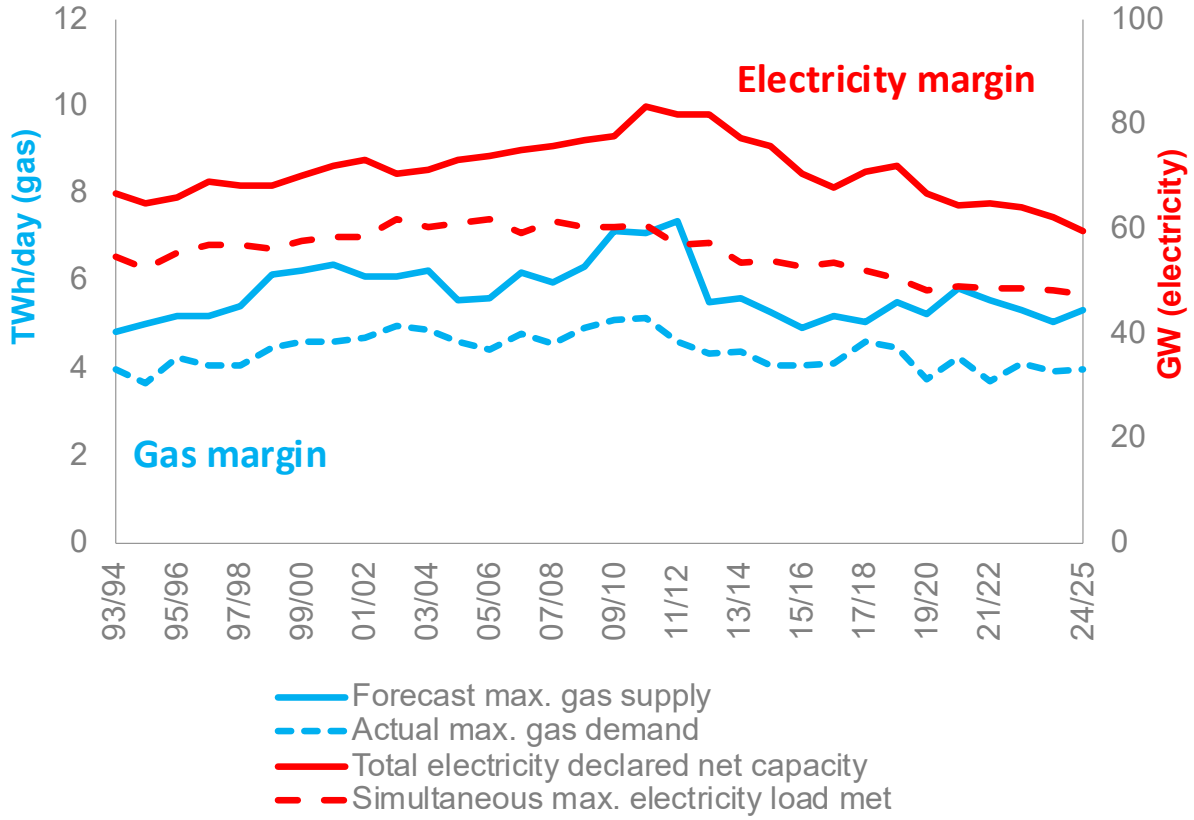
	1990	2000	2010	2020	2023	2024p
Electricity and fuel supply	281.2	222.3	206.3	83.4	74.0	65.9
Buildings and product uses	109.8	120.6	117.9	93.7	78.5	79.8
Agriculture, waste and LULUCF	135.3	126.1	85.5	69.0	67.6	67.2
Industry	155.2	121.1	78.2	58.4	53.1	48.3
Domestic transport	129.3	134.2	128.0	103.5	111.8	110.1
Total greenhouse gas emissions	**810.7**	**724.3**	**615.8**	**408.0**	**385.0**	**371.4**

Source: DESNZ (2024 provisional UK figures)
LULUCF – land use, land use change and forestry

Domestic transport was the largest sector of greenhouse gas emissions in the UK in 2024, accounting for 30% of total emissions. Emissions from domestic transport decreased by 2% in 2024 from 2023, largely due to a reduction in road vehicle diesel use that outweighed increased road vehicle petrol use. They were down 15% from 1990 levels.

In 2024, greenhouse gas emissions from the electricity and fuel supply sectors accounted for 18% of total emissions and have decreased by 77% since 1990 due to changes in the mix of fuels being used for electricity generation. Emissions from the buildings and product uses sector accounted for 21% of total emissions in 2024 and since 1990 emissions from this sector have decreased by 27%.

Reliability – gas and electricity capacity margins – maximum supply and maximum demand 1993/94 to 2024/25



Source: National Gas and DESNZ, note gas data shown in gas years (Oct-Sep)

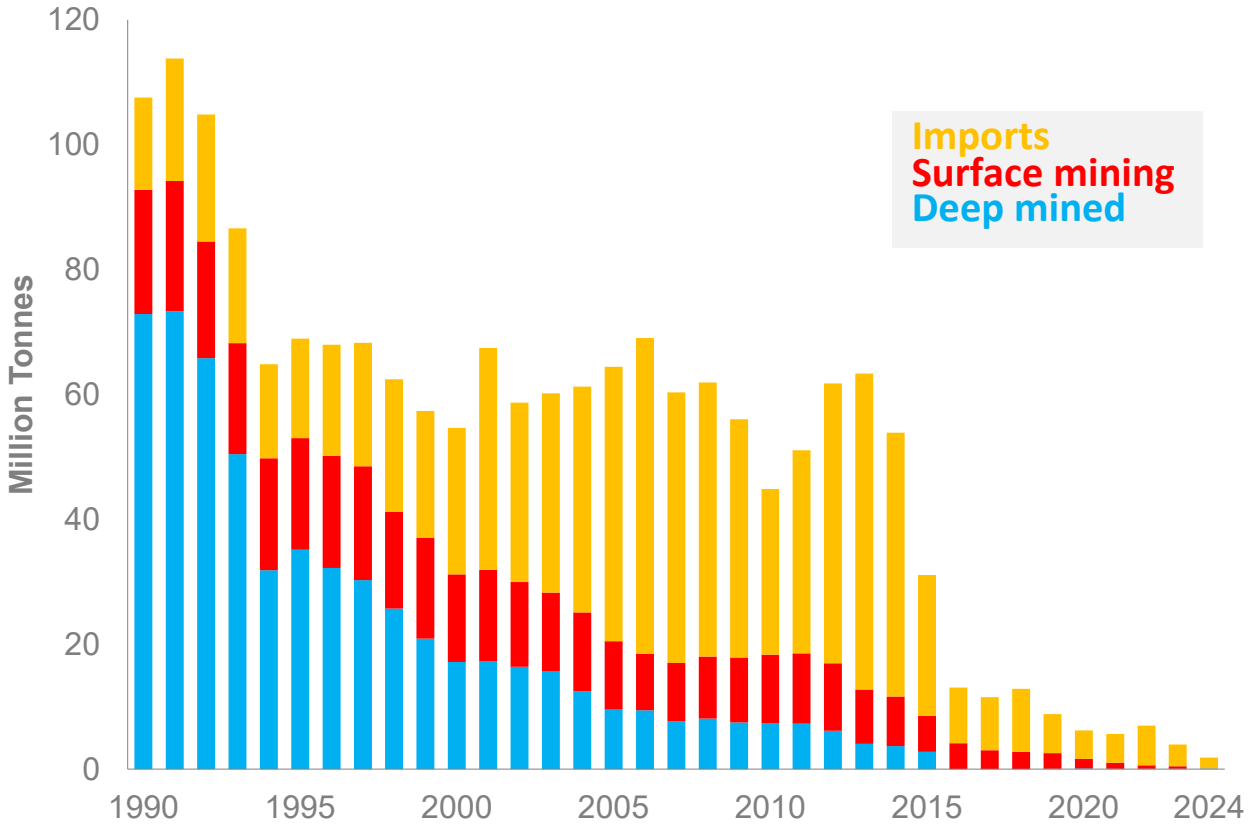
Energy security is complex to measure; subsequent charts on individual fuels provide some insight. This chart aims to provide a view by looking at the difference between forecast maximum supply and actual maximum demand for gas and electricity.

From 2007/08 to 2014/15 the electricity capacity margin mainly increased year on year, due to both a decrease in peak demand and an increase in capacity. However, from 2013/14 to 2016/17 the capacity of major power producers fell faster than peak demand due to plant closures and conversions. This resulted in the capacity margin falling from a peak of 44% in 2013/14 to 27% in 2016/17, the lowest since 2008/09. Whilst embedded renewables capacity increased over that period, the intermittent nature of solar and wind meant it did not cover the drop due to closures of major power producers. A drop in peak demand in 2018/19 and an increase in renewable generation capacity saw the margin rise to 43% before falling back around 26% in 2024/25 as additional renewables, particularly offshore wind and solar, did not fully offset the closure of coal-fired and nuclear plants.

The margin between forecast[1] maximum gas supply and actual maximum gas demand was 75 per cent in 2024/25, down from 78 per cent in 2023/24. This is slightly below the 10-year average. 2017/18 saw a notable peak following severe weather when the UK was hit by the ‘Beast from the East’.

[1] Forecast maximum gas supply was revised in 2024 for data from 2012/13 resulting in a step change as equivalent historic data is unavailable

Coal production and imports, 1990 to 2024



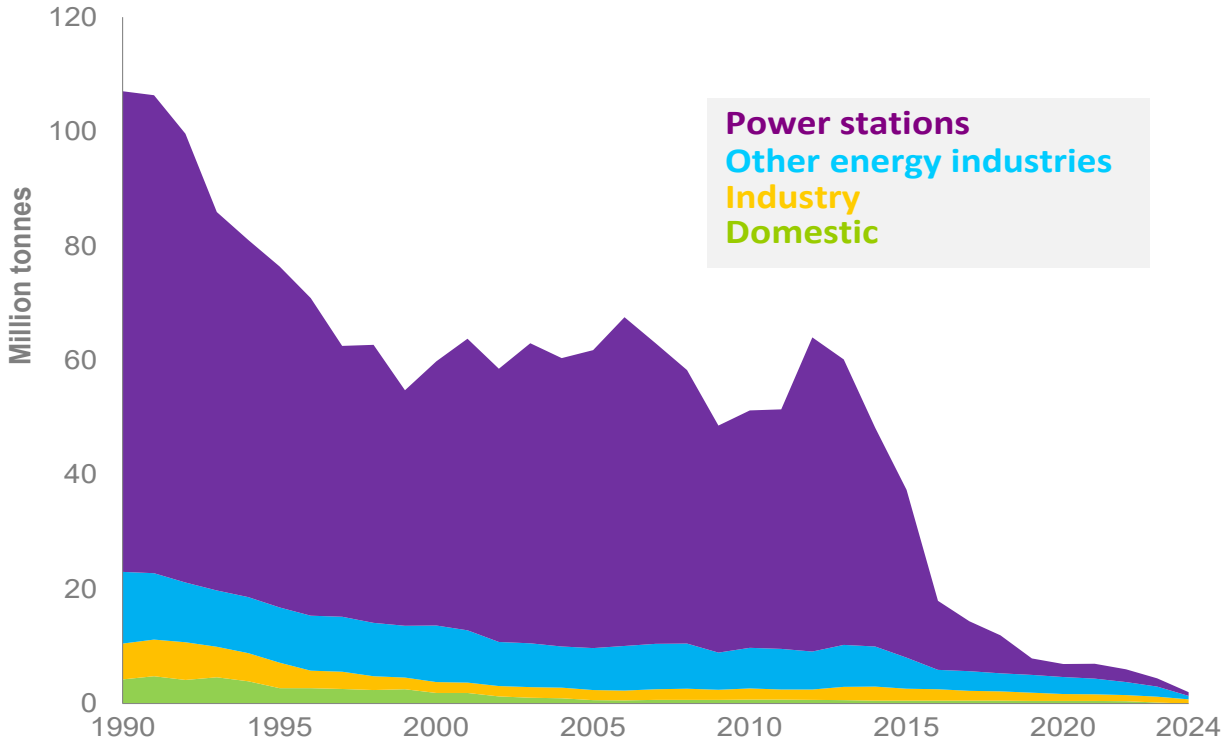
Million tonnes

	1990	2000	2010	2020	2022	2023	2024
Deep mined	72.9	17.2	7.4	0.1	0.1	0.1	0.1
Surface mining (including slurry)	19.9	14.0	11.0	1.6	0.6	0.4	0.0
Total	**92.8**	**31.2**	**18.4**	**1.7**	**0.7**	**0.5**	**0.1**
Coal imports	14.8	23.4	26.5	4.5	6.4	3.5	1.8

Coal production in 2024 was 0.1 million tonnes, 79 per cent lower compared to 2023 and the lowest level recorded. With the last large surface mine Ffos-y-Fran closing at the end of November 2023, there is currently no large-scale surface mining in the UK. Deep mined production rose 30 per cent to 106 thousand tonnes. However, against historic volumes, deep mined production was only 3.8 per cent of 2015 production levels. This was the year that the last large three deep mines in operation closed - Hatfield, Thoresby and Kellingley.

Imports of coal began in 1970 and grew steadily. In 2001 imports exceeded the level of UK production for the first time. As annual levels of UK coal production continued to fall, imports continued to grow and in 2006 reached a new record of 50.5 million tonnes. Demand from electricity generators declined over the next five years and imports fell accordingly. However, in the three years from 2011, higher gas prices led to greater demand for coal from electricity generators and imports rose again up to 2013 when they stood at 50.6 million tonnes, just above the 2006 record. From 2014 there has been a downward trend in coal imports, reaching an all-time low of 1.8 million tonnes in 2024.

Coal consumption, 1990 to 2024



Million tonnes

	1990	2000	2010	2020	2022	2023	2024
Power stations	84.0	46.2	41.5	2.3	2.2	1.5	0.7
Domestic	4.2	1.9	0.7	0.5	0.4	0.2	0.04
Industry	6.3	1.9	2.0	1.2	1.1	1.0	0.7
Services	1.2	0.1	0.1	0.04	0.04	0.03	0.03
Other energy industries	12.5	9.8	7.1	2.9	2.3	1.7	0.6
Total consumption	**108.3**	**59.9**	**51.4**	**6.9**	**6.0**	**4.4**	**2.1**

In 1990, 84 million tonnes of coal was used for electricity generation. This fell steadily after 1991 until 1999. Following an 11 year high in 2006 (57 million tonnes), coal used by generators fell steadily between 2006 and 2009 before stabilising then increasing sharply in 2012 due to high gas prices. After 2012 coal use in electricity generation fell, due to an overall decline in coal power station capacity. The government are aiming to reduce emissions and to increase cleaner energy. The last remaining coal-fired power station - Ratcliffe-on-Soar - closed on 30 September 2024.

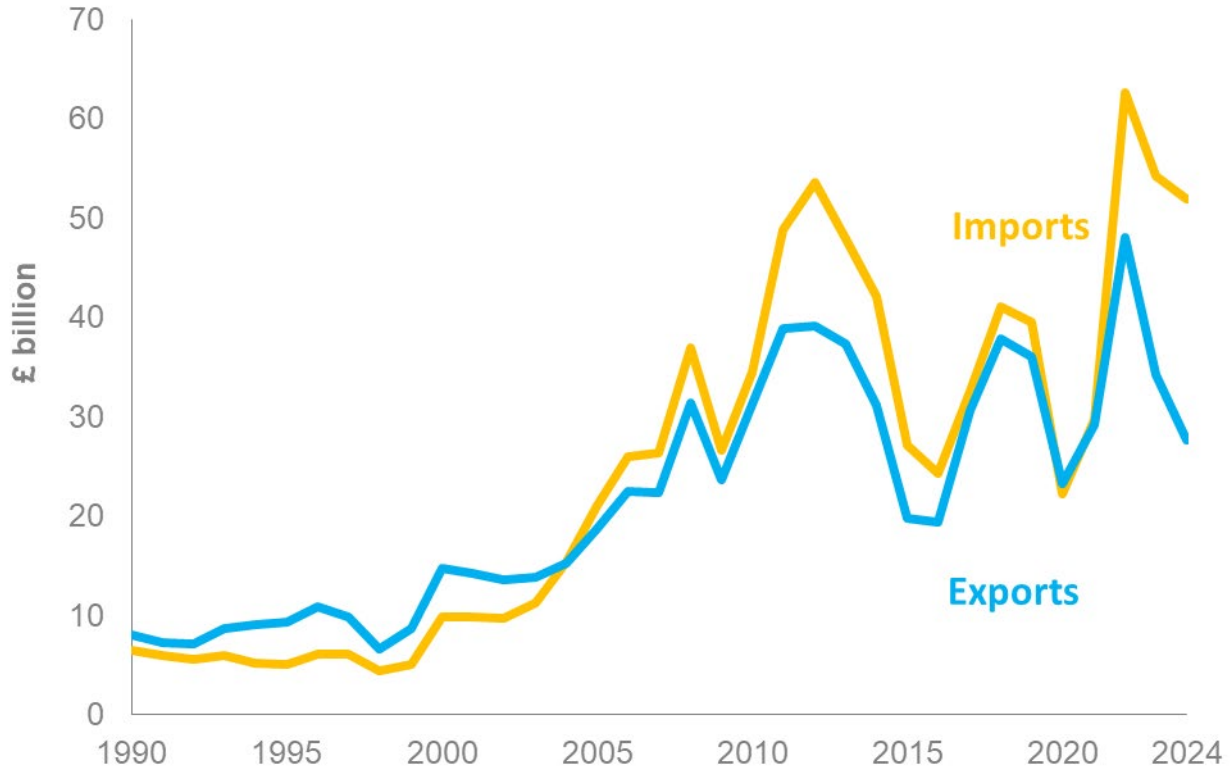
The Large Combustion Plant Directive, an EU directive requiring combustion plants to comply with specific emissions. This led to some coal-fired power stations closing.

Demand for coal-fired electricity generation had also fallen as a result of production favouring gas, due to the carbon price per GWh being higher for coal. The carbon price is a charge on companies emitting CO2.

Coal use has been phased out as electricity generation now favours renewables, gas and nuclear.

Domestic use of coal has fallen further since a ban on its use in England from 1 May 2023.

Foreign trade in crude oil and petroleum products, 1990 to 2024



Crude oil and petroleum products **£ billion**

	1990	2000	2010	2020	2022	2023	2024
Exports	8.1	14.7	31.2	23.2	48.1	34.3	27.7
Imports	6.4	9.8	34.5	22.3	62.6	54.3	51.9
Net Imports	**-1.6**	**-4.9**	**3.3**	**-1.0**	**14.5**	**20.0**	**24.3**

Source: Office for National Statistics

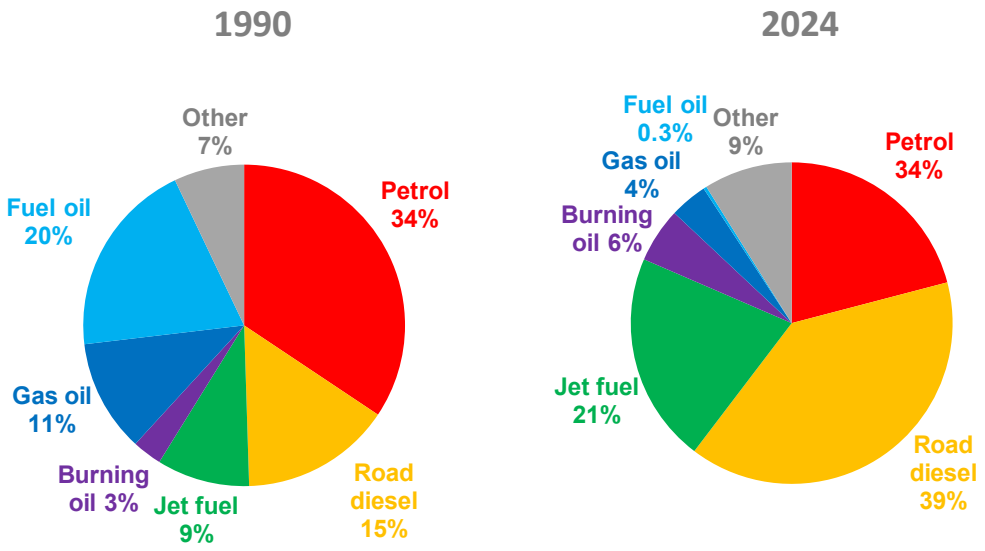
Between 1980 and 2003, a surplus in trade led to oil contributing more than £87 billion to the UK balance of payments. The largest surplus of £8 billion in 1985 reflected high crude oil production and prices.

However, from 2004 to 2019, the UK became a net importer of oils, though still an exporter of some oil products. Between 2004 and 2019 the cumulative deficit amounted to just under £89 billion.

Since the peak of £14.4 billion in 2012, the deficit fell steadily. The UK briefly returned to being a net exporter in 2020 as both imports and exports fell (by £17.3 billion and £12.8 billion respectively) due to the COVID-19 pandemic. There was also a sharp fall of 34 per cent in crude oil price (in £ terms) in the same period.

Both imports and exports grew since 2021 with the UK becoming a net importer again. In 2024, UK net imports were £24.3 billion, 38% higher than the previous peak in 2012.

Oil demand by product, 1990 and 2024



Million tonnes

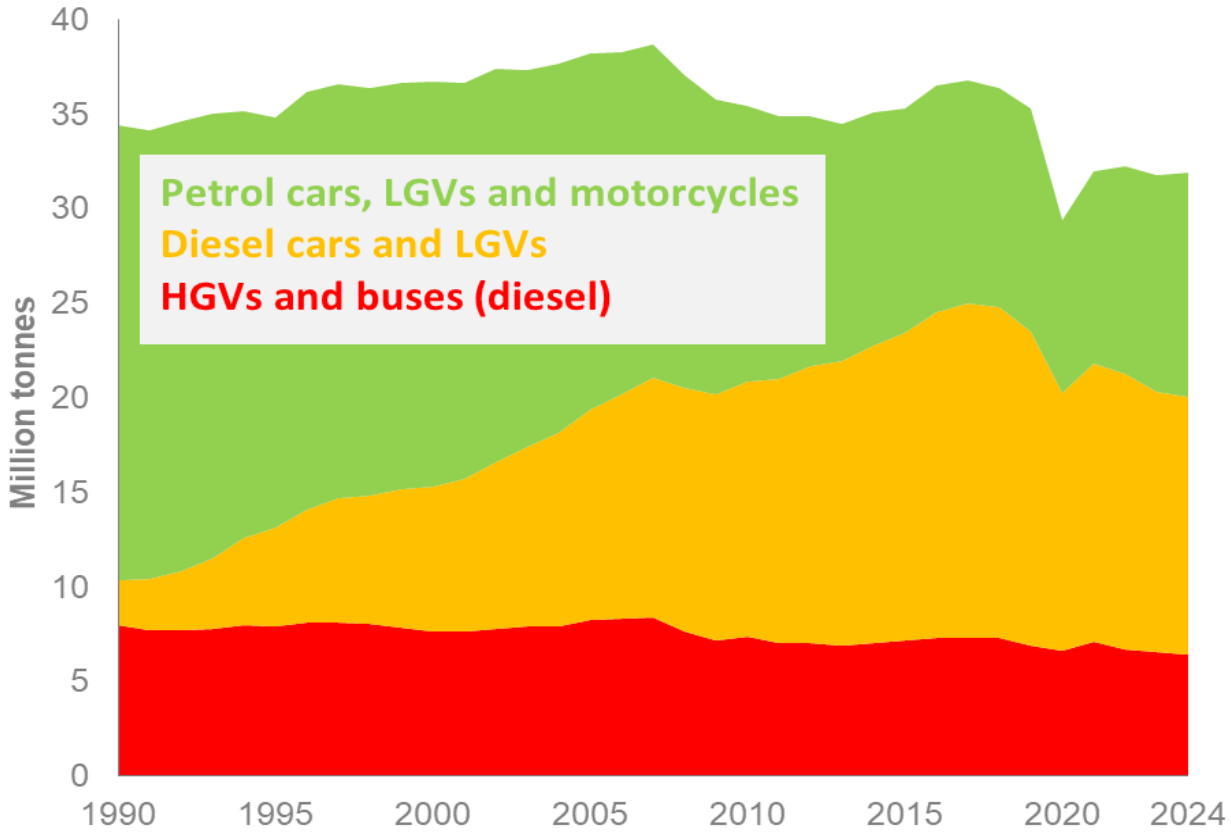
	1990	2000	2010	2019	2020	2022	2023	2024
Energy uses*								
Petrol	24.3	21.4	14.6	11.8	9.1	11.0	11.5	11.8
White diesel	10.7	15.6	20.9	23.5	20.3	22.7	22.8	22.7
Jet fuel	6.6	10.8	11.6	12.1	5.2	9.6	11.1	12.0
Burning oil	2.1	3.8	3.7	3.3	3.5	2.7	2.9	3.1
Gas oil	8.0	6.8	4.8	5.2	4.5	3.0	2.2	2.2
Fuel oil	14.0	3.3	0.7	0.3	0.4	0.4	0.3	0.4
Other	5.0	-71.9	7.9	5.2	4.4	4.6	4.7	4.4
Total energy uses	**70.7**	**67.1**	**64.2**	**61.3**	**47.3**	**53.9**	**55.4**	**56.6**
Of which:								
Transport fuels	43.5	49.5	48.7	48.9	35.7	43.0	44.2	45.2
Industry	7.2	5.5	2.2	2.0	2.0	1.8	1.9	2.0
Refinery fuel use	5.1	5.3	4.4	3.9	3.2	3.8	3.8	3.4
Non-energy uses	9.2	10.1	7.1	6.1	5.9	4.5	4.1	4.1
Total demand	**79.8**	**77.2**	**71.3**	**67.4**	**53.3**	**58.3**	**59.4**	**60.7**

* Energy uses includes uses for transformation (e.g., electricity generation) and energy industry own use (e.g., refinery fuels)

Demand for oil products has declined by 19 million tonnes since 1990 and the product mix has changed - but transport remains stubborn. Despite being sharply suppressed due to travel restrictions put in place to curb the spread of COVID-19, in 2024 transport again accounted for 75 per cent of total demand.

Jet demand was up by 7.9 per cent and petrol up by 3.3 per cent compared to 2023 – jet has recovered to near pre-pandemic levels and petrol demand in 2024 exceeded that of 2019.

Demand for road fuels, 1990 to 2024



Since the early 1990s diesel demand had been increasing as motorists switched from petrol to diesel, but this trend has reversed since the emissions scandal in 2018 and been accelerated by travel restrictions to curb the spread of COVID-19. While petrol demand in 2024 exceeded that in 2019 (up 0.5 per cent), diesel demand remains suppressed at 15 per cent less than in 2019.

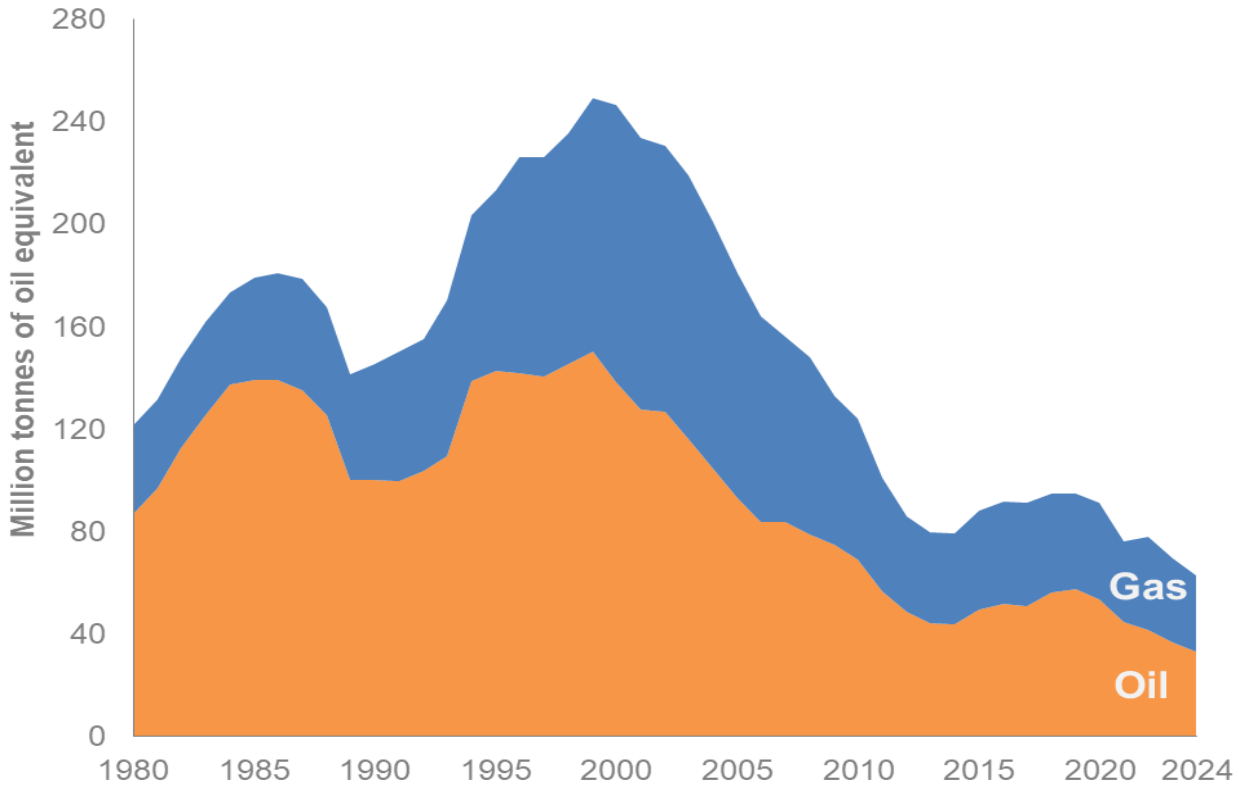
Reasons for the drop in diesel demand include fewer diesel cars on UK roads in recent years, as well as reduced mileage for work and commuting, which would tend to be driven in diesel vehicles. See Energy Trends special article Road Diesel Demand Drivers for further analysis.

Demand for road fuels, with diesel demand by vehicle type (million tonnes)

	1990	2000	2010	2020	2022	2023	2024
Demand for petrol	**24.3**	**21.4**	**14.6**	**9.1**	**11.0**	**11.5**	**11.8**
Demand for road diesel	**10.7**	**15.3**	**20.9**	**20.3**	**21.3**	**20.3**	**20.0**
Car & taxi	1.0	4.1	9.0	8.4	8.8	8.4	8.3
Light goods vehicles	1.4	3.5	4.5	5.2	5.7	5.4	5.3
Heavy goods vehicles	6.6	6.1	6.0	6.0	6.0	5.9	5.8
Buses & coaches	1.6	1.5	1.3	0.6	0.8	0.7	0.7

Demand by vehicle type based on modelling by Ricardo Energy & Environment using data from the National Atmospheric Emissions Inventory.

UK Continental Shelf production, 1980 to 2024



Million tonnes of oil equivalent

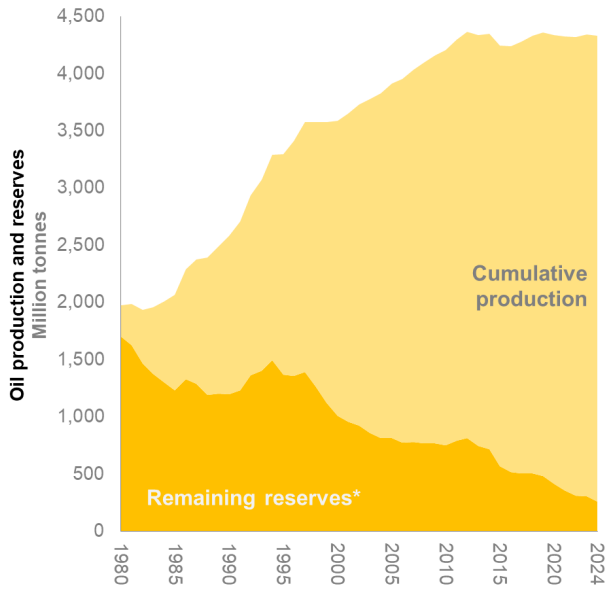
	1990	2000	2010	2020	2022	2023	2024
Oil*	100.1	138.3	69.0	53.6	41.8	36.5	33.3
Gas	45.5	108.4	55.3	37.8	36.4	33.0	29.6
Total	**145.6**	**246.7**	**124.3**	**91.5**	**78.2**	**69.5**	**62.9**

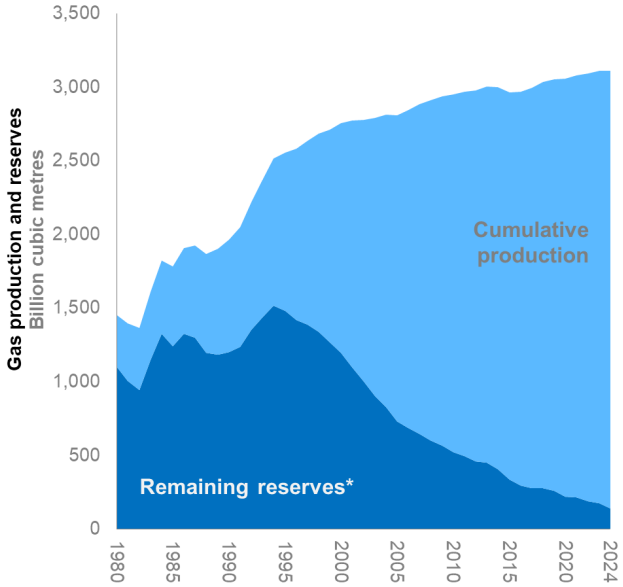
* Includes crude oil, condensates and petroleum gases extracted at gas separation plants

Oil and gas production was 62.9 million tonnes of oil equivalent in 2024, the lowest level since 1976 in line with declining output of the mature North Sea basin.

Oil and gas production began in the 70s with production increasing before peaking in 1999 and 2000 respectively. Subsequently production generally decreased until 2015 when new fields opened. Production began to decline again in 2019/20 with a sharp decline in 2021, the result of extensive planned maintenance of the Forties Pipeline System which serves a significant proportion of UK oil and gas production. In 2024, oil and gas production decreased by 8.8 and 10.3 per cent on 2023, the lowest output since 1976 and 1973 respectively.

Oil and gas production and reserves, 1980 to 2024



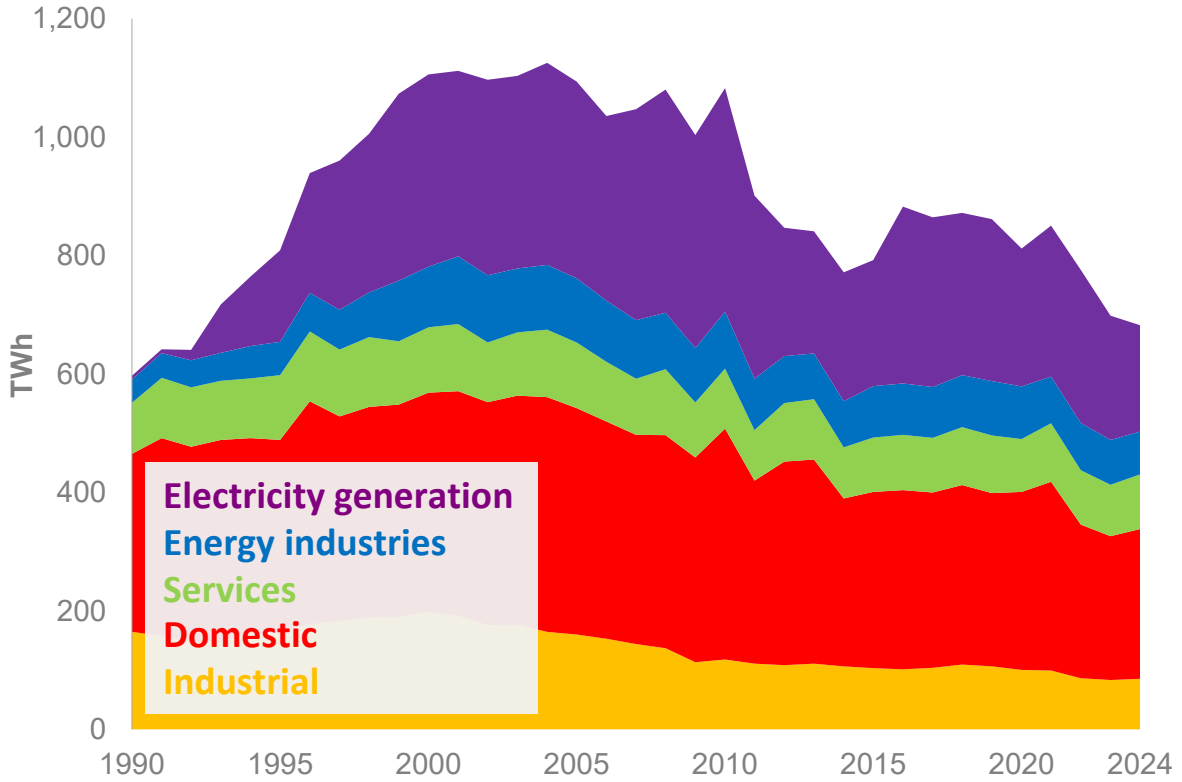


* From 2015, contingent resources have been re-categorised and removed from the probable and proven reserves category.

	1990	2000	2010	2020	2022	2023	2024
Oil: Million tonnes							
Cumulative production	1,383	2,579	3,454	3,926	4,005	4,039	4,070
Proven plus probable reserves	1,195	1,010	751	411	313	302	260
Total	**2,578**	**3,589**	**4,205**	**4,337**	**4,318**	**4,341**	**4,330**
Gas: Billion cubic metres							
Cumulative production	762	1,560	2,429	2,833	2,904	2,938	2,968
Proven plus probable reserves	1,200	1,195	520	221	189	173	141
Total	**1,962**	**2,755**	**2,949**	**3,054**	**3,093**	**3,111**	**3,109**

From 1980, total reserves grew substantially reflecting new discoveries of oil and gas and the development of new technologies which allowed the exploitation of resources that were previously regarded as non-commercial. In addition, known fields were included as they moved from *prospective* to *probable* status. Since the mid-90s, estimated proven and probable reserves have declined as fewer discoveries were made whilst cumulative production continued to grow.

Natural gas demand, 1990 to 2024



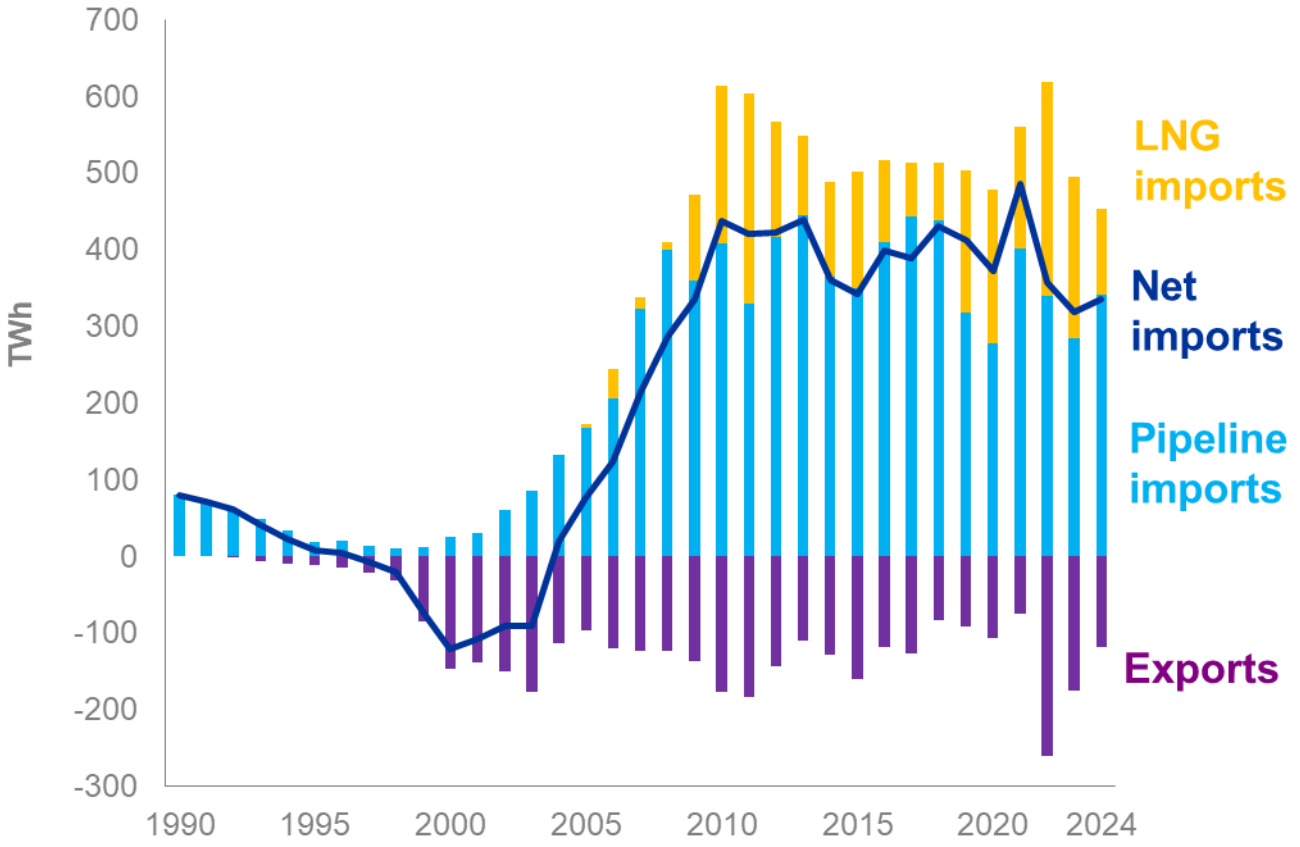
TWh

	1990	2000	2010	2020	2022	2023	2024
Electricity generators	6.5	324.6	377.1	232.8	258.1	209.6	179.3
Energy Industries	39.2	102.1	95.9	88.7	79.8	76.1	72.5
Industry	164.6	198.5	118.0	100.7	86.4	83.3	85.4
Domestic	300.4	369.9	389.6	300.2	259.6	242.9	253.0
Services	86.4	110.5	101.6	89.4	91.4	86.6	92.0
Transport	..	..	..	0.9	1.2	1.6	1.8
Total	**597.0**	**1,105.5**	**1,082.2**	**812.6**	**776.5**	**700.0**	**683.9**

Following the expansion of UK natural gas production in the 1970s, demand grew reaching a record high in 2004 of 1,125 TWh. Since then, demand has been generally declining reaching almost 40 per cent below the 2004 peak in 2024. Demand has fallen more sharply since 2022 due to record high temperatures and high gas prices; this continued into 2023 amplified by a substantial reduction in gas demand for electricity generation. Another decline in gas demand for electricity generation saw total demand decrease a further 2.3 per cent in 2024 compared to 2023, down to the lowest level seen since 1992.

Gas demand for electricity generation decreased by 14 per cent in 2024 compared to 2023, the lowest level since 1995. Conversely, demand by final consumers increased in the same period, with demand by the domestic and service sectors increasing 4.1 and 6.3 per cent respectively. Industrial demand saw a more moderate increase, up 2.5 per cent.

UK trade in natural gas, 1990 to 2024



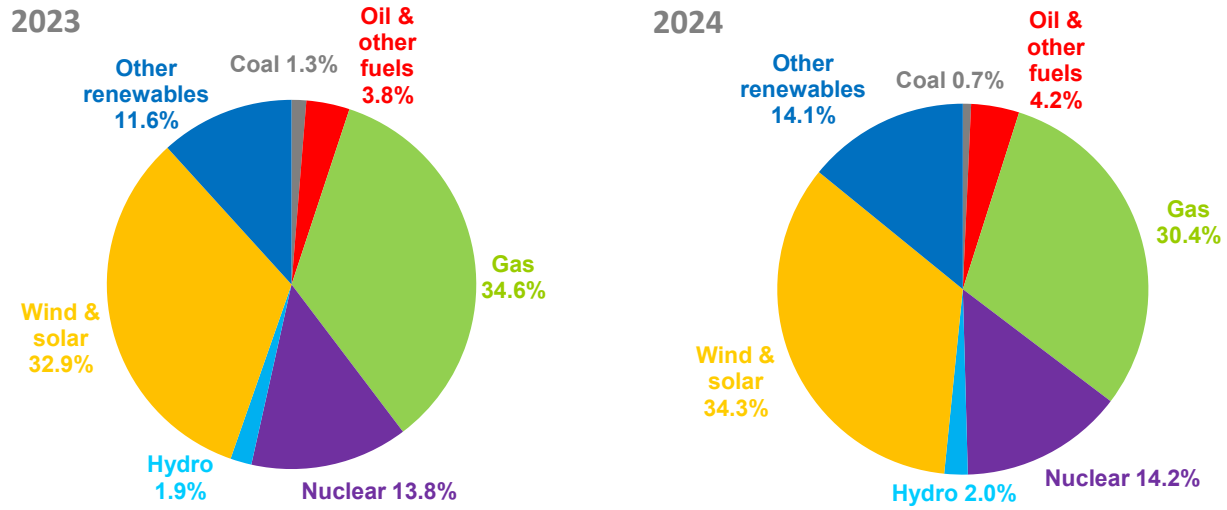
TWh

	1990	2000	2010	2020	2022	2023	2024
Natural gas production	528.8	1,260.2	642.5	439.4	423.2	383.0	343.7
Imports	79.8	14.2	606.3	478.2	618.3	494.9	453.3
of which LNG	-	-	*206.8*	*200.1*	*277.8*	*210.9*	*111.2*
Exports	-	-134.5	-168.2	-106.0	-260.2	-175.6	-118.4
Net imports (+) or exports (-)	+79.8	-120.3	+438.1	+372.2	+358.0	+319.3	+334.9

The UK has been a net importer of natural gas since 2003 as indigenous gas production has declined. Total gas imports reached record highs in 2022 due to high levels of liquified natural gas (LNG) imports as the UK's substantial LNG regasification capacity and shared infrastructure with mainland Europe was utilised to support efforts to move away from Russian gas. Imports remained high into 2023 but fell in 2024 as trade returned to more typical levels seen before the Russia-Ukraine conflict. Imports and exports fell by 8.4 and 33 per cent respectively compared with 2023.

Norway remained the UK's largest import source in 2024, accounting for 76 per cent of total imports. Imports from Norway were almost 100 per cent of pipeline imports which increased by 20 per cent in 2024 compared to 2023. Conversely, LNG imports decreased by 47 per cent in the same period. Despite a 41 per cent drop, the US remained the largest import source of LNG; Qatar remained the second largest, however Qatari LNG imports fell by 71 per cent.

Electricity generated by fuel type, 2023 and 2024



TWh

	1990	2000	2010	2020	2022	2023	2024
Coal	229.9	120.0	107.6	5.7	5.9	3.8	2.0
Oil & other fuels*	20.7	13.6	10.5	8.8	11.1	11.2	11.9
Gas	0.4	148.1	175.7	111.9	125.1	101.8	86.7
Nuclear	63.2	85.1	62.1	50.2	47.3	40.6	40.6
Hydro	5.6	5.1	3.6	6.9	5.1	5.5	5.8
Wind & Solar	-	0.9	10.3	88.2	94.2	96.8	97.7
Other renewables	-	4.3	12.3	38.6	36.0	34.5	40.3
Total electricity generated	**319.7**	**377.1**	**382.0**	**310.3**	**324.7**	**294.1**	**285.0**

*Includes generation from pumped storage.

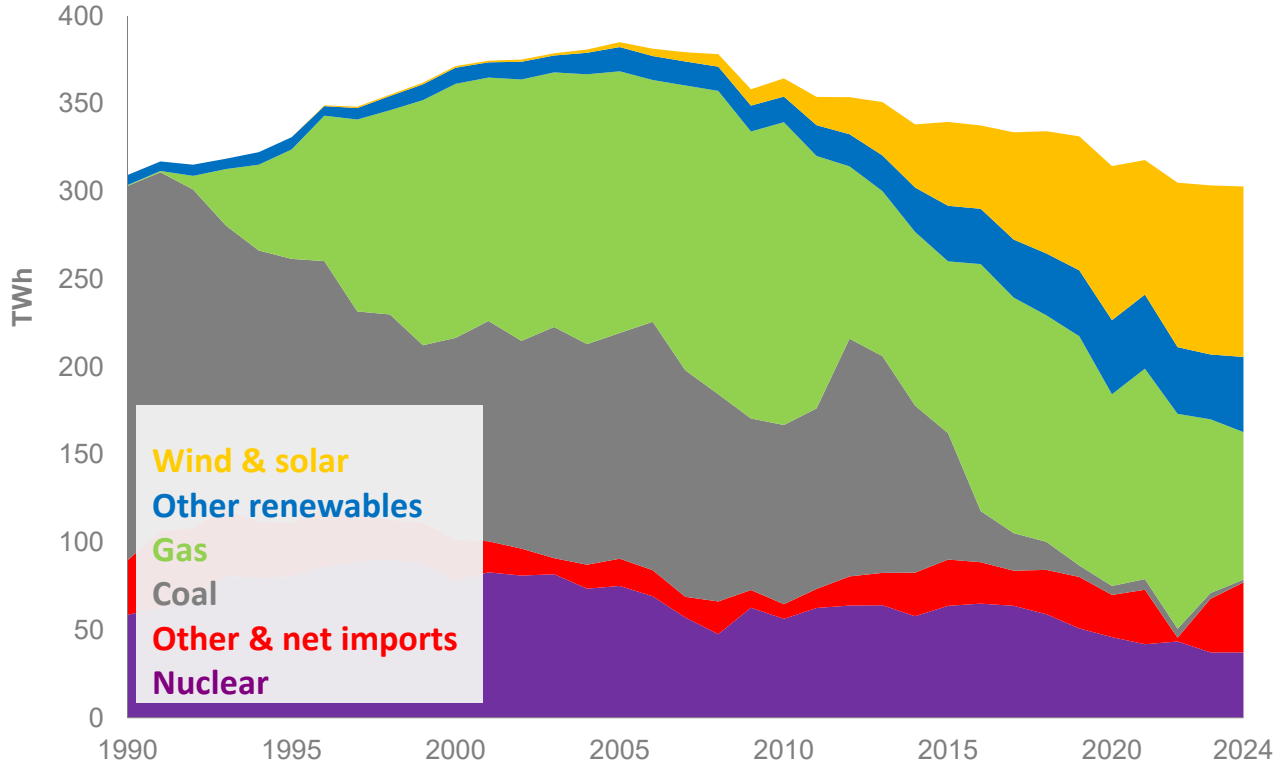
Total electricity generation fell for the second year in a row, by 3.1 per cent alongside a record 33.4 TWh of electricity imports, while consumption has remained stable for the last three years. Gas and Wind continue as the two largest contributors, but 2024 marks the first year where combined wind and solar generation surpassed gas-fired generation.

The renewable share of generation continues its upward trend, up 3.9 percentage points to 50.4 per cent due to more generation by biofuels and waste, and lower gas generation. Wind and solar's combined share of 34.3 per cent beat the previous year's record again, although the electricity generated was stable, with similar average wind speeds and lower average daily sunlight hours. Nuclear generation was stable at 40.6 TWh from 2023, having decreased from its 2016 peak of 71.7 TWh as older plants shut down.

Electricity generation share from fossil fuels fell to 31.8 per cent, a record low and the latest in a downward trend which has seen the share decrease by 11 percentage points since 2021. The last remaining coal-fired power station closed in September 2024, and gas-fired generation saw a 15 per cent drop as prices favoured electricity imports.

Further details on renewable electricity generation can be found on page 32.

Electricity supplied by fuel type, 1990 to 2024



The mix of fuels used to generate electricity continues to evolve, with the most marked features being the decline of coal, the rise of gas, and in more recent years, renewables.

Coal reached the highest level for ten years in 2006 as nuclear station availability was reduced and as a substitute for high priced gas. Coal use trended downwards until 2010 when higher winter electricity demand resulted in an increase until 2012 due to high gas prices. Coal-fired power stations have since been phased out, with the final site shutting down in September 2024.

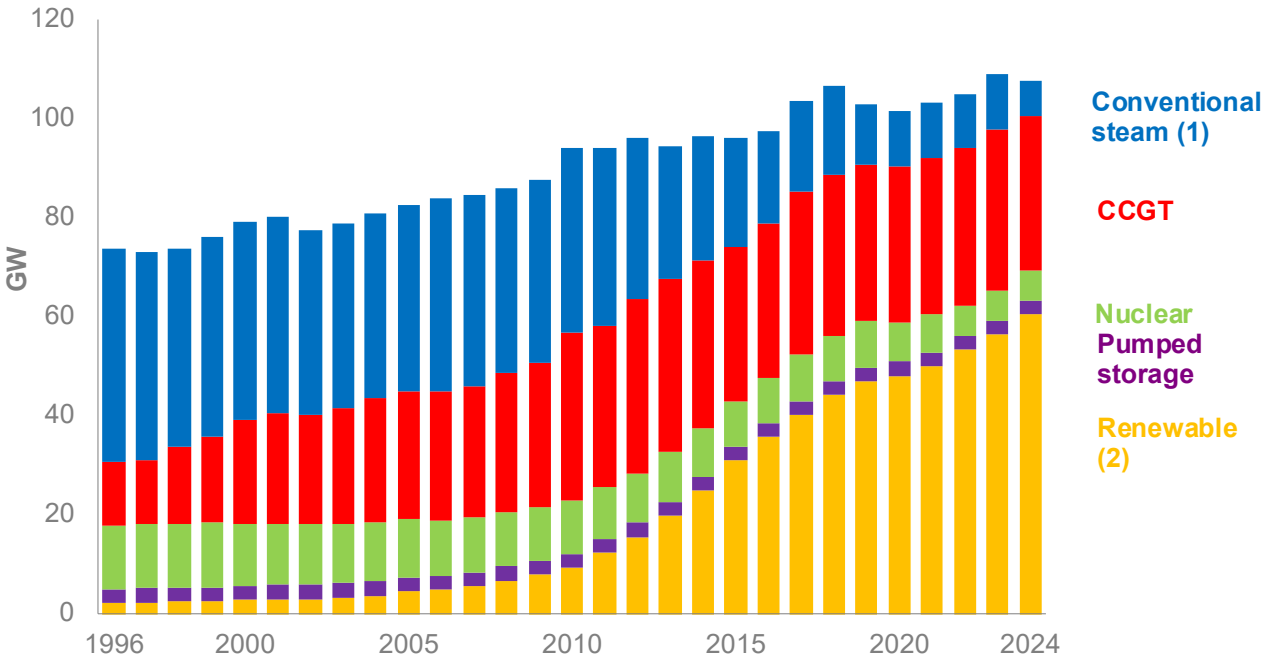
Between 1990 and 2008, supply from gas increased significantly from 0.4 TWh to a peak of 173.0 TWh. Subsequently, supply has fluctuated with a large increase in 2016 and decreases in 2017 and 2018. Generation from gas fell to 109.1 TWh in 2020 as the COVID-19 pandemic reduced electricity demand but recovered to 122.3 TWh in 2022. Since then, gas demand has fallen in consecutive years to 84.2 TWh due to lower demand for electricity and record high imports, which totalled 33.4 TWh in 2024.

Supply from nuclear peaked in 1998 before falling back, particularly during 2006 to 2008, as station closures and maintenance outages reduced supply. Nuclear supply has generally declined each year since 2016 due to outages and reduced capacity, falling to 37.3 TWh in 2024.

Supply from wind and solar increased from 2000 to 2023 as generation capacity increased, reaching a record 97.2 TWh in 2024, despite wind speeds remaining below the 20-year average since 2021.

Total electricity supplied increased continuously from 1997 to reach a peak in 2005. It has subsequently followed a downwards trend, reflecting lower demand due to improved energy efficiency as well as economic factors. A spike in electricity prices from 2022 contributed to a sharp drop in demand which remains notably below pre-pandemic levels.

Electricity capacity, 1996 to 2024



GW

	1996	2000	2010	2020	2022	2023	2024
Conventional Steam (1)	43.0	36.8	36.3	11.0	10.6	10.9	6.9
CCGT	12.7	22.9	34.1	31.6	32.0	32.8	31.3
Nuclear	12.9	12.5	10.9	7.8	5.9	5.9	5.9
Pumped Storage	2.8	2.8	2.7	2.7	2.7	2.7	2.7
Renewable (2)	2.3	3.0	9.3	48.1	53.5	56.5	60.6
Total	**73.6**	**77.9**	**93.2**	**101.3**	**104.7**	**108.8**	**107.5**

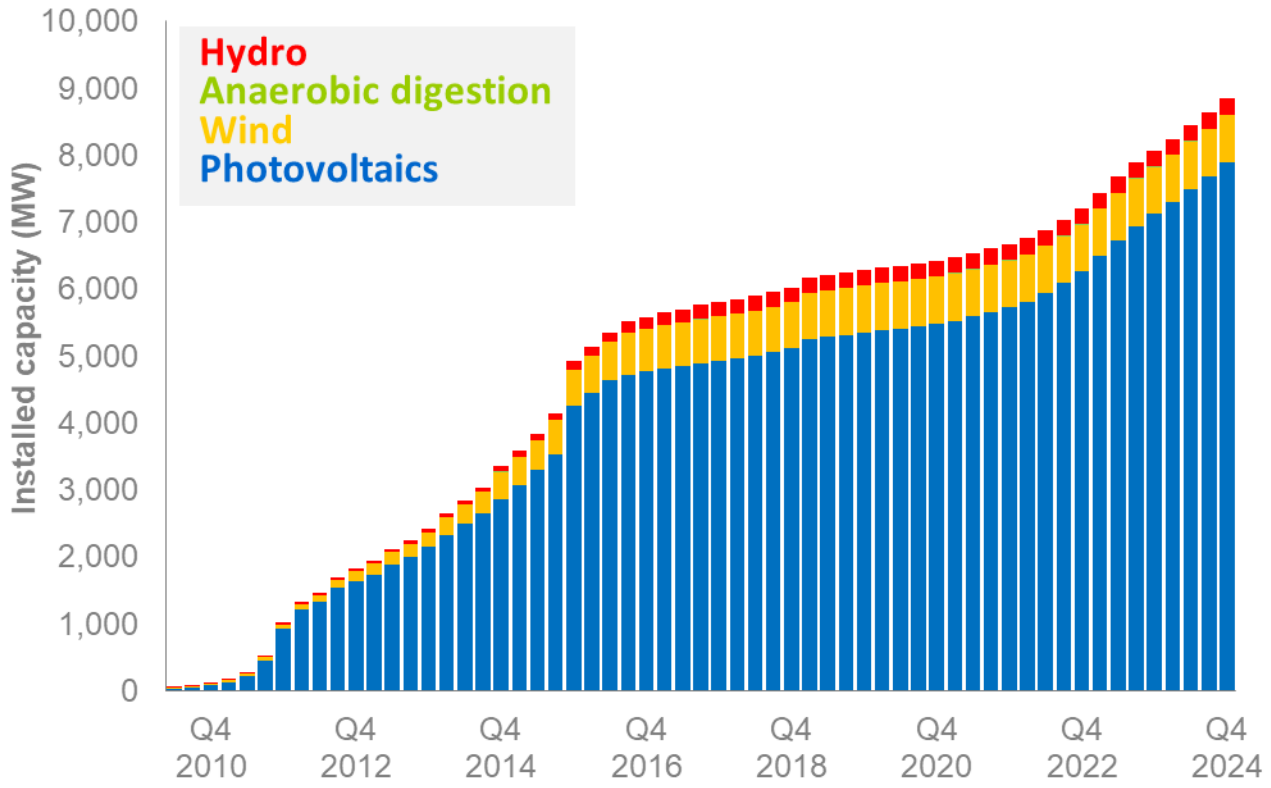
(1) Includes coal, non-CCGT gas, oil and mixed/dual fired. Does not include thermal renewables.
(2) Renewable capacity is on an Installed Capacity basis. Data for other fuels/technologies relates to Declared Net Capacity from 1996 to 2005, data for 2006 onwards is transmission entry capacity (TEC)

Installed capacity for electricity generation in the UK increased gradually between 1996 and 2018, from 73.6 GW to 106.4 GW before falling back as coal-fired and nuclear plants closed. Overall, there has been a decline in conventional steam, outweighed initially by an increase in combined cycle gas turbines (CCGT) and more recently by an increase in renewables. From 2019, the mix of plants shifted towards renewable technologies with the closure of large coal-fired and nuclear power plants. 2024 saw total capacity decrease slightly to 107.5 GW as the UK's remaining coal-fired plants closed. This was mitigated by increased renewable capacity, in particular a 6 per cent increase in wind to 32.1 GW and a 13 per cent increase in solar photovoltaics to 18.3 GW.

CCGT capacity increased almost threefold over the period from 1996 to 2012, from 12.7 GW to 35.1 GW. This figure fell over the following years before increasing between 2016 and 2017. Since 2018 CCGT capacity has fallen slightly to 31.3 GW in 2024. Conventional steam capacity has fallen since 2010 with the closure of coal-fired power plants, to 6.9 GW in 2024.

Nuclear capacity declined in 2022 to 5.9 GW as Hunterston B and Hinkley Point B closed. Renewables capacity continued to rise, with an installed capacity in 2024 of 60.6 GW. This is over 26 times the capacity installed in 1996. Offshore wind and solar saw the largest increase from 2021 to 2024.

Small scale renewable capacity (GB), 2010 to 2024



Cumulative Installed Capacity (FITs and MCS) – GB only **MW**

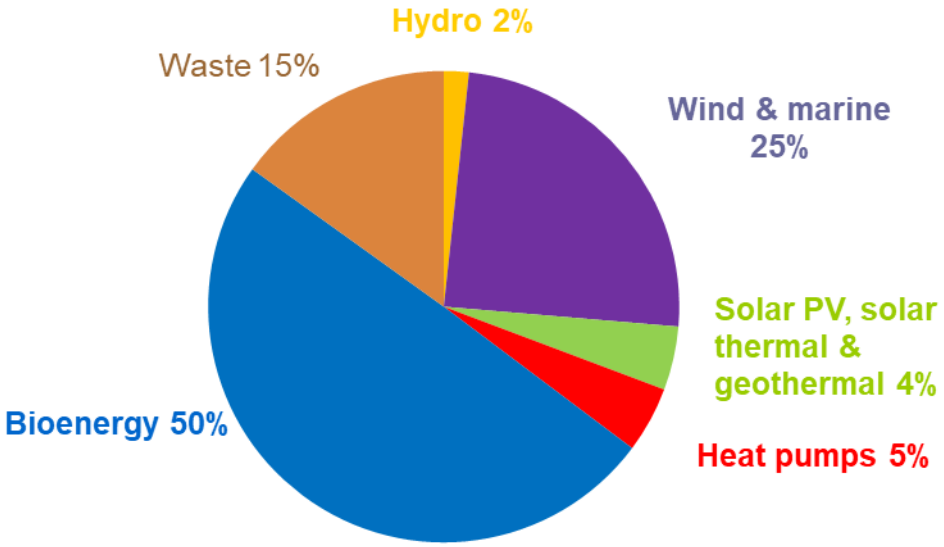
	2010	2012	2014	2016	2020	2022	2023	2024
Micro CHP	6	168	291	496	532	532	532	532
Anaerobic Digestion	1	2	2	3	6	6	6	6
Hydro	12	40	77	183	236	237	237	237
Wind	20	153	405	632	704	704	704	704
Photovoltaics	86	1,640	2,869	4,769	5,482	6,261	7,120	7,894
Total	**125**	**2,004**	**3,645**	**6,082**	**6,961**	**7,740**	**8,598**	**9,373**

Source: Microgeneration Certification Scheme (MCS) and Central FITs register (CFR).

At the end of 2024 9,373 MW of capacity (nearly 1.7 million installations) was installed, around 9.0% more confirmed capacity (but 13% more installations) than at the end of 2023. Nearly all of the new installations and capacity was Solar PV. Small scale capacity increased rapidly between 2010 and 2016 but slowed between 2017 and 2020. The number of small-scale solar PV installations recovered in 2021 and has increased sharply since 2022; since 2011, only 2023 saw more installations in a calendar year than 2024.

These figures are based on MCS data for installations with a capacity lower than 50 kW and the Central FITs register for installations between 50 kW and 5 MW. Registering with MCS was a pre-requisite for the Feed in Tariff (FiT) scheme. The FiT scheme was introduced on 1st April 2010 and is a financial support scheme for eligible low-carbon electricity technologies. The FiT scheme closed to new entrants at the end of March 2019.

Renewable energy sources, 2024



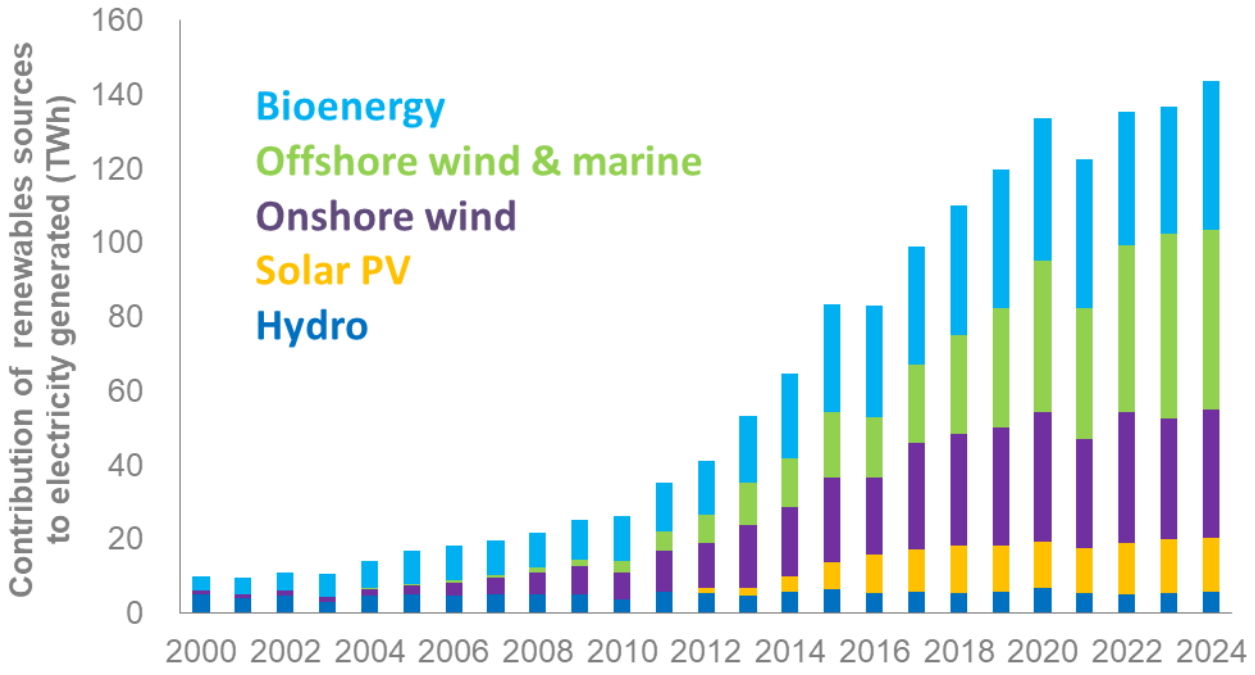
Total renewables used = 29,075 thousand tonnes of oil equivalent (ktoe)

	Thousand tonnes of oil equivalent						
	1990	**2000**	**2010**	**2020**	**2022**	**2023**	**2024**
Solar heating & photovoltaics, geothermal	7	12	31	1,115	1,239	1,295	1,271
Wind & Marine	1	81	885	6,503	6,898	7,064	7,162
Hydro	448	437	309	591	436	470	498
Heat pumps	0	0	778	1,077	1,182	1,248	1,317
Solid biomass	246	724	2,303	8,478	8,066	7,720	9,025
Biogases	218	900	2,063	2,581	2,682	2,744	2,824
Bioliquids	0	0	1,218	1,892	2,309	2,590	2,590
Waste	183	704	1,165	3,437	3,975	4,296	4,388
Total	**1,103**	**2,859**	**8,751**	**25,675**	**26,787**	**27,427**	**29,075**

In 2024, bioenergy accounted for 50% of renewable energy sources used, with most of the remainder coming from wind (25%), waste (15% for both renewable and non-biodegradable waste), heat pumps (4.5%) and solar (4.4%).

Of the 29.1 million tonnes of oil equivalent (mtoe) of primary energy use accounted for by renewables, 20.8 mtoe were used to generate electricity, 4.8 mtoe to generate heat, 2.7 mtoe in transport with 0.7 mtoe of biogas injected into the grid. Renewable energy use grew by 6.0% between 2023 and 2024 and has increased more than ten-fold since 2000.

Electricity generation from renewable sources since 2000



TWh

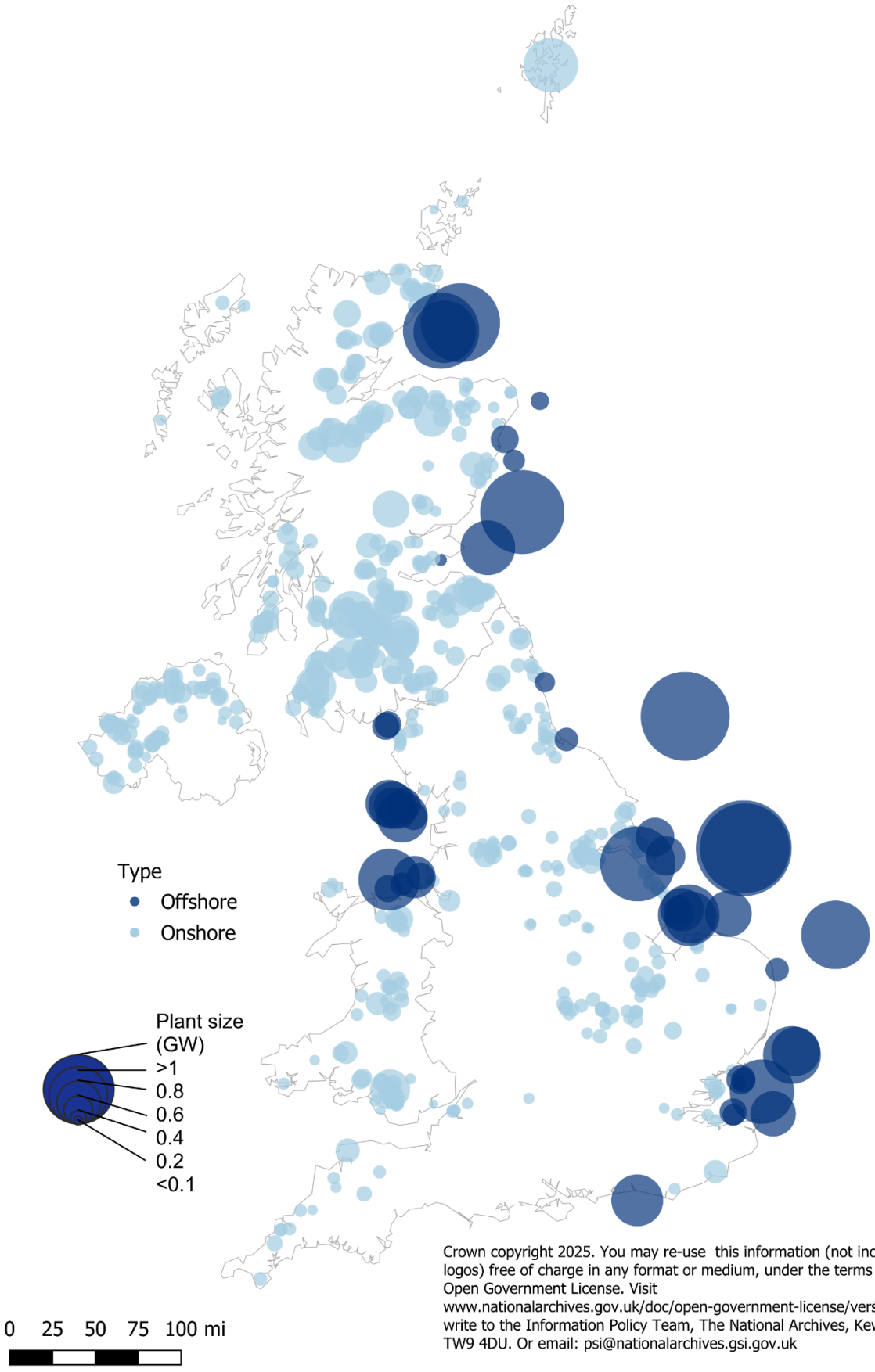
	2000	2010	2020	2022	2023	2024
Onshore wind	0.9	7.2	34.9	35.1	32.5	34.7
Offshore wind	-	3.1	40.8	45.1	49.6	48.5
Solar PV	-	0.0	12.5	14.0	14.6	14.4
Hydro	5.1	3.6	6.9	5.1	5.5	5.8
Landfill Gas	2.2	5.2	3.5	3.1	3.0	2.9
Other Bioenergy	1.7	7.0	35.1	32.8	31.5	37.4
Total Renewables	**9.9**	**26.2**	**133.6**	**135.2**	**136.8**	**143.7**

Electricity generated from renewable sources increased by 5.1% between 2023 and 2024 to a new record of 143.7 TWh, driven by new capacity and an increase in generation from plant biomass which had been dampened in 2022 and 2023 by reduced output at two major sites. Capacity grew by 7.3%, a larger increase than the 5.6% seen in 2023 and up on the growth rate seen in 2020 and 2021 where new capacity was hampered by COVID-19 restrictions. Renewable electricity accounted for 50.4% of electricity generated in the UK during 2024, the first time that renewables had accounted for over half of total generation and up by 3.9 percentage points on 2023 as a result of greater renewable generation and lower generation from other sources.

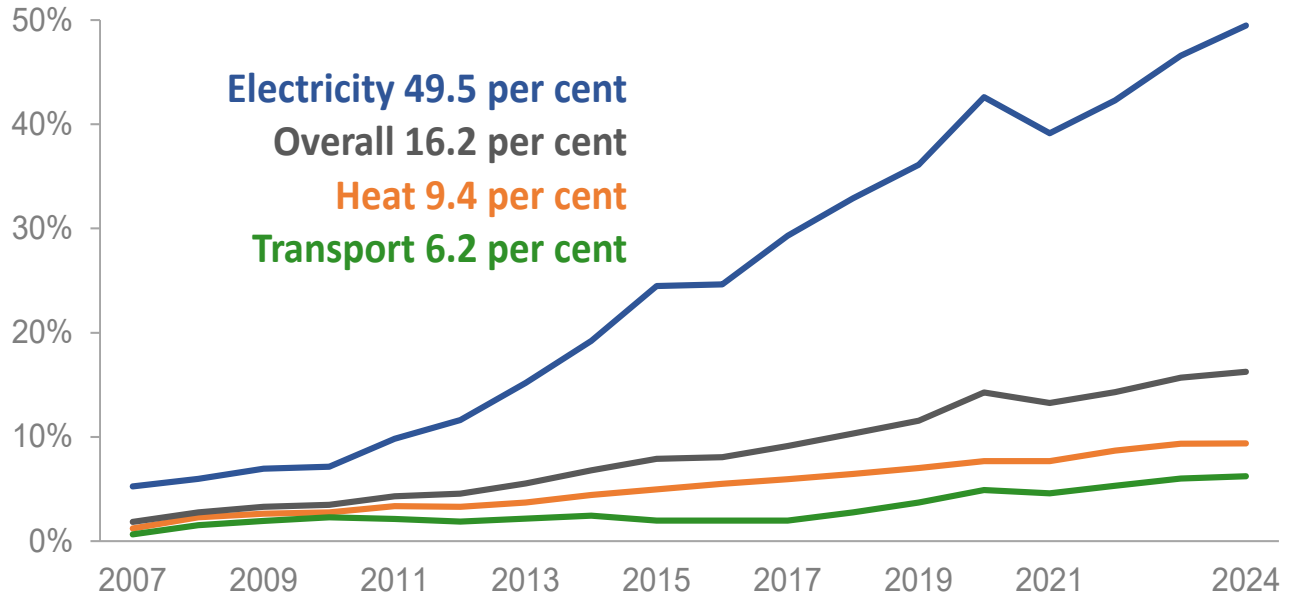
Onshore wind generation increased by 6.9 per cent in 2024, partly due to outages and curtailment in 2023, as well as increased capacity and slightly higher average wind speeds. Conversely, offshore wind generation was down on by 2.2 per cent 2023, hampered by planned maintenance, unplanned outages and curtailment. Solar PV generation fell 1.9 per cent due to lower average sunlight hours, 2024 was the least sunny year since our time series began in 2001. Plant biomass saw the biggest increase (27 per cent), while there were also records for anaerobic digestion and energy from waste.

The map on page 33 shows the capacity of wind farms across the UK with a capacity of 5 MW or more. The locations are representative and not exact.

UK Onshore and Offshore Wind Capacity



Renewable proportion of gross final consumption

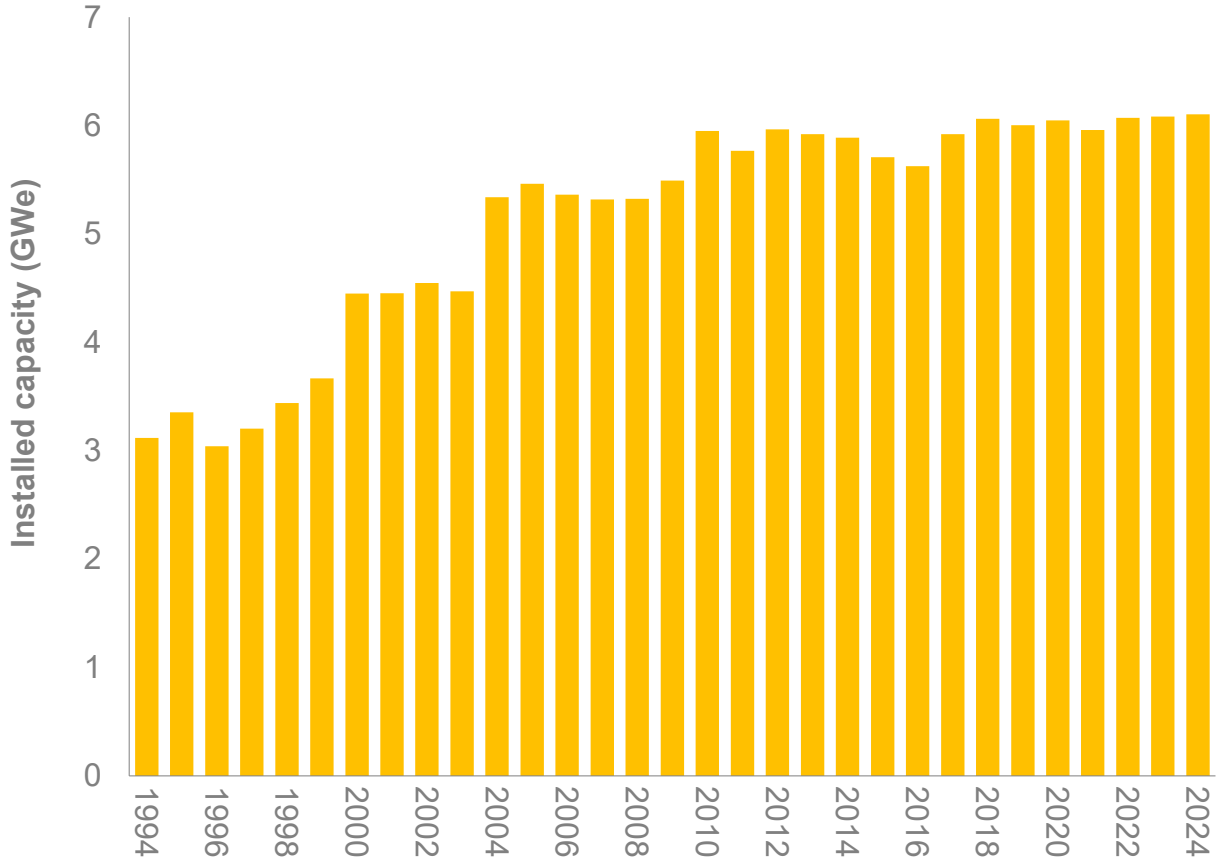


The Gross Final Consumption proportions in the chart reflect the proportion of renewable electricity and heat consumption before losses; the transport measure is on an actual consumption basis. The electricity measure excludes the use of electricity in transport which is allocated to that sector's measure. Heat represents final consumption for fuels other than electricity but includes heat sold.

The proportion of electricity generation from renewables increased in 2024 to 49.5 per cent, in line with the actual generation measure, with renewable generation increasing by 5.1 per cent and total electricity consumption only marginally increasing (by less than 0.1 per cent). The proportion of heat from renewable sources has steadily increased from 1.2 per cent in 2007 to 9.4 per cent in 2024. This reflects the combination of both lower gas consumption and increasing renewable heat.

Given the dominance of renewable electricity in the overall renewable measure, the impact of higher renewable electricity supply in 2020 has pushed up the overall measure from 15.7 % in 2023 to 16.2% in 2024.

Combined heat and power, 1994 to 2024

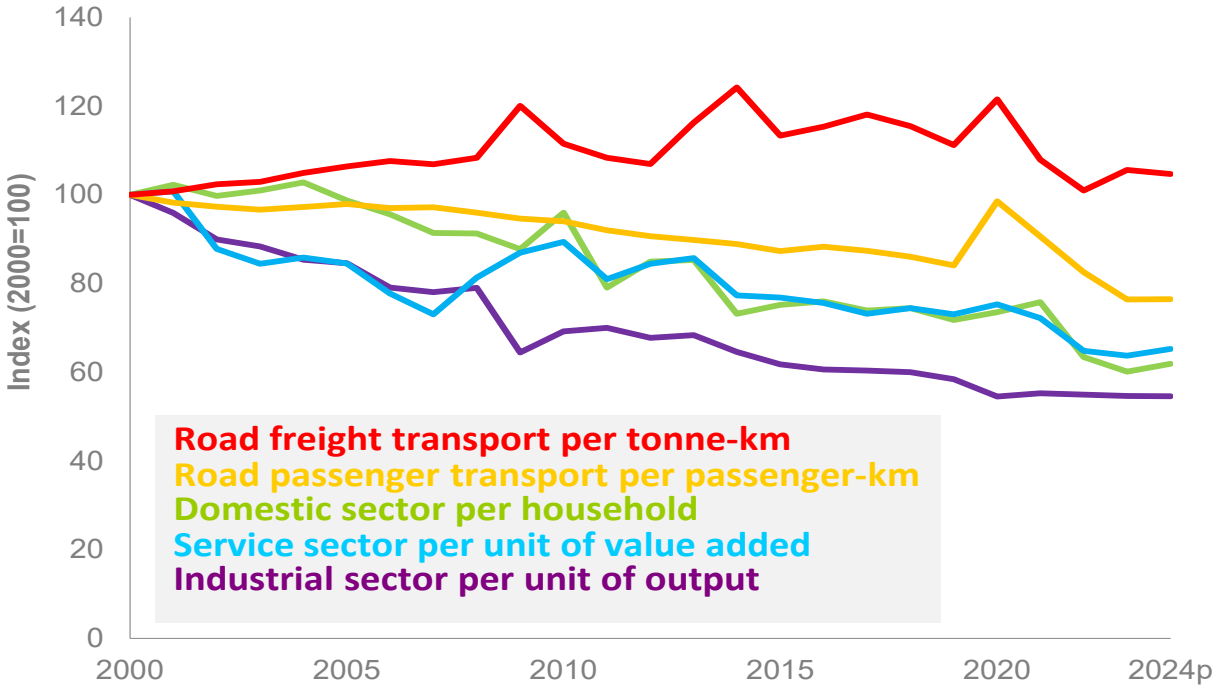


	1995	2000	2020	2022	2023	2024
CHP electrical capacity (MWe)	3,354	4,451	6,049	6,070	6,082	6,104
CHP electrical generation (GWh)	14,777	25,245	22,100	23,772	22,272	20,867
CHP heat generation (GWh)	56,830	54,877	40,735	39,620	38,972	38,965
Number of CHP sites						
<= 100 kWe	620	560	454	359	362	347
> 100 kWe to 1 MWe	397	533	1,253	1,185	1,198	1,128
>1 MWe to 2 MWe	26	41	215	227	233	240
> 2 MWe to 10 MWe	113	141	260	270	272	274
> 10 MWe +	63	64	70	68	68	70
Total	**1,219**	**1,339**	**2,252**	**2,109**	**2,133**	**2,059**

In 2024, the number of CHP schemes decreased by 3.5%, although total electrical capacity increased slightly, by 0.4%.

Electricity generation decreased by 6.3% in 2024, while heat generation decreased by less than 0.1% when compared to 2023. Schemes larger than 10 MWe represent 69% of the total electrical capacity of CHP schemes whereas schemes less than 1MWe constitute the majority (72%) of the number of schemes. In 2024 CHP schemes accounted for 7.3% of the total electricity generated in the UK and 8.2% of UK gas demand.

Energy intensity, 2000 to 2024



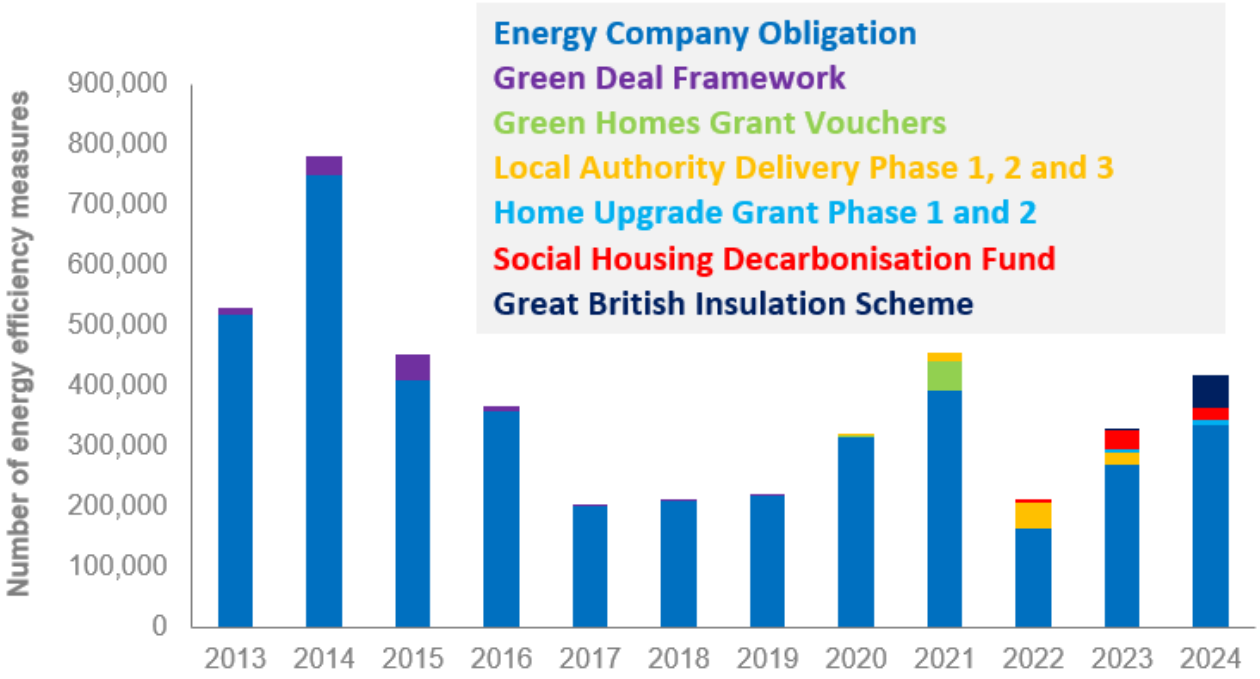
Tonnes of oil equivalent

	2000	2010	2020	2022	2023	2024p
Industrial energy consumption per million units of GVA	122.6	84.8	66.8	67.4	67.0	66.9
Domestic energy consumption per household	1.9	1.8	1.4	1.2	1.2	1.2
Service sector energy consumption per million units of GVA	17.8	15.9	13.4	11.5	11.4	11.6
Road passenger energy consumption per million passenger-kilometres*	38.8	36.4	38.2	32.0	29.6	29.6
Road freight energy consumption per million freight-kilometres*	80.2	89.4	97.4	80.9	84.6	83.9

* DESNZ estimates for 2024.

Energy consumption per unit of output, known as energy intensity, gives a broad indication of how efficiently energy is being used over time. Changes in energy intensity occur for several reasons: process change, technological change and structural change (in the case of industry and the service sector) as well as efficiency change. The largest falls in energy intensity in the 21st century have occurred in the industrial sector, mainly due to structural change in the period before 2000, and in the service sector due to general energy efficiency improvements. In the domestic sector there has been a general downward trend in domestic consumption due to improvements in energy efficiency measures, and more recently due to the impact of higher energy and other prices. The changes in the road passenger and freight categories since 2020 are a direct result of the COVID-19 pandemic and the subsequent easing of travel restrictions.

Energy efficiency measures delivered through Government schemes, 2013 to 2024



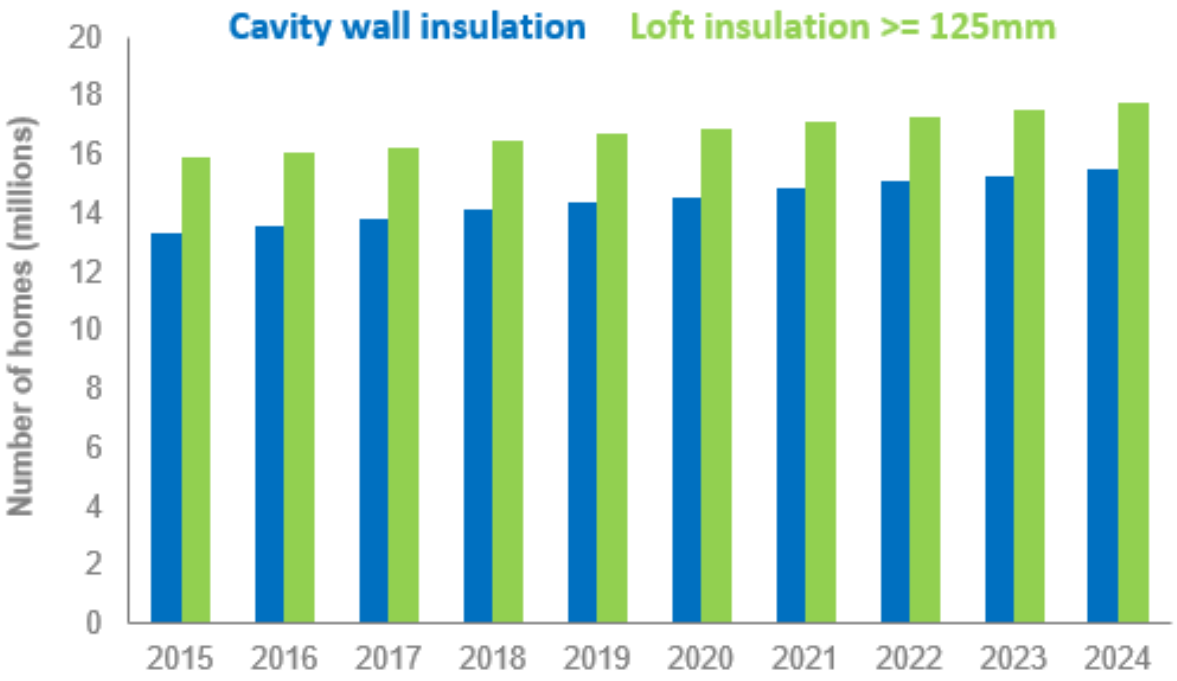
Source: DESNZ, Household Energy Efficiency (HEE) National Statistics, detailed report 2024

The Government has introduced several schemes since 2013 to improve the energy efficiency of households. The biggest of these schemes is the Energy Company Obligation (ECO) which was introduced in January 2013 to reduce energy consumption and support people at greater risk of living in fuel poverty. The larger energy companies are set obligations to install insulation and heating measures to achieve reductions in energy usage and heating costs. ECO is now in its fourth iteration since it began. ECO4 is set to run from April 2022 to March 2026.

Other government schemes introduced since 2013 include the Green Homes Grant Voucher (GHGV) scheme which ran from the end of September 2020 to March 2021. Measure delivery funded through Green Deal (GD) finance plans began in 2013. The Local Authority Delivery (LAD) scheme launched in 2020. Phases 1 to 3 of the scheme ran from October 2020 to December 2023. Phase 1 of the Home Upgrade Grant (HUG) scheme launched in early 2022 and phase 2 launched in mid-2023. The Social Housing Decarbonisation Fund (SHDF) began delivery in March 2022. The Great British Insulation Scheme (GBIS) is the newest scheme which began at the end of March 2023. This scheme runs alongside ECO4 and focuses on installing the most cost-effective single insulation measures to the least energy efficient homes.

From January 2013 to the end of December 2024, around 4.5 million energy efficiency measures were installed in 2.8 million properties under these schemes. In 2024, 337,800 measures were delivered through ECO, 55,000 measures were delivered through GBIS, 19,200 measures were through SHDF, and 8,600 measures through HUG.

Number of homes with energy efficiency measures, December 2015 to December 2024



UK Insulated homes (Thousands)

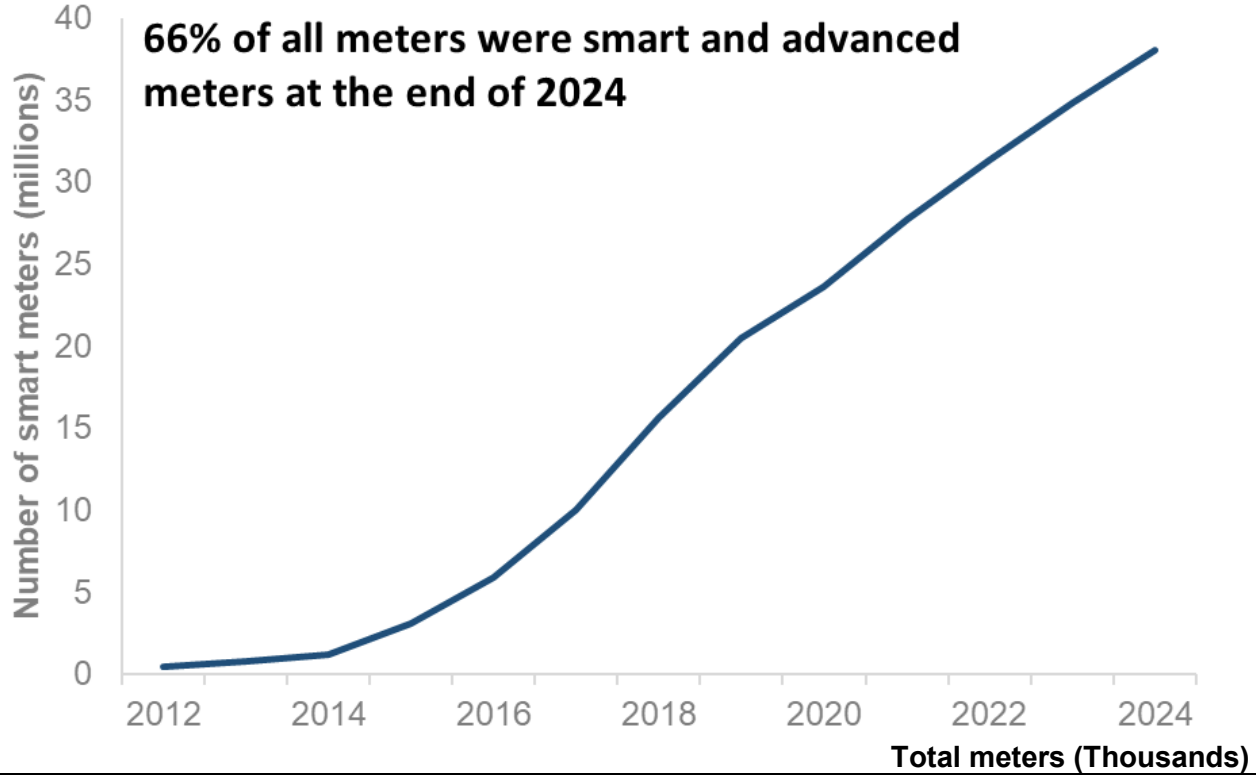
End of year	2015	2017	2019	2021	2023	2024
Cavity wall insulation	13,310	13,800	14,330	14,800	15,260	15,470
Loft insulation >= 125mm	15,870	16,230	16,650	17,070	17,510	17,740

Source: DESNZ, Household Energy Efficiency (HEE) Statistics, detailed report 2024 – GB level data are scaled up to UK level. Full details on how these estimates are constructed, based on the new methodology, can be found in the HEE statistics methodology note. Figures are rounded to the nearest ten thousand.

Cost effective methods of improving energy efficiency in homes are to install cavity wall and loft insulation where these measures are practical. Building Regulations require new homes to reach thermal efficiency standards which would typically be met by installing these measures. In addition to those homes that already had insulation measures fitted, these data show the change in the number of insulated homes as a result of new build and retro fitting insulation via Government schemes. Privately funded insulation measures and those fitted through DIY are not included in these figures.

The number of homes estimated to have cavity wall insulation has increased by 16% between the end of December 2015 and December 2024 such that 15.5 million of the 21.9 million homes with cavities, are insulated. The number of homes estimated to have loft insulation, of a depth of at least 125mm, has increased by 12% between the end of December 2015 and December 2024 meaning that 17.7 million of the 26.5 million homes with lofts are insulated to this level.

Smart meters in Great Britain, December 2012 to December 2024



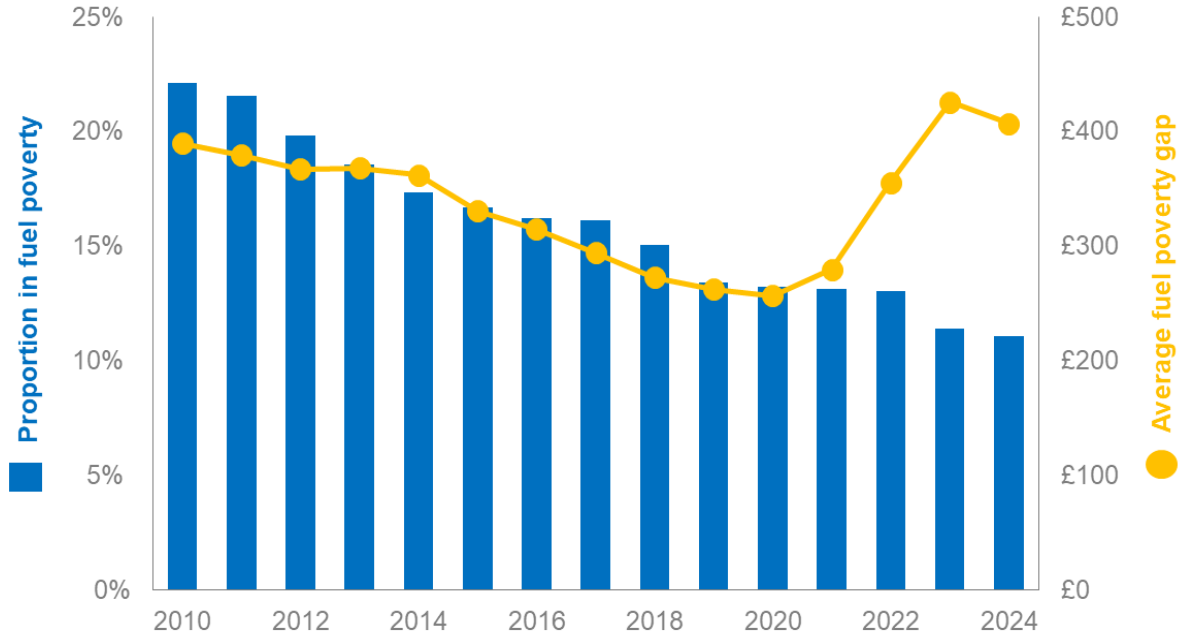
End of year[1]	2012	2018	2019	2020	2022	2023	2024
Domestic							
Smart	3	14,514	19,164	22,170	29,572	32,909	36,019
Non-smart	47,726	36,522	32,681	30,267	23,771	20,842	18,134
Non-domestic[2]							
Smart	454	1,135	1,313	1,476	1,745	1,896	1,996
Non-smart	2,424	2,092	1,887	1,807	1,586	1,423	1,265
Total							
Smart	457	15,648	20,477	23,646	31,318	34,805	38,015
Non-smart	50,150	38,614	34,568	32,073	25,357	22,264	19,398

Source: DESNZ, Smart Meter Statistics in Great Britain, Quarterly update May 2025.
1. Data for 2013-2017 & 2021 can be found in the UK Energy in Brief 2025 dataset.
2. Non-domestic sites include small businesses and microbusinesses; Smart in non-domestic sites includes both Smart and Advanced meters.

Smart meters are replacing analogue gas and electricity meters as part of a national infrastructure upgrade. They enable accurate billing by automatically recording consumers' energy use in every half-hour period, allowing suppliers to bill based on consumers' actual rather than estimated usage, as well as ending the need for manual meter reads or estimated bills. They are helping households to manage their energy use so that they can improve their efficiency and save money on their bills. Smart meters are also a vital part of achieving the Government's mission to build a flexible and decarbonised power system by 2030. A more flexible energy system will enable us to scale up the use of renewables and reduce our reliance on imported fossil fuels, giving us greater control of our energy security. These data show the growth in the number of smart meters operating in Great Britain between 2012 and 2024.

At the end of December 2024 there were 38 million smart and advanced meters operating in Great Britain (66%). Of these, over 90% were smart meters operating in smart mode or advanced meters (34 million), with the remainder operating in traditional mode (9.7%).

Households in fuel poverty, 2010 to 2024



Fuel poverty in England is measured using the Low-Income Low Energy Efficiency (LILEE).

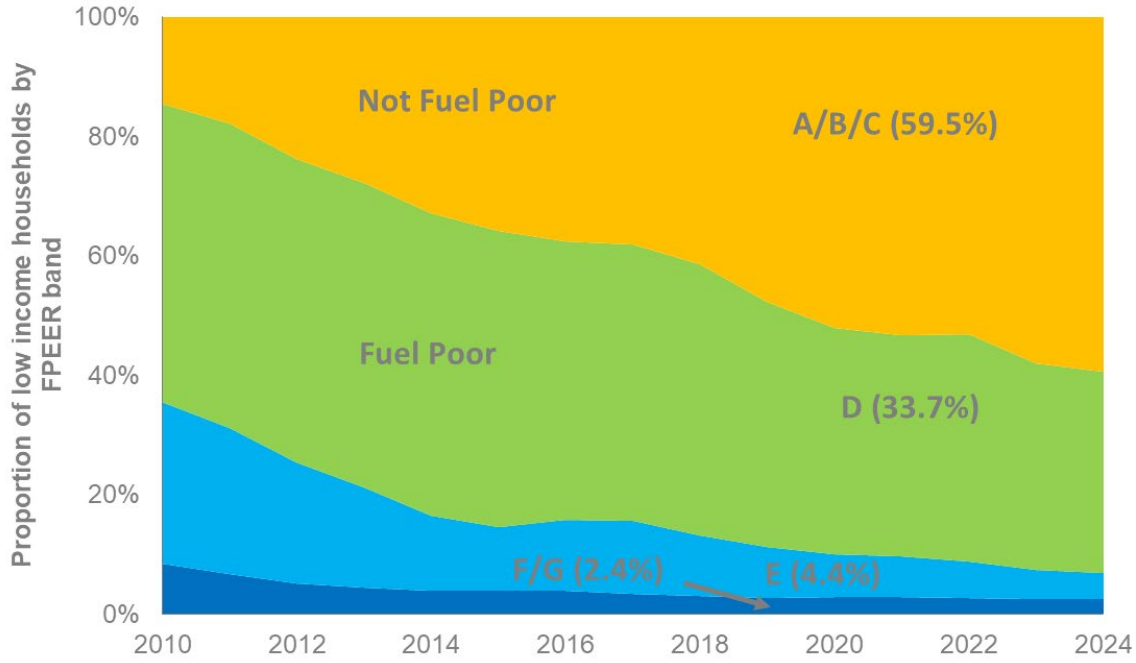
Under LILEE, a household is considered to be fuel poor if: they are living in a property with a fuel poverty energy efficiency rating of band D or below; and were they to spend the required amount to heat their home, they would be left with a residual income below the official poverty line.

- In 2024, there were an estimated 11.0% of households (2.73 million) in fuel poverty in England under the Low Income Low Energy Efficiency (LILEE) metric. This is a slight reduction from 11.4% (2.80 million households) in 2023.
- In 2023, the average fuel poverty gap (the reduction in fuel costs needed for a household to not be in fuel poverty) in England was estimated at £407, down by 4% in real terms since 2023.
- The aggregate fuel poverty gap for England in 2024 was estimated at £1.11 billion under the LILEE metric, a fall of 7% since 2023 (£1.19 billion) in real terms.

Key drivers of fuel poverty, 2023-2024:

- Energy efficiency – Improvements in energy efficiency, combined with an increase in the number of households receiving Warm Home Discount from winter 2023/24 onwards, brought an estimated 59,000 households out of fuel poverty.
- Incomes – Median income increased by 4% in real terms, bringing an estimated 68,000 households out of fuel poverty.
- Housing costs – Increases to housing costs are estimated to have brought around 17,000 households into fuel poverty.
- Energy prices – After considering the ending of the Energy Bills Support Scheme, median required energy costs increased by 1% in real terms. This brought an estimated 42,000 households into fuel poverty.

Low income households by FPEER[2] band, 2010 to 2024



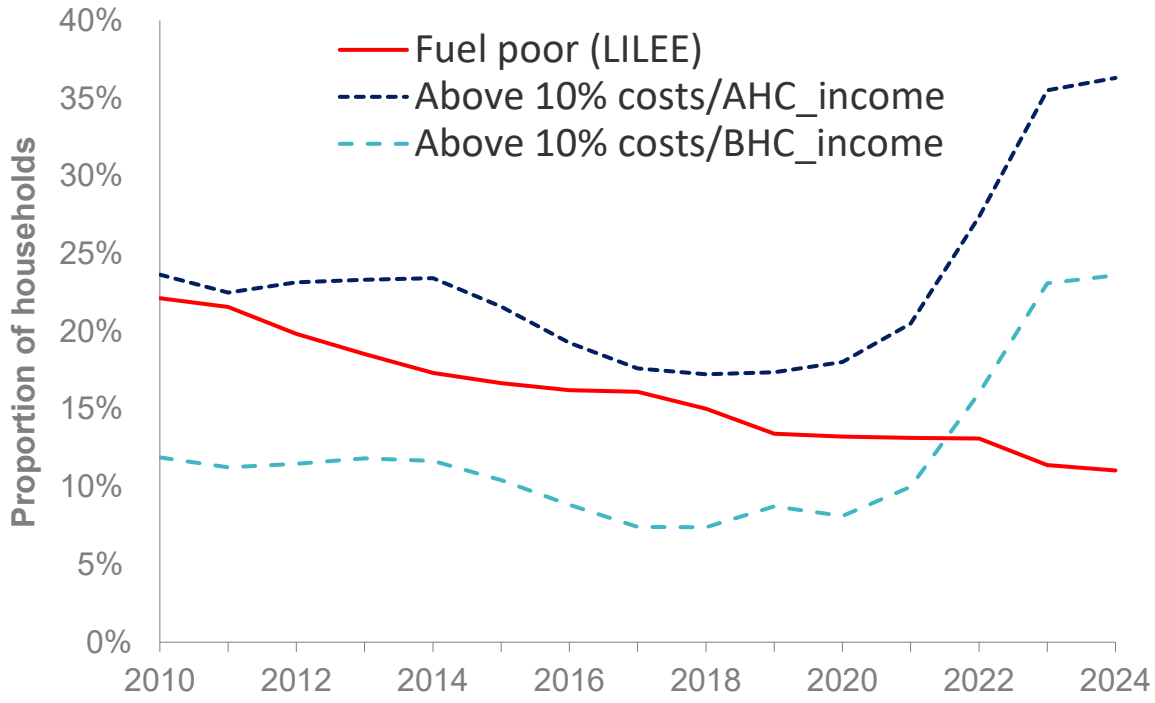
In December 2014 the Government introduced a new statutory fuel poverty target for England. The target is to ensure that as many fuel poor households as reasonably practicable achieve a minimum energy efficiency rating of Band C by 2030 (with interim milestones to lift as many fuel poor homes in England as is reasonably practicable to Band E by 2020; and Band D by 2025). Under the LILEE metric, a household that achieves a fuel poverty energy efficiency rating of band C or above would not be fuel poor, and therefore fuel poverty would be eradicated if all low-income households achieved an energy efficiency band C rating. Progress towards the fuel poverty target is measured as the share of all low-income households who achieve an energy efficiency band C in 2030 and the interim milestones.

In 2024, slight progress was made towards the 2030 fuel poverty target, with 59.5 per cent of low-income households living in properties with an energy efficiency rating of A, B or C, an increase of 44.9 percentage points since 2010 and an increase of 1.4 percentage points since 2023.

Target year	Fuel poverty target	2010 (%)	2024 (%)	Percentage point change
2025	Band D or above	64.6	93.2	28.6
2030	Band C or above	14.6	59.5	44.9

[2] Fuel poverty energy efficiency rating (FPEER)

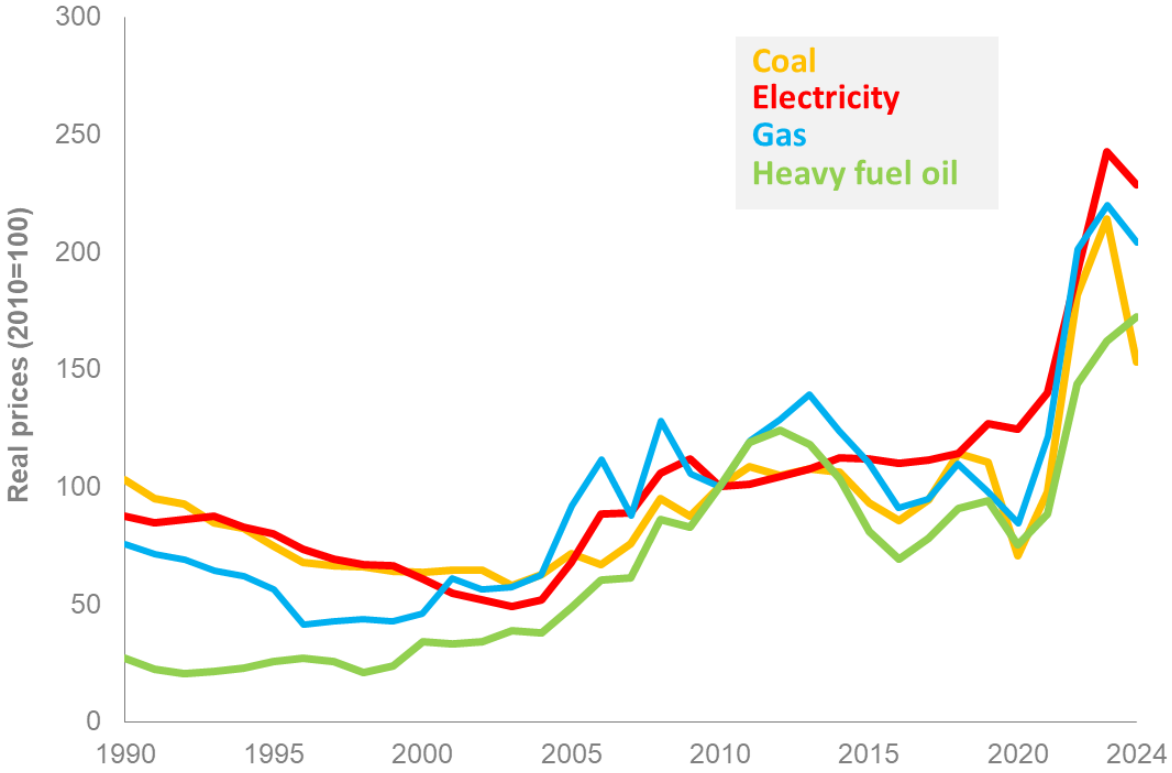
Energy affordability metrics, 2010 to 2024



The share of fuel poor (LILEE) households decreased steadily between 2014 and 2019, driven by energy efficiency improvements. From 2019 to 2022 it showed very little change as energy efficiency progress was offset by income changes during the pandemic followed by rising energy prices. This was followed by a decrease in the share of fuel poor (LILEE) households in 2023, which is projected to remain relatively stable until 2025.

Energy prices have risen sharply since 2020, so even those not in fuel poverty as measured by the main Government metric for England may struggle with their energy bills. Two different measures are presented: the proportion of households spending more than 10% of their income on energy both after housing costs have been accounted for (AHC), and before housing costs (BHC). These 10% affordability measures are much more sensitive to energy prices. Using the AHC indicator, the number of households exceeding this threshold more than doubled from 4.3 million in 2020 to 8.7 million in 2023 and has increased slightly in 2024 to 9.0 million. The number of households exceeding this threshold is projected to fall in 2025.

Fuel price indices for the industrial sector, 1990 to 2024



Real prices, 2010 = 100

	1990	2000	2010	2020	2022	2023	2024
Coal	103.1	63.5	100.0	70.4	181.6	214.2	152.9
Electricity	87.5	60.8	100.0	124.3	190.9	242.6	228.4
Gas	75.3	46.0	100.0	84.3	201.3	220.0	203.8
Heavy fuel oil	26.9	33.8	100.0	75.5	143.8	161.9	172.0
Industrial prices	**77.4**	**52.6**	**100.0**	**111.9**	**187.5**	**230.5**	**216.7**

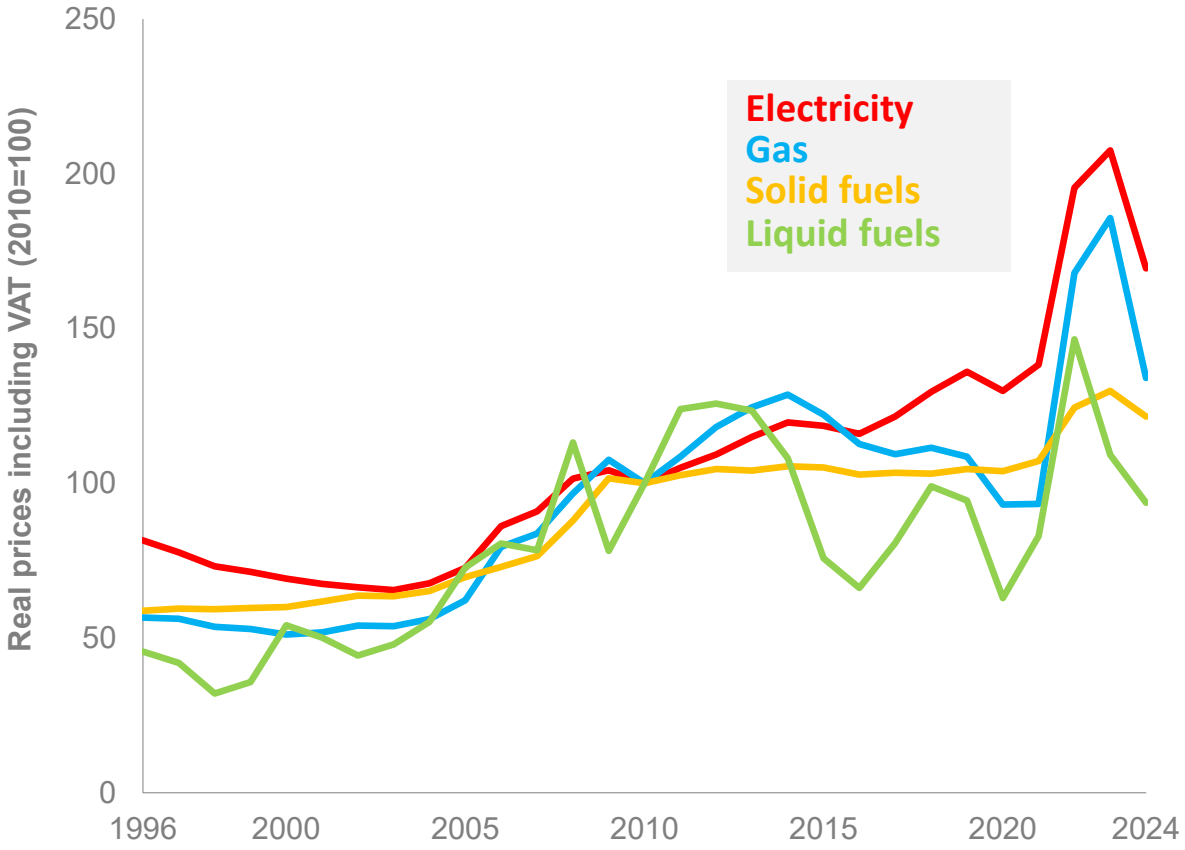
Includes the Climate Change Levy that came into effect in April 2001

Industrial prices, in real terms, steadily fell from the mid-1980s until 2003 where they were at their lowest. Industrial prices then rose again reaching a peak in 2013 before steadily falling and rising again to a new peak in 2019. Industrial prices fell in 2020, however, in 2021 coal, electricity, gas and heavy fuel oil prices all increased and in both 2022 and 2023, saw further increases. In 2024, industrial prices fell overall compared to the previous year, with decreases in coal, gas and electricity prices and an increase in heavy fuel oil prices.

Compared to the previous year, in 2024 industrial electricity prices, in real terms, were down by 5.8%. Gas prices were down by 7.4%. Coal prices paid for by industry were down by 28.6%. Industrial heavy fuel oil prices in real terms were up by 6.3%.

Over the last five years industrial gas prices, in real terms, have increased by 108% and electricity prices have increased by 80%.

Fuel price indices for the domestic sector, 1996 to 2024



Real prices including VAT, 2010 = 100

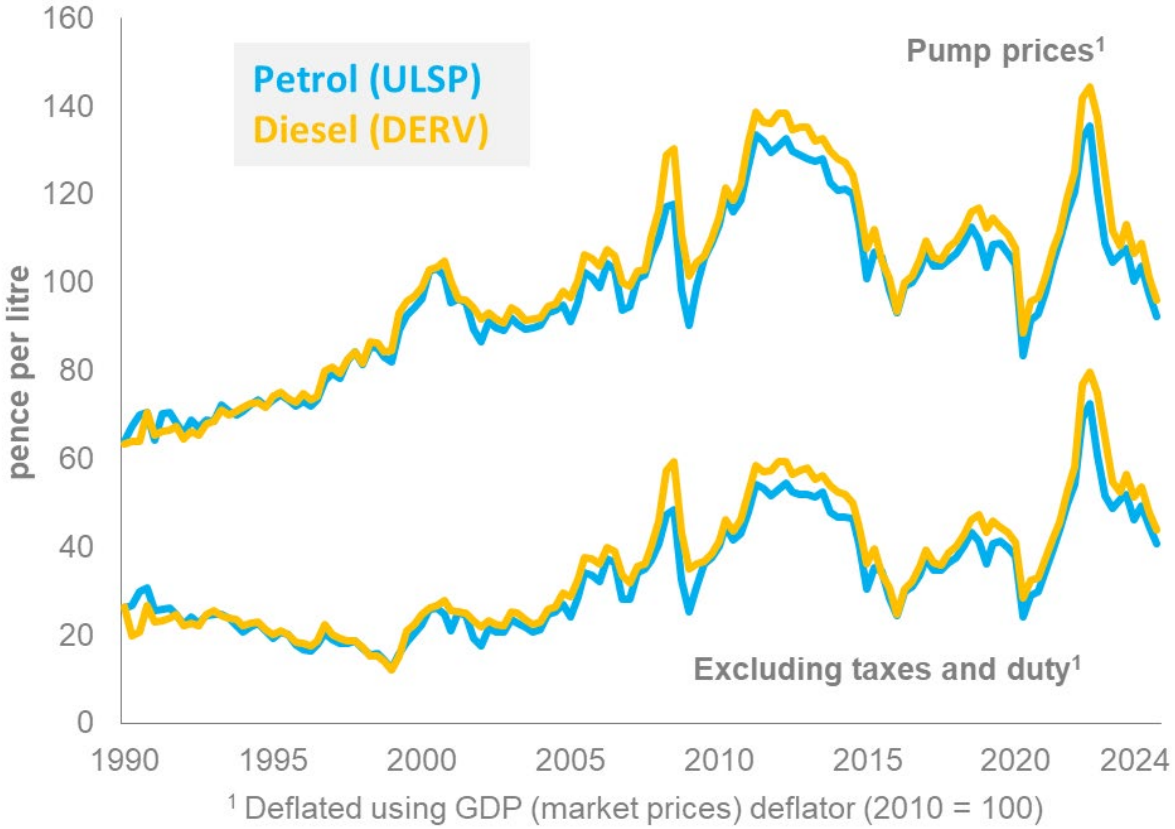
	1996	2000	2010	2020	2022	2023	2024
Solid fuels	58.8	60.0	100.0	103.8	124.4	129.9	121.6
Electricity	81.6	69.1	100.0	129.8	195.5	207.6	169.4
Gas	56.6	51.1	100.0	93.1	168.0	185.7	134.0
Liquid fuels	45.6	54.1	100.0	62.9	146.4	109.2	93.7
Domestic fuels	**67.5**	**60.5**	**100.0**	**111.5**	**182.2**	**196.4**	**153.5**

Source: Consumer Price Index, Office for National Statistics

Compared to 2023, total domestic energy prices in total for 2024 decreased in real terms by 21.8%. Over the same period, liquid fuels decreased by 14.2%, gas prices decreased by 27.9%, electricity prices decreased by 18.4% and solid fuels decreased by 6.4%.

Comparing prices in 2024 with prices 10 years prior, real prices for domestic fuels overall increased by 24%. The real price of electricity increased by 42%, solid fuels increased by 15%, gas increased by 4% and liquid fuel prices decreased by 13%.

Petrol and diesel prices, 1990 to 2024

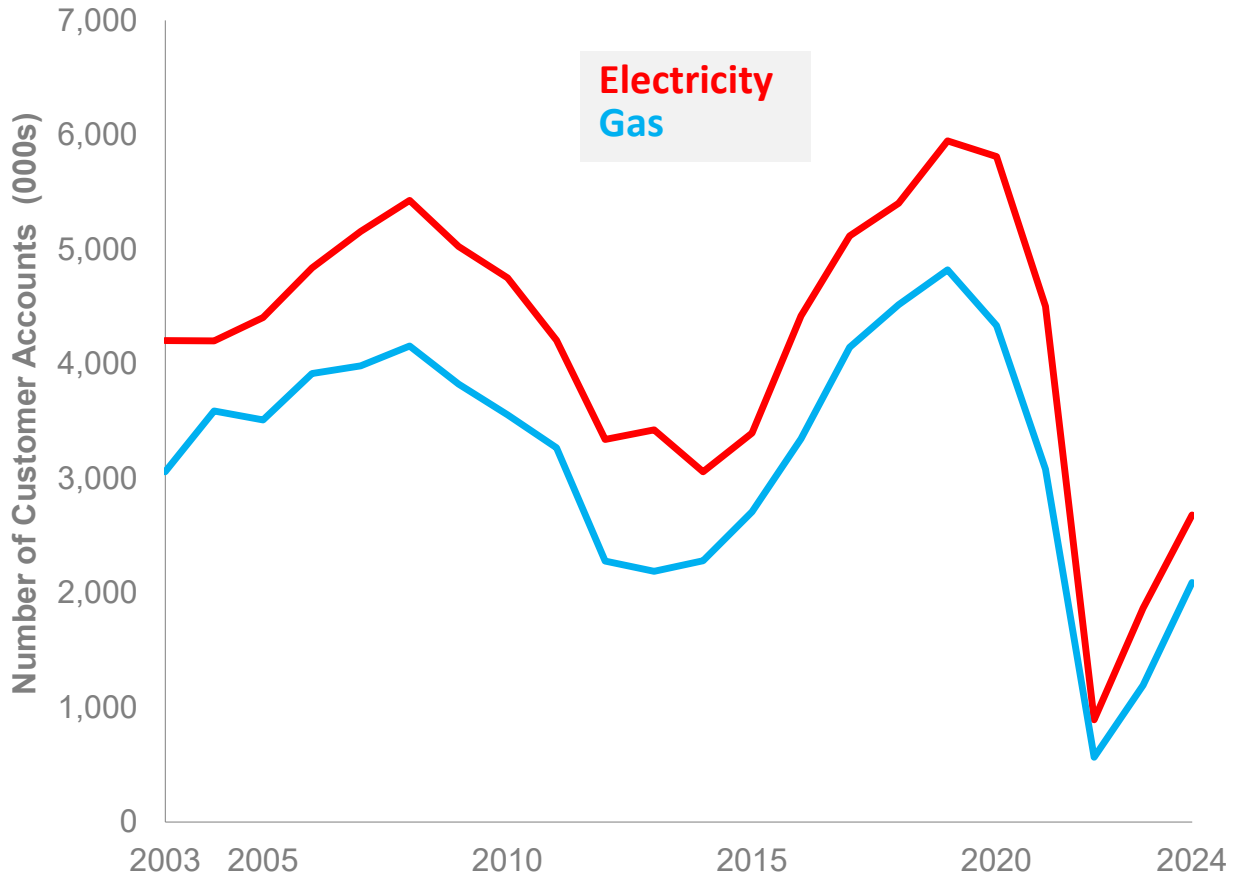


Current retail prices	Pence/litre	
	Petrol (ULSP)	Diesel
1990	42.0	40.5
2000	79.9	81.3
2005	86.8	90.9
2010	116.9	119.3
2015	111.1	114.9
2020	113.9	119.1
2022	164.7	177.7
2023	147.7	158.2
2024	141.5	148.3

In cash terms the price of Ultra Low Sulphur Petrol (ULSP) cost 6 pence per litre less and diesel cost 10 pence per litre less in 2024 than in 2023.

In real terms the price of petrol was 8% lower and diesel was 10% lower in 2024 compared to 2023. In 2024 taxes and duty accounted for 54% of the retail price of unleaded and 52% of the price of diesel.

Domestic supplier transfers, 2003 to 2024



Number of households switching domestic energy supplier, 2003 to 2024, in 000s

(000s)	2003	2005	2010	2020	2022	2023	2024
Electricity	4,204	4,405	4,750	5,811	893	1,867	2,681
Gas	3,059	3,511	3,556	4,336	566	1,195	2,092

Please note: the number of customers switching supplier shown in the graph is based on the number of meter points a supplier gains from another following a customer choice to change their supplier. This number does not include either internal switches among white labels or brands associated with the same supplier or customer transfers resulting from corporate changes, company mergers and Supply of Last Resort events.

Source: Transfer Statistics, Ofgem

The number of households that switched energy suppliers in Great Britain increased by 75% for gas and increased by 44% for electricity between 2023 and 2024.

The increase in transfers in 2023 and 2024 were affected by reductions in the Ofgem Default Tariff cap (the price cap[3]) and allowing for more competitive tariffs being offered from energy companies for both electricity and gas.

[3] https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/default-tariff-cap

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To convert from the units on the left-hand side to the units across the top multiply by the value in the table.

	to:	**Thousand toe**	**TJ**	**GWh**	**Million therms**
from:	**Thousand toe**	1	41.868	11.63	0.39683
	TJ	0.023885	1	0.27778	0.0094778
	GWh	0.085985	3.6	1	0.034121
	Million therms	2.52	105.51	29.307	1

Data relating to the energy content of fuels are on a gross calorific value basis.

Prices are presented in real terms i.e., the effect of inflation has been removed by adjusting each series using the GDP deflator.

The symbol '-' is used in the tables where the figure is nil or not separately available, and '..' is used to indicate 'not available'.

The Department for Energy Security and Net Zero is the source of all data except where stated.

All data within this publication are classified as Accredited Official Statistics, except those on page 39 which are classified as Official Statistics.

All figures are for the United Kingdom, except for pages 30, 37, 38, 39, 40, 41, 42 and 46.

The Department for Energy Security and Net Zero (DESNZ) also produces the following energy and climate change statistics publications:

The **Digest of United Kingdom Energy Statistics** is the annual energy statistics publication of DESNZ. With extensive tables, charts and commentary covering all the major aspects of energy, it provides a detailed and comprehensive picture of the last three years. It includes detailed information on the production and consumption of individual fuels and of energy as a whole.
https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

The **Energy Flow Chart** is an annual publication illustrating the flow of primary fuels from home production and imports to their eventual final uses. They are shown in their original state and after being converted into different kinds of energy by the secondary fuel producers. https://www.gov.uk/government/collections/energy-flow-charts

Energy Trends is a quarterly publication of statistics on energy in the United Kingdom. It includes tables, charts and commentary covering all major aspects of energy. It provides a comprehensive picture of energy production and use, to allow readers to monitor trends during the year. https://www.gov.uk/government/collections/energy-trends
Monthly updates to tables in Energy Trends split by fuel source are also available.

Energy Consumption in the United Kingdom brings together statistics from a variety of sources to produce a comprehensive review of energy consumption and changes in intensity and output since the 1970s, with a particular focus on trends since 2000. The information is presented in five key themes covering overall energy consumption, energy intensity by sector, primary energy consumption, end uses and electrical products consumption and stock.
https://www.gov.uk/government/collections/energy-consumption-in-the-uk

UK Greenhouse Gas Emissions statistics are produced by DESNZ to show progress against the UK's goals, both international and domestic, for reducing greenhouse gas emissions.
https://www.gov.uk/government/collections/uk-greenhouse-gas-emissions-statistics

Household Energy Efficiency statistics are published by DESNZ on the Energy Company Obligation (ECO) and Green Deal (GD). The headline release presents monthly updates of ECO measures and quarterly updates of in-depth ECO statistics, carbon savings and the Green Deal schemes. The detailed report presents annual updates on in-depth Green Deal statistics and insulation levels.
https://www.gov.uk/government/collections/household-energy-efficiency-national-statistics

Smart Meters statistics are produced by DESNZ on the roll-out of smart meters in Great Britain, and covers both operating and installed meters.
https://www.gov.uk/government/collections/smart-meters-statistics

Fuel Poverty statistics are produced by DESNZ to support the Fuel Poverty Strategy for England.
https://www.gov.uk/government/collections/fuel-poverty-statistics

Energy Prices is a quarterly publication that contains tables, charts and commentary covering energy prices, to domestic and industrial consumers, for all the major fuels. It also presents comparisons of fuel prices in the European Union and G7 countries.
https://www.gov.uk/government/collections/quarterly-energy-prices

Sub-National Energy Consumption statistics are produced by DESNZ to emphasise the importance of local and regional decision making for energy policy in delivering a number of national energy policy objectives.
https://www.gov.uk/government/organisations/department-for-energy-security-and-net-zero/about/statistics

DESNZ has constructed a **National Energy Efficiency Data-framework (NEED)** to enable detailed statistical analysis of energy efficiency. The data framework matches the gas and electricity consumption data collected for DESNZ sub-national energy consumption statistics and records of energy efficiency measures in the Homes Energy Efficiency Database (HEED) run by the Energy Saving Trust (EST), as well as typographic data about dwellings and households.
https://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework

Accredited official statistics

These statistics are accredited official statistics. Accredited official statistics are called National Statistics in the Statistics and Registration Service Act 2007.

These accredited official statistics were independently reviewed by the Office for Statistics Regulation (OSR) in September 2018. They comply with the standards of trustworthiness, quality and value in the Code of Practice for Statistics.

Our statistical practice is regulated by the Office for Statistics Regulation.

OSR sets the standards of trustworthiness, quality and value in the Code of Practice for Statistics that all producers of official statistics should adhere to.

You are welcome to contact us by emailing energy.stats@energysecurity.gov.uk with any comments about how we meet these standards.

Alternatively, you can contact OSR by emailing regulation@statistics.gov.uk or via the OSR website.

Any enquiries regarding this publication should be sent to us at: energy.stats@energysecurity.gov.uk

This publication is available from: https://www.gov.uk/government/collections/uk-energy-in-brief

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