Department for
Business, Energy
& Industrial Strategy

UK ENERGY IN BRIEF 2019

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UK ENERGY IN BRIEF 2019

This booklet summarises the latest statistics on energy production, consumption, prices and climate change in the United Kingdom. Figures are primarily taken from the 2019 edition of the "Digest of UK Energy Statistics", published on 25 July 2019. Details of the Digest and other Department for Business, Energy and Industrial Strategy (BEIS) statistical publications on energy and climate change can be found on pages 46 and 47 of this booklet and are available at:
www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy/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 Business, Energy and Industrial Strategy (BEIS) 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 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, renewable energy and feed in tariffs. Information is also given on energy efficiency, energy prices and energy expenditure.

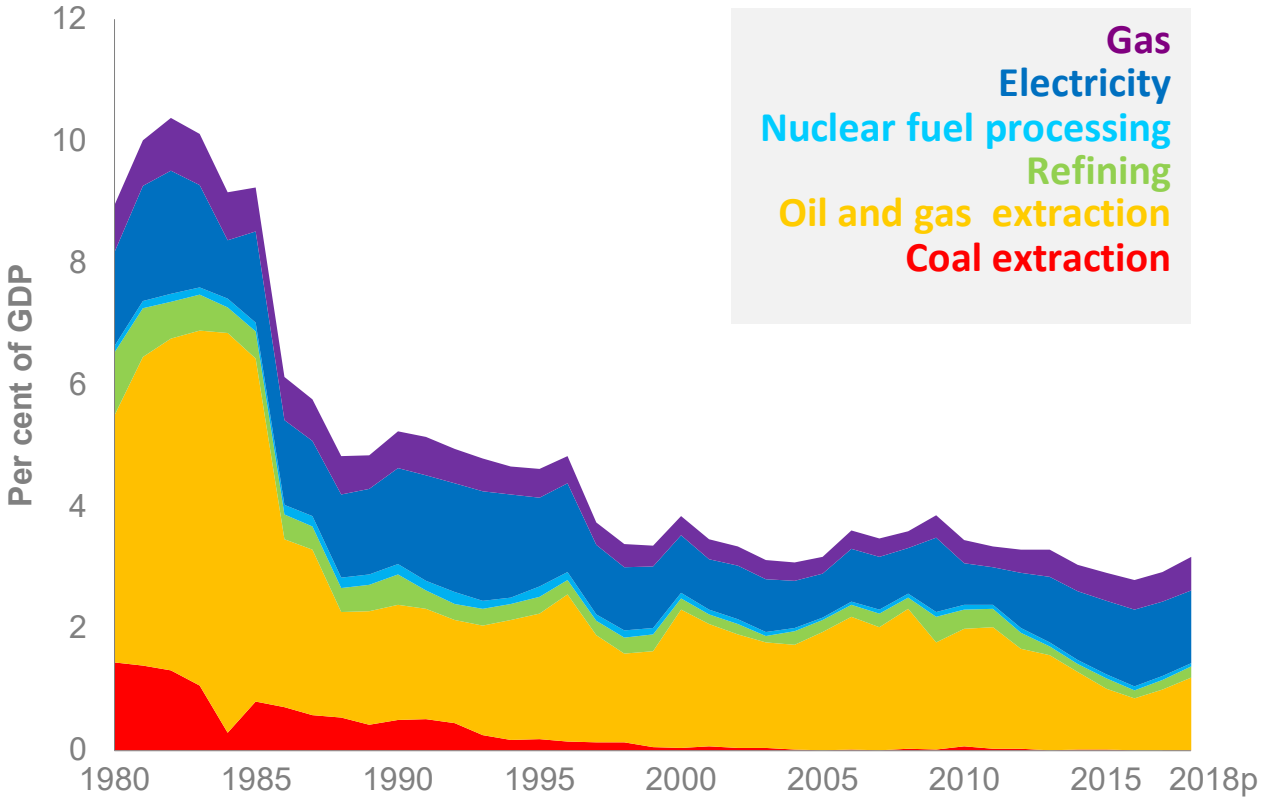
The detailed background data on energy production and consumption can be found in the Digest of UK Energy Statistics 2019 available at:
www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

Other statistical outputs produced by BEIS and drawn on in this publication are listed on pages 46 and 47.

THE ENERGY INDUSTRIES' CONTRIBUTION TO THE UK ECONOMY IN 2018

- 3.2% of GDP.
- 9.7% of total investment.
- 32.6% of industrial investment.
- 1.6% of annual business expenditure on research and development in 2017.
- 179,000 people directly employed (6.2% of industrial employment) and more indirectly (e.g. an estimated 126,700 in support of UK Continental Shelf production).

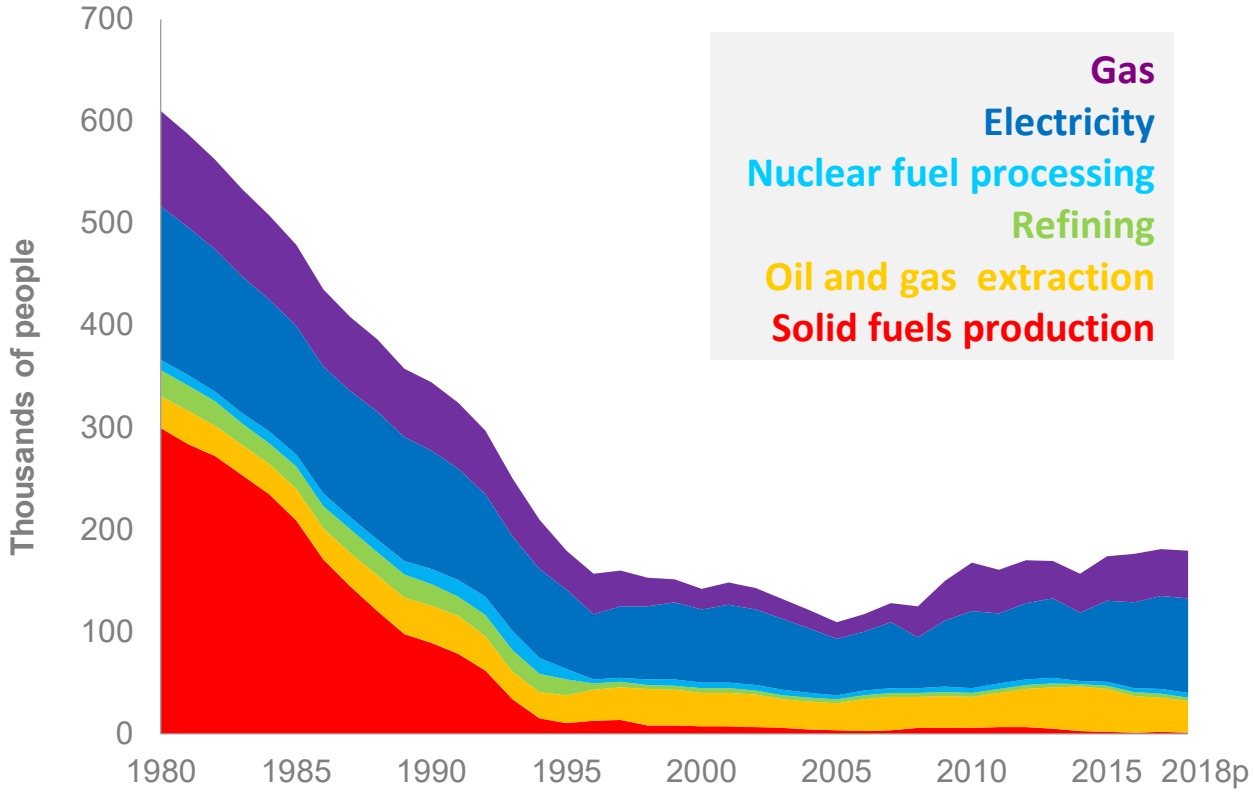
Contribution to GDP by the energy industries, 1980 to 2018



Source: Office for National Statistics

The contribution to the UK economy by the energy industries peaked in 1982 at 10.4%. 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, in 2015 and 2016 oil production increased, but the large fall in oil prices led to the contribution from the oil and gas sector falling below that of the electricity sector. In 2017, oil production fell marginally but despite the large increase in oil prices, the oil and gas sector remained the second largest contributor. For 2018, the contribution by the energy industries to the UK economy was 3.2% of GDP (0.3 percentage point higher than in the previous year). Of the energy total in 2018 oil and gas extraction accounted for 34% (up 4.2 percentage points on the previous year), electricity (including renewables) accounted for 37% (down 4.4 percentage points) and gas accounted for 18% (up 0.8 percentage point).

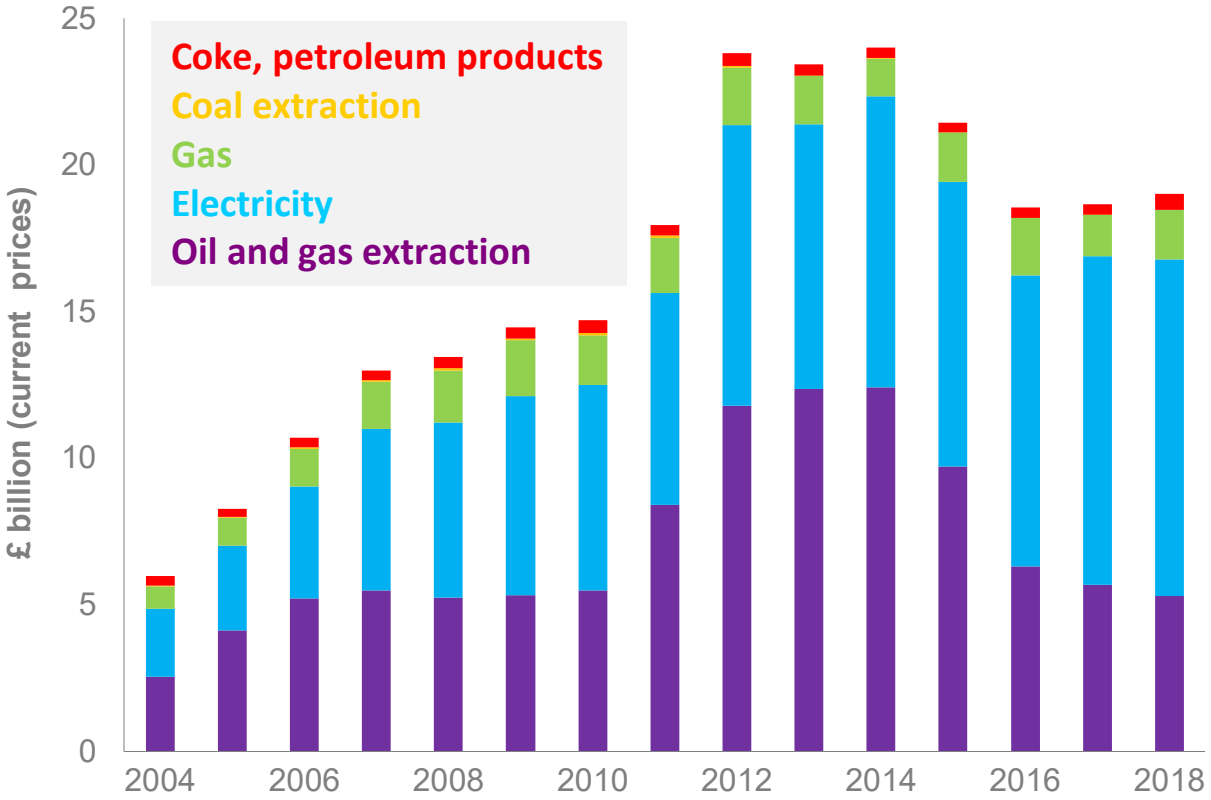
Trends in employment in the energy industries, 1980 to 2018



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 by growth in the electricity and gas sectors. In 2018 employment in the energy industries fell by 1.1% to 179,000 (64% above the 2005 level) and accounted for 6.2% of all industrial employment.

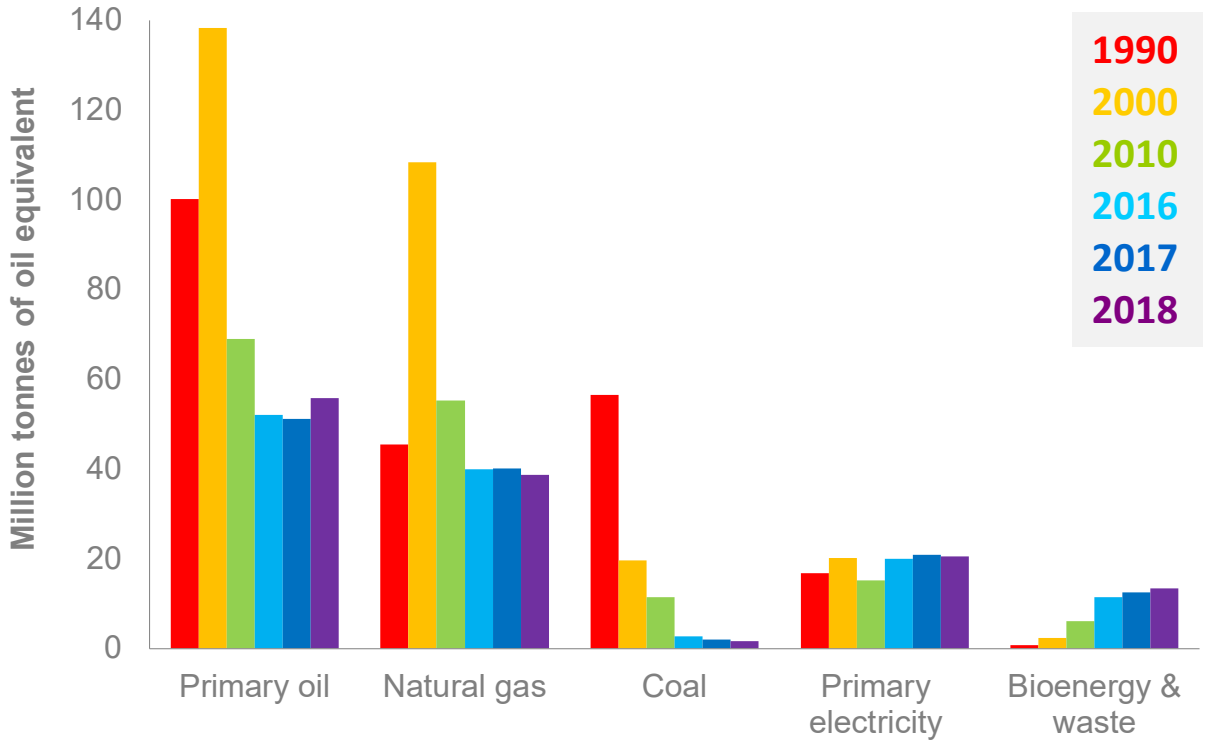
Investment in the energy industries, 2004 to 2018



Source: Office for National Statistics

Since 2004 there has been increased investment in the energy industries, more specifically in the electricity sector, despite the falls in investments since 2014. In 2018 at £19.0 billion (at current prices), investment was 1.9% higher on the previous year and of that total 28% was in oil and gas extraction (including a small proportion of less than 0.01% for coal extraction), 60% in electricity, 8.9% in gas, with the rest in coke & refined petroleum products industries.

Production of primary fuels, 1990 to 2018



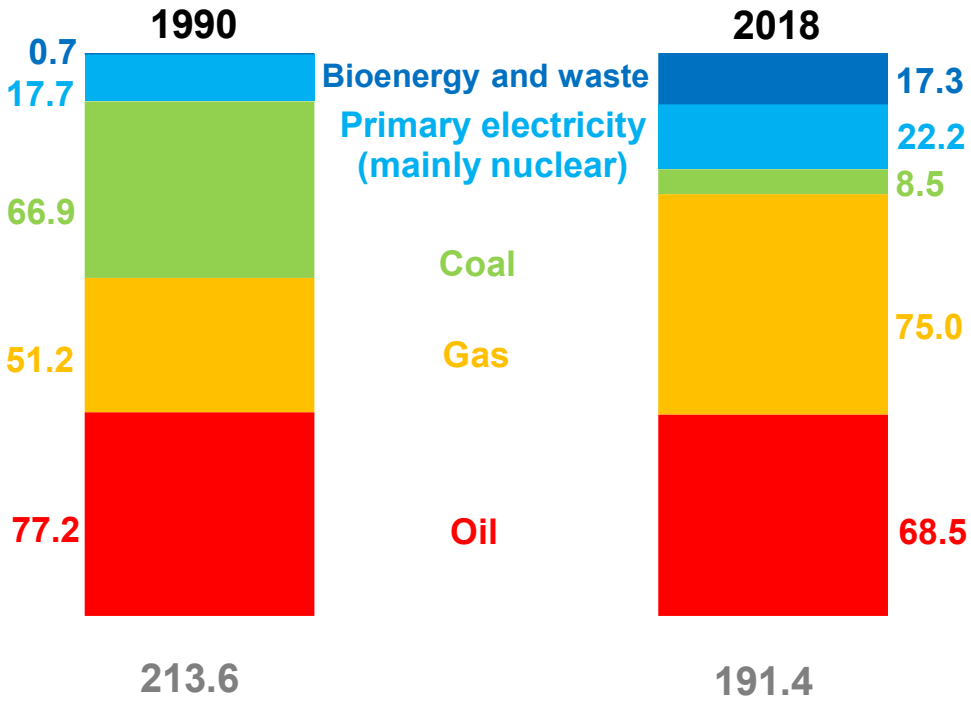
Million tonnes of oil equivalent

	1990	2000	2010	2016	2017	2018
Primary oil	100.1	138.3	69.0	52.0	51.1	55.7
Natural gas	45.5	108.4	55.3	39.9	40.0	38.7
Coal	56.4	19.6	11.4	2.7	2.0	1.7
Primary electricity	16.7	20.2	15.1	20.0	20.9	20.5
Bioenergy & waste	0.7	2.3	6.1	11.5	12.4	13.4
Total	**219.4**	**288.7**	**156.9**	**125.9**	**126.4**	**130.0**

Total production of primary fuels, when expressed in terms of their energy content, rose by 2.9% in 2018 compared to 2017. The rise was due to increases in primary oil production due to new fields opening as well as the closure of the Forties pipeline in December 2017, and from wind and solar production mainly due to increased capacity. There was also growth from bioenergy and waste, driven by conversions from coal to biomass at the Drax and Lynemouth power stations. However, gas and nuclear production both decreased. Coal production fell to a record low level in 2018. Primary oil (crude oil and Natural Gas Liquids) accounted for 43% of total production, natural gas 30%, primary electricity (consisting of nuclear, wind, solar and natural flow hydro) 16%, bioenergy and waste 10%, while coal accounted for the remaining 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 since been on a general decline, however production levels have increased since 2014 as new oil fields have opened, combined with the growth in output from bioenergy and waste and the increased capacity of wind and solar technologies. Production is now 56% lower than its peak in 1999. Since 2000, oil and gas production together have fallen by an average of 5.2% per year.

Inland energy consumption, 1990 and 2018



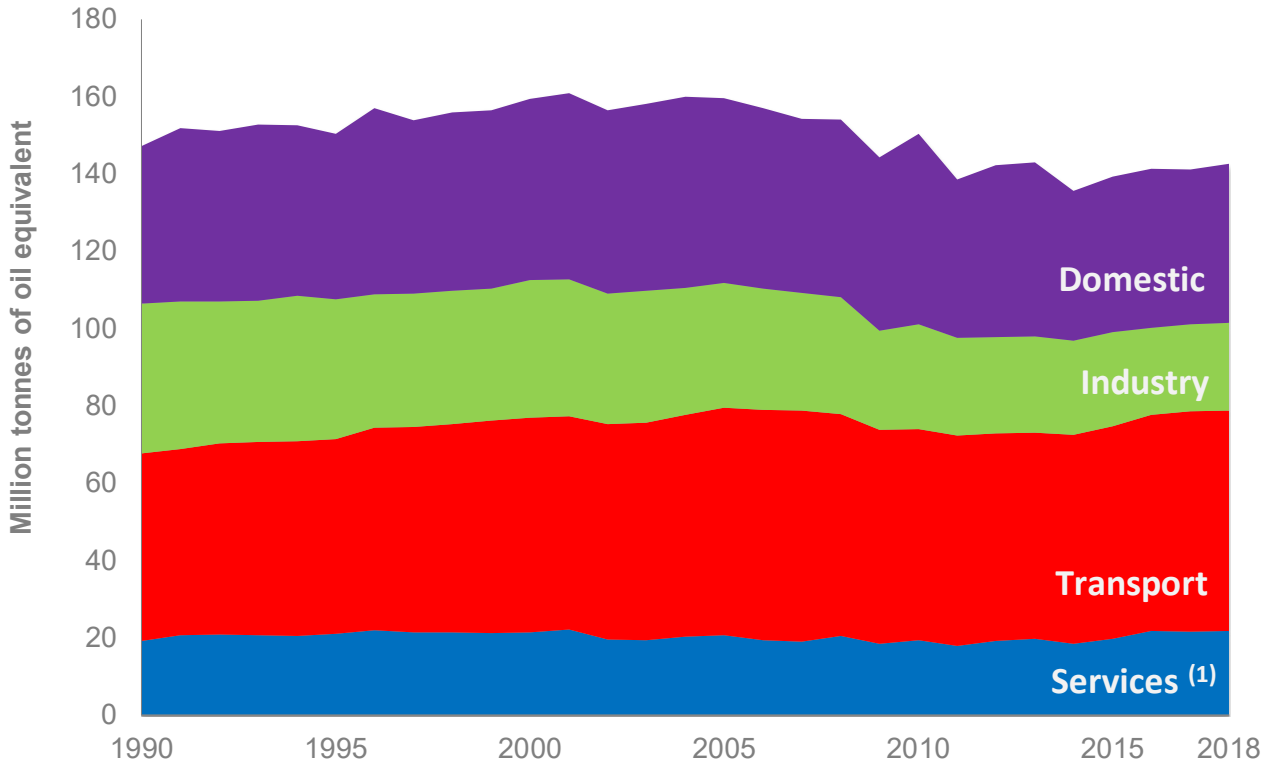
Million tonnes of oil equivalent

	1990	2000	2010	2017	2018
Total inland primary energy consumption[1]:	213.6	234.8	219.5	191.5	191.4
Conversion losses:		53.8	50.3	35.7	34.1
Distribution losses	66.4				
and energy industry use:		20.7	18.0	14.8	14.9
Total final energy consumption:	147.3	159.4	150.5	141.1	142.7
Final consumption of which:					
Industry	38.7	35.5	27.0	22.7	22.7
Domestic sector	40.8	46.9	49.4	39.9	41.2
Transport	48.6	55.5	54.6	57.0	57.0
Services[2]	19.2	21.5	19.4	21.6	21.8
Temperature corrected total inland consumption:	221.6	240.2	213.7	194.7	192.6

(1) Excludes non-energy use
(2) Includes agriculture

Primary energy consumption was broadly similar in 2018 compared to 2017. The average temperature in 2018 was also broadly similar to 2017, though the months of February and March were colder due to the 'Beast from the East' weather storm. On a temperature corrected basis, primary energy consumption was 1.1% lower than in 2017, continuing the general fall seen since 2005. In the last 30 years, consumption of natural gas and primary electricity has risen considerably, whilst consumption of oil and coal have fallen. However, over the past decade, consumption of bioenergy and waste has also grown.

Final energy consumption, 1990 to 2018



2018 **Million tonnes of oil equivalent**

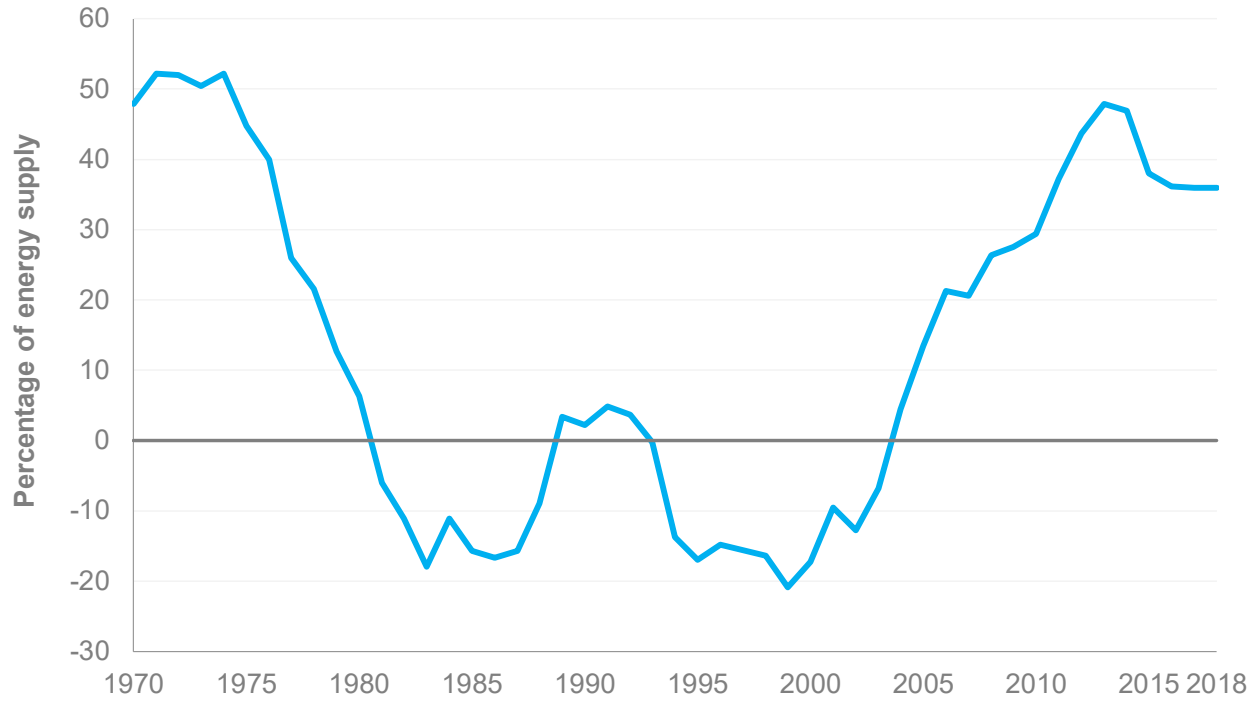
	Industry	Domestic	Transport	Services[1]	Total
Coal & manufactured fuels	1.3	0.5	0.0	0.0	1.9
Gas	9.1	26.6	-	8.1	43.8
Oil	2.2	2.5	55.2	3.7	63.6
Electricity	8.0	9.0	0.4	8.3	25.8
Bioenergy and heat	2.1	2.6	1.4	1.6	7.7
Total	**22.7**	**41.2**	**57.0**	**21.8**	**142.7**

(1) Includes agriculture

Total final energy consumption (excluding non-energy use) was 1.1% higher in 2018 compared to 2017. It rose by 3.4% in the domestic sector, by 1.1% in the service sector, and by 0.3% in the industry sector, but fell by 0.1% in the transport sector. The rises in the domestic and service sectors were due to increased demand for heat reflecting the colder temperatures in February and March during the 'Beast from the East' weather storm. Overall final energy consumption, when adjusted for temperature, was up by 0.2%, in 2018.

In terms of fuel types, final consumption of gas, the main fuel used for heating, rose by 4%. Oil use fell by 1%, whilst electricity consumption was broadly unchanged, however there was increased use of bioenergy in all sectors.

Import dependency, 1970 to 2018

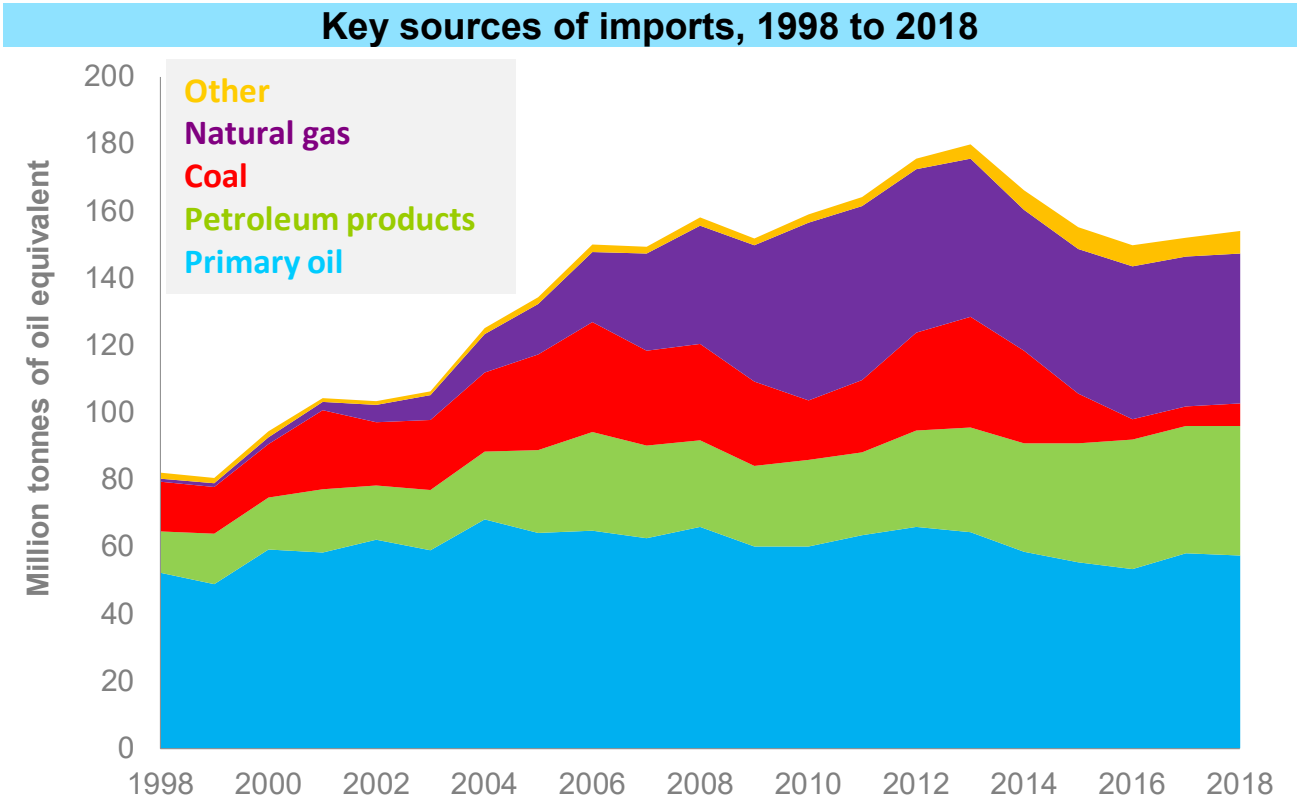


Percentage

	2000	2010	2015	2016	2017	2018
Coal	39%	52%	60%	48%	56%	81%
Gas	-11%	40%	43%	46%	45%	50%
Oil	-55%	14%	37%	34%	36%	29%
Total	**-17%**	**29%**	**38%**	**36%**	**36%**	**36%**

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 back 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 remains a net exporter of some products such as petrol and fuel oil. In 2018, 36% of energy used in the UK was imported, down sharply from the 2014 level due to increases in indigenous oil and gas output and, more recently, renewables.

Latest comparable data from Eurostat, for 2016, show that the UK had the seventh lowest level of import dependency in the EU. All EU countries are now net importers of energy.



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, since when they have fallen before rising again in 2017 and 2018. In 2010 imports exceeded UK production, but because the UK still exports large volumes net imports still remain below production levels. By fuel type the largest growth in the past 10 years has come from petroleum products and gas imports.

In 2018 imports rose by 1%, with falls in imports of primary oil and in gas, more than offset by the rise in imports of petroleum products which were up by 2% to meet UK refinery demand during an extended period of refinery maintenance in 2018.

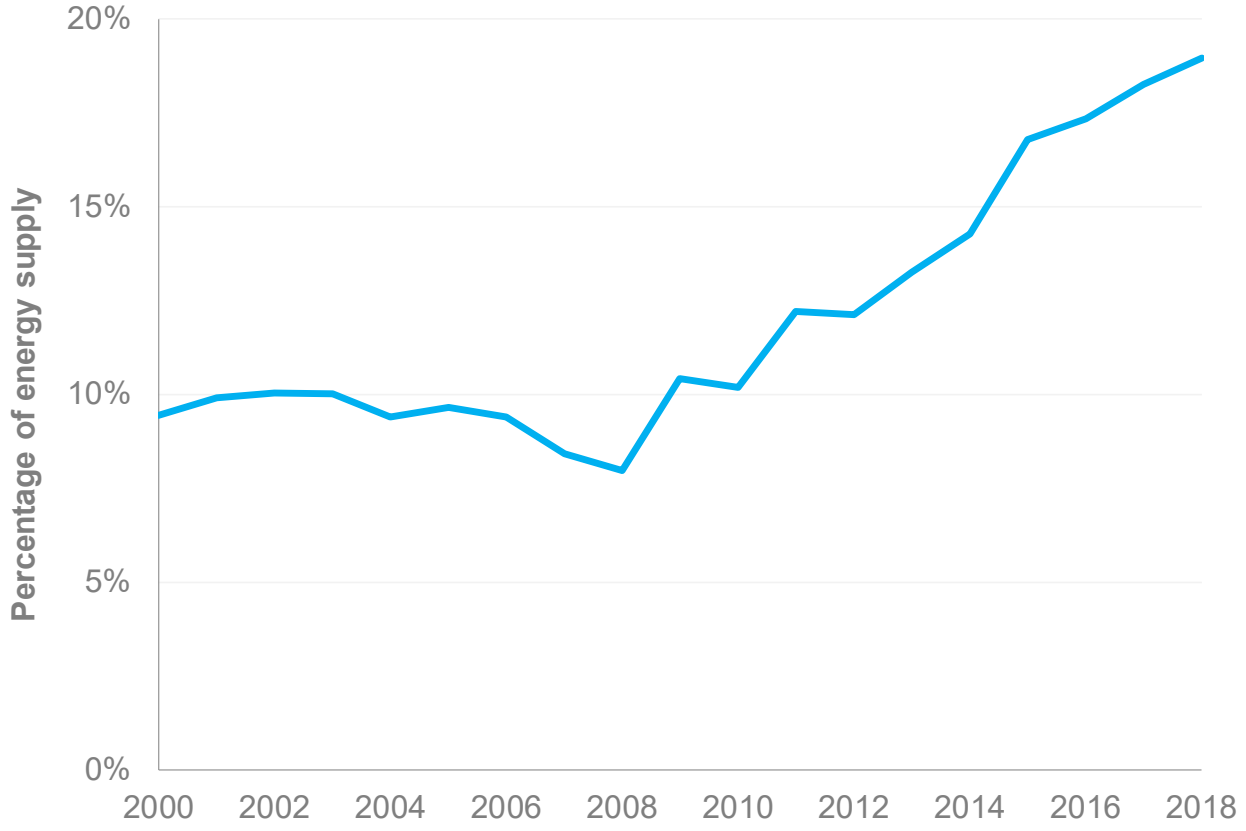
Imports are sourced from a wide variety of countries.

Crude oil: The key source of imports has historically been Norway – while Norway remained the primary source of crude in 2018, its share of UK imports fell from 48 to 39 per cent. Imports from OPEC countries, mainly Algeria and Nigeria, accounted for 29 per cent of UK 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 72% of UK gas imports in 2018, with pipelines from Belgium and The Netherlands supplying 7% and 6% respectively. The remaining 15% arrived as Liquefied Natural Gas (LNG), of which 41% was from Qatar. However, in 2018, Qatari imports fell by half as the mix of LNG sources diversified with considerable imports from Russia and the US for the first time.

Proportion of UK energy supplied from low carbon sources, 2000 to 2018



Percentage

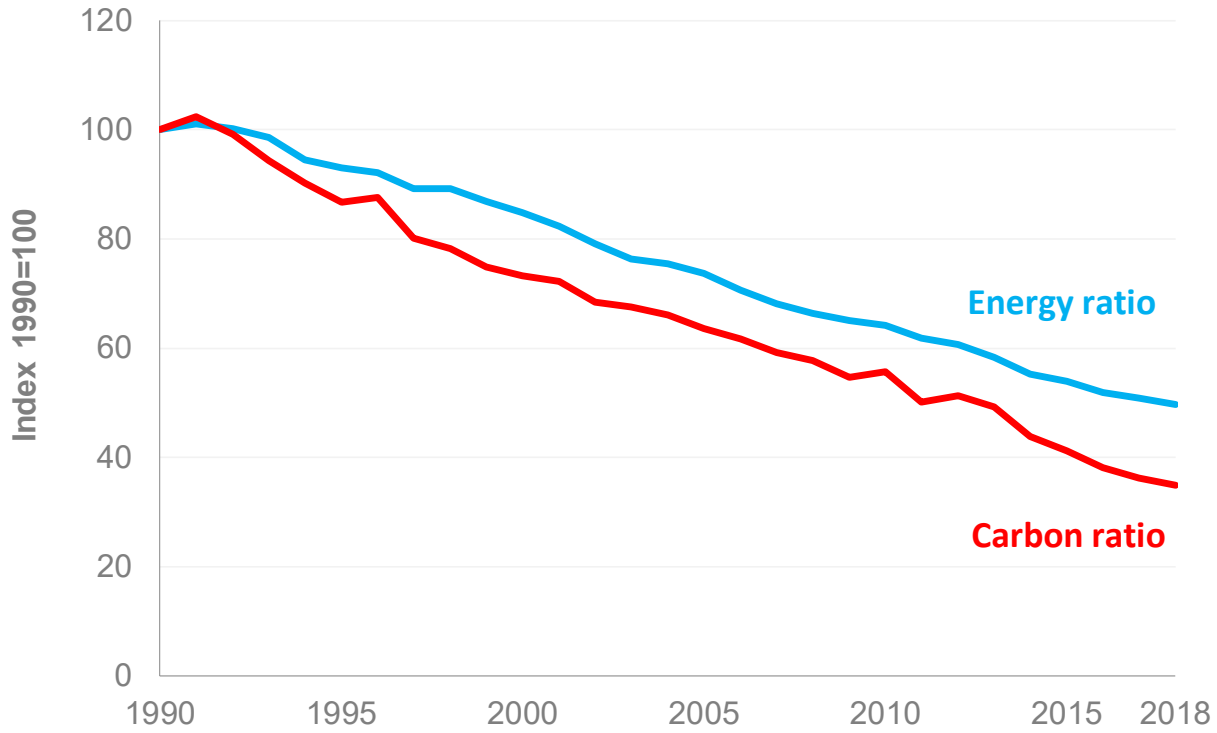
	2000	2010	2015	2016	2017	2018
Nuclear	8.4%	6.3%	7.9%	8.0%	7.9%	7.3%
Wind	0.0%	0.4%	1.8%	1.7%	2.2%	2.6%
Solar	0.0%	0.0%	0.4%	0.5%	0.5%	0.6%
Hydro	0.2%	0.1%	0.3%	0.2%	0.3%	0.2%
Bioenergy	0.9%	2.7%	5.5%	6.0%	6.3%	7.0%
Transport fuels	0.0%	0.6%	0.5%	0.5%	0.5%	0.7%
Other	0.0%	0.0%	0.5%	0.5%	0.5%	0.5%
Total	**9.4%**	**10.2%**	**16.8%**	**17.3%**	**18.3%**	**19.0%**

In 2018 the UK obtained 19% of its primary energy from low carbon sources, with 39% of this from nuclear power. The second largest component of low carbon was bioenergy, accounting for 37% of the total low carbon energy sources.

Energy supply from biofuels increased by 11%; with more use of anaerobic digestion, wood pellets and energy from waste. Solar was up by 12% reflecting increased capacity. The supply of nuclear fell by 7% due to outages at Dungeness B and Hunterston B towards the end of 2018.

Energy supply from wind increased by 15% in 2018, with capacity up by 11% but with wind speeds 0.1 knots lower than in 2017.

Energy and carbon ratios, 1990 to 2018



Index 1990=100

	1990	2000	2010	2017	2018
Primary energy consumption*	100	108.4	96.4	87.9	87.0
Carbon dioxide emissions	100	93.6	83.6	62.6	61.1
GDP	100	127.9	150.1	172.4	174.8
Energy ratio	**100**	**84.8**	**64.3**	**50.9**	**49.8**
Carbon ratio	**100**	**73.2**	**55.7**	**36.3**	**34.9**

* Temperature corrected primary energy consumption.

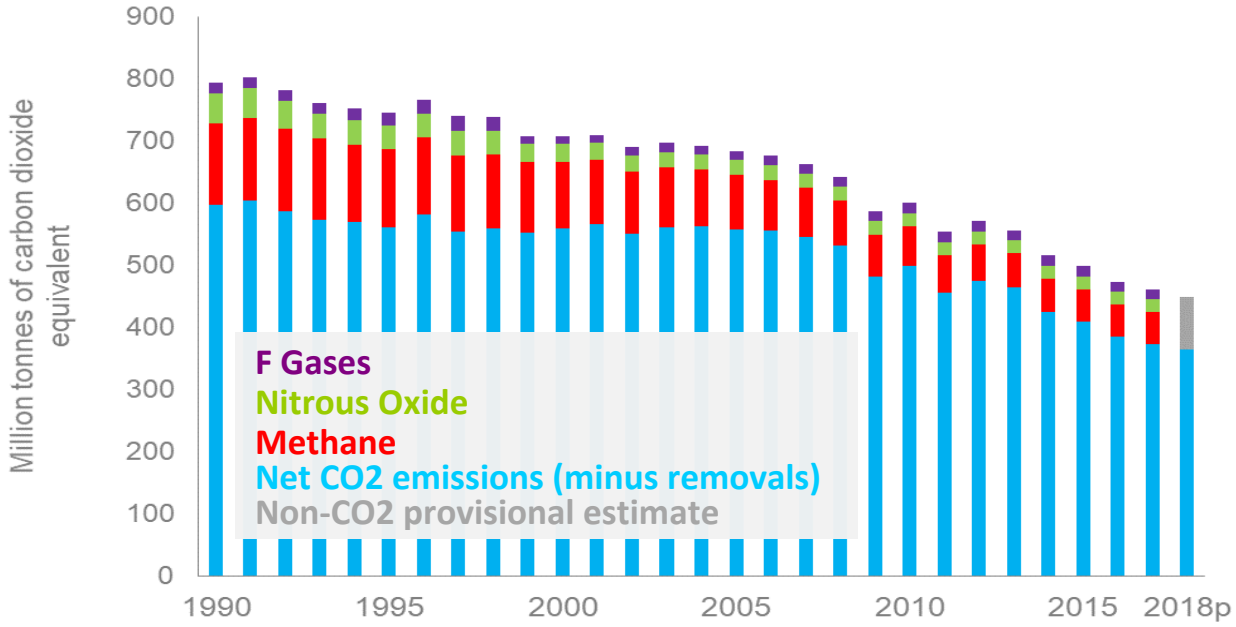
The energy ratio is calculated by dividing temperature corrected primary energy consumption by GDP at constant prices, with the carbon ratio similarly calculated by dividing carbon dioxide emissions by GDP. Both ratios have fallen steadily, with the energy ratio declining by around 2½% per year and the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

The downward trends are due to a number of factors, with improvements in energy efficiency and the decline in the relative importance of energy intensive industries affecting both ratios. The carbon ratio has been improved further by the increased use of more carbon efficient fuels and renewables.

The sharp downward ticks in the carbon ratio in both 2011 and 2014 are due, in the main, to temperatures, with energy consumption decreasing in response to the warmer weather. The reduction in 2018 is mainly down to fuel switching with less coal used for generation.

Latest International Energy Agency data shows that the energy ratio is falling in all G8 countries. The UK is estimated to have the lowest energy ratio in the G8.

Greenhouse gas emissions by gas, 1990 to 2018



Million tonnes of carbon dioxide equivalent

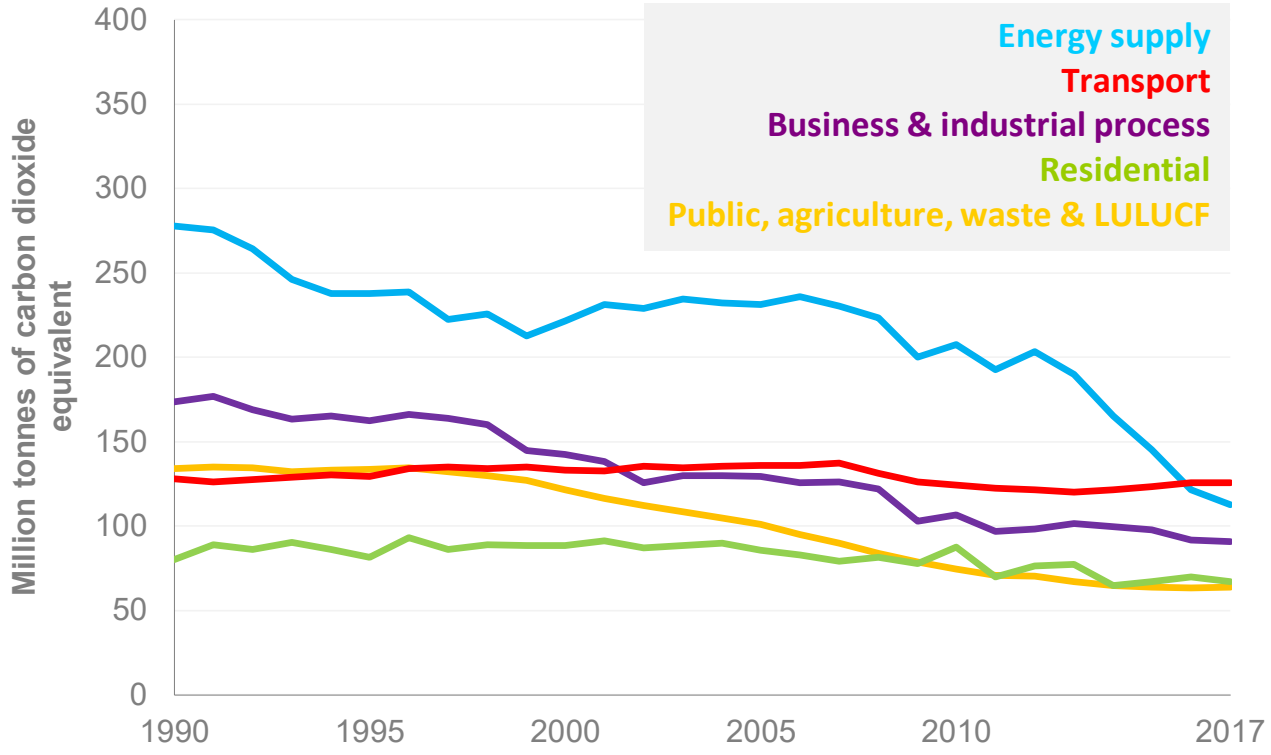
	1990	2000	2010	2016	2017	2018p[1]
Carbon dioxide (net emissions)	596.3	558.3	498.3	385.8	373.2	364.1
Methane	132.5	108.4	63.9	51.1	51.5	:
Nitrous oxide	48.2	28.5	21.3	20.2	20.5	:
HFC	14.4	9.8	16.4	15.1	14.1	:
PFC	1.7	0.6	0.3	0.4	0.4	:
SF_6	1.3	1.8	0.7	0.5	0.5	:
NF_3	0.0	0.0	0.0	0.0	0.0	:
Non-CO_2 provisional estimate	:	:	:	:	:	84.4
Total Greenhouse gas emissions	**794.4**	**707.5**	**600.9**	**473.1**	**460.2**	**448.5**

Source: Ricardo Energy and Environment, BEIS (2018 provisional figures)
All figures are for the UK only and exclude Crown Dependencies and Overseas Territories
1 Provisional estimates are not made for individual non-CO2 gases separately.
: data not available.

In 2018 UK emissions were provisionally estimated to be 448.5 million tonnes of carbon dioxide equivalent. This is 2.5% lower than the 2017 figure of 460.2 million tonnes and 44% lower than the 1990 figure of 794.4 million tonnes. Carbon dioxide emissions, which are primarily created when fossil fuels are burned, were estimated to account for about 81% of total UK anthropogenic greenhouse gas emissions in 2018. Estimates based on energy production and consumption in 2018 indicate that carbon dioxide emissions were 2.4% lower than the previous year and 39% lower than in 1990.

The decrease in emissions since 2017 can largely be attributed to a change in the fuel mix for electricity generation, with less use of coal and gas and increased use of renewables.

Greenhouse gas emissions by National Communication sector, 1990 to 2017



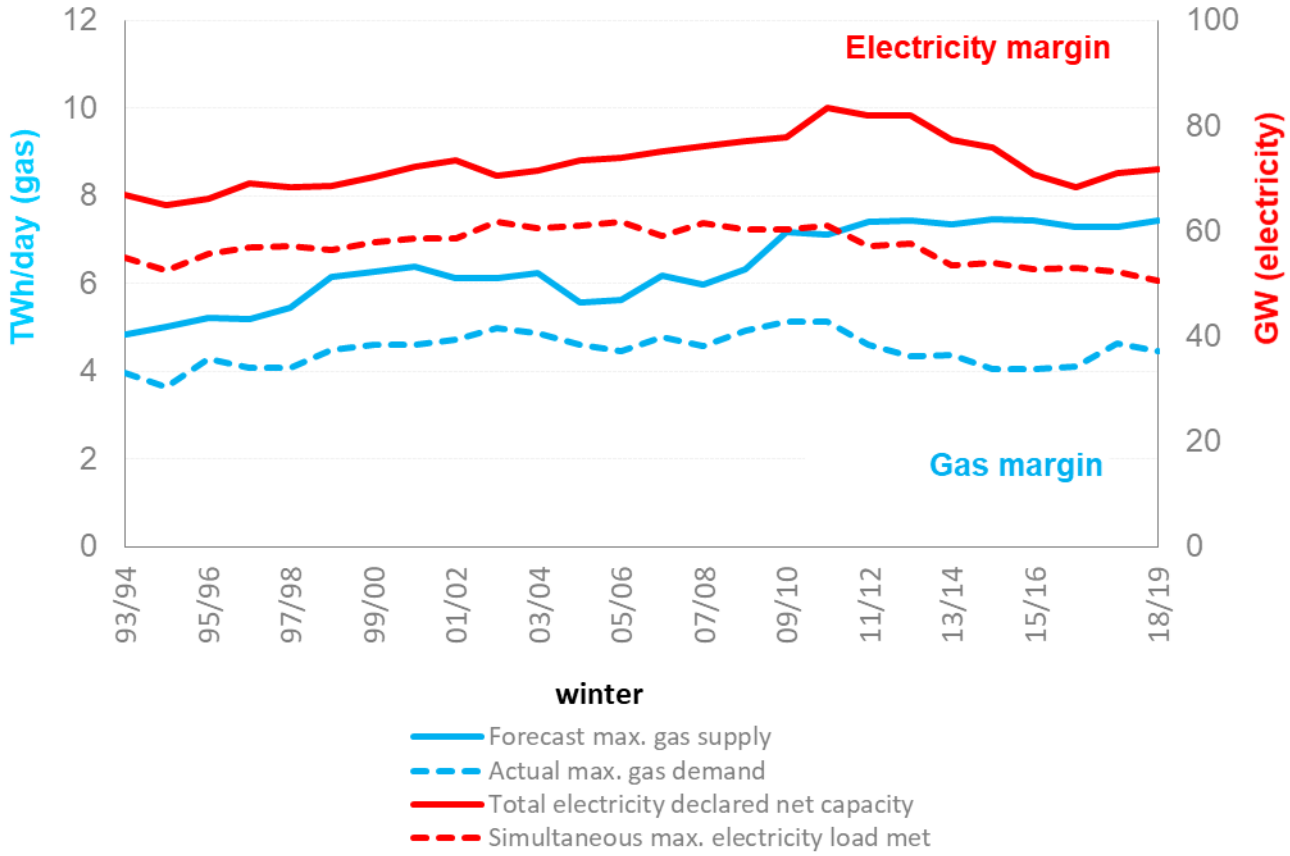
Million tonnes of carbon dioxide equivalent

	1990	2000	2005	2010	2016	2017
Energy supply	277.9	221.6	231.5	207.4	121.8	112.6
Residential	80.1	88.7	85.7	87.5	69.8	66.9
Public, Agriculture, Waste Management and LULUCF	134.4	121.4	101.0	74.7	63.6	63.8
Business and Industrial process	173.9	142.5	129.5	106.7	91.9	91.0
Transport	128.1	133.3	136.0	124.5	125.9	125.9
Total greenhouse gas emissions	**794.4**	**707.5**	**683.7**	**600.9**	**473.1**	**460.2**

Source: Ricardo Energy and Environment, BEIS (2017 final figures)
LULUCF – land use, land use change and forestry
All figures are for the UK only and exclude Crown Dependencies and Overseas Territories

In 2017 UK greenhouse gas (GHG) emissions were estimated to be 460.2 million tonnes of carbon dioxide equivalent ($MtCO_2e$), 42.1% lower than in 1990. The transport sector was the largest single source of GHG emissions in 2017, accounting for 27.4% of total emissions. Between 1990 and 2017, emissions from this sector decreased by 1.7%. In 2017 GHG emissions from the energy supply sector accounted for 24.5% of emissions and have decreased by 59.5% since 1990 due to changes in the electricity mix. Emissions from the residential sector accounted for around 14.5% of emissions in 2017; and since 1990 emissions from this sector have decreased by 16.4%.

Reliability – gas and electricity capacity margins – maximum supply and maximum demand 1993/94 to 2018/19



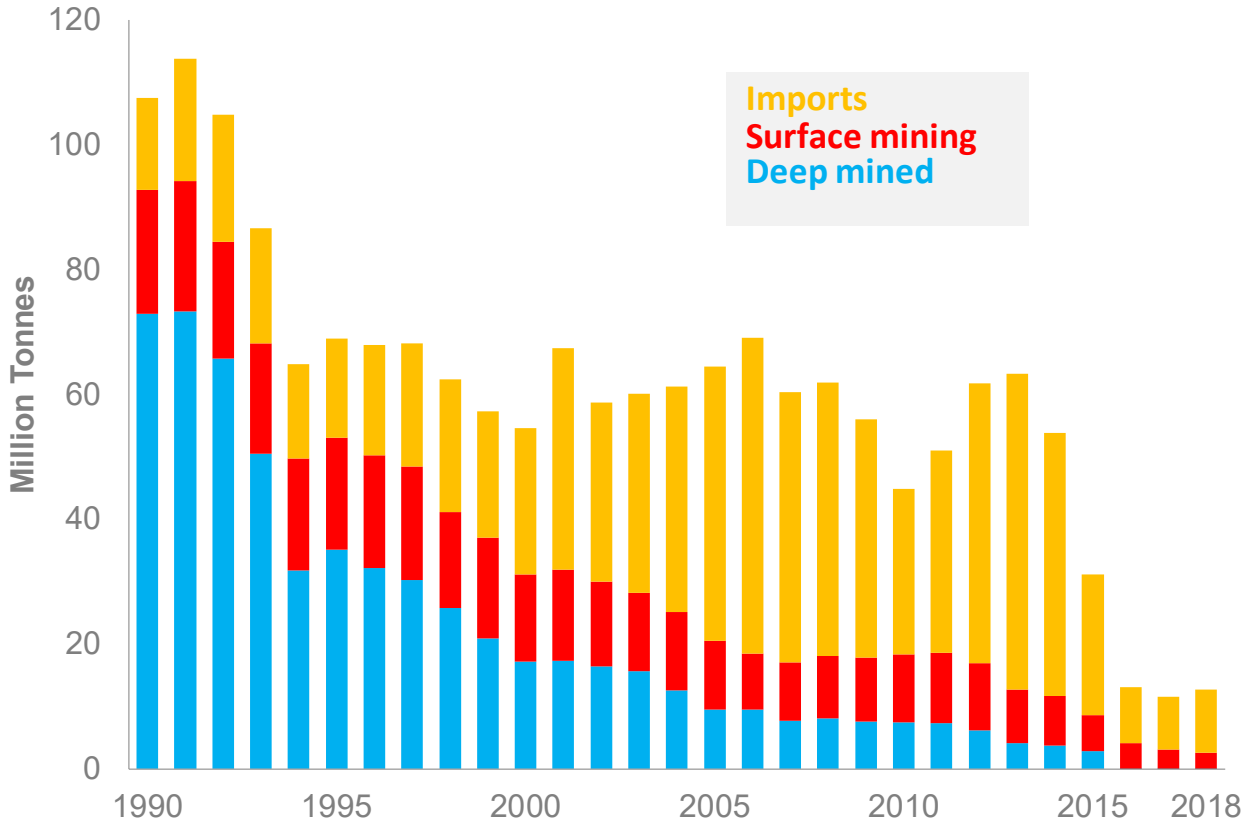
Source: National Grid and BEIS

Whilst energy security is complex to measure and subsequent charts on individual fuels provide fuller insight, this chart aims to provide a view on it by looking at the difference between maximum supply and 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 29% in 2016/17, the lowest since 2009/10. 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 42%.

Since around 2008/09 the gas capacity margin has been generally widening due to increased supply through new liquefied natural gas terminals coming onstream around 2008 and 2009. Demand for gas had also generally been in decline since the mid-2000s, although this trend has since been reversing as power producers move from coal- to gas-powered generation. Nonetheless, the margin remains at roughly 60 to 80 per cent usage of maximum capacity in recent years. A recent peak in maximum gas demand was seen in 2017/18 levels, the highest since 2010/11, following severe weather brought over by the 'Beast from the East', but the capacity margin remained one-third higher than this peak.

Coal production and imports, 1990 to 2018



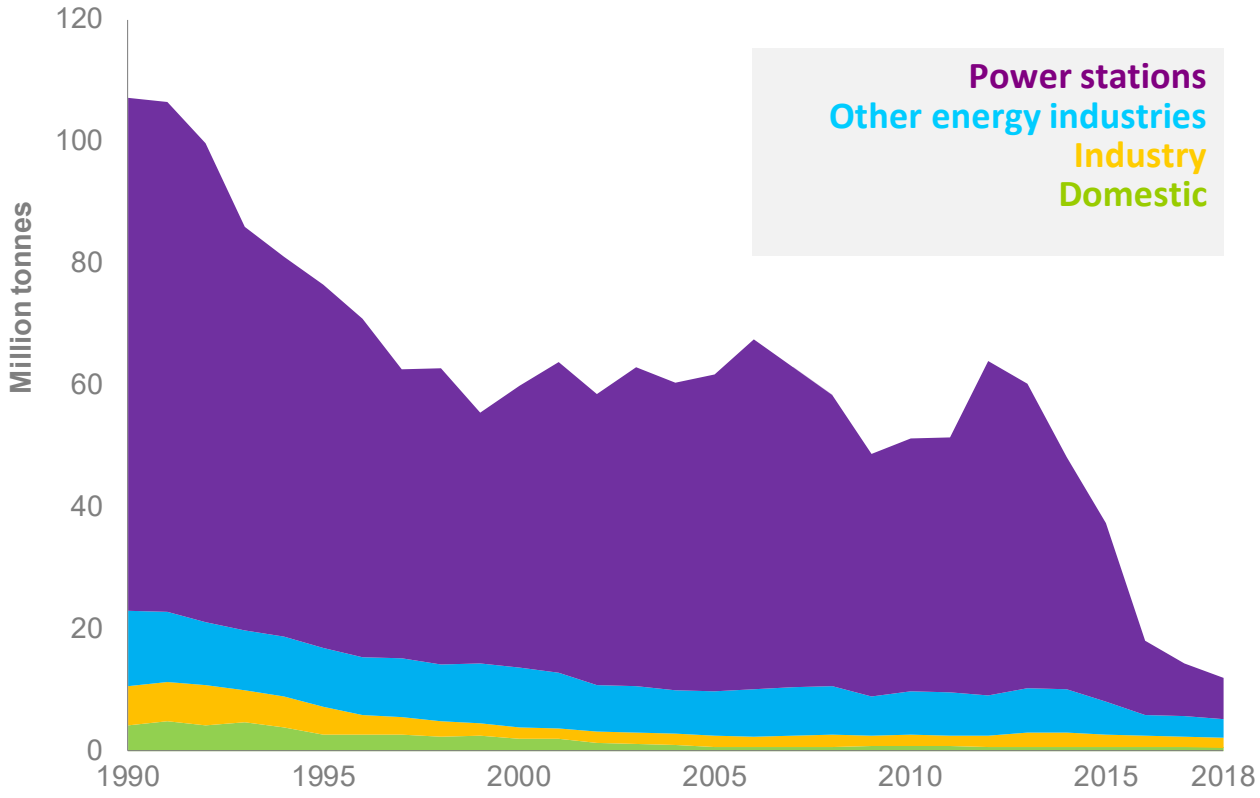
Million tonnes

	1990	2000	2010	2017	2018
Deep mined	72.9	17.2	7.4	0.02	0.02
Surface mining (including slurry)	19.9	14.0	11.0	3.0	2.6
Total	**92.8**	**31.2**	**18.4**	**3.0**	**2.6**
Coal imports	14.8	23.4	26.5	8.5	10.1

In 2018 UK coal production fell to an all-time low of 2.6 million tonnes, 15% lower than in 2017. Following closure of the last three deep mines in 2015 (Hatfield, Thoresby and Kellingley), production fell to a fraction of the previous values. At 25 thousand tonnes, deep mined coal comprises less than 1 per cent of total production. In 2018 surface mine production fell by 15% to a new record low of 2.6 million tonnes. This is as a result of mine closures and falling demand for coal for electricity generation.

Imports started 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 to 2017 imports fell once more as coal-fired electricity generation shrank and in 2017 were at 8 million tonnes, a 34-year low. In 2018 imports, at 10 million tonnes, rose by 19 per cent compared to 2017.

Coal consumption, 1990 to 2018

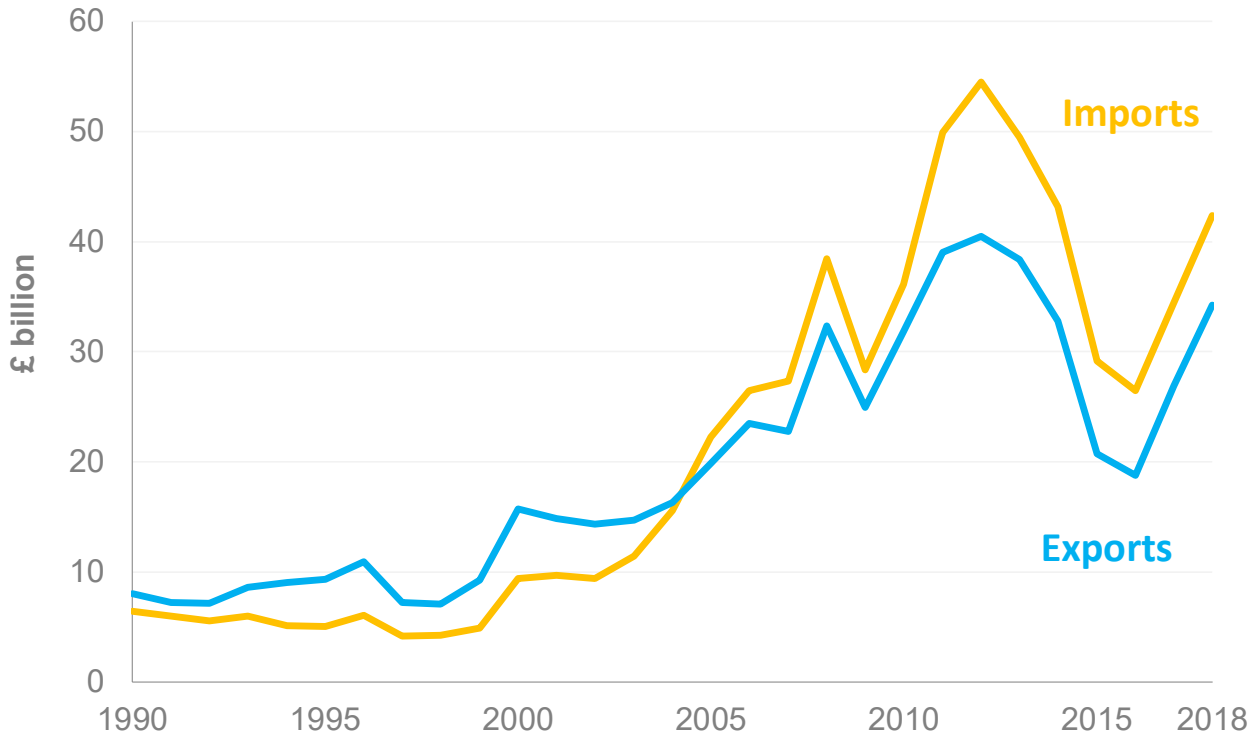


Million tonnes

	1990	2000	2010	2017	2018
Power stations	84.0	46.2	41.5	8.7	6.7
Domestic	4.2	1.9	0.7	0.5	0.5
Industry	6.3	1.9	2.0	1.7	1.6
Services	1.2	0.08	0.06	0.05	0.05
Other energy industries	12.5	9.8	7.1	3.4	3.1
Total consumption	**108.3**	**59.9**	**51.4**	**14.4**	**11.9**

In 1990 coal generation was 84 million tonnes and fell steadily after 1991 until 1999. After rising to 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, which allowed coal fired stations to generate electricity at a lower cost than some gas fired stations. Coal use in electricity generation has fallen since 2012, due to an overall decline in coal power station capacity. In 2018 coal use in electricity generation fell to a record low of 7 million tonnes. Demand for coal-fired electricity generation continued to decline as production favoured gas, partly due to the carbon price per GWh being higher for coal. Carbon price is a charge on those who emit CO2 for their emissions. Also, the increase in nuclear and renewables production contributed to the decline of coal use. Additionally, generation capacity which had fallen in recent years continued to fall with Eggborough power station closing in September 2018.

Foreign trade in crude oil and petroleum products, 1990 to 2018



Crude oil and petroleum products					£ billion
	1990	**2000**	**2010**	**2017**	**2018**
Exports	8.1	15.7	31.8	26.9	34.2
Imports	6.4	9.4	36.2	34.4	42.4
Net Imports	**-1.6**	**-6.3**	**4.3**	**7.5**	**8.1**

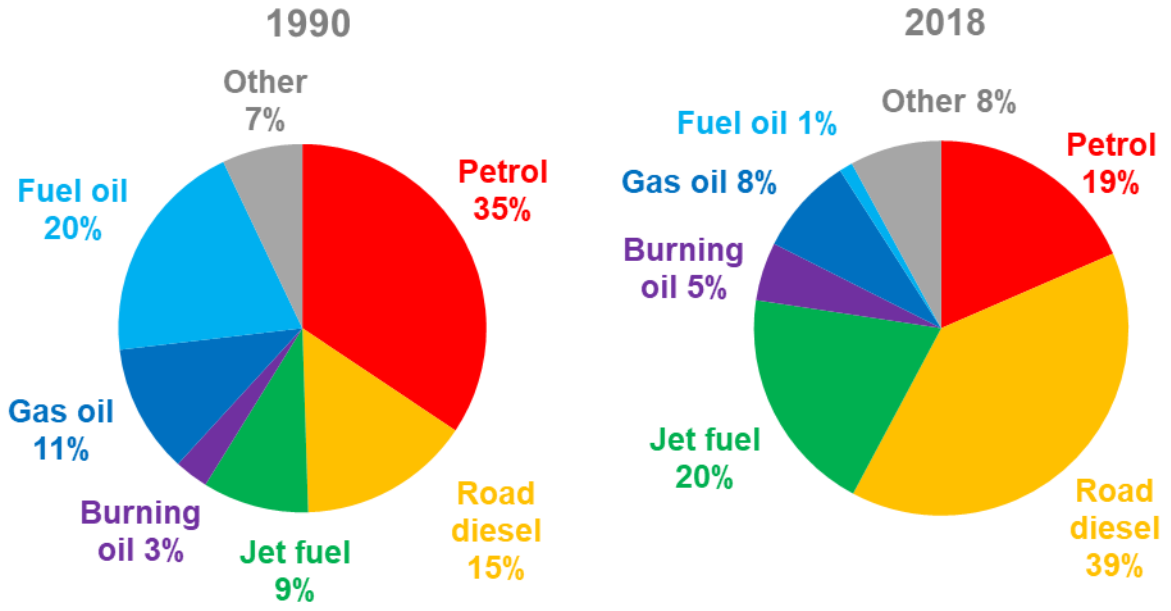
Source: Office for National Statistics

Crude oil and petroleum products				Million tonnes of oil equivalent	
	1990	**2000**	**2010**	**2017**	**2018**
Exports	80.4	123.9	74.4	67.3	73.2
Imports	69.2	74.8	85.9	96.5	96.0
Net Imports	**-11.2**	**-49.1**	**11.5**	**29.2**	**22.8**

Source: BEIS

Between 1980 and 2004, a surplus in trade led to oil contributing more than £90 billion to the UK balance of payments. The largest surplus of £8 billion in 1985 reflected high crude oil production and prices. In 1990 the surplus fell from its peak due to lower prices but managed to peak again in 2000 at £6.3 billion. However, in 2005, the UK became a net importer of oil with a deficit of £2.4 billion, though still an exporter of oil products. Between 2005 and 2018 the cumulative deficit amounted to £102 billion. Since the peak in 2012 the deficit has steadily declined. However, in 2018 the deficit at £8.1 billion, was up 8% on a year earlier due to the high crude oil prices (up 26%, in £ terms, on the previous year).

Demand by product, 1990 and 2018



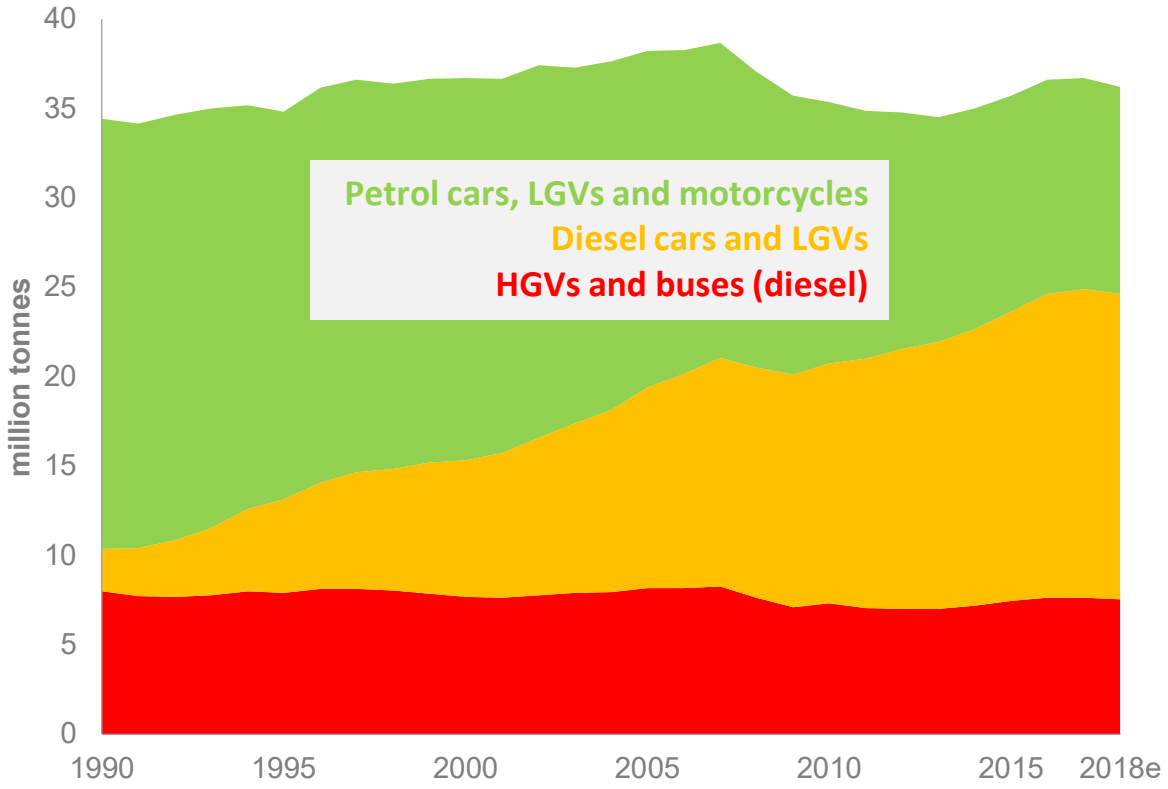
Million tonnes

	1990	2000	2010	2017	2018
Energy uses*					
Petrol	24.3	21.4	14.6	11.8	11.6
Road diesel	10.7	15.6	20.7	24.9	24.6
Jet fuel	6.6	10.8	11.1	12.2	12.3
Burning oil	2.1	3.8	4.0	3.3	3.2
Gas oil	8.0	6.8	5.1	5.3	5.3
Fuel oil	14.0	3.3	1.9	0.7	0.7
Other	5.0	5.3	6.1	5.2	5.0
Total energy uses	70.7	67.1	63.6	63.5	62.7
Of which:					
Transport fuels	43.5	49.5	48.1	50.4	50.1
Industry	7.2	5.5	5.1	2.3	2.1
Refinery fuel use	5.1	5.3	4.4	3.4	3.4
Non-energy uses	9.2	10.1	7.1	7.2	7.2
Total demand	79.8	77.2	70.7	70.7	69.8

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

In the long term, demand for oil products has been in decline since 1990 and the mix of products consumed has changed dramatically. Transport now represents nearly 80% of energy demand, a substantially larger share than in 1990 because the use of fuel oil for electricity generation has declined and air travel has become more common. Although the total of diesel and petrol sales is similar to what it was in 1990, consumption has increased for diesel and decreased for petrol.

Demand for road fuels, 1990 to 2018



Since the early 1990s there has been a marked trend of increasing demand for diesel, which had more than doubled, and reducing demand for petrol, which had halved, by 2018. This was caused by the increased use of diesel-fuelled cars and Light Goods Vehicles (LGVs). However, in 2018 diesel demand fell for the first time in the series following increases to the tax rates charged for diesel vehicles after it was identified that diesel engines emit Nitrous Dioxide and Particulate Matter more heavily than their petrol equivalents.

Demand for road diesel by vehicle type — **Thousand tonnes**

	1990	2000	2010	2017	2018*
Car & taxi	980	4,110	8,590	11,250	11,120
Light goods vehicles	1,370	3,530	4,830	6,020	5,950
Heavy goods vehicles	6,370	6,150	5,940	6,580	6,500
Buses & coaches	1,640	1,530	1,380	1,070	1,060
Total	**10,370**	**15,310**	**20,740**	**24,910**	**24,630**

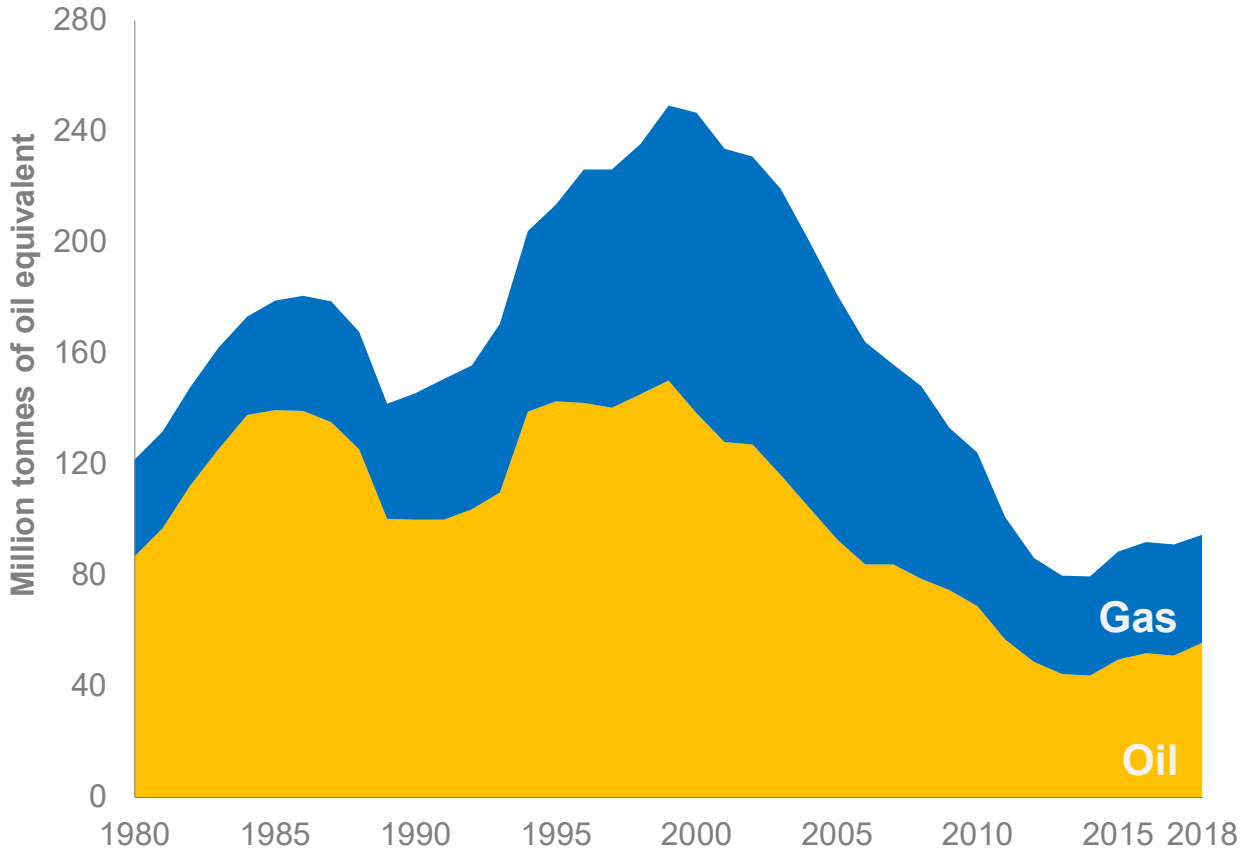
*Based on modelling by Ricardo Energy & Environment using data from the National Atmospheric Emissions Inventory.

Diesel consumption fell to 11.2 million tonnes and petrol consumption fell to 11.6 million tonnes, meaning demand for road fuels was down by 1.3 per cent in 2018.

Demand for petrol — **Thousand tonnes**

	1990	2000	2010	2017	2018
Total	24,300	21,400	14,600	11,800	11,600

UK Continental Shelf production, 1980 to 2018



Million tonnes of oil equivalent

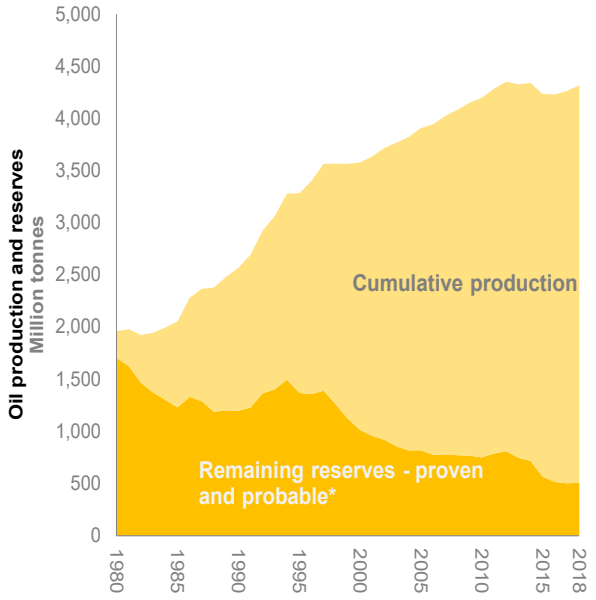
	1980	1990	2000	2010	2017	2018
Oil	86.9	100.1	138.3	69.0	51.1	55.7
Gas	34.8	45.5	108.4	55.3	40.0	38.7
Total	**121.7**	**145.6**	**246.7**	**124.3**	**91.1**	**94.4**

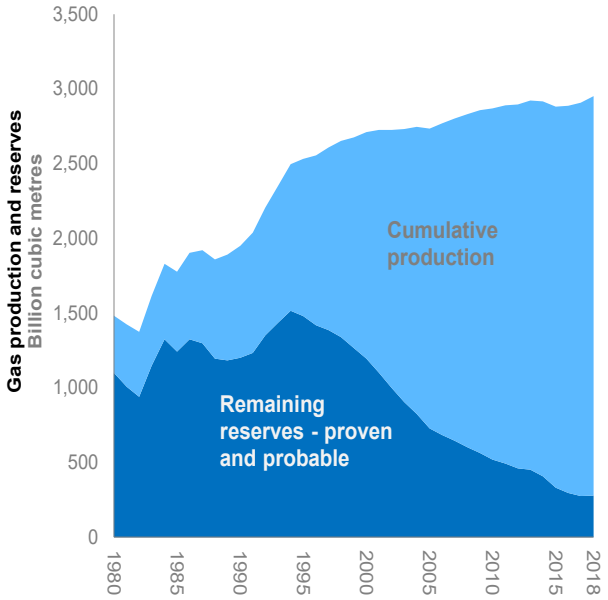
Total indigenous oil and gas production was up by 4 per cent on 2017. This increase was due to the development of new oil fields, bringing oil to the highest value since 2011.

Oil production was up by 9 per cent on last year, a contrast to the decline rate of around 5 per cent seen since the turn of the century. Production was aided by the opening of the Western Isles and Catcher projects at the end of 2017 and, to a lesser extent, the opening of the Clair Ridge field in late October 2018. However, volumes remain at one-third of the peak in 1999.

Gas production in 2018 was two-thirds lower than the record levels seen in 2000, and since the turn of the century gas production has been decreasing by around 5 per cent each year. The decrease in 2018 was due largely to the closure of the Theddlethorpe terminal in August but was balanced against activity at the Rough storage facility, which continued to draw down on its remaining gas reserves.

Oil and gas production and reserves, 1980 to 2018





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

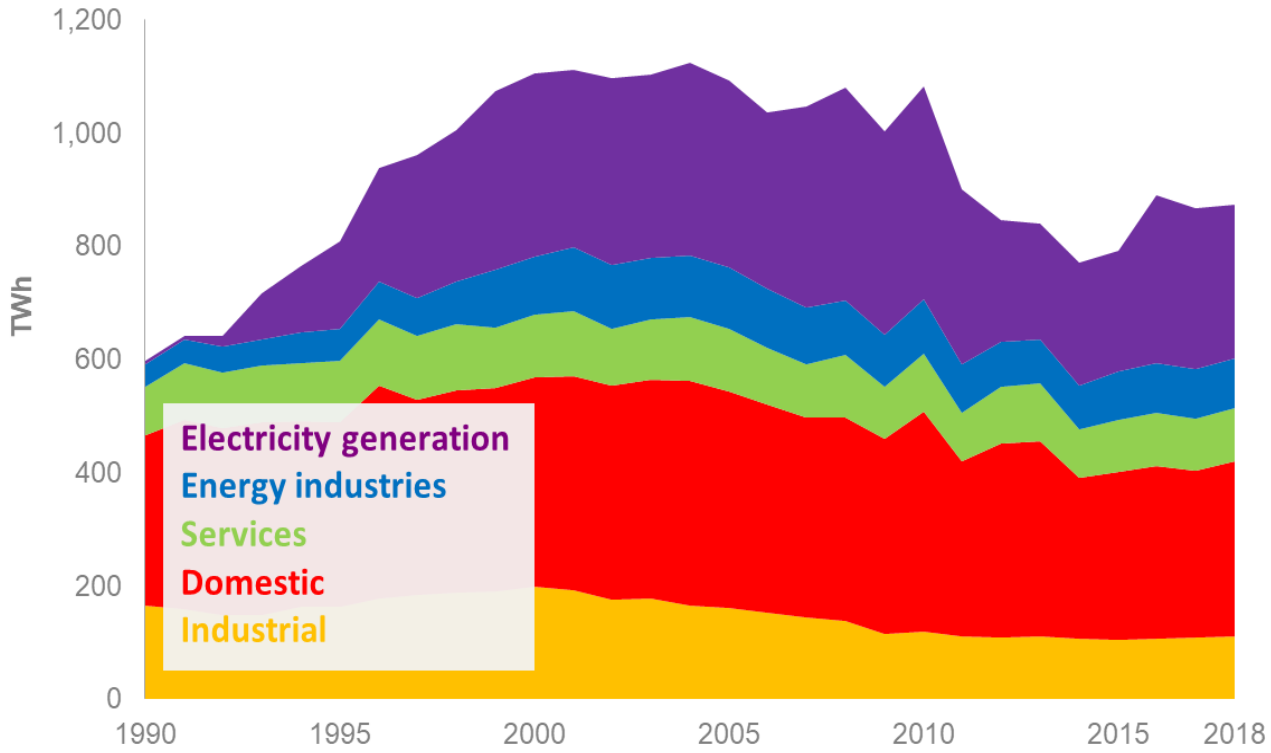
	1990	2000	2010	2017	2018
Oil					**Million tonnes**
Cumulative production	1,374	2,570	3,446	3,763	3,810
Proven plus probable reserves	1,195	1,010	751	501	507
Total	**2,569**	**3,580**	**4,197**	**4,264**	**4,317**
Gas					**Billion cubic metres**
Cumulative production	752	1,518	2,349	2,632	2,672
Proven plus probable reserves	1,200	1,195	520	275	279
Total	**1,952**	**2,713**	**2,869**	**2,907**	**2,951**

For both oil and gas, the volume produced plus proven and probable (2P) reserves have grown substantially since 1980, more than doubling for oil and nearly doubling for gas. The increases reflect new discoveries, new technology allowing exploitation of resources that were previously regarded as uncommercial, and the inclusion of already-known fields as they entered production or moved from 'prospective' to 'probable' status. (Note: this volume for gas does not include estimates of shale gas). In 2018 the estimate of reserves compared to the previous year increased for the first time since 1994.

The Glengorm discovery, announced in early 2019 and the largest gas discovery since 2008, is still considered contingent so is not featured here.

There was an apparent decline in reserves in 2015. This was due to re-classification of some reserves that had not yet been sanctioned - these will be included in future as and when sanctioned.

Natural gas demand, 1990 to 2018



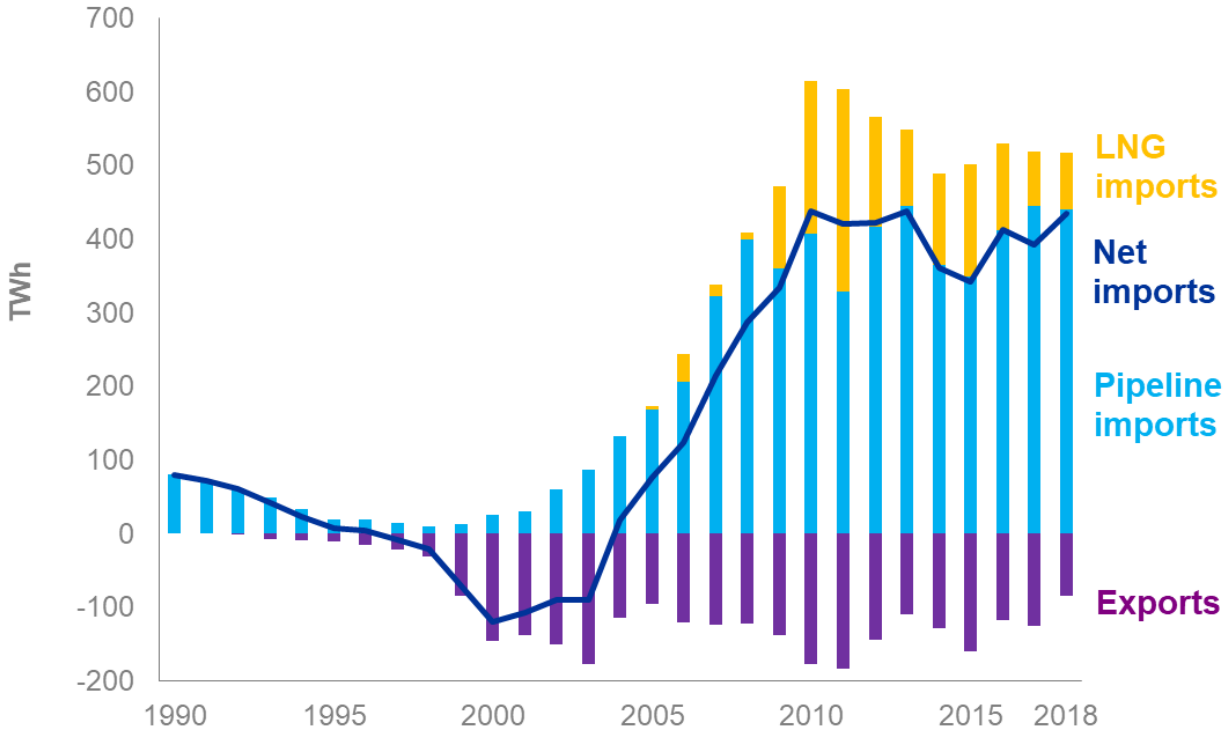
TWh

	1990	2000	2010	2017	2018
Electricity generators	6.5	324.6	377.1	286.0	273.4
Energy Industries	39.2	102.8	96.6	86.5	86.3
Industry	164.6	197.8	117.4	108.5	110.5
Domestic	300.4	369.9	389.6	295.1	309.2
Services	86.4	110.5	101.6	91.7	94.7
Total	**597.0**	**1,105.5**	**1,082.2**	**867.8**	**874.0**

Following the expansion of UK production of natural gas in the early 1970s demand grew rapidly, reaching a record high in 2004 of 1,125 TWh. Since then demand has seen an overall decline, and in 2018 was around a fifth of the 2004 peak at 874 TWh. The longer-term trends are driven by commodity prices and changes to energy efficiency, whilst the year to year changes are mainly driven by temperature and shorter-term fluctuations in prices.

Overall gas demand in 2018 was stable on 2017. Notably gas used for electricity generation fell by 4.4 per cent as a result of the uptake in low carbon electricity sources such as renewables and nuclear. In contrast, domestic and services consumption increased, up by 4.8 and 3.2 per cent respectively, driven by comparatively colder temperatures during winter last year.

UK trade in natural gas, 1990 to 2018



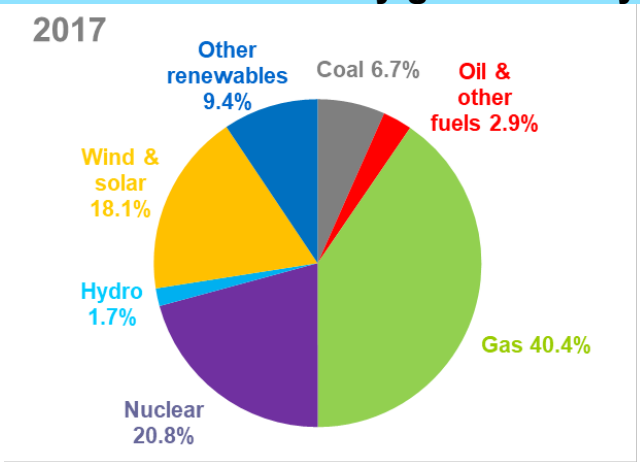
TWh

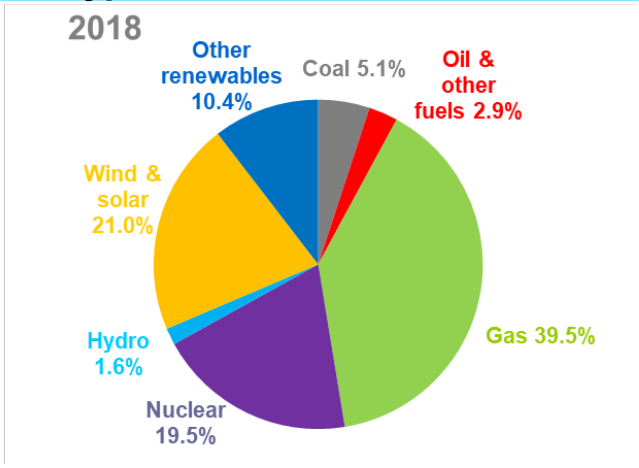
	1990	2000	2010	2017	2018
Natural gas production	528.8	1,260.2	642.5	465.0	449.8
Imports	79.8	26.0	614.5	518.2	517.9
of which LNG	-	-	*150.1*	*73.4*	*78.1*
Exports	-	-146.3	-176.4	-125.6	-83.7
Net imports (+) or exports (-)	+79.8	-120.3	+438.1	+392.6	+434.2

UK gas production peaked in 2000 and has since been declining, making the UK increasingly reliant on imports to meet demand. Net imports increased in 2018 to the second highest value in our time series and the highest value since 2010. This was partly caused by the aftermath of the Forties Pipeline System disruption at the end of 2017 where gas trade with Belgium shifted towards imports, which meant reduced exports via the interconnector. This fall in exports contributed to the increase in net imports. Imports accounted for just over half of UK supply in 2018.

Imports of Liquefied Natural Gas (LNG) remained broadly stable at 78 TWh (up 6 per cent), but with significant variation in different parts of the year. Volumes in the first and third quarters dropped below 10 TWh for the first time since 2008, before increasingly sharply to 42 TWh in the final quarter of the year (2.5 times the volume seen in the same quarter of 2017). Due to this boost at the end of the year, LNG comprised 15 per cent of total annual imports. Norway remains the UK's key partner for imports and pipeline imports from Norway accounted for 72 per cent of imports in 2018. The UK has a diverse pipeline infrastructure (from Norway, the Netherlands and Belgium) and the proportion delivered through each route in the future will depend on global market conditions.

Electricity generated by fuel type, 2017 and 2018





TWh

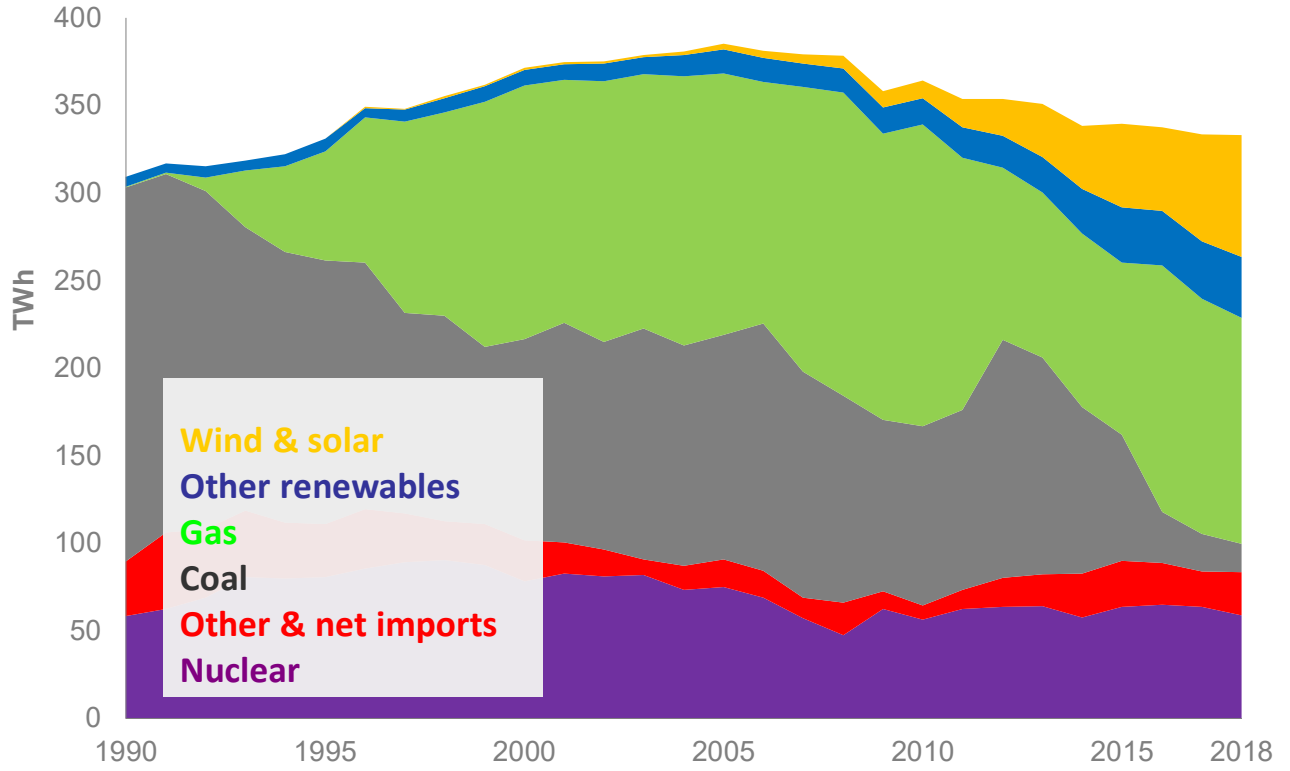
	1990	2000	2010	2017	2018
Coal	229.8	120.0	107.6	22.5	16.9
Oil & other fuels*	20.7	13.6	10.5	9.8	9.5
Gas	0.4	148.1	175.7	136.7	131.5
Nuclear	63.2	85.1	62.1	70.3	65.1
Hydro	5.6	5.1	3.6	5.9	5.5
Wind & Solar	-	0.9	10.3	61.1	69.8
Other renewables	-	4.3	12.3	31.8	34.8
Total electricity generated	**319.7**	**377.1**	**382.1**	**338.2**	**332.9**

*Includes generation from pumped storage

Total electricity generated decreased by 1.6% between 2017 and 2018. The share of electricity generated from coal fell a further 1.6 percentage points from 6.7% to 5.1%, continuing a long-term downwards trend. The share of electricity generation from gas also fell from 40.4% to 39.5%, whilst generation from nuclear decreased from 20.8% to 19.5% due to outages and ongoing maintenance. The decline in electricity supplied from fossil fuels was caused by increased generation from renewables, which increased its share of generation from 29.2% to a record 33.0%.

Renewables' generation increased in 2018 due to a 10.0% increase in capacity and higher average daily sun hours. Further details on renewable electricity generation can be found on page 32.

Electricity supplied by fuel type, 1990 to 2018



The mix of fuels used to generate electricity continues to evolve. Since 1990 the decline of coal and the rise of gas and, in more recent years renewables, have been the most marked features, but none of these fuels have followed a smooth path.

Coal recorded its 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 from coal, then rose in 2012 due to high gas prices. Subsequently, supply from coal has fallen each year due to plant closures and conversions, continuing in 2018 to reach a new record low of 16.0 TWh.

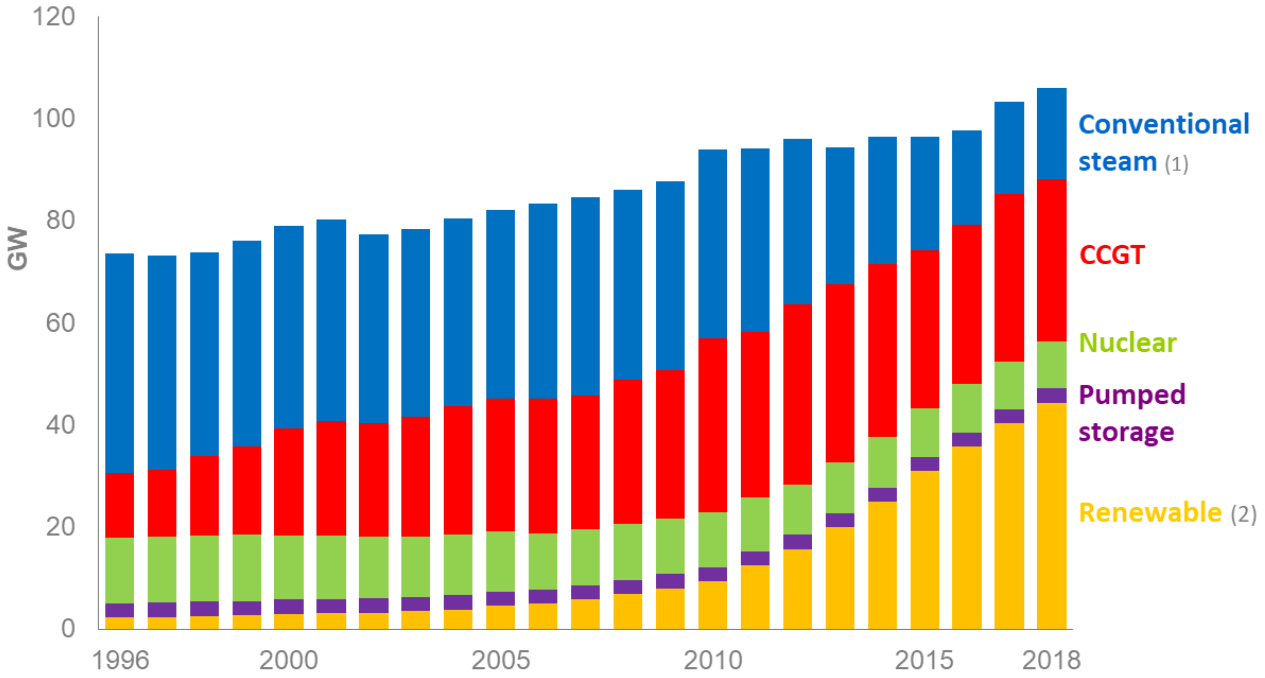
Between 1990 and 2008, supply from gas rose significantly from 0.4 TWh to a peak of 173 TWh in 2008. Subsequently, supply has fluctuated with a large increase in 2016, but decreases in 2017 and 2018. From 2017 to 2018, supply from gas has dropped by 3.8% to 129.1 TWh.

Supply from nuclear grew to a peak in 1998 before falling back, particularly during 2006 to 2008, as station closures and maintenance outages reduced supply, but recovered in 2009 before falling in 2010 due to further outages. Nuclear supply has fluctuated since 2010 with rises compared to the previous year in 2011, 2015 and 2016; although a decrease has been seen over the last two years. Nuclear supply has dropped 7.5% from 2017 to 2018, to 59.1 TWh.

Supply from wind and solar has followed an upward trend since 2000 as generation capacity increased each year. In 2017, wind and solar supply increased significantly by 14.2% to reach 69.8 TWh. This was due to an increase in capacity of 11.2% in wind capacity and 2.6% in solar capacity, while there were 0.6 sun hours more per day in 2018 than 2017. Average sun hours per day in 2018 were at the highest level since 2003.

Total electricity supplied rose continuously from 1997 to reach a peak in 2005. It has subsequently fallen, reflecting lower demand due to energy efficiency, economic and weather factors, with 2018 supply 13% lower than that in 2005.

Electricity capacity, 1996 to 2018



(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).

GW

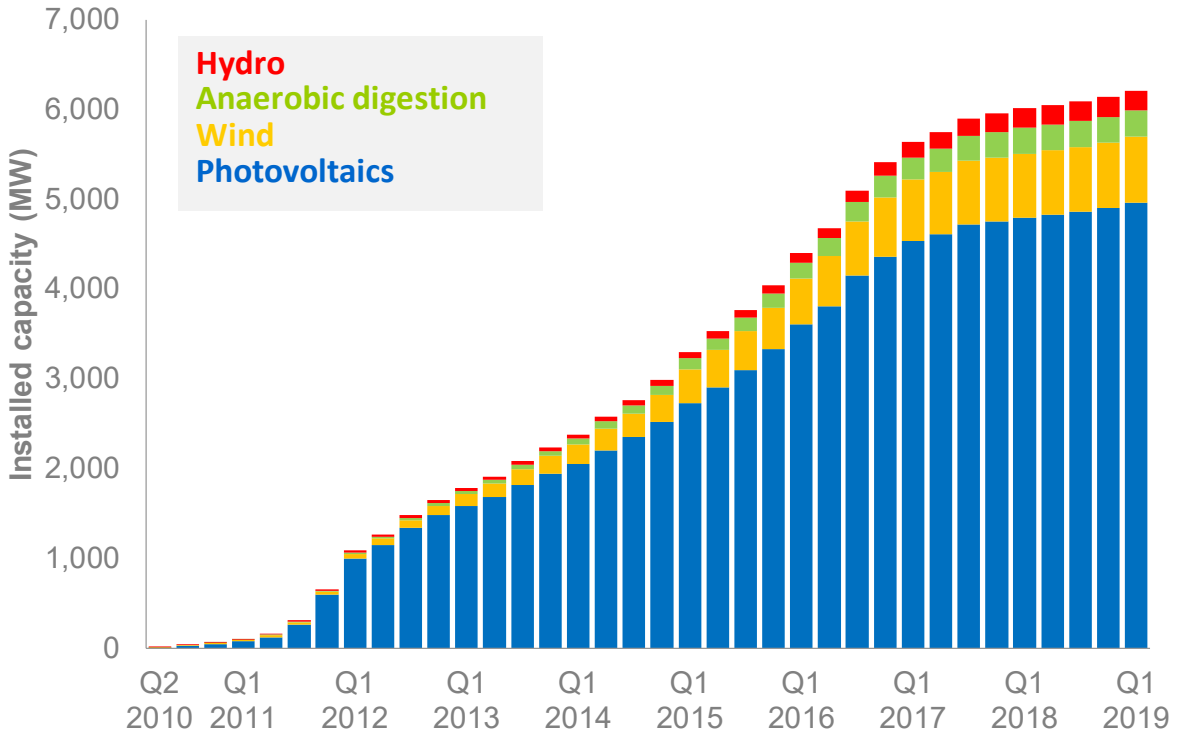
	1996	2000	2005	2010	2017	2018
Conventional Steam	43.0	39.7	37.1	37.1	18.0	18.0
CCGT	12.7	21.1	25.9	34.0	32.9	31.7
Nuclear	12.9	12.5	11.9	10.9	9.4	9.3
Pumped Storage	2.8	2.8	2.8	2.7	2.7	2.7
Renewable	2.3	3.0	4.5	9.3	40.3	44.3
Total	**73.6**	**79.0**	**82.1**	**94.0**	**103.3**	**106.1**

Installed electricity generation capacity in the UK increased gradually between 1996 and 2018, from 73.6 GW to 106.1 GW. 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.

CCGT capacity has increased almost threefold over the period 1996-2013, from 12.7 GW to 34.9 GW. This figure fell to 31.3 GW in 2016 before seeing an increase in 2017 to 32.9 GW. CCGT capacity has fallen again in 2018 to 31.7 GW, following the closure of Deeside Power Station and the conversions of Peterborough Power Station and Barry Power Station from CCGT to open cycle gas turbines (OCGT). Conventional steam was flat between 2017 and 2018 (18.0 GW). Despite the closure of Eggborough Power Station, the two sites converted from CCGT to OCGT are now covered in conventional steam.

Nuclear capacity was broadly the same as the capacity in 2017, at 9.3 GW. Renewables capacity has seen a significant increase, with installed capacity increasing by roughly 18.5 times the capacity in 1996 to 44.3 GW in 2018. This is as a result of an increase in installed renewable capacity. Onshore wind capacity rose 7.6 per cent and offshore wind by 17.6 per cent from 2017 to 2018, resulting in overall wind capacity increasing by 11.2 per cent. Solar photovoltaic installed capacity increased by 2.6 per cent over the same period, while other renewables capacity increased by 19.2 per cent.

Feed in Tariffs, 2010 to 2019



Cumulative Installed Capacity **MW**

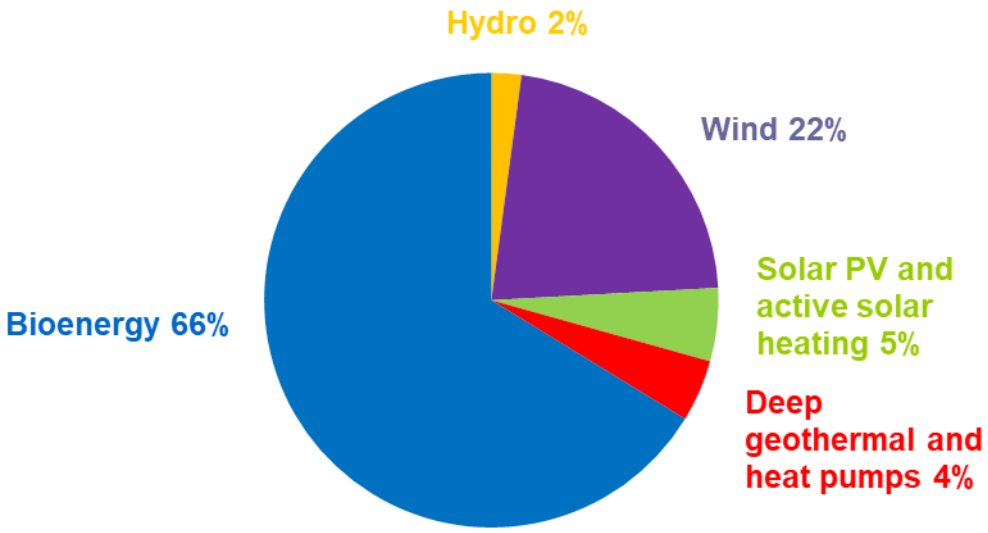
	2011 Q1	2013 Q1	2015 Q1	2017 Q1	2018 Q1	2019 Q1
Micro CHP	0.2	0.5	0.5	0.5	0.5	0.6
Anaerobic Digestion	15	42	72	176	218	222
Hydro	8	54	124	249	286	292
Wind	27	184	371	682	717	734
Photovoltaics	111	1,749	2,733	4,537	4,793	4,964
Total	**162**	**2,030**	**3,300**	**5,644**	**6,015**	**6,213**

Source: Extracted on 10 April 2019 from the Central Feed-in Tariffs Register (CFR), Ofgem. The register is a live database and is continually being updated and revised, so statistical reports extracted at a later date may not exactly match the totals presented here. Registration on the CFR represents the final stage in the Feed-in Tariff (FiTs) registration process. There will be installations eligible for FiT that have been installed but have not yet been registered onto CFR.

The Feed in Tariff (FiT) scheme was introduced on 1st April 2010 and is a financial support scheme for eligible low-carbon electricity technologies, aimed at small-scale installations up to a maximum capacity of 5 Megawatts (MW). The FiT scheme closed to new entrants at the end of March 2019.

At the end of year 9 (2018/19) of the Feed in Tariff scheme 6,213 MW of capacity (849,109 installations) was installed (and confirmed) on FiTs, around 3.3% more capacity (and 3.5% more installations) than that installed at the end of the previous year. This is a figure that is liable to revision as more installations that have been installed are confirmed on the register. 99.6% of the installations over the year were Solar PV, however, these accounted for 86% (171 MW) of the capacity added.

Renewable energy sources, 2018



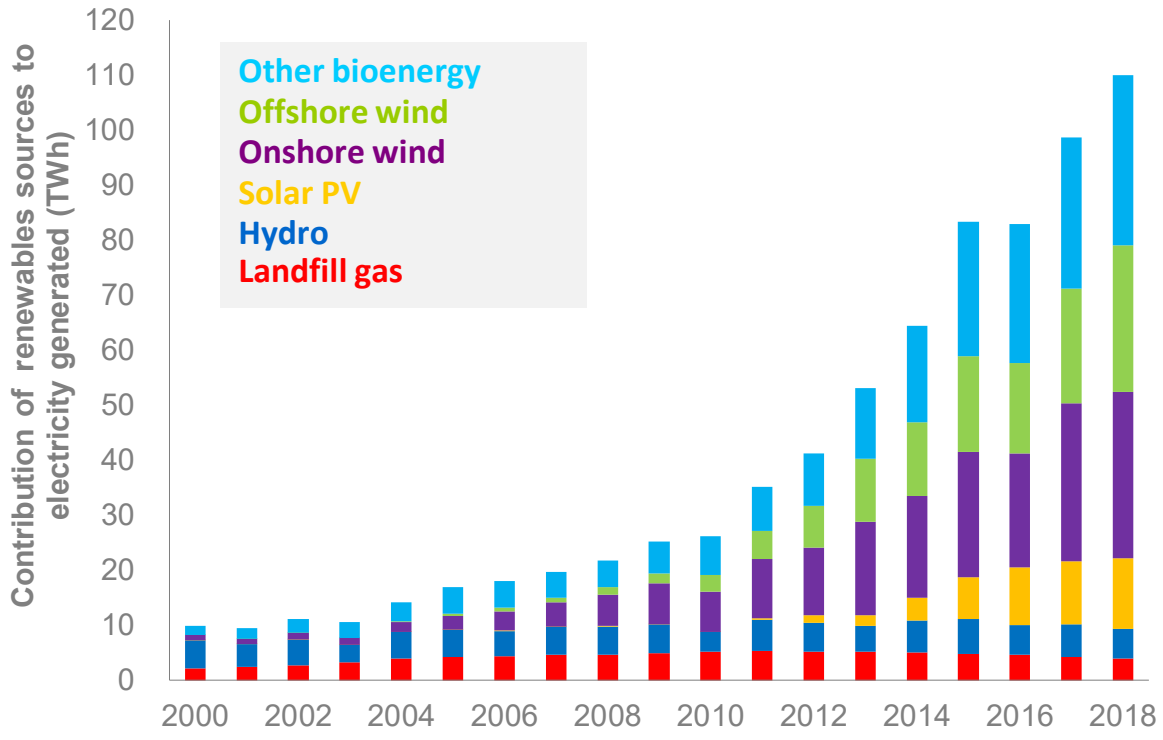
Total renewables used = 22,236 thousand tonnes of oil equivalent (ktoe)

	Thousand tonnes of oil equivalent				
	1990	**2000**	**2010**	**2017**	**2018**
Solar PV and active solar heating	6	11	41	1,039	1,158
Wind	1	81	884	4,268	4,893
Hydro (large & small) and wave	448	437	309	508	473
Landfill gas	80	731	1,725	1,419	1,298
Sewage gas	138	169	295	401	409
Wood (domestic and industrial)	174	458	1,653	2,370	2,560
Municipal waste combustion (biodegradable)	101	375	632	1,278	1,496
Heat pumps and deep geothermal	1	1	23	964	980
Transport biofuels	-	-	1,218	997	1,364
Cofiring	-	-	625	18	0
Other bioenergy	72	265	1,054	6,581	7,606
Total	**1,021**	**2,529**	**8,460**	**19,843**	**22,236**

In 2017, bioenergy accounted for roughly two thirds of renewable energy sources used, with most of the remainder coming from wind (22%), solar (5.2%) and heat pumps / deep geothermal (4.4%).

Of the 22.2 million tonnes of oil equivalent of primary energy use accounted for by renewables, 15.4 million tonnes was used to generate electricity, 5.4 million tonnes was used to generate heat, and 1.4 million tonnes was used for road transport. Renewable energy use grew by 12.1% between 2017 and 2018 and is now almost nine times the level it was at in 2000.

Electricity generation from renewable sources since 2000



Note: Hydro bar includes shoreline wave/tidal (0.009 TWh in 2018)

					TWh
	1990	**2000**	**2010**	**2017**	**2018**
Onshore wind	-	0.9	7.2	28.7	30.2
Offshore wind	-	-	3.1	20.9	26.7
Solar PV	-	-	0.0	11.5	12.9
Hydro	5.2	5.1	3.6	5.9	5.5
Landfill Gas	0.1	2.2	5.2	4.3	3.9
Other Bioenergy	0.5	1.7	7.0	27.5	30.8
Total Renewables	**5.8**	**9.9**	**26.2**	**98.8**	**110.0**

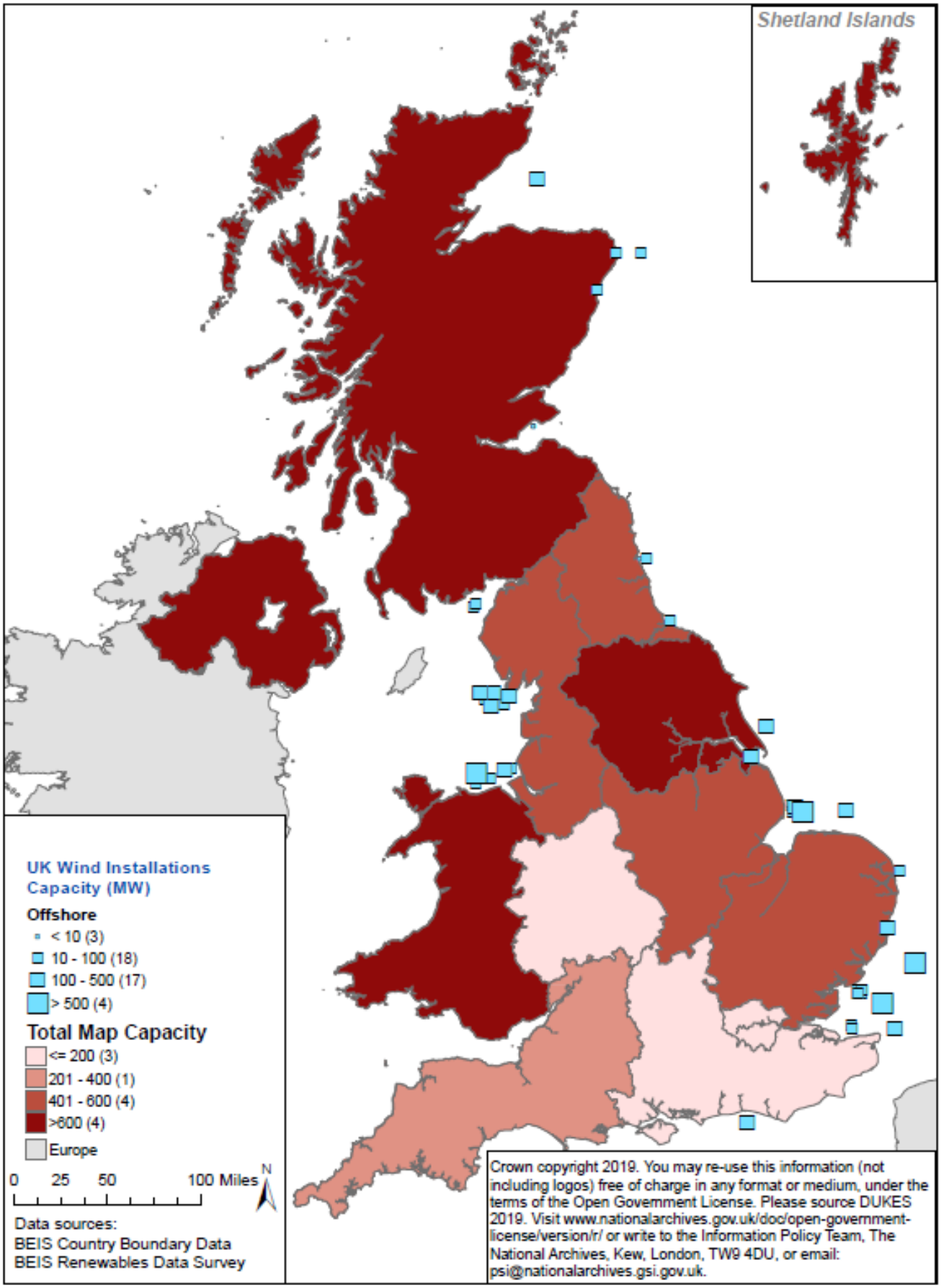
Electricity generated from renewable sources increased by 11 per cent between 2017 and 2018 to a record 110.0 TWh. Generation was buoyed by large increases in capacity for wind and bioenergy.

Total wind generation increased by 15 per cent to 56.9 TWh; within this, offshore wind generation rose by 28%, to a record 26.7 TWh. Generation was aided by added capacity and increased despite a small decrease in average wind speeds. Average onshore wind speeds in 2018, at 8.5 knots, were 0.2 knots lower than in 2017.

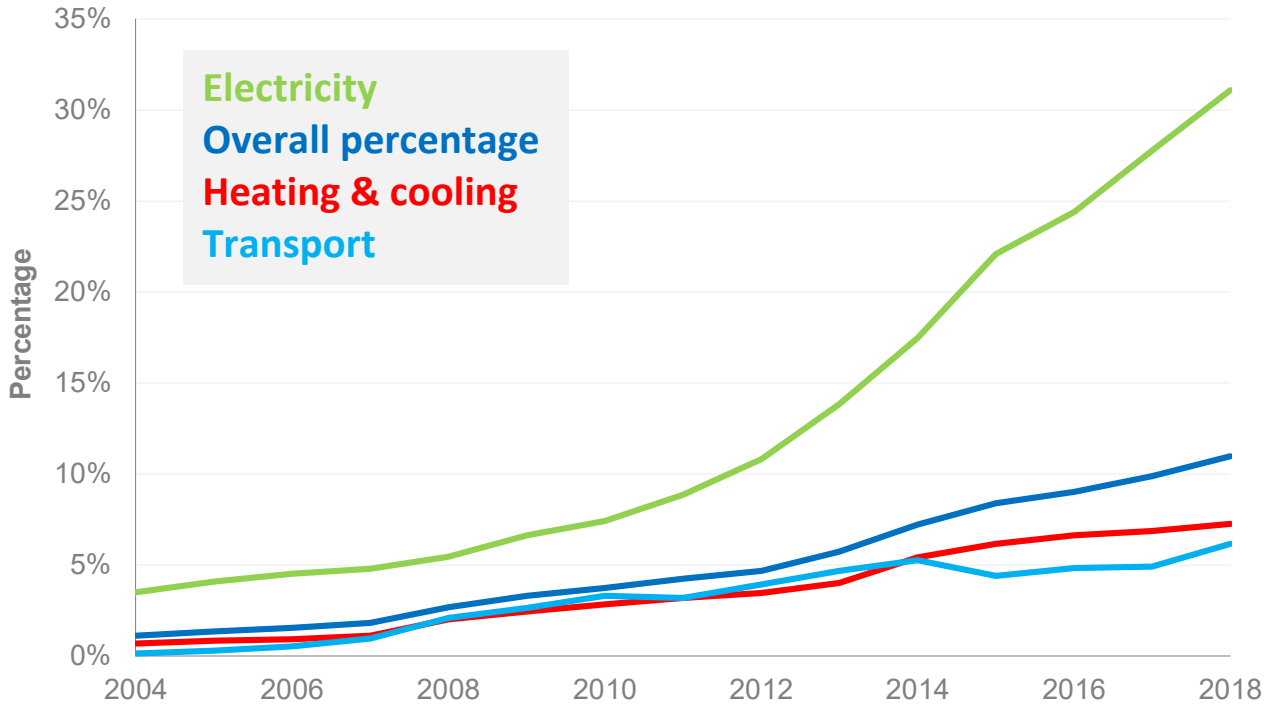
Hydro generation fell by 7% in 2018, in part due to a decrease in rainfall. Generation from solar PV increased by 11%, aided by a 2.6% increase in capacity and longer average sunlight hours (up 0.6 hours in 2018). Generation from plant biomass increased by 15%, partly due to new plants being converted from coal to biomass at Lynemouth and Drax.

Renewable electricity accounted for a record 33.0% of electricity generated in the UK during 2018, 3.8 percentage points higher than 2017. The map on page 33 shows installed wind capacity for onshore and offshore sites across the UK.

UK Onshore and Offshore Wind Capacity



UK progress against 2009 EU Renewable Energy Directive



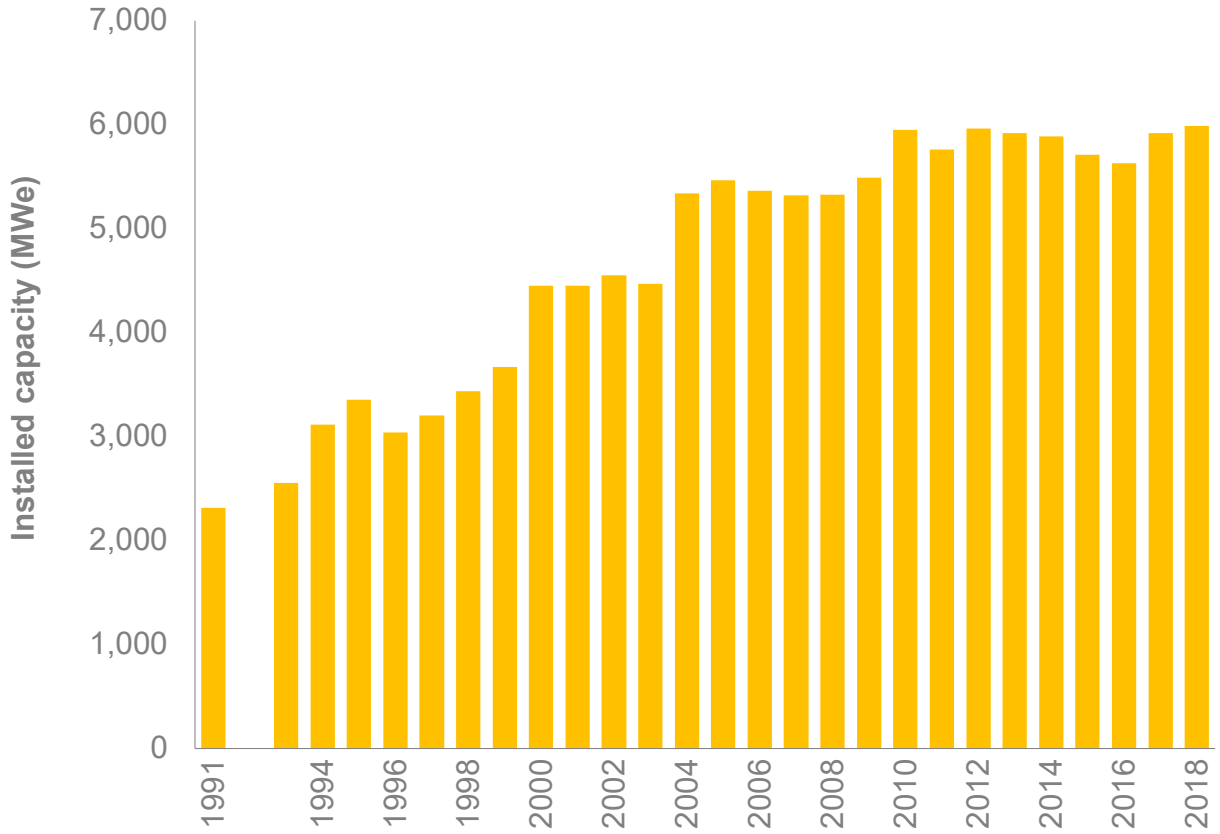
Progress against the 2009 Renewable Energy Directive

	2014	2015	2016	2017	2018
Percentage of electricity from renewable sources	17.5%	22.1%	24.4%	27.8%	31.1%
Percentage of heating and cooling from renewable sources	5.4%	6.2%	6.6%	6.9%	7.3%
Percentage of transport energy from renewable sources	5.3%	4.4%	4.8%	4.9%	6.2%
Overall renewable consumption as a percentage of capped gross final energy consumption using net calorific values	7.2%	8.4%	9.0%	9.9%	11.0%

In March 2007, the European Council agreed to a common strategy for energy security and tackling climate change. It set a target of 20% of the EU's energy to come from renewable sources. In 2009 a new Renewable Energy Directive was implemented and resulted in agreement of country “shares” of this target. For the UK, by 2020, 15% of **final energy consumption** - calculated on a net calorific basis, and with an air transport fuel cap - should be accounted for by energy from renewable sources.

In 2018 11.0% of final energy consumption was from renewable sources; this is up from 9.9% in 2017.

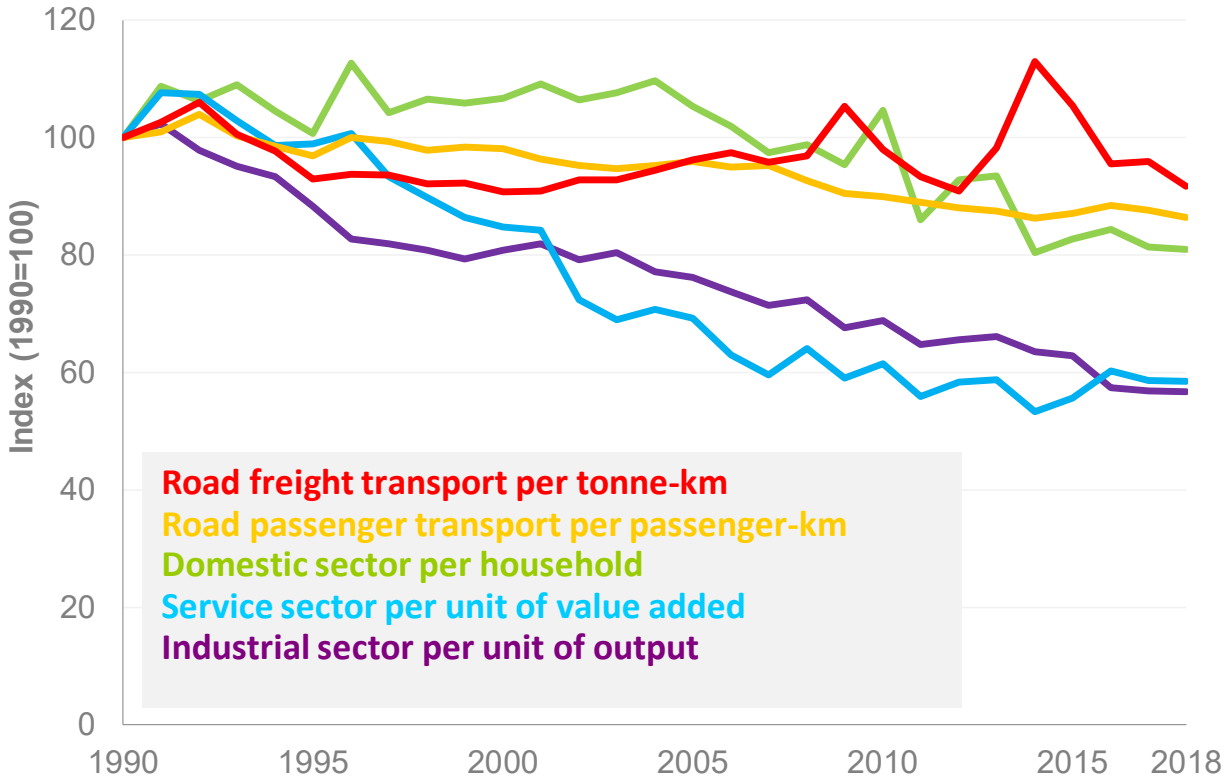
Combined heat and power, 1991 to 2018



	1995	2000	2010	2017	2018
CHP electrical capacity (MWe)	3,354	4,451	5,949	5,919	5,985
CHP electrical generation (GWh)	14,778	25,245	26,764	21,785	22,867
CHP heat generation (GWh)	56,833	54,877	48,262	42,521	42,416
Number of CHP sites					
<= 100 kWe	620	560	405	671	679
> 100 kWe to 1 MWe	397	533	762	1,244	1,281
>1 MWe to 2 MWe	26	41	83	189	200
> 2 MWe to 10 MWe	113	141	138	237	246
> 10 MWe +	63	64	66	68	67
Total	1,219	1,339	1,454	2,409	2,473

In 2018 CHP electrical capacity increased by 1.1% compared to 2017 along with an increase in the total number of schemes. Electricity generation in 2018 was 6.1% higher than in 2017, while heat generation remained the same. Schemes larger than 10 MWe represent 70% of the total electrical capacity of CHP schemes whereas schemes less than 1MWe constitute the majority (79%) of the number of schemes. In 2018 CHP schemes accounted for 6.9% of the total electricity generated in the UK and 7.3% of UK gas demand.

Energy intensity, 1990 to 2018



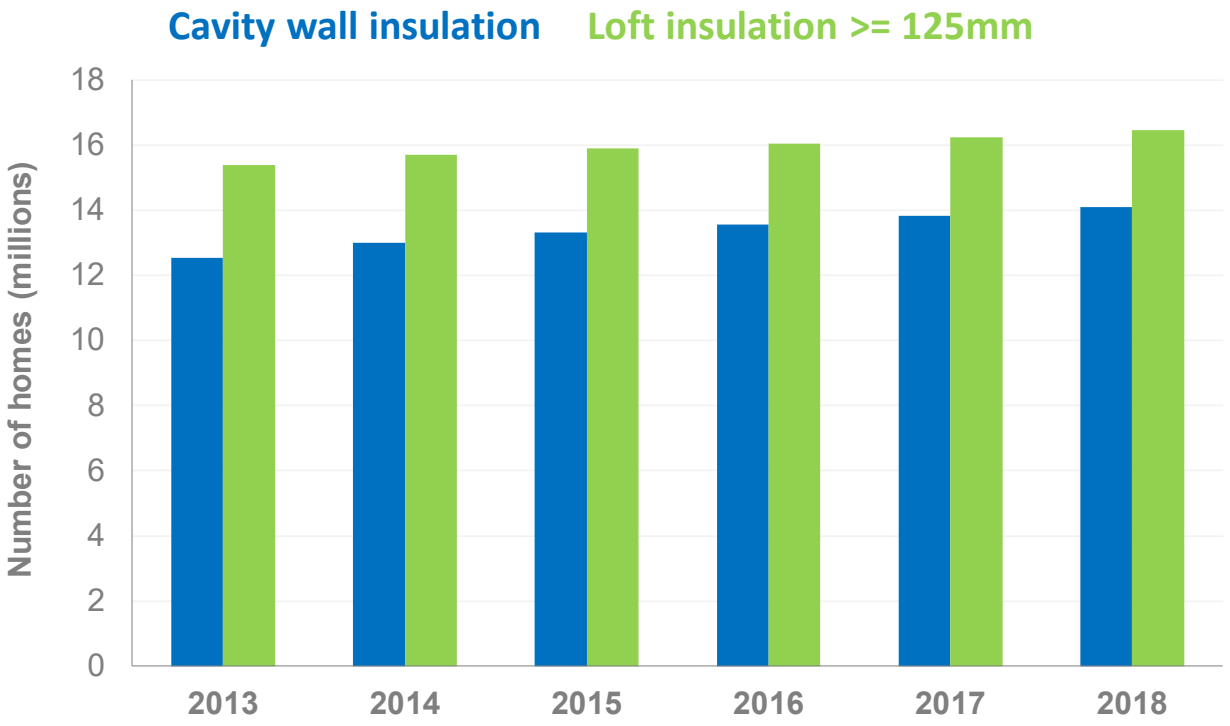
Tonnes of oil equivalent

	1990	2000	2010	2017	2018p
Industrial energy consumption per million units of GVA	161.1	130.3	111.0	91.6	91.3
Domestic energy consumption per household	1.8	1.9	1.9	1.5	1.5
Service sector energy consumption per million units of GVA	27.3	23.2	16.8	16.0	16.0
Road passenger energy consumption per million passenger-kilometres*	42.7	41.9	38.4	37.4	36.9
Road freight energy consumption per million freight-kilometres*	83.2	75.5	81.6	79.8	76.3

* BEIS estimates for 2018

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 over the last thirty years or so 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 since 2005, due to improvements in energy efficiency measures.

Number of homes with energy efficiency measures, December 2013 to December 2018



Insulated homes in Great Britain (Thousands)

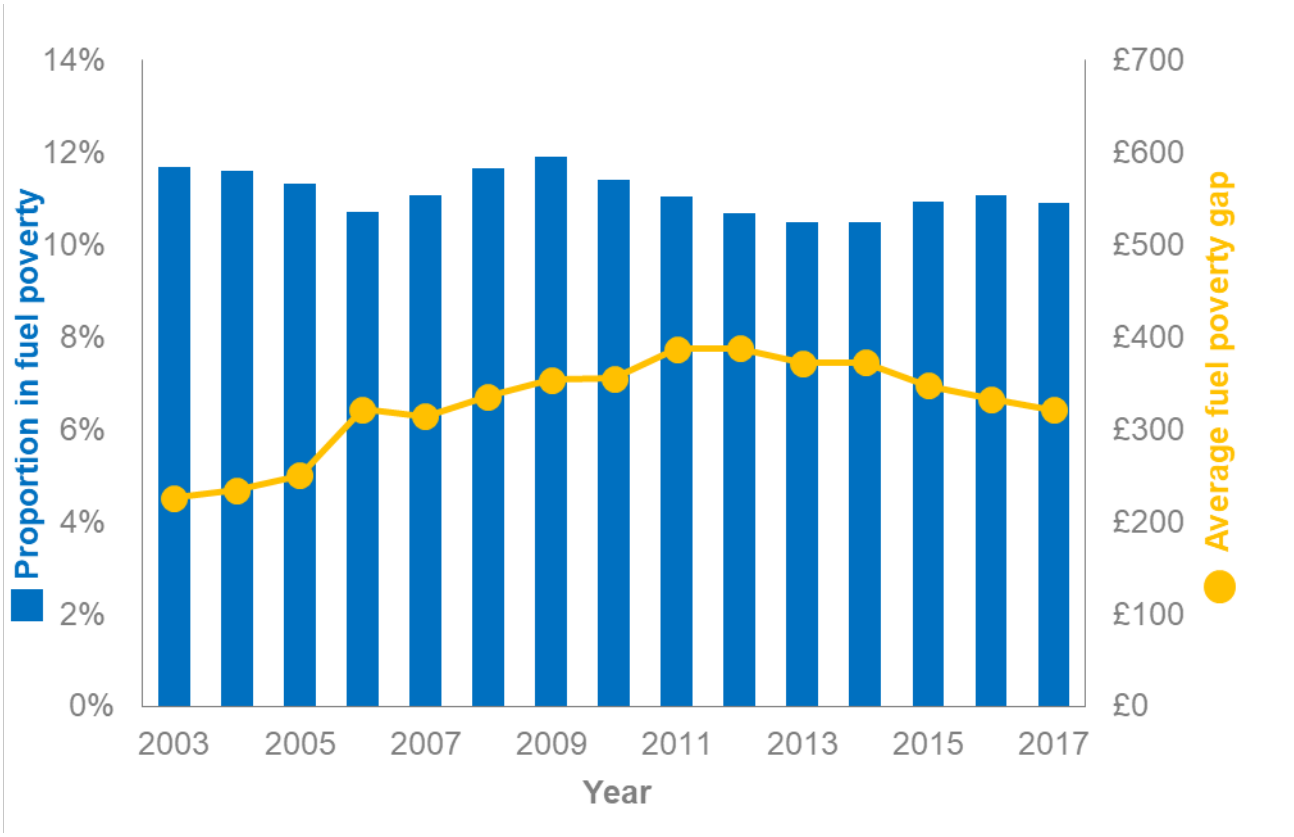
End of year	2013	2014	2015	2016	2017	2018
Cavity wall insulation	12,550	13,010	13,320	13,560	13,820	14,090
Loft insulation >= 125mm	15,390	15,700	15,890	16,050	16,250	16,460

Source: BEIS, Household Energy Efficiency (HEE) National Statistics, detailed report 2018. 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, existing homes have had these measures retrofitted through Government schemes or through a DIY loft insulation. These data show the change in the number of insulated homes as a result of new build and retro fitting insulation.

The number of homes with cavity wall insulation has increased by 12% between the end of December 2013 and December 2018 such that 14.1 million, of the 20.3 million homes with cavities, are insulated. The number of homes with loft insulation, of a depth of at least 125mm, has increased by 7% between the end of December 2013 and December 2018 meaning that 16.5 million of the 25.0 million homes with lofts are insulated to this level.

Households in fuel poverty, 2003 to 2017



A household is considered to be fuel poor if: they have required fuel costs that are above average (the national median level); and were they to spend that amount, they would be left with a residual income below the official poverty line.

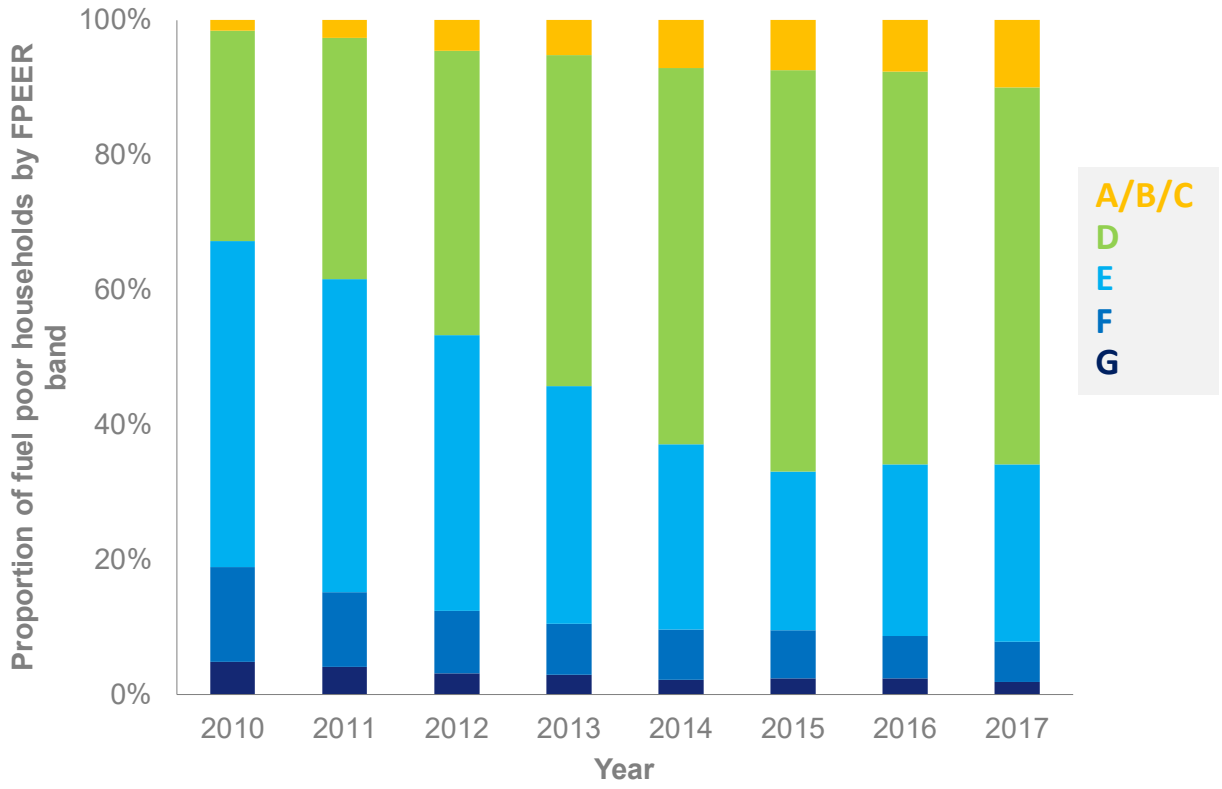
Headline figures

- In 2017, the average fuel poverty gap (the reduction in fuel bill that the average fuel poor household needs in order to not be classed as fuel poor) in England was estimated at £321, down from £333 in 2016 and continues the steady downward trend since 2014.
- The aggregate fuel poverty gap for England also continued to decrease in 2017 (by 4.3 per cent in real terms) to £812 million.
- The proportion of households in England in fuel poverty was estimated to have decreased by 0.2 percentage points from 2016 to 10.9 per cent in 2017 (approximately 2.53 million households).

Key Drivers of fuel poverty, 2016-2017

- Energy efficiency – improvement in energy efficiency slowed between 2015 and 2017.
- Fuel prices – prepayment price cap has contributed to the reduction of energy prices for mainly low income households.
- Incomes – incomes increased at a faster rate for low income households, partly due to the introduction of the National Living Wage.

Fuel poor population by FPEER[1] band, 2010 to 2017



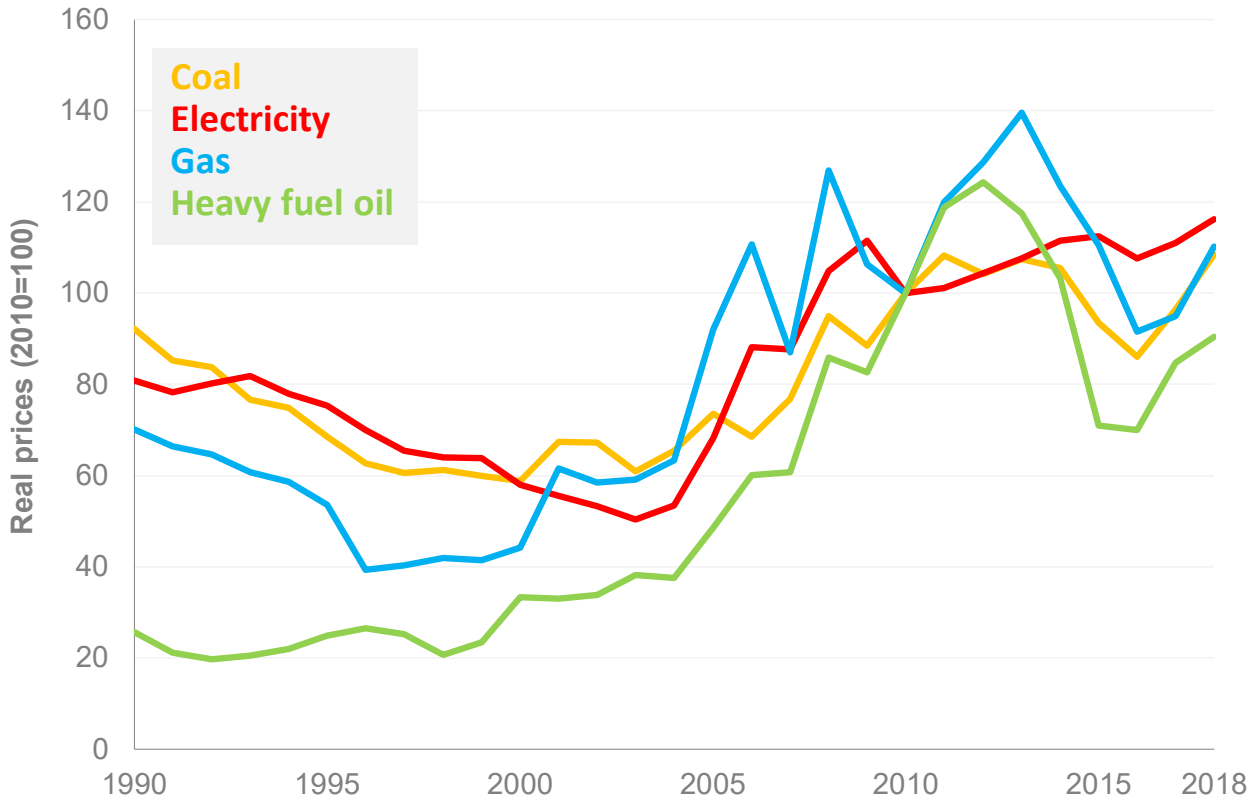
In December 2014 the Government introduced a new statutory fuel poverty target for England. The target is to ensure that as many fuel poor homes as reasonably practicable achieve a minimum energy efficiency rating of Band C by 2030 (with interim milestones to lift as many fuel poor homes in England as is reasonably practicable to Band E by 2020; and Band D by 2025).

In 2017, further progress was made towards the interim 2020 fuel poverty target, with 92.2 per cent of all fuel poor households living in a property with a fuel poverty energy efficiency rating of Band E or above.

Target year	Fuel poverty target	2010 (%)	2017 (%)	Percentage point change
2020	Band E or above	81.1	92.2	11.1
2025	Band D or above	32.7	65.9	33.2
2030	Band C or above	1.5	10.0	8.5

[1] Fuel poverty energy efficiency rating (FPEER)

Fuel price indices for the industrial sector, 1990 to 2018



Real prices, 2010 = 100

	1990	2000	2010	2017	2018
Coal	92.3	58.8	100.0	96.5	108.5
Electricity	80.8	58.0	100.0	111.1	116.2
Gas	70.1	44.2	100.0	95.0	110.2
Heavy fuel oil	25.7	33.4	100.0	84.7	90.5
Industrial prices	**71.6**	**50.5**	**100.0**	**103.8**	**110.8**

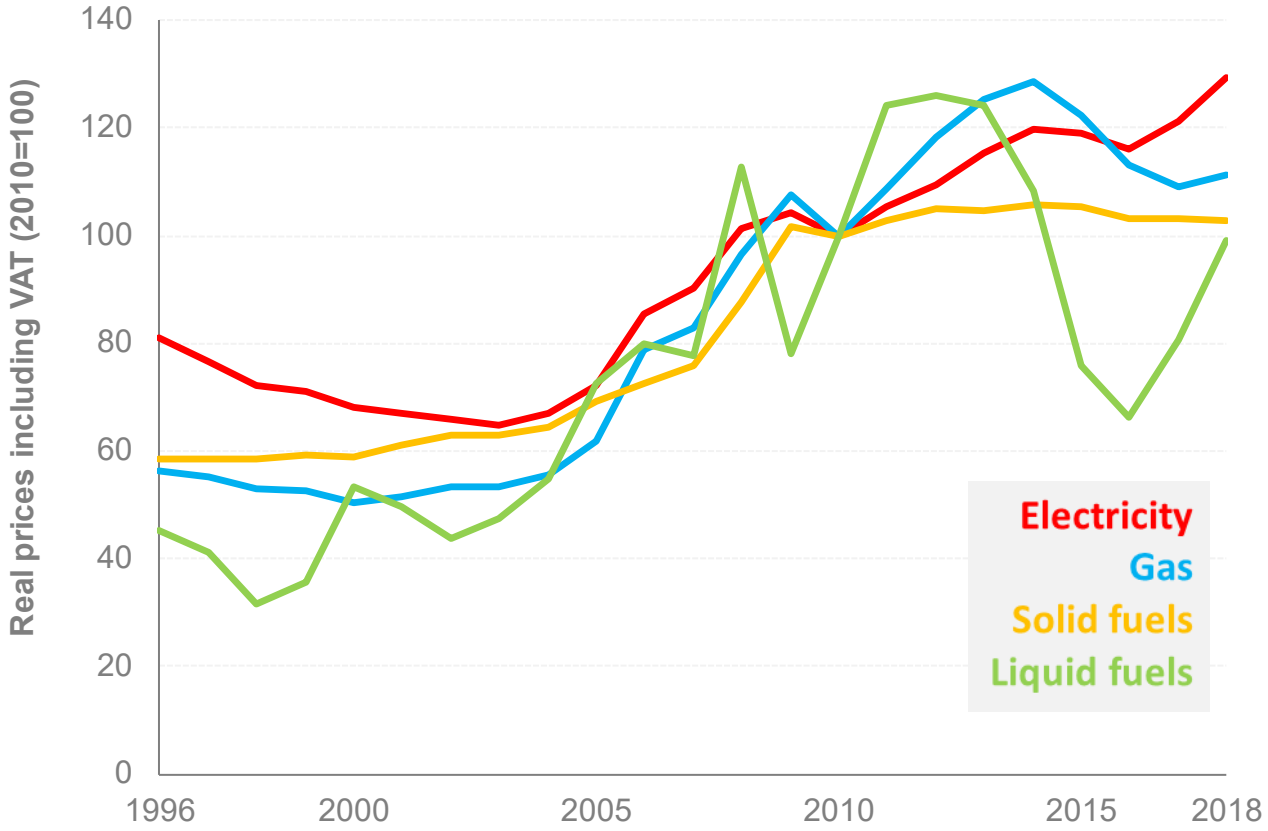
Includes the Climate Change Levy that came into effect in April 2001.

Industrial prices, in real terms, generally fell between the early 80's and early 2000 and were at their lowest in aggregate levels in 2003. Industrial prices then rose again reaching a peak in 2013, after which prices have been on the decline. Industrial prices have risen in the past two years and in 2018 were 6.7% higher on the previous year but were 4.5% lower than the peak in 2013 and more than twice the low seen in 2003.

Compared to the previous year, in 2018 prices for all fuels in the industrial sector, in real terms, have increased, with electricity prices up by 4.6%, gas prices up by 16%, heavy fuel oil up by 6.8% and coal prices up by 12%. Over the last five years gas prices have decreased by 21% while electricity prices have increased by 8.0%.

Prices for most fuels are generally driven by changes to the price of crude oil. Brent prices, in dollar terms, increased from $62/barrel in 2009 to a high of $112/barrel in 2012, before falling back to a low of $44/barrel in 2016. In 2018, Brent prices increased by $17 on the previous year to $71/barrel.

Fuel price indices for the domestic sector, 1996 to 2018



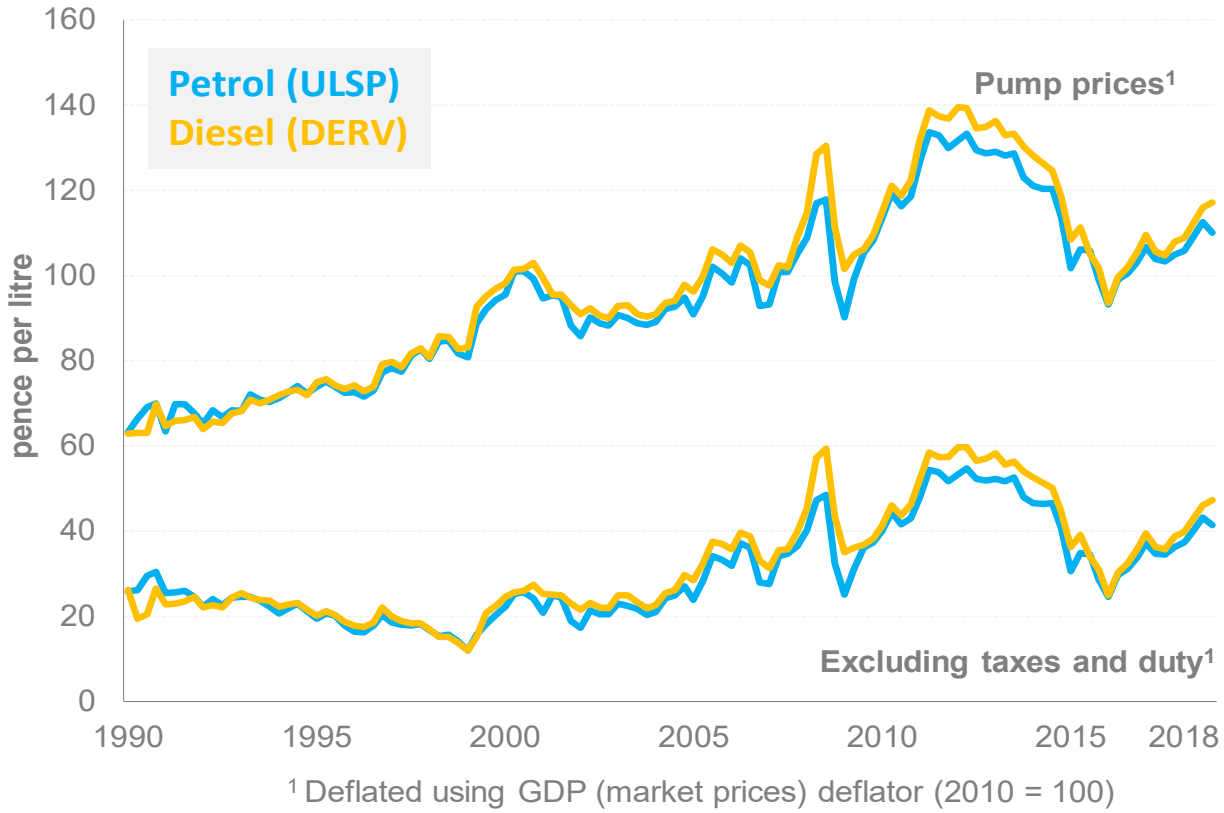
	Real prices including VAT, 2010 = 100					
	1996	**2000**	**2005**	**2010**	**2017**	**2018**
Solid fuels	58.5	59.1	69.3	100.0	103.1	102.9
Electricity	81.1	68.0	72.3	100.0	121.4	129.4
Gas	56.3	50.3	61.9	100.0	109.2	111.3
Liquid fuels	45.3	53.3	72.4	100.0	80.5	98.9
Domestic fuels	**67.1**	**59.6**	**68.0**	**100.0**	**115.0**	**120.5**

Source: Consumer Price Index, Office for National Statistics

Compared to 2017, total domestic energy prices in 2018 increased in real terms by 4.8%. Within the overall movement liquid fuels increased by 23%, gas prices increased by 1.9%, and electricity prices increased by 6.6%. Between 2017 and 2018 crude oil prices rose by 31% to $71 per barrel. This increase in the raw material prices was passed through to petroleum products produced from refining crude oil, leading to the increase in liquid fuel prices.

Between 2008 and 2018, real prices for domestic energy increased by 22%, with the real price of electricity increasing by 28% and the real price of gas increasing by 16%. Liquid fuel prices decreased by 12% over this period but compared to the peak in 2012 liquid fuel prices were 21 per cent lower in 2018.

Petrol and diesel prices, 1990 to 2018



Current retail prices	Pence/litre	
	Petrol (ULSP)	Diesel
1990	42.0	40.5
1995	53.8	54.2
2000	79.9	81.3
2005	86.8	90.9
2010	116.9	119.3
2015	111.1	114.9
2017	117.6	120.1
2018	125.2	130.0

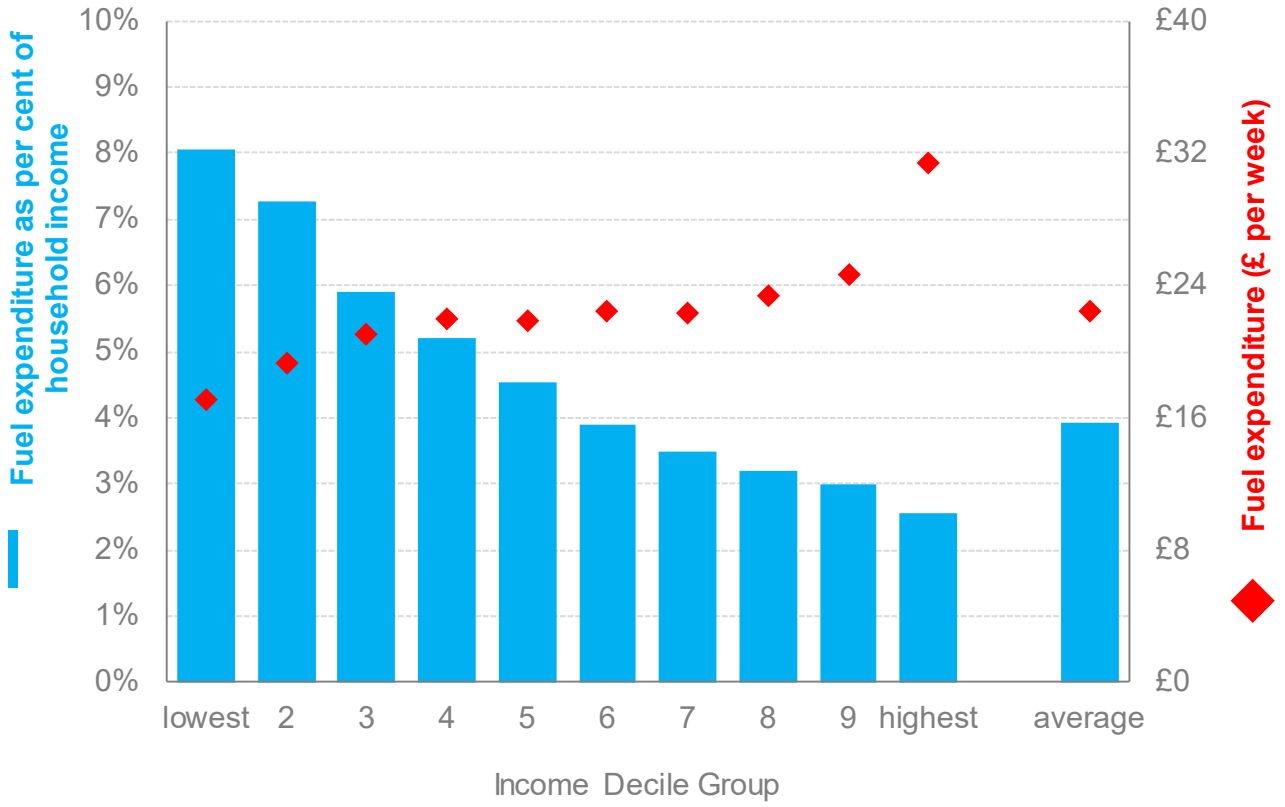
In cash terms the price of Ultra Low Sulphur Petrol (ULSP) cost 7.6 pence more in 2018 than in 2017, whilst diesel cost 9.8 pence per litre more. These increases reflect the prices of crude oil which on average rose by 31% between 2017 and 2018.

ULSP and diesel prices are affected by movements in crude oil prices which were above $100 per barrel for most months between February 2011 and August 2014, before starting to fall to below $50 per barrel in January 2015. Prices rose to around $65 per barrel in May 2015 before falling back to a low of $31 per barrel in January 2016, the lowest for over ten years. Since then crude oil prices have been on an upward trend reaching a high of $81 in October 2018, however by December 2018 prices were down to $56 per barrel.

In real terms the price of petrol was 4.5% higher in 2018 compared to 2017, whilst the price of diesel was 6.2% higher.

In 2018 taxes and duty accounted for 63% of the retail price of unleaded and 61% of the price of diesel.

Fuel expenditure of households[1], 2017/18



Fuel expenditure as a percentage of total household expenditure, 1990 to 2017/18

Fuel type	1990	2000/01	2010	2016/17[2]	2017/18
Gas	1.7%	1.2%	2.0%	1.8%	1.7%
Electricity	2.3%	1.6%	2.1%	2.0%	2.0%
Coal and Coke	0.3%	0.3%	0.4%	0.2%	0.2%
Heating oil	0.2%				
Total	**4.5%**	**3.1%**	**4.5%**	**4.0%**	**3.9%**

Source: Living Costs and Food Survey 2017/18, Office for National Statistics

(1) Includes non-consuming households
(2) In 2015, ONS moved from calendar to fiscal year for reporting the Living Costs and Food survey data

Households in the lowest income decile group (i.e. the 10% of households with the lowest income) spend around 54% as much on domestic fuel per week compared to households in the highest income decile group (£17 compared to £31 per week). However, when comparing expenditure on domestic fuels as a proportion of total expenditure in 2017/18, those in the lowest income decile group spend considerably more (8.0%) than those in the highest income decile group (2.6%).

Across all income deciles households spent, on average, 3.9% of their total expenditure on fuel in 2017/18, a slight decrease on 2016/17 (4.0%).

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CONVERSION FACTORS AND DEFINITIONS

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

		Thousand	**TJ**	**GWh**	**Million**
	to:	**toe**			**therms**
from:	**Thousand toe**	1	41.868	11.630	0.39683
	TJ	0.023885	1	0.27778	0.0094778
	GWh	0.085985	3.6000	1	0.034121
	Million therms	2.5200	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 Business, Energy and Industrial Strategy is the source of all data except where stated.

All data within this publication are classified as National Statistics.

All figures are for the United Kingdom, except for pages 37, 38 and 39.

The Department for Business, Energy and Industrial Strategy (BEIS) also produces the following energy and climate change statistics publications:

The **Digest of United Kingdom Energy Statistics** is the annual energy statistics publication of BEIS. 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 and a detailed picture for the last five years. It includes detailed information on the production and consumption of individual fuels and of energy as a whole. The 2019 edition, published on 25 July 2019, is available at:
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. The 2019 edition of the chart, published on 25 July 2019, shows the flows for 2018 and is available at: 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. www.gov.uk/government/collections/energy-trends
Monthly updates to tables in Energy Trends split by fuel source are also available.

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. www.gov.uk/government/collections/quarterly-energy-prices

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.
www.gov.uk/government/collections/energy-consumption-in-the-uk

Fuel Poverty statistics are produced by BEIS to support the UK Fuel Poverty Strategy.
www.gov.uk/government/collections/fuel-poverty-statistics

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

Household Energy Efficiency statistics are published by BEIS 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.
www.gov.uk/government/collections/household-energy-efficiency-national-statistics

Sub-National Energy Consumption statistics are produced by BEIS to emphasise the importance of local and regional decision making for energy policy in delivering a number of national energy policy objectives.
www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy/about/statistics

BEIS 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 BEIS 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.
www.gov.uk/government/collections/national-energy-efficiency-data-need-framework