Department for Business, Energy & Industrial Strategy

UK ENERGY IN BRIEF 2017

July 2017

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This publication is available for download at www.gov.uk/government/collections/uk-energy-in-brief.

UK ENERGY IN BRIEF 2017

This booklet summarises the latest statistics on energy production, consumption, prices and climate change in the United Kingdom. Figures are primarily taken from the 2017 edition of the "Digest of UK Energy Statistics", published on 27 July 2017. 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 43 and 44 of this booklet and are available on the Internet at:
www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy/about/statistics

CONTENTS

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.

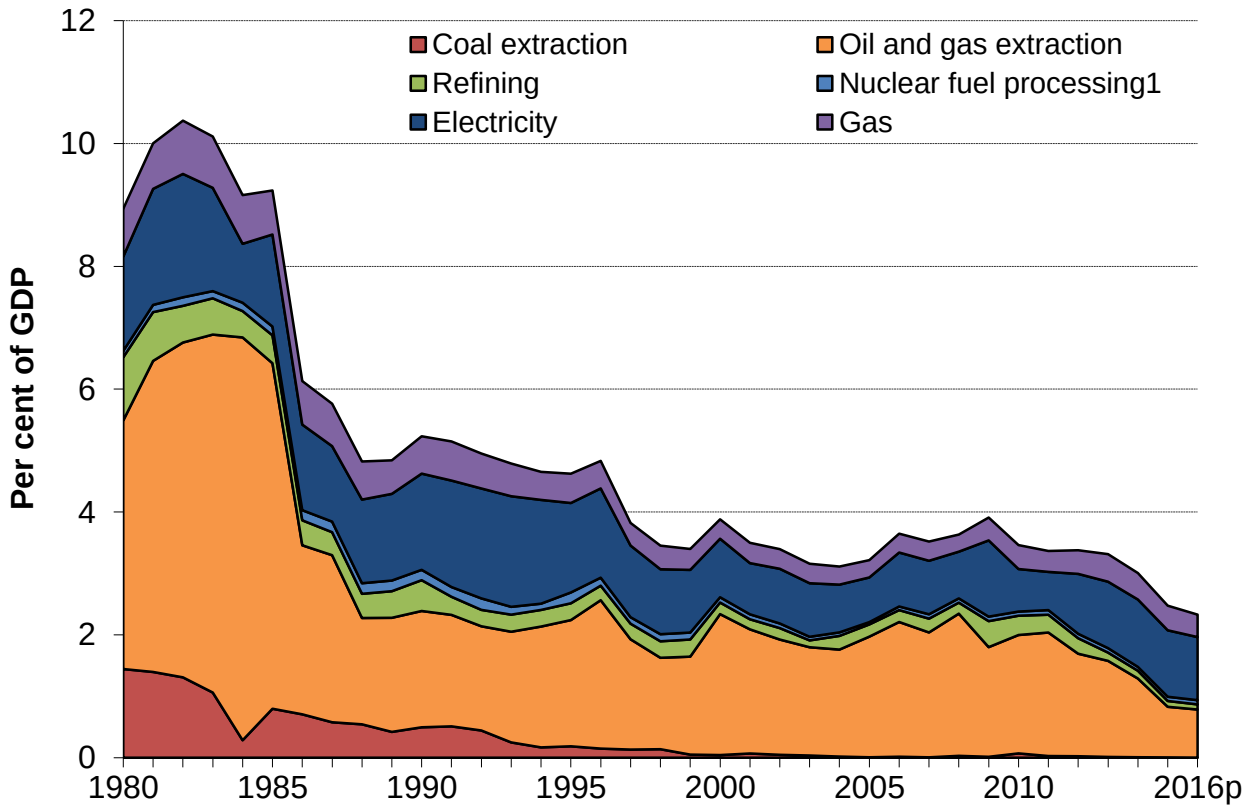
The detailed background data on energy production and consumption can be found in the Digest of UK Energy Statistics 2017 available on the Internet at:
www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

Other statistical outputs produced by BEIS and drawn on in this publication are listed on pages 43 and 44.

THE ENERGY INDUSTRIES' CONTRIBUTION TO THE UK ECONOMY IN 2016

- 2.3% of GDP.
- 10.3% of total investment.
- 34.3% of industrial investment.
- 2.6% of annual business expenditure on research and development in 2015.
- 178,000 people directly employed (6.3% of industrial employment) and more indirectly (e.g. an estimated 152,000 in support of UK Continental Shelf production).

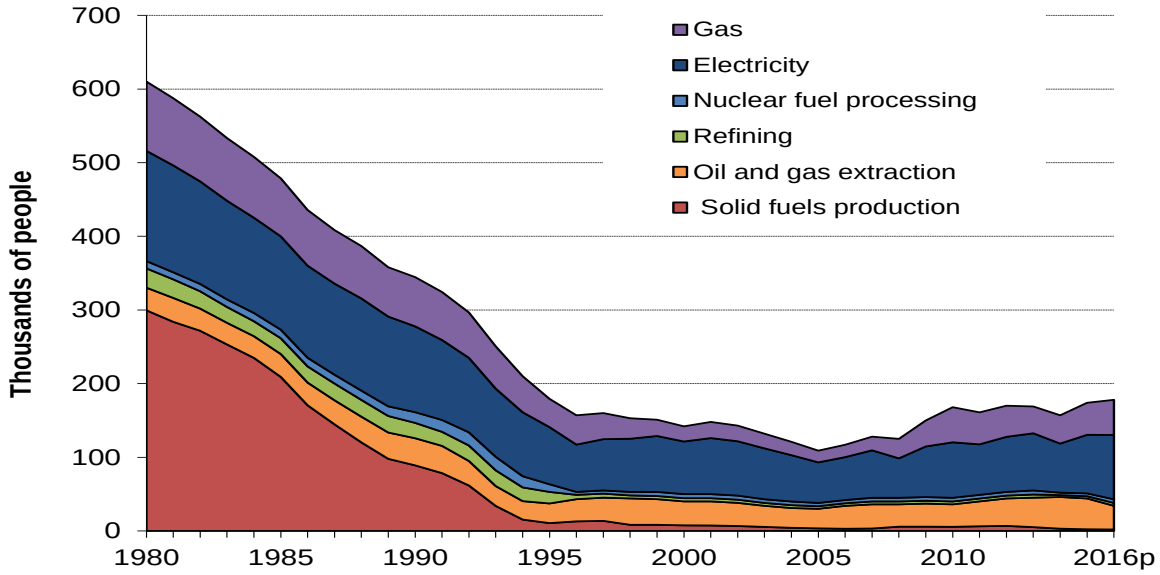
Contribution to GDP by the energy industries, 1980 to 2016



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). Although oil production increased in the past two years, a large fall in prices led to the contribution from the oil and gas sector falling below that of the electricity sector. For 2016, the contribution by the energy industries to the UK economy was 2.3% of GDP (0.1 percentage points lower than in the previous year and the lowest level to date). Of the energy total in 2016 oil and gas extraction accounted for 29% (up 1 percentage point on the previous year), while electricity (including renewables) at 44% and gas at 16% were broadly unchanged.

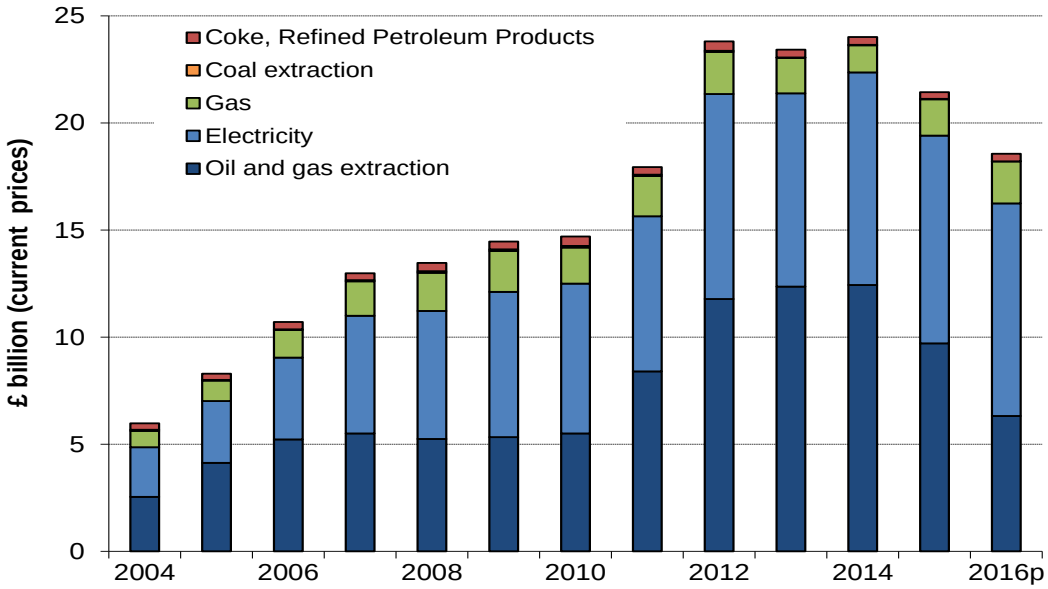
Trends in employment in the energy industries, 1980 to 2016



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 2005 it has increased gradually, driven by growth in the electricity sector. In 2016 employment in the energy industries rose by 2.3% to 178,000 (63% above the 2005 level) and accounted for 6.3% of all industrial employment.

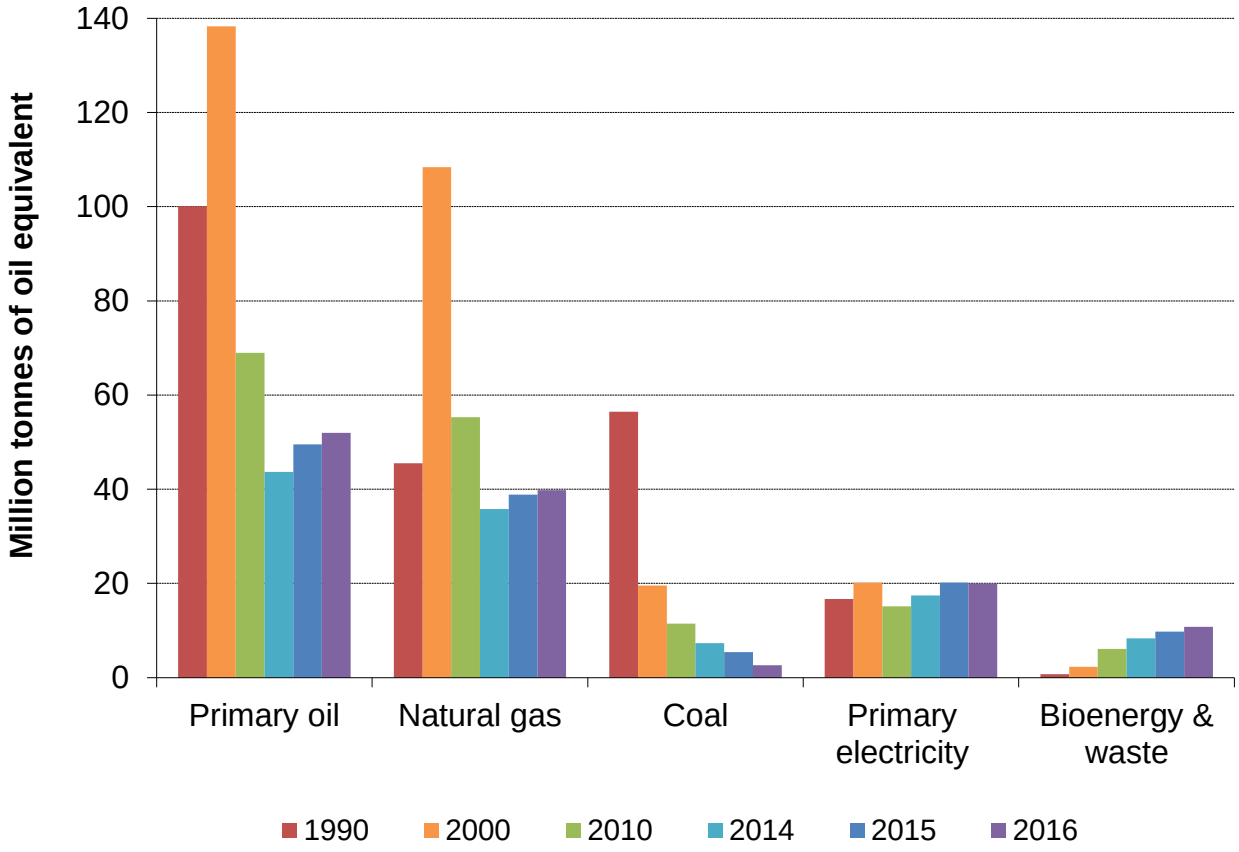
Investment in the energy industries, 2004 to 2016



Source: Office for National Statistics

Since 2004 there has been increased investment in the energy industries, more specifically in the electricity sector. However over the past two years investment has fallen, driven by reduced spending in the oil and gas sector. In 2016 investment in the energy industry fell 13% on the previous year to £18.6 billion (at current prices), of which 34% was in oil and gas extraction, 54% in electricity, 11% in gas, with the remaining in coal extraction, and coke & refined petroleum products industries.

Production of primary fuels, 1990 to 2016



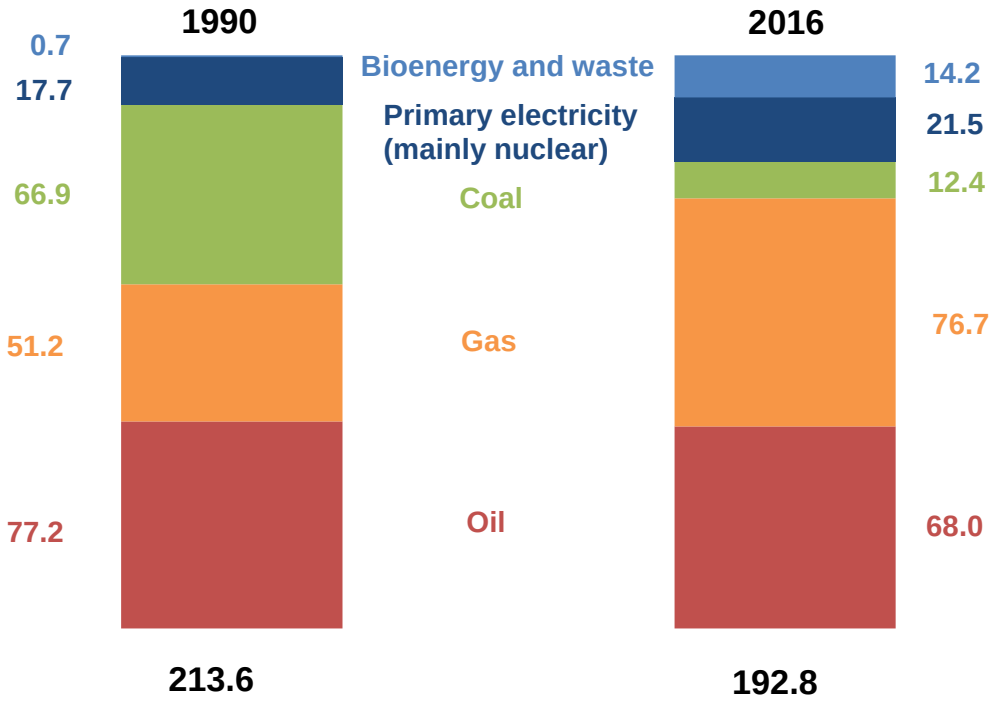
Million tonnes of oil equivalent

	1990	2000	2010	2014	2015	2016
Primary oil	100.1	138.3	69.0	43.7	49.5	52.0
Natural gas	45.5	108.4	55.3	35.8	38.8	39.8
Coal	56.4	19.6	11.4	7.3	5.4	2.6
Primary electricity	16.7	20.2	15.1	17.5	20.1	20.0
Bioenergy & waste	0.7	2.3	6.1	8.3	9.8	10.8
Total	**219.4**	**288.7**	**156.9**	**112.5**	**123.7**	**125.1**

Total production of primary fuels, when expressed in terms of their energy content, rose by 1.2% in 2016 compared to 2015. The rise was mainly due to increases in oil and gas production, due to the opening of new fields. There was also growth from bioenergy and waste. However primary electricity decreased, within which both nuclear and wind output fell. Coal production fell to a record low level in 2016 due to the closure of all large deep mines. Primary oil (crude oil and Natural Gas Liquids) accounted for 42% of total production, natural gas 32%, primary electricity (consisting of nuclear, wind and natural flow hydro) 16%, bioenergy and waste 9%, while coal accounted for the remaining 2%.

Total production increased rapidly between 1980 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 as a number of oil and gas fields become exhausted and also due to increased maintenance activity. Production is now 58% lower than its peak in 1999. Since 2000, oil and gas production together have fallen by an average of 6.0% per year.

Inland energy consumption, 1990 to 2016



Million tonnes of oil equivalent

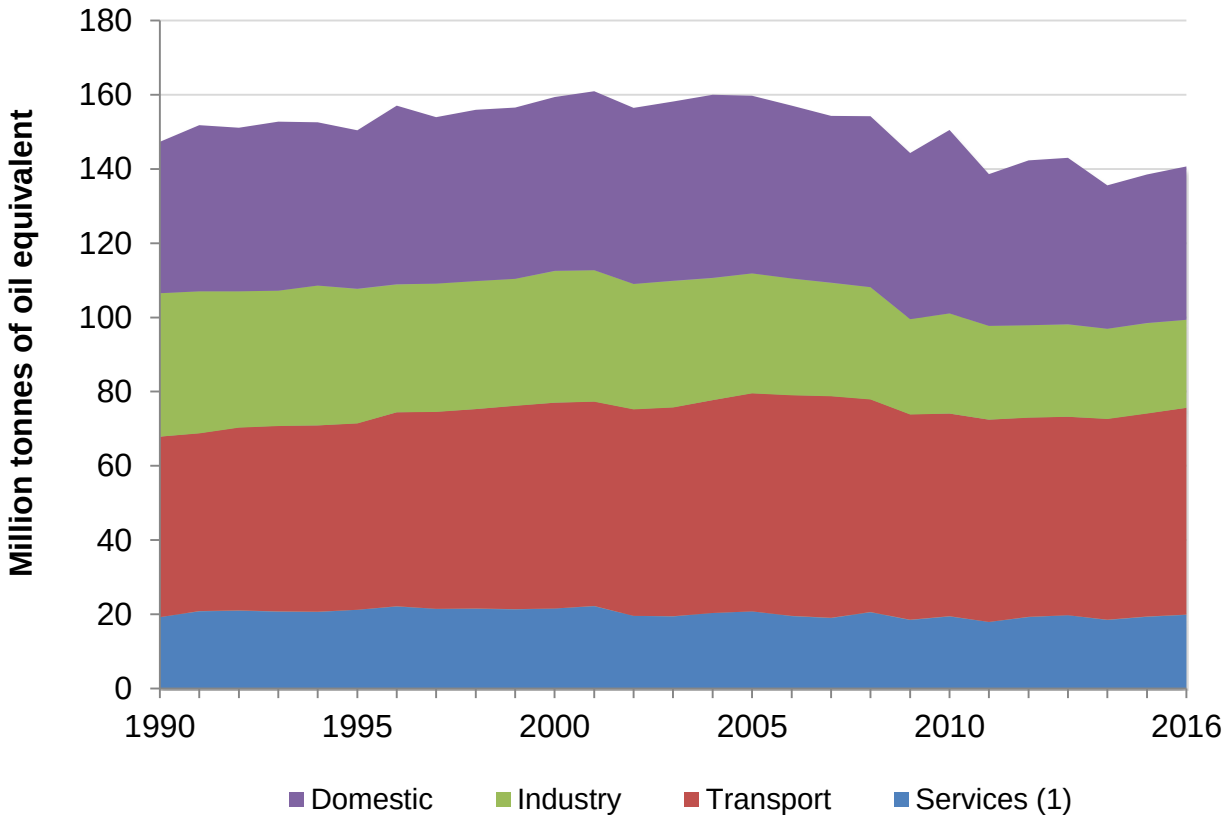
Million tonnes of oil equivalent

	1990	2000	2010	2015	2016
Total inland primary energy consumption[1]:	213.6	234.8	219.5	195.5	192.8
Conversion losses:		53.8	50.3	41.3	37.4
Distribution losses and energy industry use:	66.4	20.7	18.0	15.6	14.7
Total final energy consumption:	147.3	159.4	150.5	138.5	140.7
Final consumption of which:					
Industry	38.7	35.5	27.0	24.4	23.7
Domestic sector	40.8	46.9	49.4	40.0	41.3
Transport	48.6	55.5	54.6	54.7	55.8
Services[2]	19.2	21.5	19.4	19.3	19.9
Temperature corrected total inland consumption:	221.6	240.2	213.7	198.3	193.7

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

Primary energy consumption was 1.4% lower in 2016 than in 2015. The average temperature in 2016 was broadly similar to 2015, though the winter was colder. On a temperature corrected basis, primary energy consumption was 2.3% lower than in 2015, continuing the general fall seen since 2005. In the last 30 years or so, consumption of natural gas and primary electricity has risen considerably, whilst consumption of oil and coal have fallen. However over the past decade or so, consumption of bioenergy and waste has also grown.

Final energy consumption, 1990 to 2016



2016 **Million tonnes of oil equivalent**

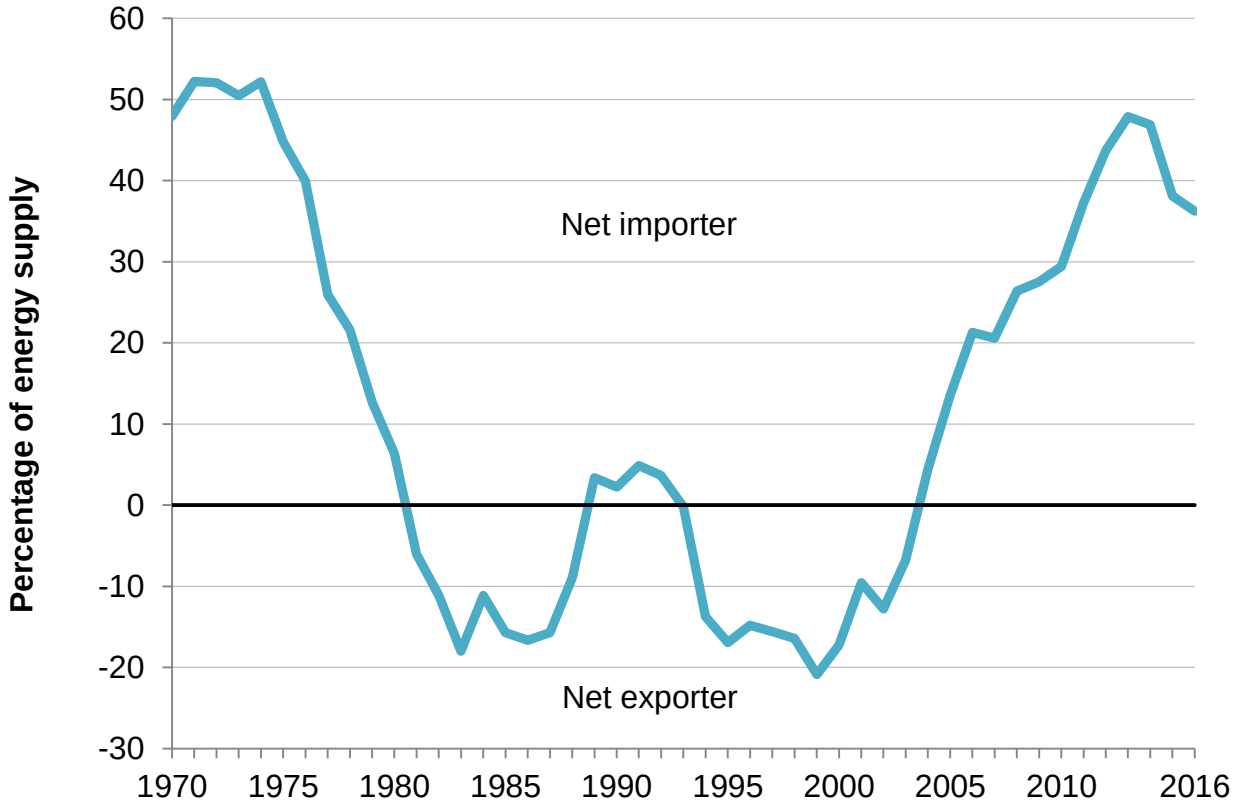
	Industry	Domestic	Transport	Services[1]	Total
Coal & manufactured fuels	1.4	0.6	0.0	0.0	2.0
Gas	8.4	26.8	-	8.2	43.4
Oil	4.1	2.5	54.3	2.0	63.0
Electricity	7.9	9.3	0.4	8.5	26.1
Bioenergy and heat	1.9	2.1	1.0	1.1	6.2
Total	**23.7**	**41.3**	**55.8**	**19.9**	**140.7**

(1) Includes agriculture

Total final energy consumption (excluding non-energy use) was 1.6% higher in 2016 compared to 2015. It rose by 3.1% in the domestic sector, 2.7% in the service sector and 1.9% in the transport sector, but fell by 2.6% in the industry sector. The rises in the domestic and service sectors were due to increased demand for heat reflecting the cooler winter period (October to December) in 2016. Overall final energy consumption, when adjusted for temperature, was up by 0.9%, in 2016.

In terms of fuel types, final consumption of gas, the main fuel used for heating, rose by 3%. Oil use rose by 1%, with a 2% increase in fuel used for transport. Electricity consumption was broadly unchanged, however there was increased use of bioenergy in all sectors.

Import dependency, 1970 to 2016



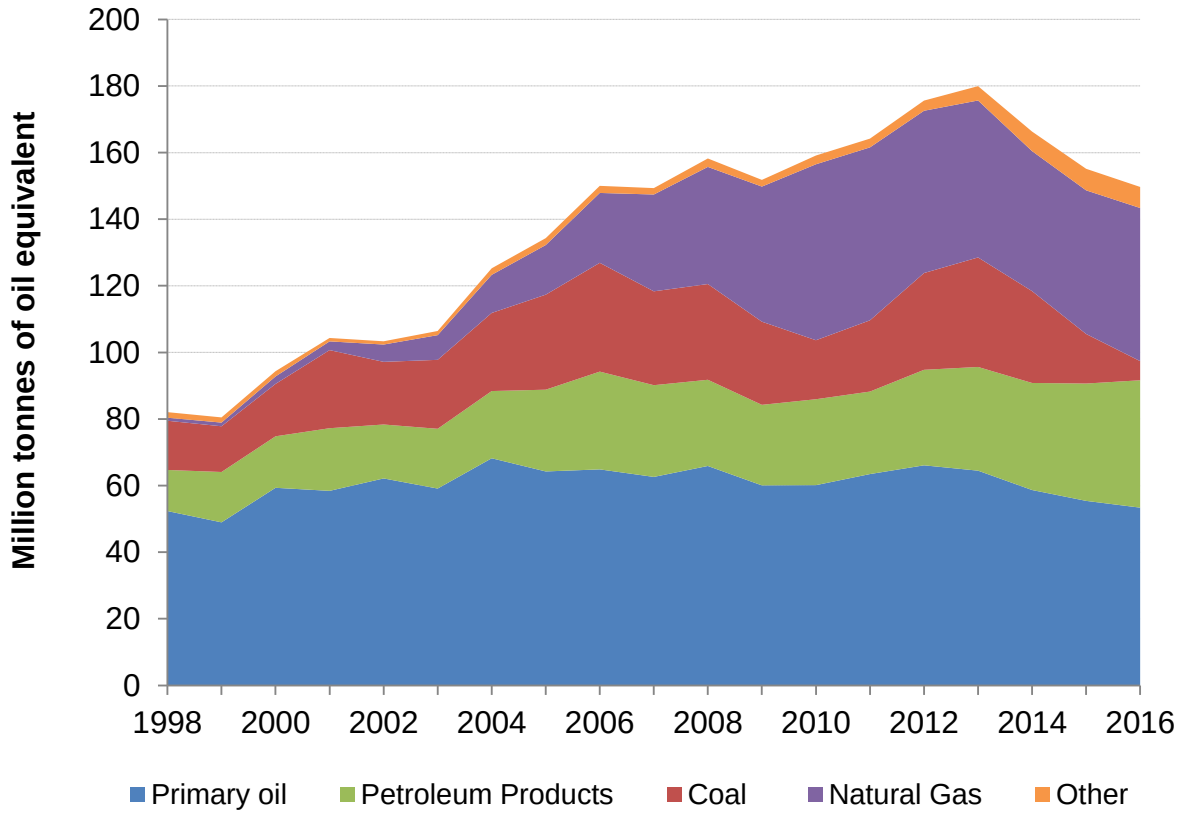
Percentage

	2000	2010	2013	2014	2015	2016
Coal	39%	52%	84%	87%	60%	46%
Gas	-11%	40%	52%	47%	43%	47%
Oil	-55%	14%	40%	43%	37%	34%
Total	**-17%**	**29%**	**48%**	**47%**	**38%**	**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 2016, 36% of energy used in the UK was imported, down sharply from the 2014 level due to the increases in indigenous oil and gas output.

Latest comparable data from Eurostat, for 2015, show that the UK had the eighth lowest level of import dependency in the EU. All EU countries are now net importers of energy.

Key sources of imports, 1998 to 2016



Since 1999, when UK energy production peaked, there has been a sharp rise in imports. Over this period imports doubled, although have since fallen back in the last three years. 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 gas imports, though there have been increases from most fuels.

In 2016 imports fell by 4% reflecting the increase in production and the overall reduction in demand. There was an increase in imports of petroleum products and in gas, which was generally used in generation. These though were more than offset by the decrease in imports of coal, which were down by over 60% as generators switched away from coal and reduced their existing stockpiles.

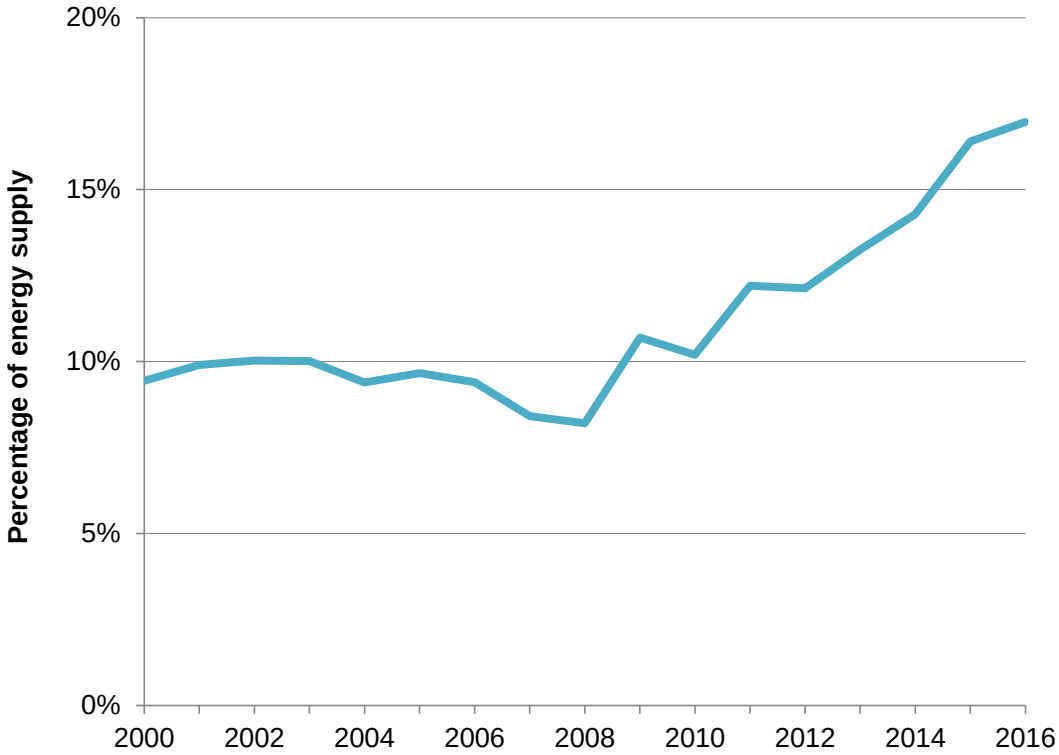
Imports are sourced from a wide variety of countries.

Crude oil: The key source of imports is Norway, which in 2016 accounted for 62%, with OPEC countries supplying a further 28%.

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 but the United States is the largest supplier of diesel. Aviation Turbine fuel is generally sourced from Asia.

Gas: Norway accounted for 65% of UK gas imports in 2016, with pipelines from Netherlands and Belgium supplying 9% and just under 3% respectively. The remaining 23% arrived as Liquefied Natural Gas (LNG), of which 92% was from Qatar.

Proportion of UK energy supplied from low carbon sources, 2000 to 2016



Percentage

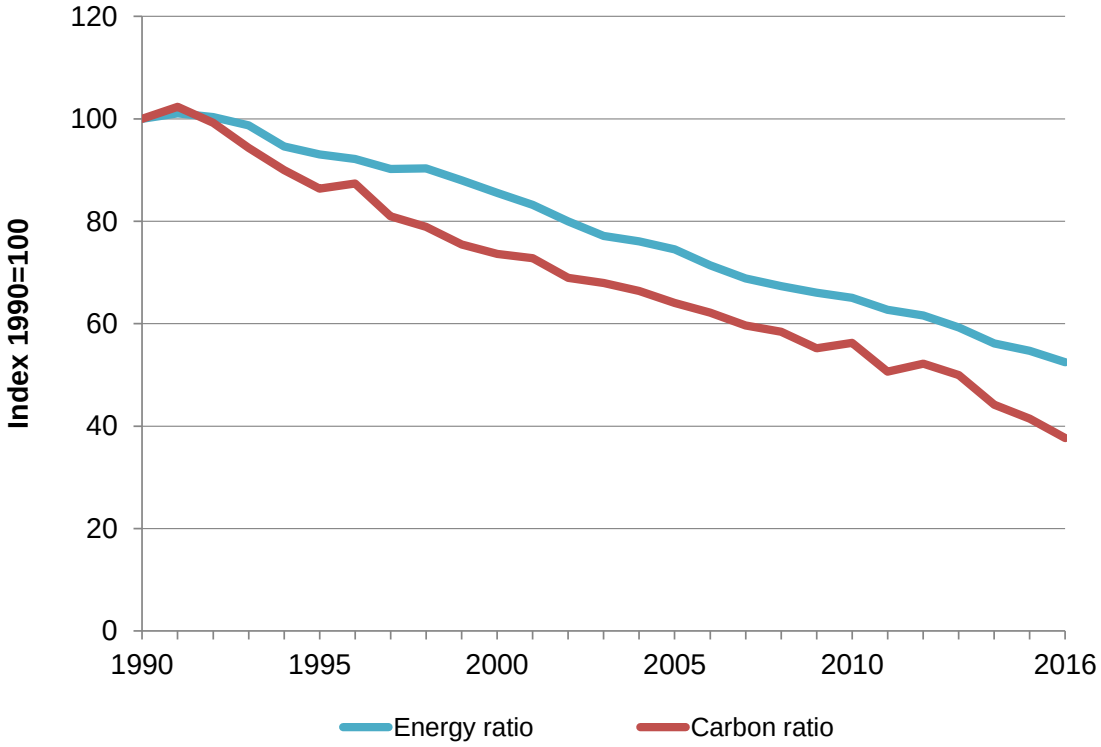
	2000	2010	2013	2014	2015	2016
Nuclear	8.4%	6.3%	7.5%	7.1%	7.9%	8.0%
Wind	0.0%	0.4%	1.2%	1.4%	1.8%	1.7%
Solar	0.0%	0.0%	0.1%	0.2%	0.4%	0.5%
Hydro	0.2%	0.1%	0.2%	0.3%	0.3%	0.2%
Bioenergy	0.9%	2.7%	3.7%	4.6%	5.5%	6.0%
Transport fuels	0.0%	0.6%	0.5%	0.6%	0.5%	0.5%
Other	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
Total	**9.4%**	**10.2%**	**13.3%**	**14.3%**	**16.4%**	**17.0%**

In 2016 the UK obtained 17% of its primary energy from low carbon sources, with 47% of this from nuclear power. The second largest component of low carbon was bioenergy, accounting for 35% of the total low carbon energy sources.

Energy supply from biofuels increased by 7%; with more use of anaerobic digestion, wood pellets and energy from waste. Solar was up by 35% reflecting the increased capacity. The supply of nuclear was broadly unchanged, with its share increasing marginally due to the fall in overall energy consumption in 2016.

Energy supply from wind decreased by 7.3% in 2016 as the reduction in wind speeds more than offset the 13% increase in capacity.

Energy and carbon ratios, 1990 to 2016



Index 1990=100

	1990	2000	2010	2015	2016
Primary energy consumption*	100	108.4	96.4	89.5	87.4
Carbon dioxide emissions	100	93.3	83.4	67.8	62.8
GDP	100	126.7	148.2	163.7	166.6
Energy ratio	**100**	**85.6**	**65.0**	**54.7**	**52.5**
Carbon ratio	**100**	**73.8**	**56.2**	**41.4**	**37.7**

* Temperature corrected primary energy consumption.

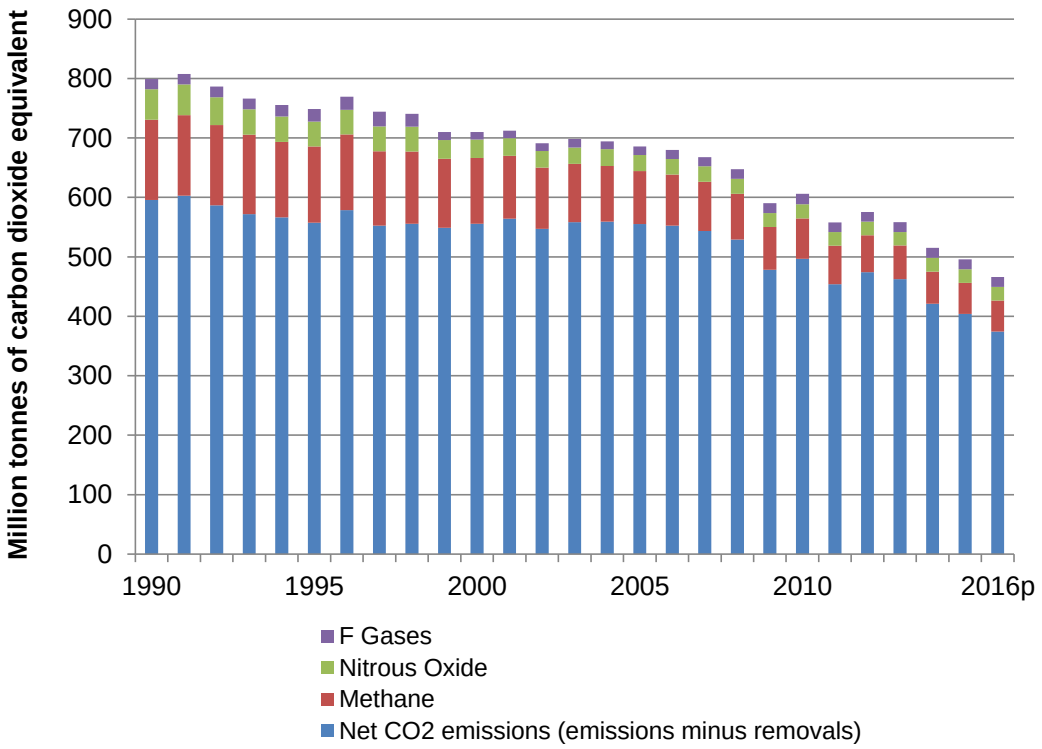
The energy ratio is calculated by dividing temperature corrected primary energy consumption by GDP at constant prices, with the carbon ratio similarly calculated by dividing carbon dioxide emissions by GDP. Both ratios have fallen steadily, with the energy ratio declining by around 2½% per year and the carbon ratio declining at a faster pace of around 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 2016 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 2016



Million tonnes of carbon dioxide equivalent

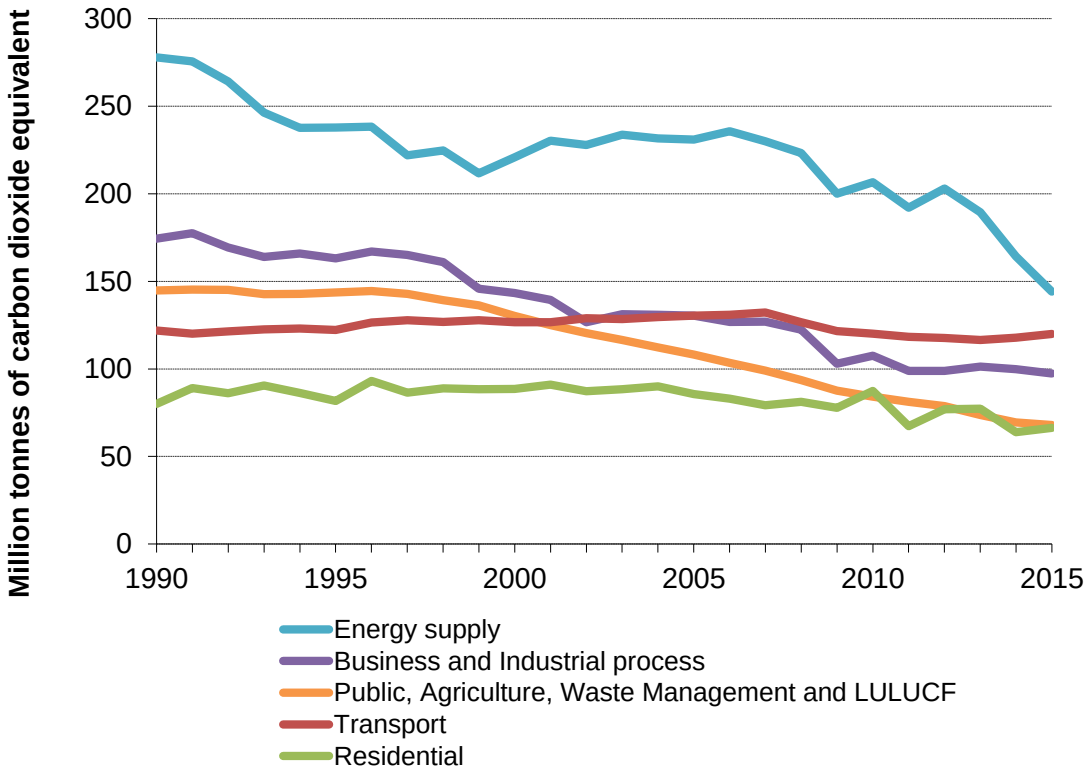
	1990	2000	2005	2010	2015	2016p
Carbon dioxide (net emissions)	595.7	555.7	555.2	496.7	403.8	374.1
Methane	134.8	110.5	88.9	67.8	52.2	52.2
Nitrous oxide	51.2	31.3	27.1	24.0	23.1	23.1
HFC	14.4	9.8	13.1	16.4	15.8	15.8
PFC	1.7	0.6	0.4	0.3	0.3	0.3
SF_6	1.3	1.8	1.1	0.7	0.5	0.5
NF_3	0.0	0.0	0.0	0.0	0.0	0.0
Total Greenhouse gas emissions	**799.0**	**709.7**	**685.8**	**605.9**	**495.7**	**466.0**

Source: Ricardo Energy and Environment, BEIS (2016 provisional figures)
All figures are for the UK only and exclude Crown Dependencies and Overseas Territories

In 2016 UK emissions were provisionally estimated to be 466.0 million tonnes of carbon dioxide equivalent. This was 6.0% lower than the 2015 figure of 495.7 million tonnes and 42% lower than the 1990 figure of 799.0 million tonnes. Carbon dioxide emissions, which are primarily created when fossil fuels are burned, were estimated to account for about 80% of total UK anthropogenic greenhouse gas emissions in 2016. Estimates based on energy production and consumption in 2016 indicate that carbon dioxide emissions were 7.4% lower than the previous year and 37% lower than in 1990.

The decrease in emissions since 2015 can largely be attributed to a change in the fuel mix for electricity generation, with less use of coal and increased use of gas.

Greenhouse gas emissions by National Communication sector, 1990 to 2015



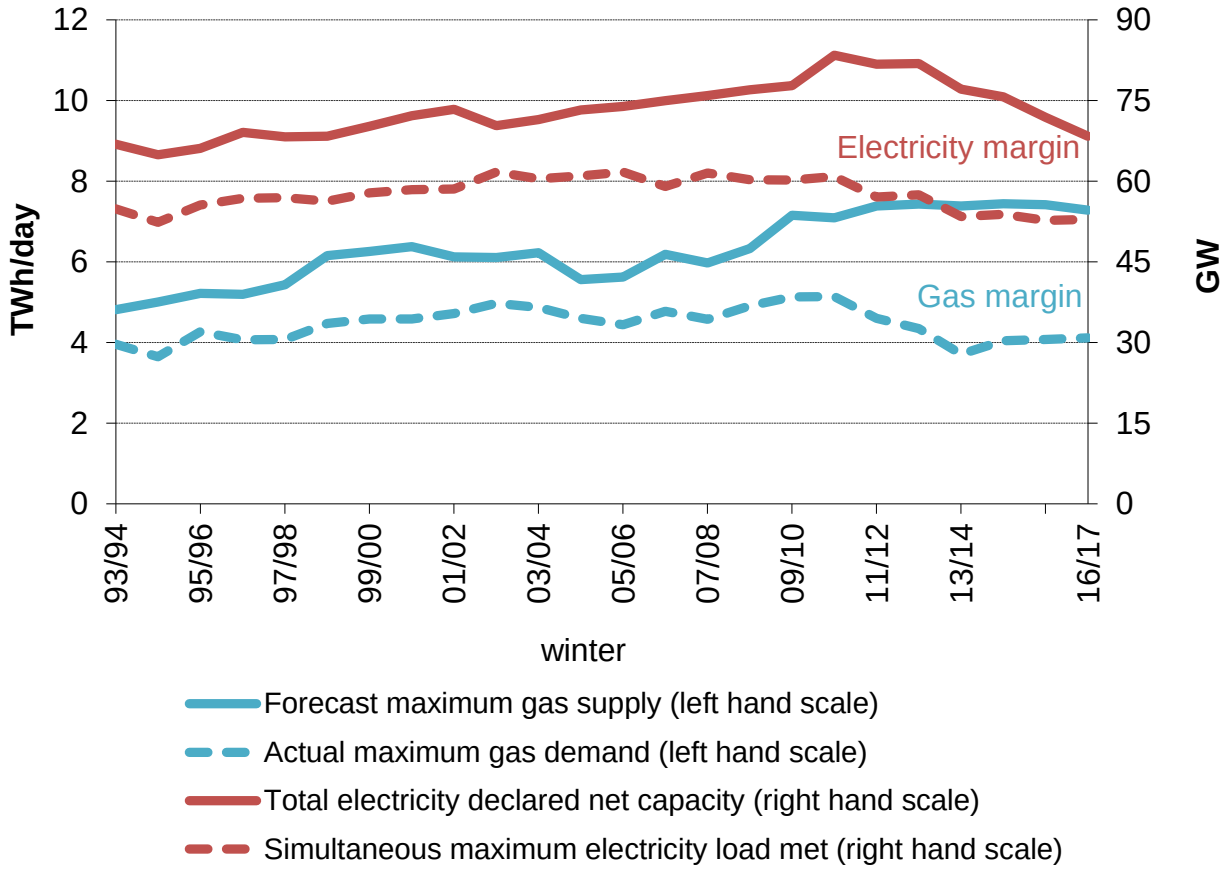
Million tonnes of carbon dioxide equivalent

	1990	1995	2000	2005	2010	2015
Energy supply	277.9	237.8	220.9	231.0	206.7	144.1
Residential	80.1	81.7	88.7	85.7	87.5	66.3
Public, Agriculture, Waste Management and LULUCF	144.8	143.7	130.2	108.3	84.2	68.0
Business and Industrial process	174.3	163.1	143.3	130.4	107.5	97.4
Transport	121.9	122.2	126.7	130.4	120.1	120.0
Total greenhouse gas emissions	**799.0**	**748.5**	**709.7**	**685.8**	**605.9**	**495.7**

Source: Ricardo Energy and Environment, BEIS (2015 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 2015 UK greenhouse gas (GHG) emissions were estimated to be 495.7 million tonnes of carbon dioxide equivalent ($MtCO_2e$), 38% lower than in 1990. The energy supply sector was the largest single source of GHG emissions in 2015, accounting for 29% of total emissions. Between 1990 and 2015, emissions from this sector decreased by 48%. In 2015 GHG emissions from the transport sector accounted for 24% of emissions, compared to 15% in 1990. Emissions from the residential sector accounted for around 13% of emissions in 2015; and since 1990 emissions from this sector have decreased by 17%.

Reliability – gas and electricity capacity margins – maximum supply and maximum demand 1993/94 to 2016/17



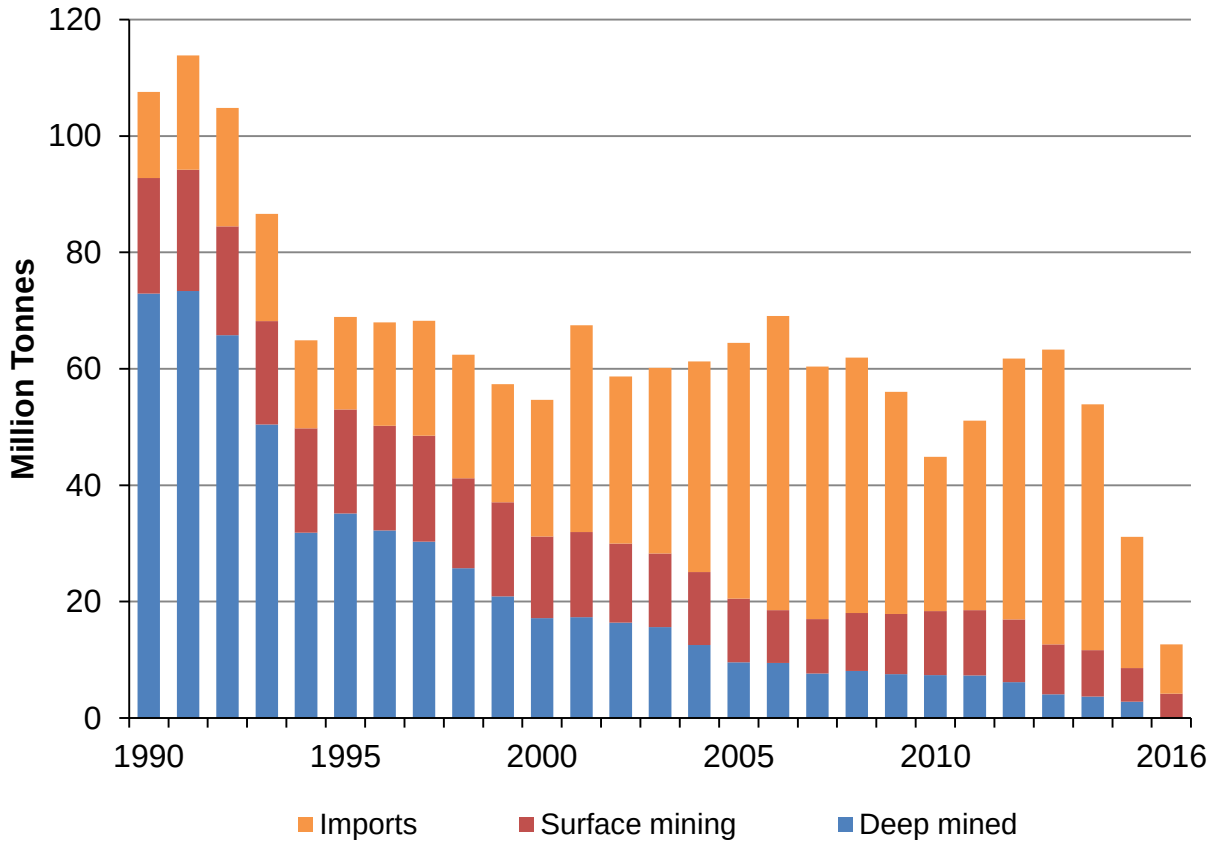
Source: National Grid and BEIS

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 since 2013/14 capacity of major power producers has fallen 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 has increased over that period, the intermittent nature of solar and wind means that it does not cover the drop due to closures of major power producers.

Between 2008/09 and 2013/14 the gas capacity margin increased year on year due to both increased supply (e.g. through the new terminals to supply liquefied natural gas), coupled with reduced demand. The last few years have been broadly stable. The margin decreased slightly this year due to higher demand from domestic customers and because of the switch from switch from coal to gas for power generation.

Coal production and imports, 1990 to 2016



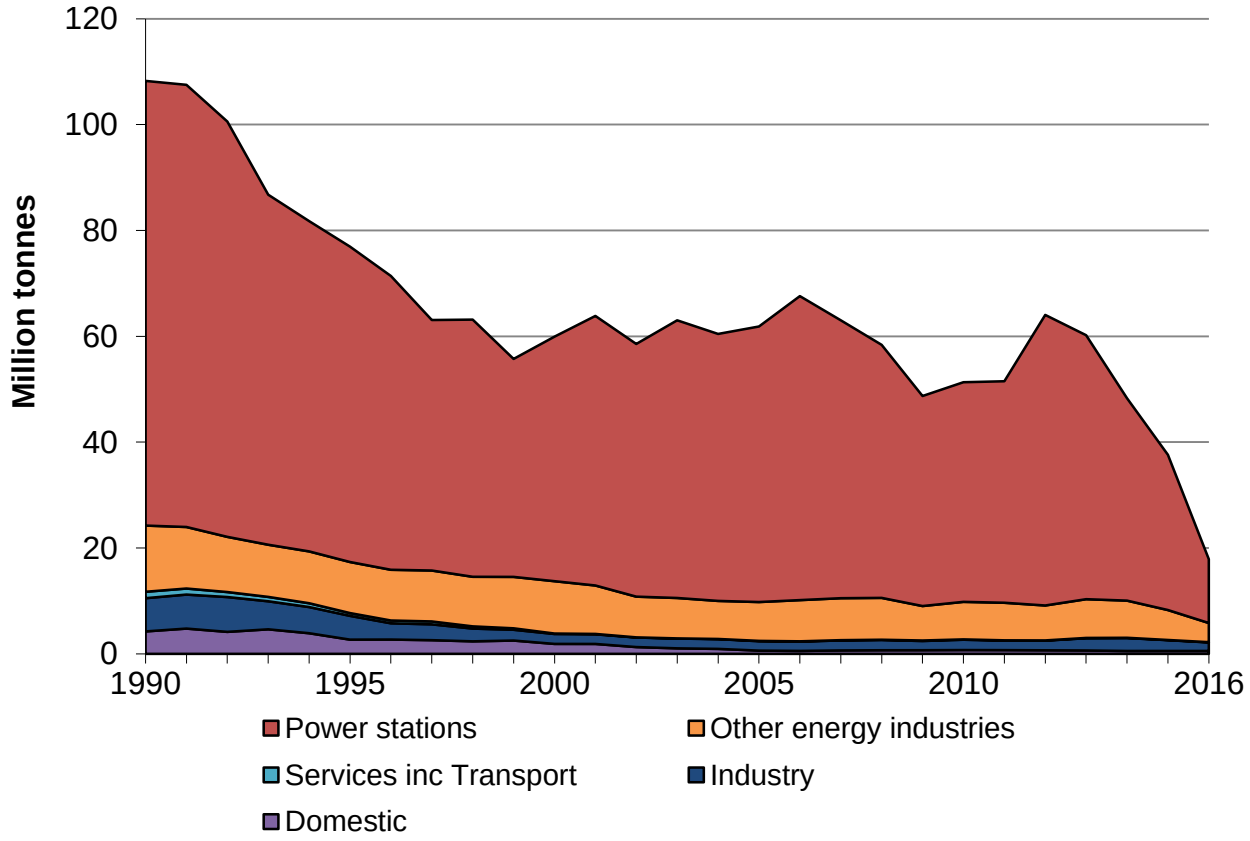
Million tonnes

	1990	2000	2010	2015	2016
Deep mined	72.9	17.2	7.4	2.8	0.02
Surface mining (including slurry)	19.9	14.0	11.0	5.8	4.2
Total	**92.8**	**31.2**	**18.4**	**8.6**	**4.2**
Coal imports	14.8	23.4	26.5	22.5	8.5

In 2016 UK coal production fell to an all-time low of 4 million tonnes, 51% lower than in 2015. Deep mined production was down 99 per cent, to a new record low of 22 thousand tonnes due to the closure of the last three remaining large deep mines in 2015 - Hatfield, Thoresby and Kellingley. Surface mine production fell by 29% to a new record low of 4 million tonnes due to the closure of a number of mines in 2015 and some other mines producing less coal as they are coming to the end of operation.

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 51 million tonnes. From this point on, imports fell, mainly as a result of less demand by electricity generators. However in the three years from 2011, imports rose again due to a greater demand by electricity generators and in 2013 stood at 49 million tonnes, just below the 2006 record. In the last three years imports have fallen again due to lower generation demand and in 2016 were at 8 million tonnes, a 33 year low.

Coal consumption, 1990 to 2016

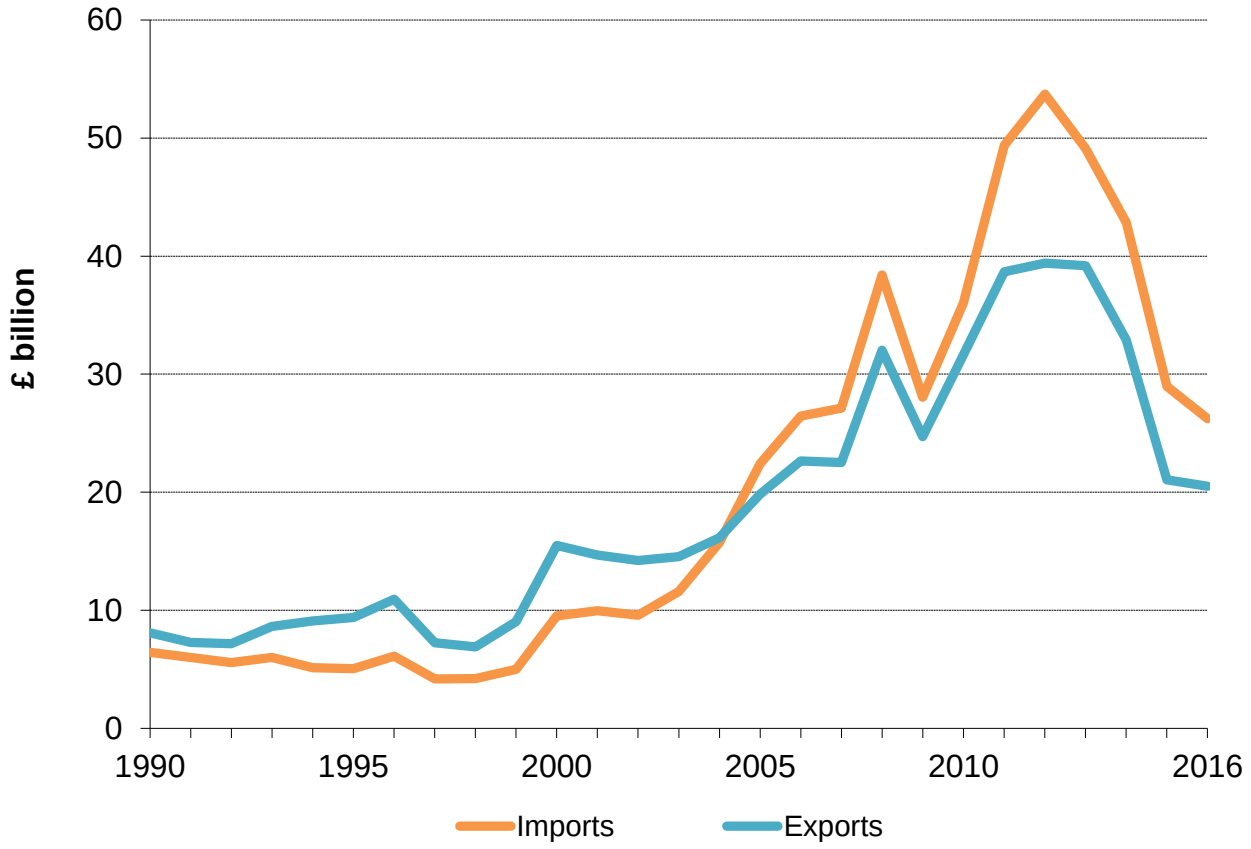


Million tonnes

	1990	2000	2010	2015	2016
Power stations	84.0	46.2	41.5	29.3	12.1
Domestic	4.2	1.9	0.7	0.6	0.6
Industry	6.3	1.9	2.0	2.0	1.6
Services	1.2	0.08	0.06	0.03	0.05
Other energy industries	12.5	9.8	7.1	5.7	3.6
Total consumption	**108.3**	**59.9**	**51.4**	**37.6**	**18.0**

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 gradually fell between 2007 and 2011 before increasing again 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 2016 coal use in electricity generation fell to a record low of 12 million tonnes. The decline was due to reduced coal-fired capacity attributable to the conversion of a third unit at Drax from coal to high-range co-firing (85% to <100% biomass) in July 2015 and an increase in the carbon price floor, which made coal-fired generation more expensive relative to gas-fired generation (from April 2015). In 2016, coal use in electricity generation accounted for 67% of total coal demand.

Foreign trade in crude oil and petroleum products, 1990 to 2016



Crude oil and petroleum products					£ billion
	1990	**2000**	**2010**	**2015**	**2016**
Exports	8.1	15.5	31.6	21.0	20.5
Imports	6.4	9.5	36.0	29.0	26.2
Net Imports	**-1.6**	**-6.0**	**4.4**	**7.9**	**5.7**

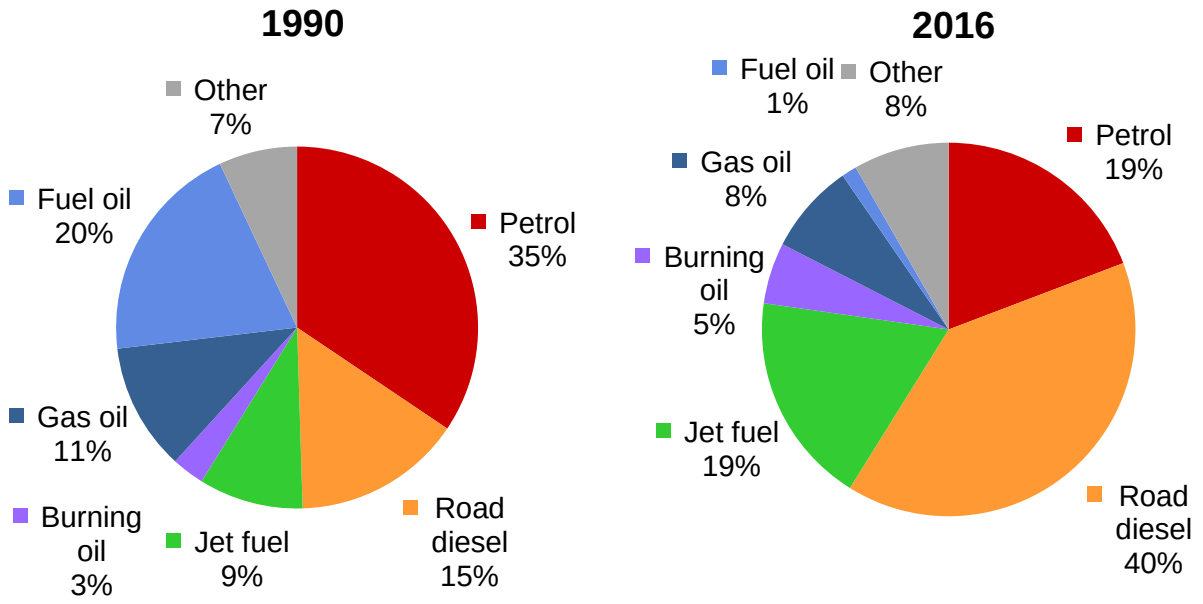
Source: Office for National Statistics

Crude oil and petroleum products					Million tonnes of oil equivalent
	1990	**2000**	**2010**	**2015**	**2016**
Exports	80.4	123.9	74.4	62.2	64.9
Imports	69.2	74.8	85.9	90.2	92.0
Net Imports	**-11.2**	**-49.1**	**11.5**	**28.0**	**27.1**

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 £6.0 billion. However in 2005, the UK became a net importer of oil with a deficit of £2.6 billion, though still an exporter of oil products. Between 2005 and 2016 the cumulative deficit amounted to just under £84 billion. Following the peak in 2012 the deficit has steadily declined and in 2016 was £5.7 billion, down 28% on a year earlier due to low crude oil prices.

Demand by product, 1990 to 2016



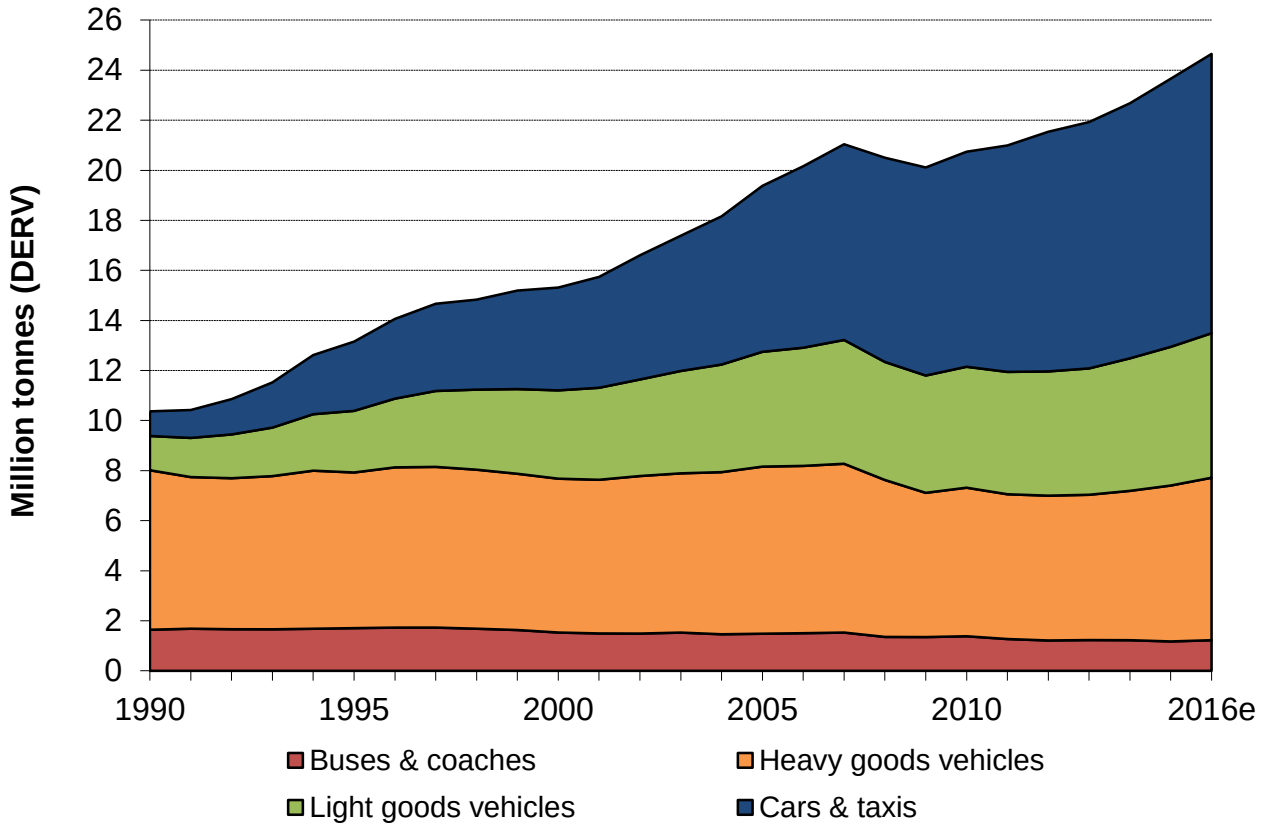
Million tonnes

	1990	2000	2010	2015	2016
Energy uses*					
Petrol	24.3	21.4	14.6	12.1	12.0
Road diesel	10.7	15.6	20.7	23.7	24.6
Jet fuel	6.6	10.8	11.1	11.3	11.4
Burning oil	2.1	3.8	4.0	3.2	3.3
Gas oil	8.0	6.8	5.1	5.1	4.9
Fuel oil	14.0	3.3	1.9	0.8	0.8
Other	5.0	5.3	6.1	5.3	5.2
Total energy uses	70.6	67.1	63.6	61.6	62.2
Of which:					
Transport fuels	43.5	49.5	48.1	48.4	49.3
Industry	7.2	5.5	5.1	3.9	3.7
Refinery fuel use	5.1	5.3	4.4	4.3	4.2
Non-energy uses	9.2	10.1	7.1	6.5	7.0
Total demand	79.8	77.2	70.7	68.1	69.1

* 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 use of oil products, a substantially larger share than in 1990 as 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 2016



Total deliveries of diesel road fuel (DERV) have more than doubled since the early 1990s and have increased further this year. The long term trend is mainly caused by the increased use of DERV in cars, taxis and light goods vehicles.

Demand for DERV by Vehicle Type — **Thousand tonnes**

	1990	2000	2010	2015	2016*
Car & taxi	984	4,108	8,590	10,710	11,159
Light goods vehicles	1,369	3,529	4,832	5,542	5,774
Heavy goods vehicles	6,372	6,146	5,936	6,229	6,491
Buses & coaches	1,642	1,531	1,382	1,175	1,224
Total	**10,368**	**15,314**	**20,740**	**23,656**	**24,648**

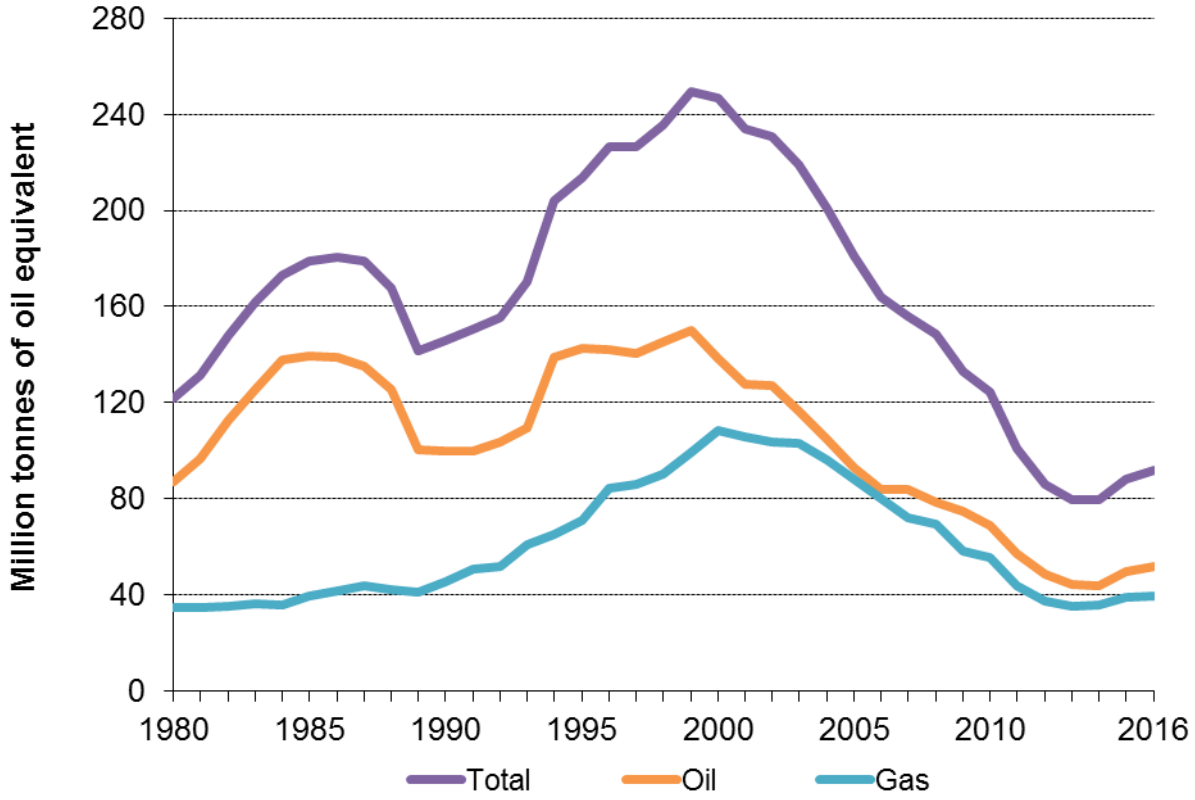
*Based on modelling by Ricardo Energy & Environment using data from the National Atmospheric Emissions Inventory.

Demand for petrol decreased further in 2016 as diesel continued to displace petrol in road transport. With the increasing dieselisation of the car fleet, petrol consumption by cars and taxis fell below 12 million tonnes in 2016, while diesel consumption rose above 11 million tonnes for the first time.

Demand for Petrol — **Thousand tonnes**

	1990	2000	2010	2015	2016
Total	24,310	21,400	14,600	12,080	11,950

UK Continental Shelf production, 1980 to 2016



Million tonnes of oil equivalent

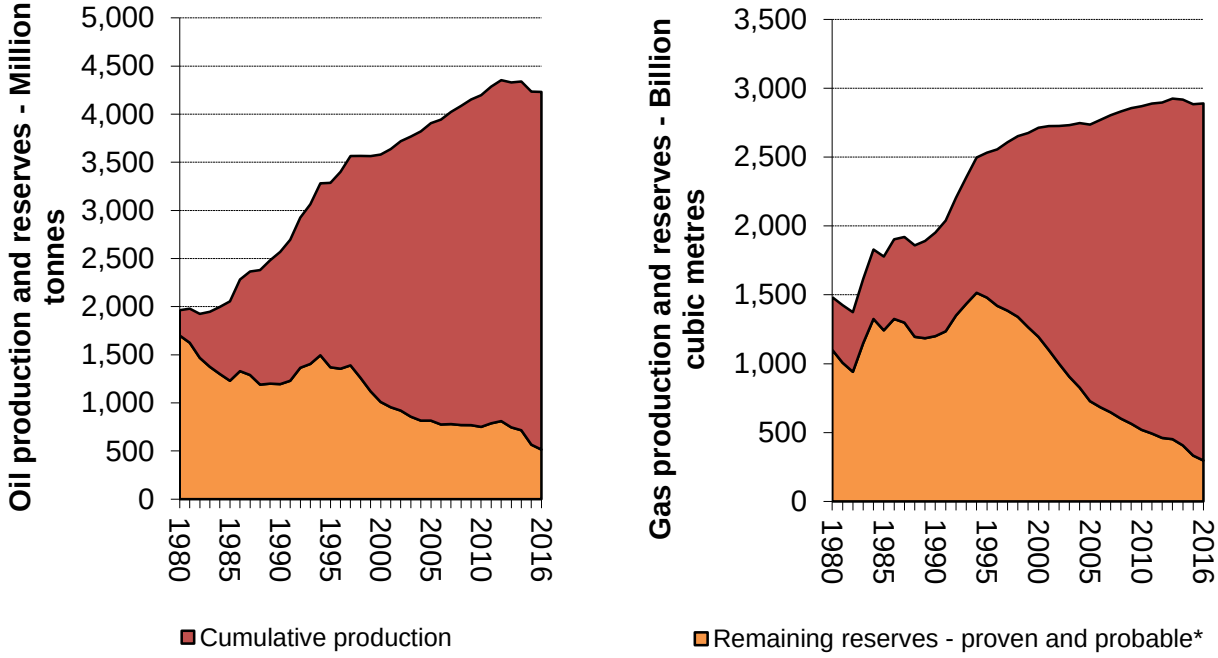
	1980	1990	2000	2010	2015	2016
Oil	86.9	100.1	138.3	69.0	49.5	52.0
Gas	34.8	45.5	108.4	55.3	38.8	39.8
Total	**121.7**	**145.6**	**246.7**	**124.3**	**88.4**	**91.7**

Total indigenous oil and gas production was up 4% on 2015. This increase is in contrast to an average decline rate of 6% since UKCS production peaked in 1999.

Oil production in 2016 was 65% lower than the record 150.2 million tonnes in 1999 but this year it increased by 5% on last year, a contrast to the decline rate of around 6% seen since the turn of the century. Production was aided by the commencement of operations at the Golden Eagle field in late 2014, the second largest oil discovery in the North Sea since Buzzard with strong production seen in 2016. Also, the development of the Balloch field along with the addition of new fields coming online has aided production.

Gas production in 2016 was 63% lower than the record levels seen in 2000, and since the turn of the century gas production has been decreasing by around 5% per year. 2016 is notable as gas production was up on 2015, by 3%, which is only the third increase since 2000. Production was aided by the Laggan field which began production towards the middle of 2016. Production from this field is expected to account for around 5 to 10% of all UK production over the next few years.

Oil and gas production and reserves, 1980 to 2016

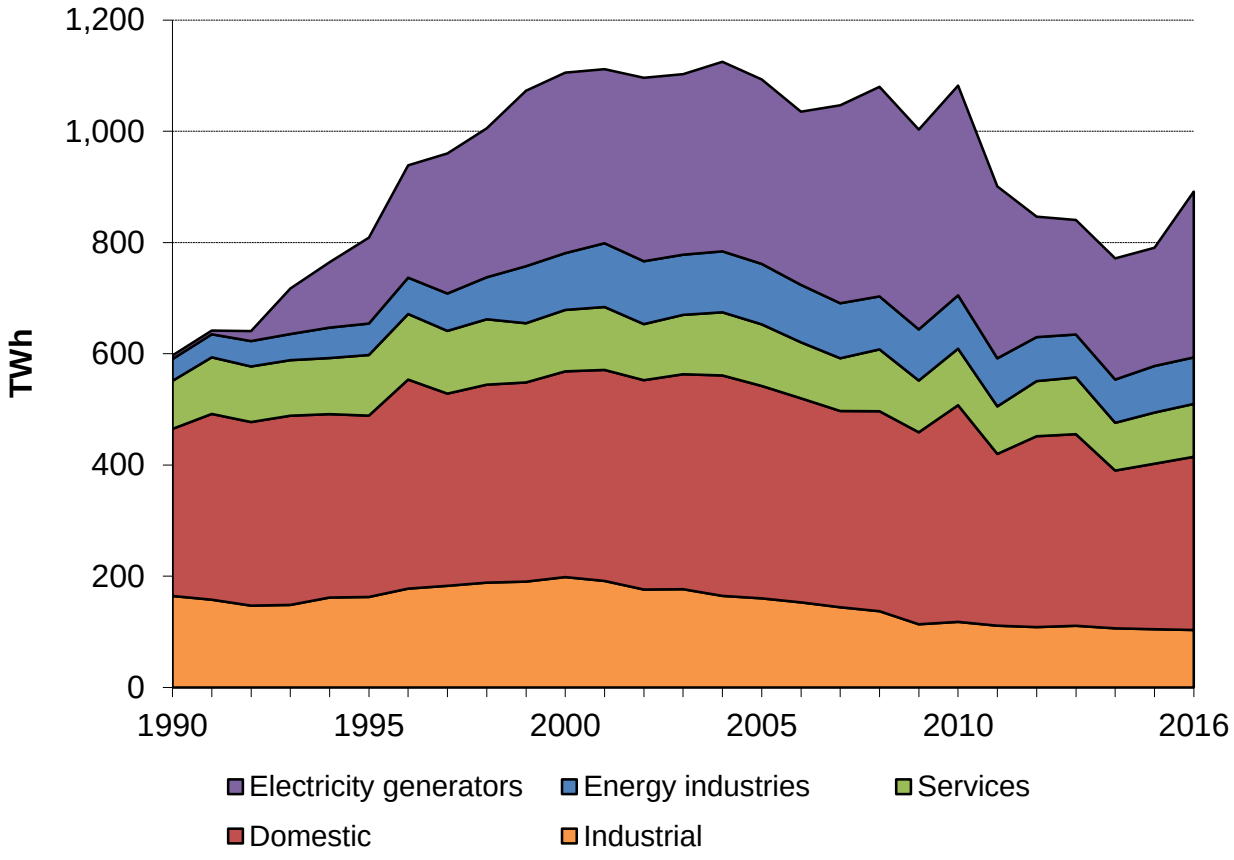


* From 2015, contingent resources have been re-categorised and removed from the probable and proven reserves category.

	1990	2000	2010	2015	2016
Oil					**Million tonnes**
Cumulative production	1,374	2,570	3,446	3,446	3,668
Proven plus probable reserves	1,195	1,010	751	751	566
Estimated Ultimate Recovery	2,569	3,580	4,197	4,197	4,234
Gas					**Billion cubic metres**
Cumulative production	752	1,518	2,349	2,551	2,592
Proven plus probable reserves	1,200	1,195	520	333	297
Estimated Ultimate Recovery	1,952	2,713	2,869	2,884	2,889

The Estimated Ultimate Recovery (EUR) shows the cumulative total of production to the end of the years given and the total of proven plus probable reserves as estimated at the end of those years. For both oil and gas, EUR has grown substantially since 1980, increasing by 116% for oil and by 95% for gas. This reflects increased new discoveries and the effect of new technology allowing exploitation of resources that were previously regarded as uncommercial. Total cumulative production of oil and gas are 89% and 75% respectively greater than the estimated EUR in 1980. The EUR figures shown do not include estimates for Shale Gas. From 2015 onwards, contingent resources have been re-categorised and removed which accounts- in part - for the decline in 2015 compared to 2014.

Natural gas consumption, 1990 to 2016



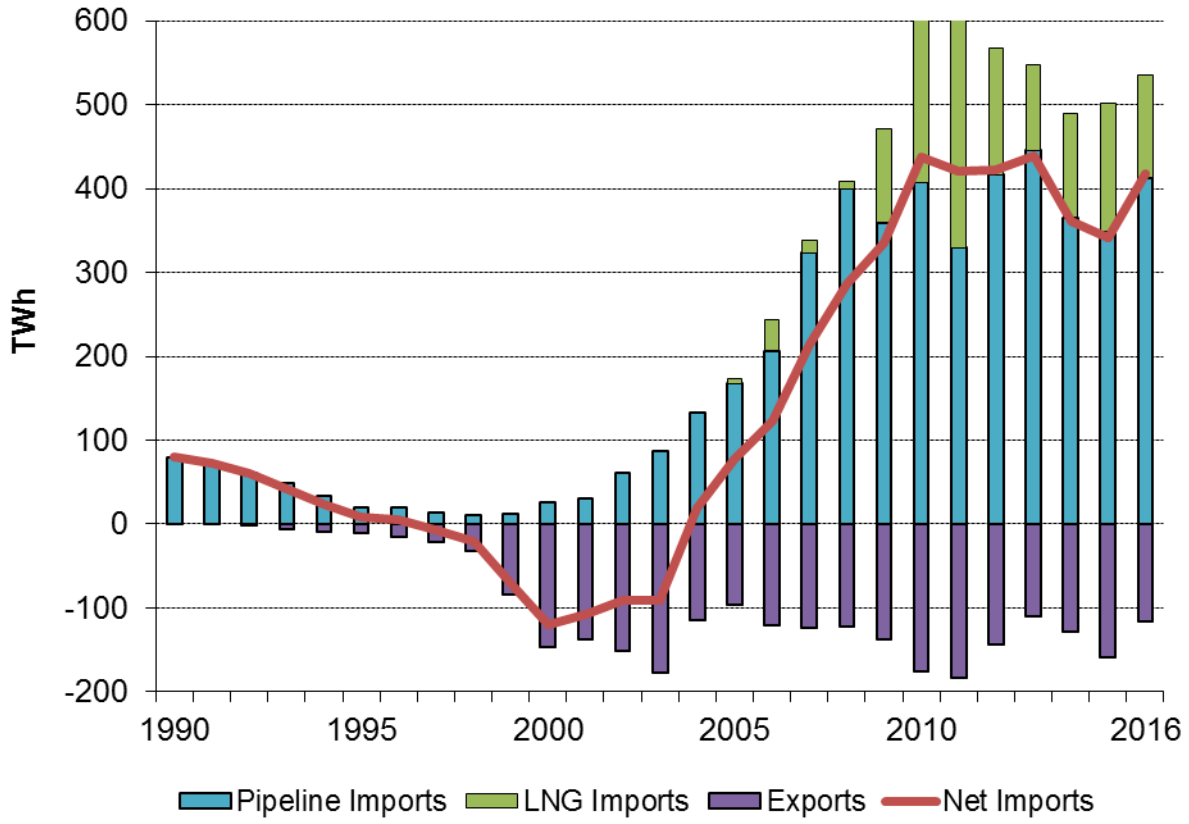
TWh

	1990	2000	2010	2015	2016
Electricity generators	6.5	324.6	377.1	212.6	298.1
Energy Industries	39.2	102.1	95.9	83.7	83.6
Industry	164.6	198.5	118.0	104.8	103.4
Domestic	300.4	369.9	389.6	297.6	311.4
Services	86.4	110.5	101.6	91.9	95.1
Total	**597.0**	**1,105.5**	**1,082.2**	**790.7**	**891.1**

From the early 1970s, following the expansion of UK production of natural gas, gas consumption grew rapidly reaching a record high in 2004 of 1,125 TWh. Since then consumption has seen an overall decline, and in 2016 total gas consumption was 891.1 TWh - around a fifth below the 2004 peak. 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 was up by 13% in 2016 versus 2015. This rise was driven by a 40% rise in gas used for electricity generation, which has been caused by the decrease in coal power generation. Domestic and services consumption were also up, 4.6 and 3.5 per cent respectively, driven by comparatively colder temperatures during winter.

UK trade in natural gas, 1990 to 2016



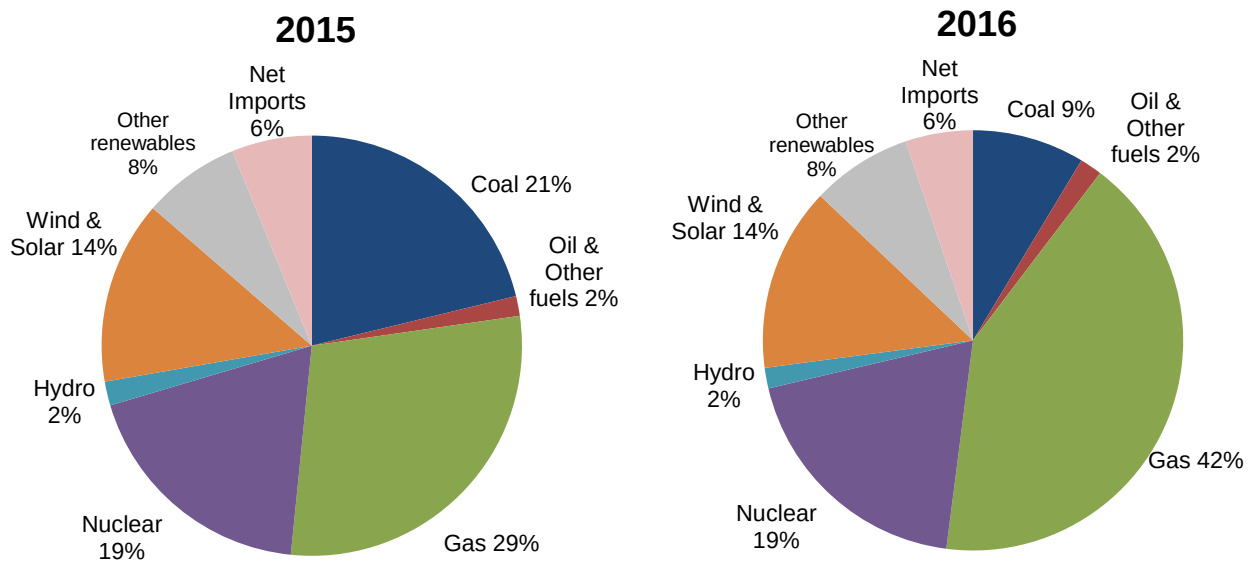
TWh

	1990	2000	2010	2015	2016
Natural gas production	528.8	1,260.2	642.5	451.8	462.3
Imports	79.8	26.0	614.5	501.6	534.7
of which					
LNG	-	-	150.1	152.4	122.3
Exports	-	-146.3	-176.4	-159.5	-116.9
Net imports(+) or exports(-)	+79.8	-120.3	+438.1	+342.0	+417.9

UK gas production peaked in 2000 and has since been declining. With declining production the UK has become increasingly reliant on gas imports to meet demand. Between 2000 and 2010 net imports steadily increased before stabilising, then falling back. Net imports in 2016 increased substantially on last year, potentially this could be related to the suspension of injections to the Rough Storage Facility, which comprises around 70% of gas storage in the UK. In 2015 net imports accounted for around 47% of gas demand.

Imports of Liquefied Natural Gas (LNG) through the two terminals at Milford Haven (South Hook and Dragon) and via the Isle of Grain remain substantial. However, their shares of total imports decreased from 30% in 2015 to 23% in 2016. Norway remains the UK's key partner for imports and pipeline imports from Norway accounted for 65% of imports in 2015. Whilst demand for LNG on the global market remains strong, 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 supplied by fuel type, 2015 and 2016



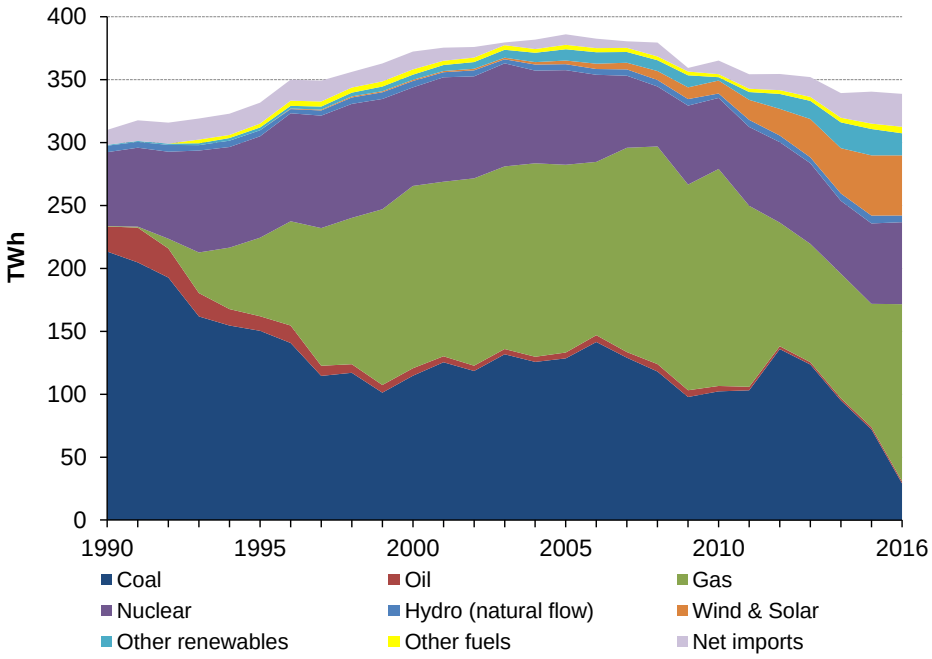
TWh

	1990	2000	2010	2015	2016
Coal	213.4	114.7	102.3	72.0	29.1
Oil & other fuels*	19.2	9.2	5.6	5.2	5.8
Gas	0.4	144.9	172.5	98.0	140.8
Nuclear	58.7	78.3	56.4	63.9	65.1
Hydro	5.2	5.1	3.5	6.2	5.3
Wind & Solar	-	0.9	10.3	47.9	47.8
Other renewables	-	4.1	10.8	25.4	26.2
Net Imports	11.9	14.2	2.7	20.9	17.5
Total electricity available for supply	**308.7**	**371.4**	**364.1**	**339.5**	**337.7**

*Includes net supply from pumped storage

Between 2015 and 2016, total supply of electricity remained broadly unchanged. The share of electricity supplied from coal fell from 21% to 9% due to plant closures including Ferrybridge C and Longannet in March 2016. The share of electricity supplied from gas rose from 29% to 42% as an alternative to coal fired generation. Nuclear's share of supply remained constant at 19%. Wind and solar's share also remained constant at 14% despite increased capacity due to unfavourable weather conditions for renewable generation. Further details on renewable electricity generation can be found on page 30. The share of net imports fell to 5% following a fall in imports from France after damage to the interconnector in November 2016.

Electricity supplied by fuel type, 1990 to 2016



The mix of fuels used to generate electricity continues to evolve. Since 1990 the decline of coal and oil as well as 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, making up for the reduced availability of nuclear stations and as a substitute for high priced gas. It fell back again in the next three years before rising in 2010, particularly due to higher winter electricity demand. Again due to high gas prices, supply from coal rose during 2012 but has fallen each year since due to plant closures and conversions. In 2016 supply from coal fell again to a record low 29.1 TWh due to the closure and conversions of several power stations.

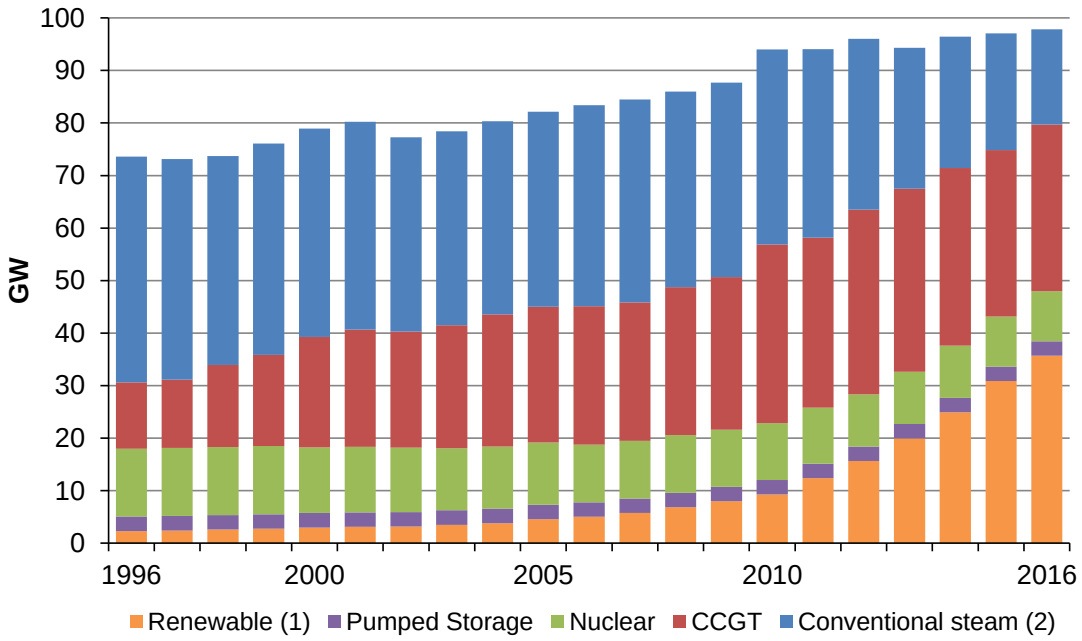
Supply from gas rose most markedly over this period from 0.4 TWh in 1990 to a peak of 173 TWh in 2008, and has fluctuated slightly since. In 2016 gas supply increased by 44% on 2015 as gas was used as an alternative to coal.

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. In 2011 supply from nuclear began to rise again as stations returned from outages and has been fluctuating since. In 2015 supply rose again after falling in 2014 due to outages at several nuclear power stations at the end of the year. In 2016 nuclear supply remained broadly constant.

Supply from wind (including solar) has followed an upward trend since 2000 as capacity levels have increased each year. In 2015 wind and solar supplied a record level of 47.9 TWh due to this extra capacity along with 15 year high wind speeds. Wind and solar supply remained broadly the same in 2016, despite extra capacity, due to poor weather conditions for renewables generation.

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 2016 supply 12% lower than that in 2005.

Electricity capacity, 1996 to 2016



(1) 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)
(2) Includes coal, non-CCGT gas, oil and mixed/dual fired. Does not include thermal renewables.

GW

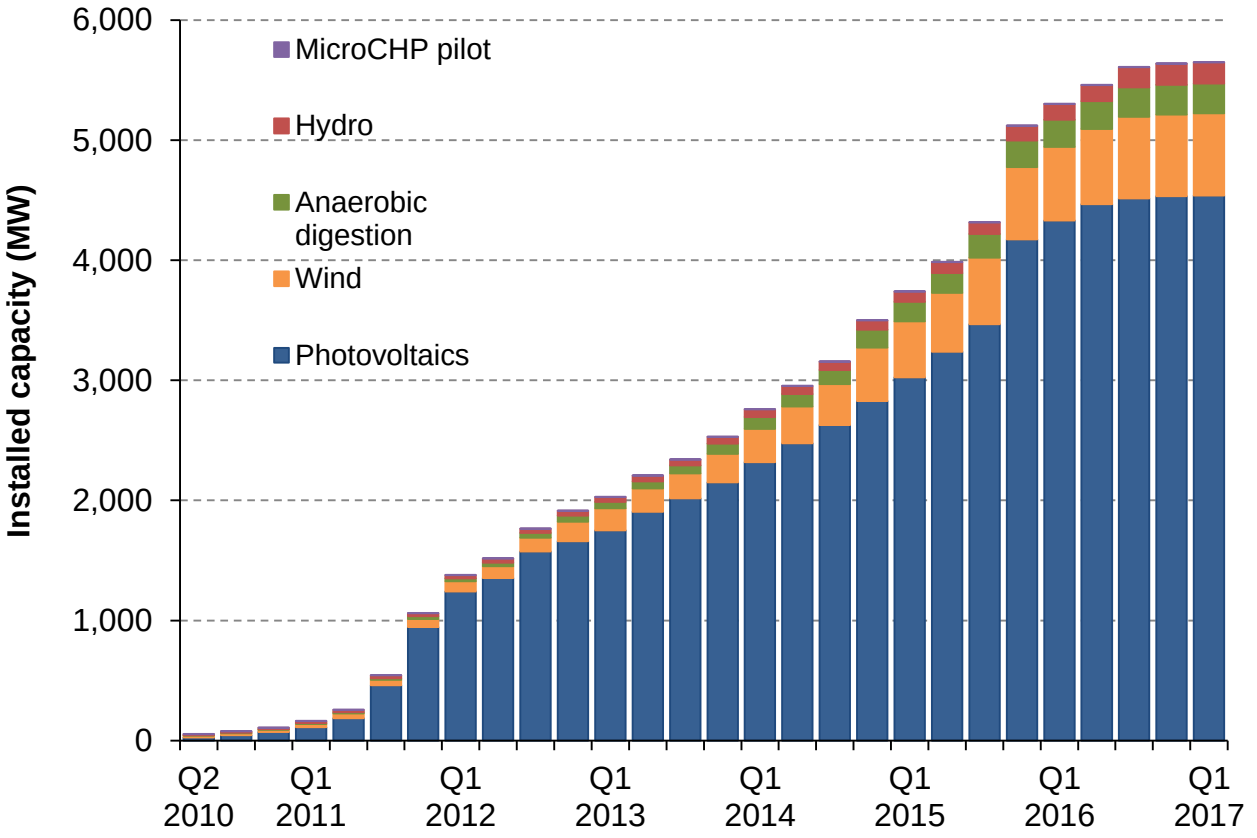
	1996	2000	2005	2010	2015	2016
Conventional Steam	43.0	39.7	37.1	37.1	22.3	18.1
CCGT	12.7	21.1	25.9	34.0	31.7	31.8
Nuclear	12.9	12.5	11.9	10.9	9.5	9.5
Pumped Storage	2.8	2.8	2.8	2.7	2.7	2.7
Renewable	2.3	3.0	4.5	9.3	30.9	35.7
Total	**73.6**	**79.0**	**82.1**	**94.0**	**96.5**	**97.8**

Installed capacity in the UK has increased gradually between 1996 and 2016, from 73.6 GW to 97.8 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.

Conventional steam declined by 18.5% between 2015 and 2016 (to 18.1 GW) as a result of the conversion of a third unit at Drax power station from coal to a high-range co-firing (85% to <100% biomass) unit. Furthermore, the coal power stations Longannet and Ferrybridge C closed in 2016. CCGT capacity has increased almost threefold over the period 1996-2013, from 12.7 GW to 34.9 GW, but has since fallen to 31.8 GW as sites have been mothballed and closed.

The closure of Wylfa at the end of 2015 reduced nuclear capacity to 9.5 GW where it has remained in 2016. Nuclear capacity has been gradually falling from 12.9 GW in 1996 as plants reach the end of their lifetime. Renewables capacity has seen a significant increase, with installed capacity increasing by over 15 times the capacity in 1996 to 35.7 GW in 2016. This is as a result of an increase in installed wind and solar capacity. Onshore wind capacity rose 18 per cent and offshore wind by 3.9 per cent from 2015 to 2016. Solar photovoltaic installed capacity increased by 25 per cent over the same period, and Drax converted a unit from coal to biomass, as previously mentioned.

Feed in Tariffs, 2010 to 2017



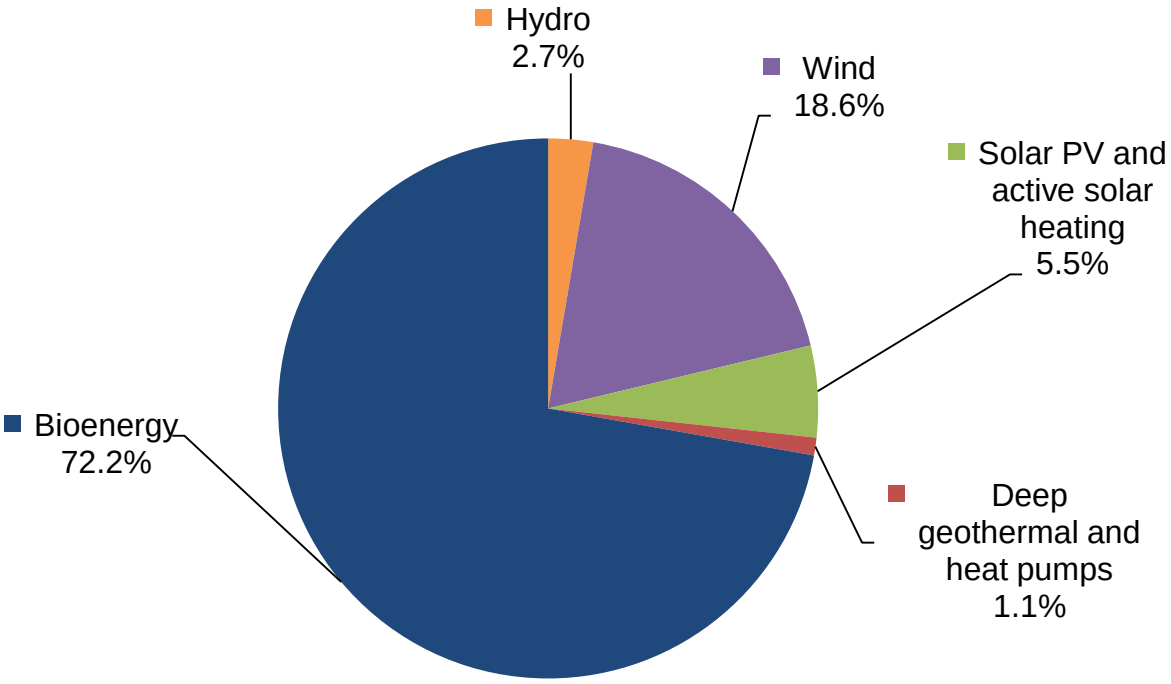
	2011 Q1	2013 Q1	2014 Q1	2015 Q1	2016 Q1	2017 Q1
						Cumulative Installed Capacity (MW)
Micro CHP	0.2	0.6	0.6	0.7	0.7	0.7
Anaerobic Digestion	15	42	65	85	131	176
Hydro	8	54	99	162	227	249
Wind	27	184	279	468	612	684
Photovoltaics	111	1,749	2,317	3,024	4,331	4,539
Total	**162**	**2,030**	**2,760**	**3,740**	**5,302**	**5,650**

Source: Extracted on 15 April 2017 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).

At the end of year 7 (2016/17) of the Feed in Tariff scheme 5,650 MW of capacity (797,320 installations) was installed (and confirmed) on FiTs, around 6.6% more capacity (and 2.2% more installations) than that installed at the end of the previous year. Of the 347 MW increase (16,804 installations) from the end of year 6 (2015/16), 60% (208 MW, 16,468 installations) were from solar photovoltaics, 21% (72 MW, 189 installations) were from wind installations, with the other technologies (micro-CHP, anaerobic digestion and hydro) contributing the remaining 19% of this increase. At the end of 2016/17, 48% (2,705 MW) of the total installed capacity was in the domestic sector.

Renewable energy sources, 2016



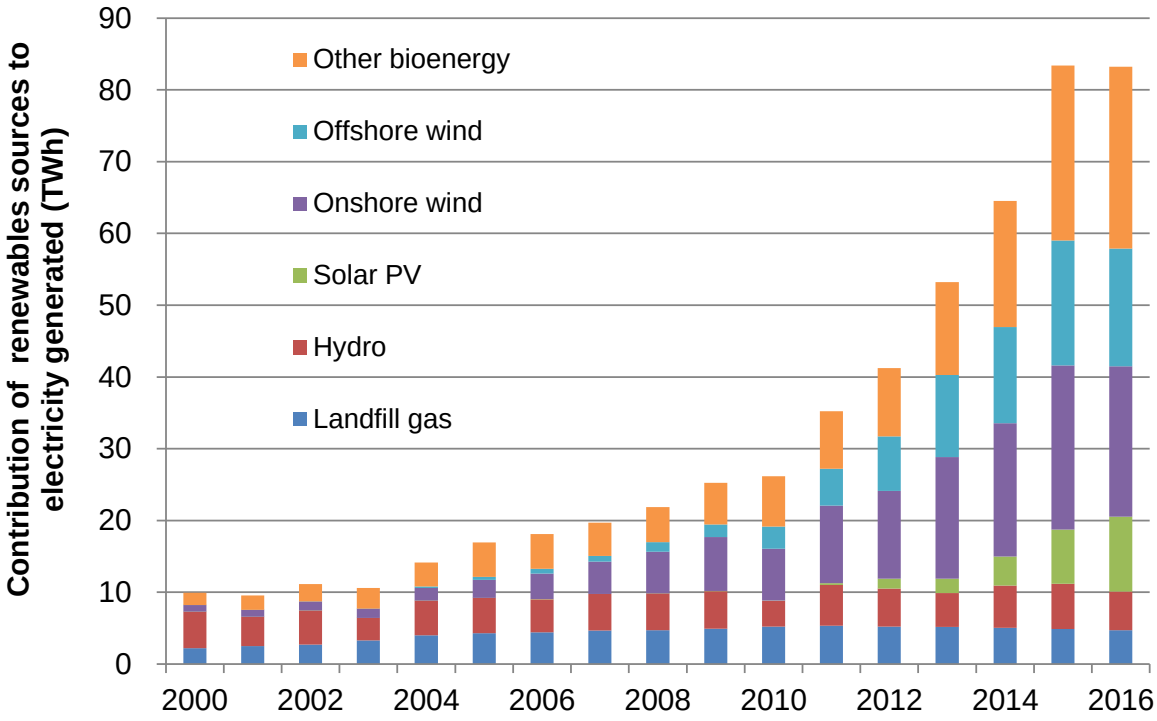
Total renewables used = 17,296 thousand tonnes of oil equivalent (ktoe)

Total use of renewables				**Thousand tonnes of oil equivalent**	
	1990	**2000**	**2010**	**2015**	**2016**
Solar PV and active solar heating	6	11	41	699	947
Wind	1	81	884	3,467	3,213
Hydro (large & small) and wave	448	437	309	542	464
Landfill gas	80	731	1,725	1,612	1,556
Sewage gas	138	169	295	366	384
Wood (domestic and industrial)	174	458	1,653	2,227	2,273
Municipal waste combustion (biodegradable)	101	375	632	951	1,163
Heat pumps and deep geothermal	1	1	23	157	183
Transport biofuels	-	-	1,218	1,003	1,010
Cofiring	-	-	625	38	25
Other bioenergy	72	265	1,054	5,529	6,079
Total	**1,021**	**2,529**	**8,460**	**16,591**	**17,296**

In 2016, bioenergy accounted for 72% of renewable energy sources used, with most of the remainder coming from wind (19%), solar (5.5%) and hydro (2.7%).

Of the 17.3 million tonnes of oil equivalent of primary energy use accounted for by renewables, 12.3 million tonnes was used to generate electricity, 3.9 million tonnes was used to generate heat, and 1.0 million tonnes was used for road transport. Renewable energy use grew by 4.3% between 2015 and 2016 and is now almost seven times the level it was at in 2000.

Electricity generation from renewable sources since 2000



Note: Hydro bar includes shoreline wave/tidal (0.0007 TWh in 2017)

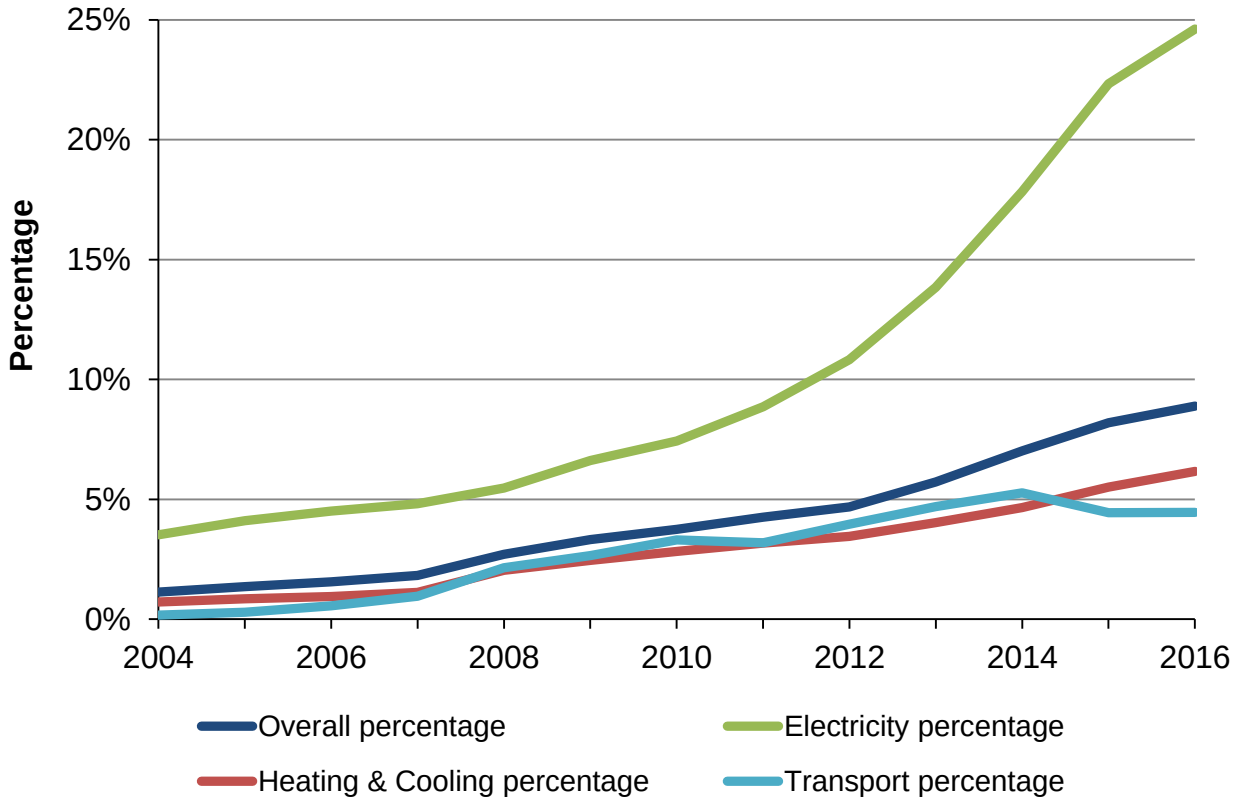
	Renewable Electricity Generation, TWh				
	1990	**2000**	**2010**	**2015**	**2016**
Onshore wind	-	0.9	7.2	22.9	21.0
Offshore wind	-	-	3.1	17.4	16.4
Solar PV	-	-	0.0	7.5	10.4
Hydro	5.2	5.1	3.6	6.3	5.4
Landfill Gas	0.1	2.2	5.2	4.9	4.7
Other Bioenergy	0.5	1.7	7.0	24.4	25.3
Total Renewables	**5.8**	**9.9**	**26.2**	**83.4**	**83.2**

Electricity generated from renewable sources fell by 0.2 per cent between 2015 and 2016 to 83.2 TWh. Lower rainfall and wind speeds resulted in lower hydro and wind generation, more than offsetting an increase in overall capacity. Total wind generation fell by 7.3 per cent to 37.4 TWh; an increase in capacity (mostly for onshore wind) was more than offset by lower wind speeds, though 2015 had seen the highest wind speeds for the preceding 15 years. Generation from hydro fell by 8.4 per cent to 21.0 TWh, though particularly high rainfall in 2015 had resulted in record generation for that year. Generation from solar photovoltaics showed the largest increase in absolute terms (anaerobic digestion showed higher growth from a relatively small base) increasing by 2.9 TWh (38 per cent) to 10.4 TWh, a record. Solar photovoltaic is the leading technology by capacity for the second year in a row.

Renewable electricity accounted for 24.5% of electricity generated in the UK during 2016, 0.1 percentage point higher than 2015.

When taking into account only sources eligible under the Renewables Obligation, renewables accounted for 26.2 % of UK electricity sales, up marginally from 26.1% in 2015.

UK progress against 2009 EU Renewable Energy Directive



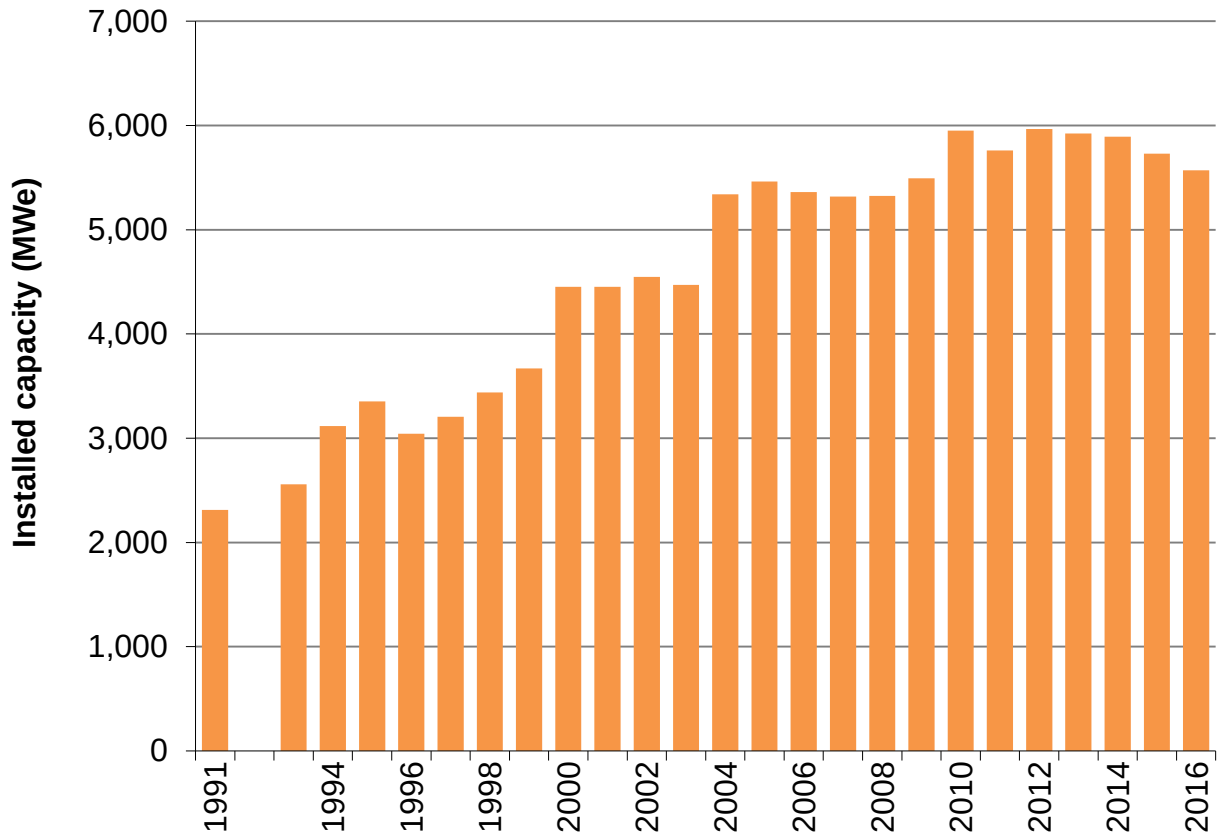
Progress against the 2009 Renewable Energy Directive

	2012	2013	2014	2015	2016
Percentage of electricity from renewable sources	10.8%	13.8%	17.8%	22.3%	24.6%
Percentage of heating and cooling from renewable sources	3.5%	4.0%	4.7%	5.5%	6.2%
Percentage of transport energy from renewable sources	4.0%	4.7%	5.3%	4.4%	4.5%
Overall renewable consumption as a percentage of capped gross final energy consumption using net calorific values	4.7%	5.7%	7.0%	8.2%	8.9%

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 2016 8.9% of final energy consumption was from renewable sources; this is up from 8.2% in 2015. The UK has now achieved its third interim target; averaged over 2015 and 2016, at 8.5 per cent against its target of 7.5 per cent.

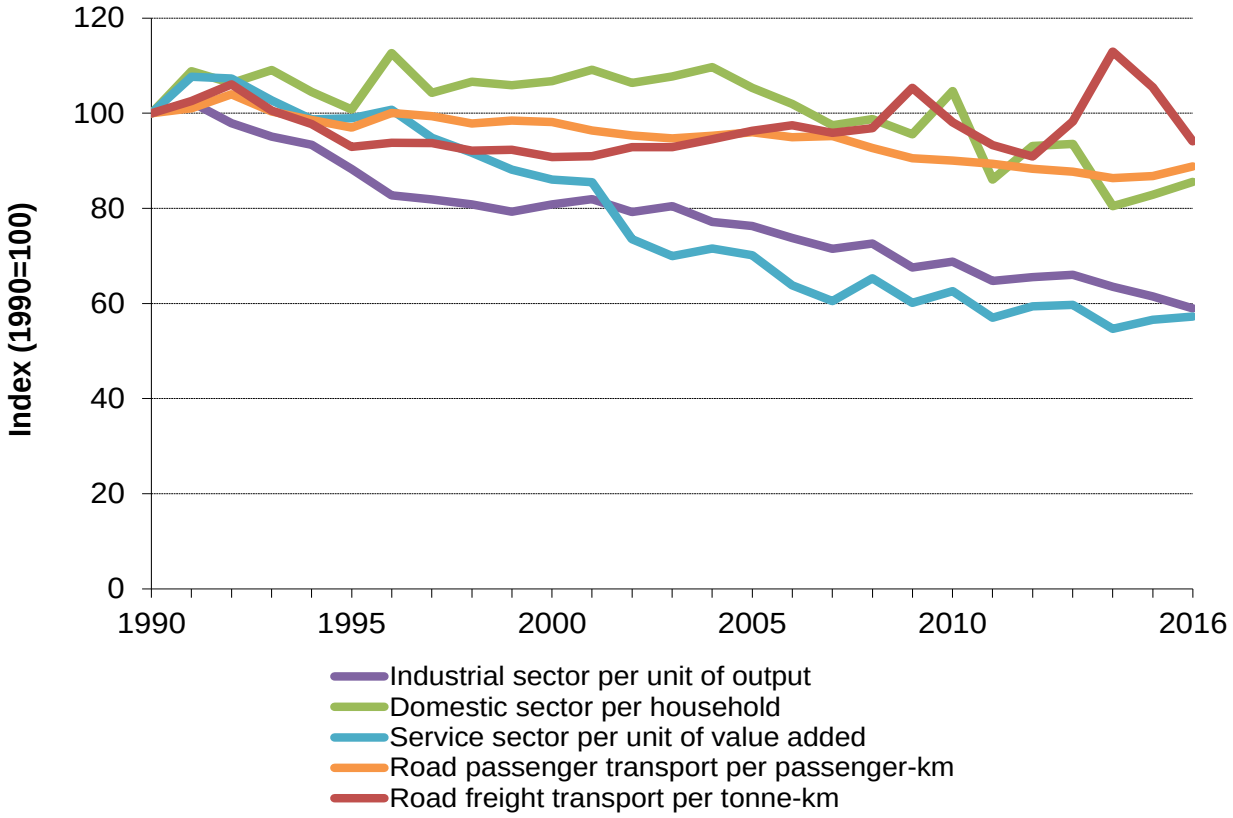
Combined heat and power, 1991 to 2016



	1995	2000	2010	2015	2016
CHP electrical capacity (MWe)	3,354	4,451	5,950	5,730	5,571
CHP electrical generation (GWh)	14,778	25,245	26,768	19,558	20,070
CHP heat generation (GWh)	56,833	54,877	48,267	40,261	40,423
Number of CHP sites					
<= 100 kWe	620	560	405	617	627
> 100 kWe to 1 MWe	397	533	763	1,132	1,158
>1 MWe to 2 MWe	26	41	83	142	151
> 2 MWe to 10 MWe	113	141	138	181	180
> 10 MWe +	63	64	66	67	66
Total	**1,219**	**1,339**	**1,455**	**2,139**	**2,182**

In 2016 CHP electrical capacity fell by 2.8% compared to 2015 despite a 2.0% increase in the total number of schemes. Electricity generation in 2016 was 2.6% higher than in 2015, while heat generation was just 0.4% higher. Schemes larger than 10 MWe represent 75% of the total electrical capacity of CHP schemes whereas schemes less than 1MWe constitute the majority (82%) of the number of schemes. In 2016 CHP schemes accounted for 5.6% of the total electricity generated in the UK and 6.7% of UK gas demand.

Energy intensity, 1990 to 2016



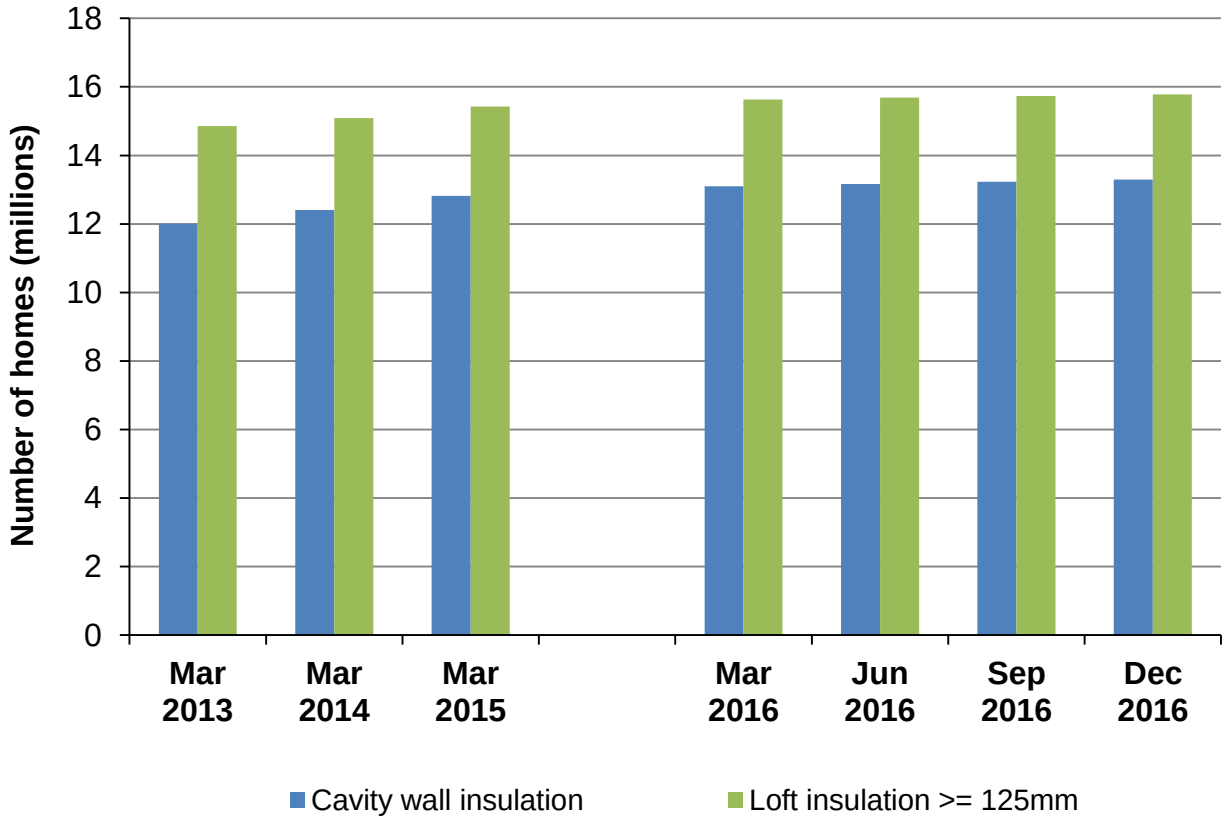
Tonnes of oil equivalent

	1990	2000	2010	2015	2016p
Industrial energy consumption per million units of GVA	165.8	134.0	114.0	102.2	98.1
Domestic energy consumption per household	1.8	1.9	1.9	1.5	1.5
Service sector energy consumption per million units of GVA	28.4	24.5	17.8	16.2	16.4
Road passenger energy consumption per million passenger-kilometres *	42.7	41.9	38.4	37.0	37.9
Road freight energy consumption per million freight-kilometres *	83.2	75.5	81.6	87.7	78.2

* BEIS estimates for 2016

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 a number of 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. Despite the fluctuation over the past few years, there has been a general downward trend in domestic consumption since 2005.

Number of homes with energy efficiency measures, March 2013 to December 2016



Insulated homes in Great Britain (Thousands)

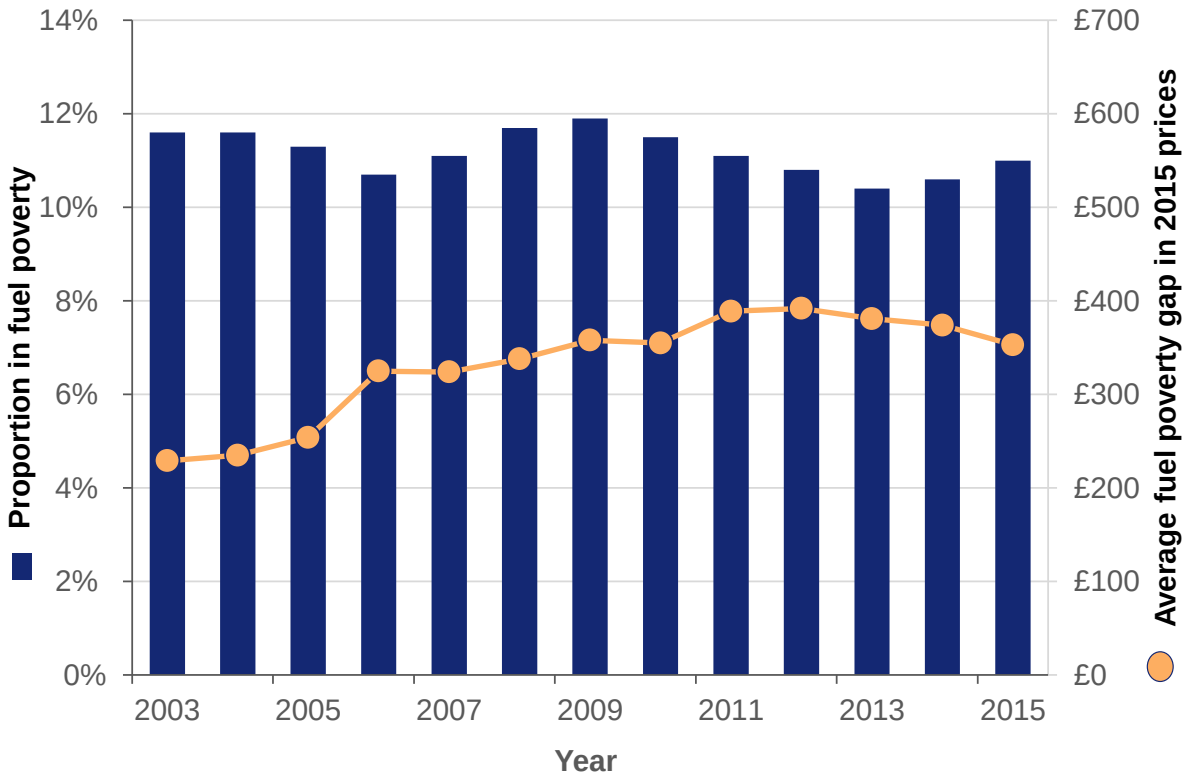
	Mar 2013	Mar 2014	Mar 2015	Mar 2016	Dec 2016
Cavity wall insulation	12,010	12,400	12,810	13,100	13,290
Loft insulation >= 125mm	14,860	15,090	15,420	15,630	15,780

Source: BEIS, Household Energy Efficiency (HEE) National Statistics, detailed report 2016. Estimates of insulation levels have been re-based to April 2013 to reflect more up to date information. 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 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 11% between the end of March 2013 and December 2016 such that 13.3 million, of the 19.2 million homes with cavities, are insulated. The number of homes with loft insulation, of a depth of at least 125mm, has increased by 6% between the end of March 2013 and December 2016 meaning that 15.8 million of the 23.9 million homes with lofts are insulated to this level.

Households in fuel poverty, 2003 to 2015



A household is considered to be fuel poor if:

- they have required fuel costs that are above average (the national median level);
- were they to spend that amount, they would be left with a residual income below the official poverty line.

The Low Income High Costs fuel poverty measure for England is a dual indicator, which measures both:

i) the **proportion** of households that have both *low* incomes and *high* fuel costs; and

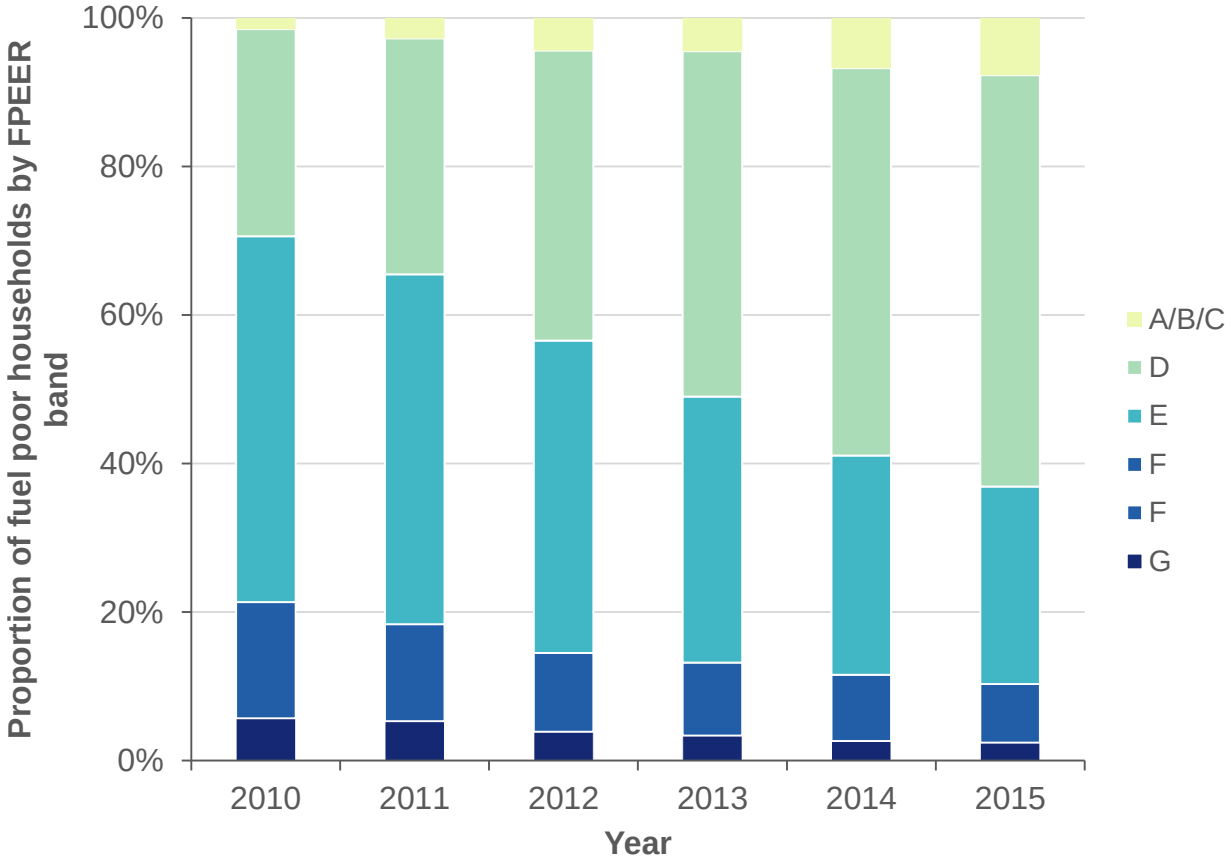
ii) the **depth** of fuel poverty among these fuel poor households. This is measured through a fuel poverty gap, which represents the difference between the required fuel costs for each household and the nearest fuel poverty threshold.

The fuel poverty indicator is a *relative* measure, as it compares households to national income thresholds and national median energy costs – thereby reflecting contemporary trends.

In 2015 the average fuel poverty gap (in real terms[1]) was £353. This is a decrease of around 5.6 per cent from 2014. The aggregate fuel poverty gap (summed across all households in fuel poverty) also decreased by 0.5 per cent in real terms to £884 million in 2015. The proportion of households in England in fuel poverty in 2015 was estimated at 11.0 per cent (approximately 2.50 million households). This is an increase of 0.4 percentage points from 2014.

[1] The average fuel poverty gap has been rebased to 2015 prices.

Fuel poor population by FPEER band, 2010 to 2015



The fuel poverty energy efficiency rating (FPEER) is a measure of the energy efficiency of a property based on the Standard Assessment Procedure (SAP)[2] but accounts for policies that directly affect the cost of energy. Similar to SAP, the FPEER methodology generates a rating between 1 and 100, which is then translated into an energy efficiency band from G (lowest) to A (highest) and underpins the Government's fuel poverty target[3].

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).

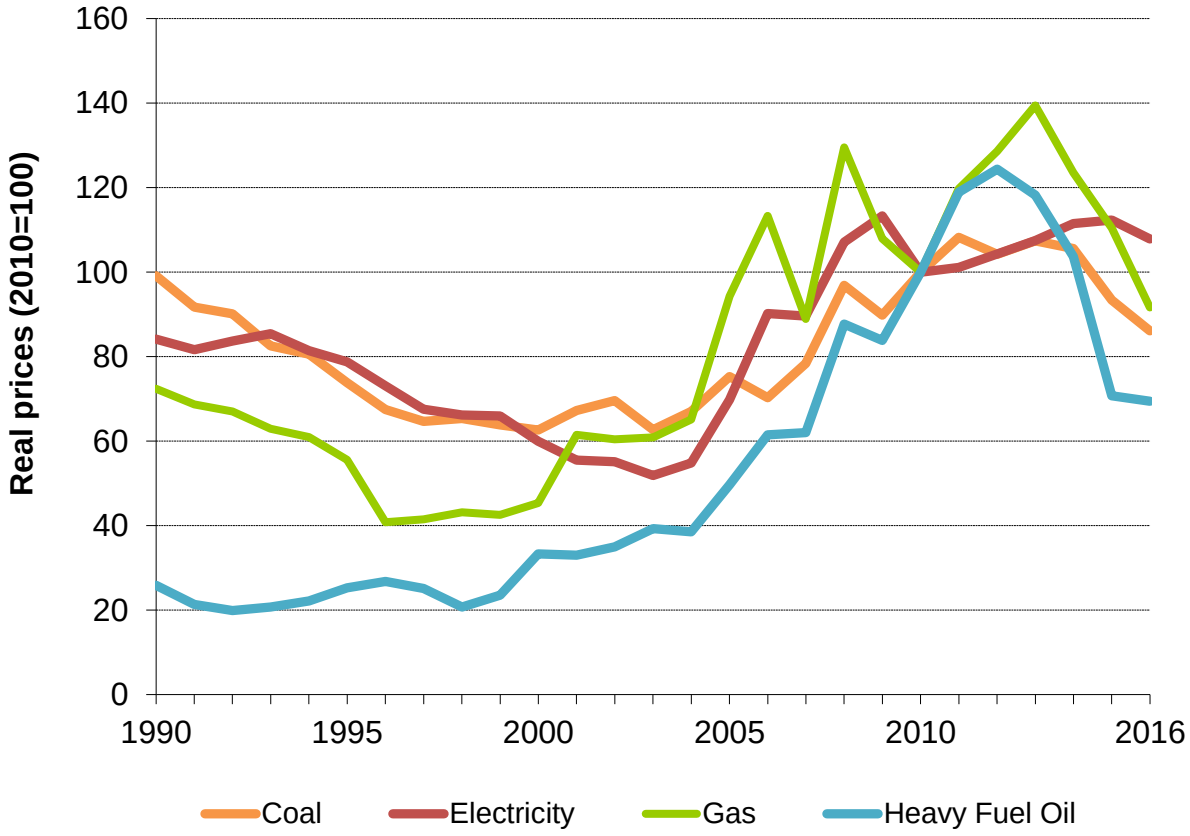
The chart above looks specifically at the fuel poor population by FPEER bands between 2010 and 2015. This shows that the proportion of fuel poor households in Band *C* and above and Band *D* have increased over time, while the proportion of fuel poor households in Bands *E*, *F* and *G* have decreased.

In 2015 89.7 per cent of fuel poor homes were in Band E or above; 63.1 per cent of fuel poor homes were in Band D or above; and 7.8 per cent of fuel poor households were in Band C or above.

[2] www.gov.uk/guidance/standard-assessment-procedure

[3] www.gov.uk/government/uploads/system/uploads/attachment_data/file/408644/cutting_the_cost_of_keeping_warm.pdf

Fuel price indices for the industrial sector, 1990 to 2016



Real prices, 2010 = 100

	1990	2000	2010	2015	2016
Coal	99.1	62.7	100.0	93.4	86.1
Electricity	84.1	60.0	100.0	112.3	107.9
Gas	72.4	45.4	100.0	110.4	91.7
Heavy fuel oil	25.9	33.3	100.0	70.7	69.5
Industrial prices	**74.4**	**51.9**	**100.0**	**105.2**	**98.7**

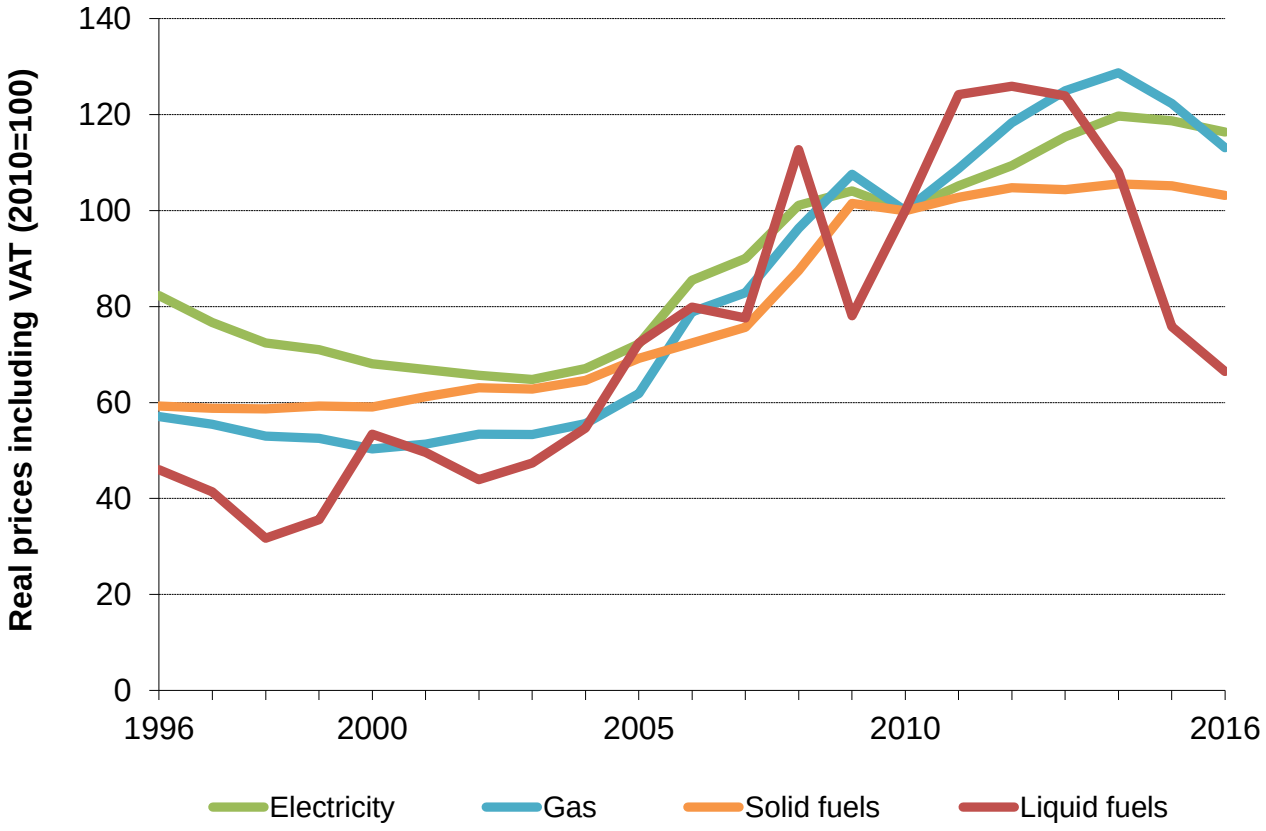
Includes the Climate Change Levy that came into effect in April 2001.

Industrial prices generally fell in the 90's 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 in 2016 fell by 6.2% in real terms on the previous year and were 15% lower than the peak in 2013 but twice those in 2003.

In 2016 compared to 2015 prices for all fuels fell, with electricity prices down by 4.0%, gas prices down by 17%, heavy fuel oil down by 1.7% and coal down by 7.8%. Over the last ten years gas prices have decreased by 19% while electricity prices have increased by 20%.

Prices for most fuels are generally driven by changes to the price of crude oil. Brent prices, in dollar terms, increased from around $25/barrel (bbl) in 2001 to $112/bbl in 2012, before falling back to $44/bbl in 2016.

Fuel price indices for the domestic sector, 1996 to 2016



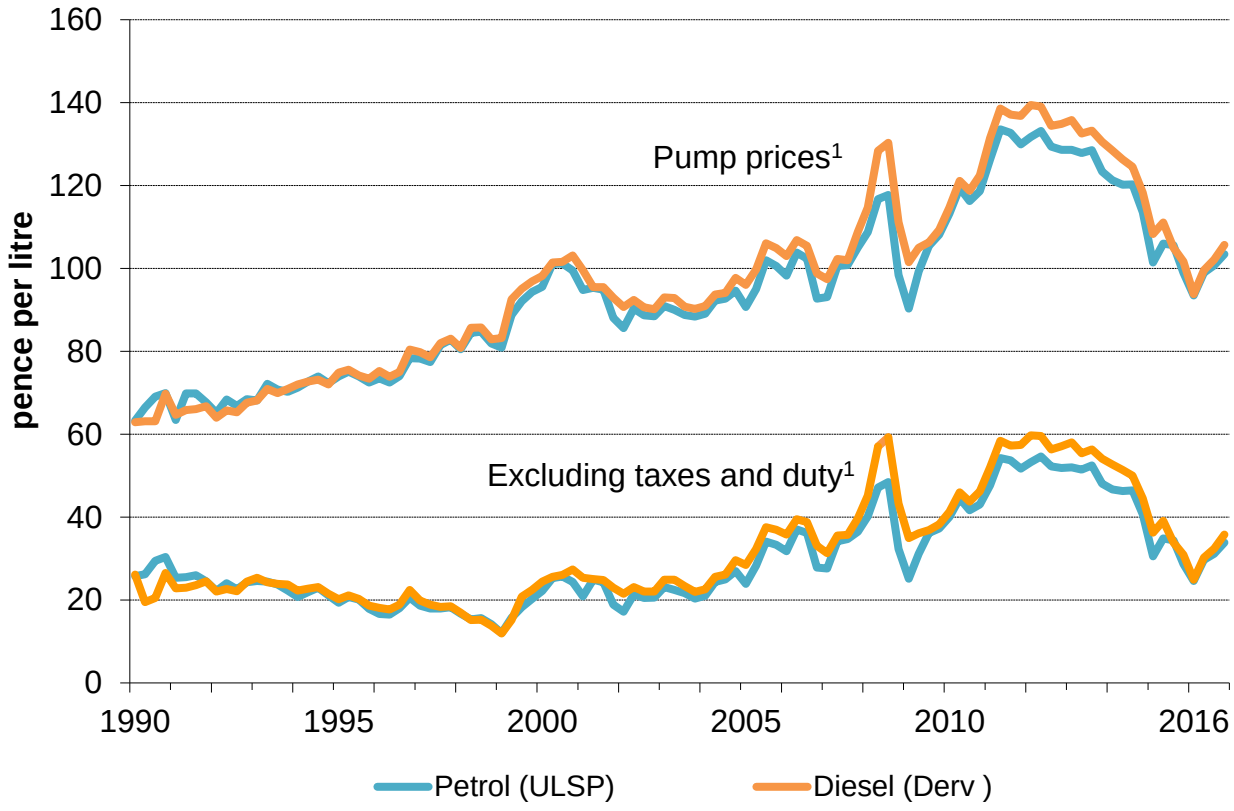
	Real prices including VAT, 2010 = 100					
	1996	**2000**	**2005**	**2010**	**2015**	**2016**
Solid fuels	62.4	61.0	70.8	100.0	105.2	103.2
Electricity	86.4	70.3	73.9	100.0	118.7	116.4
Gas	59.9	52.0	63.3	100.0	122.3	113.1
Liquid fuels	48.4	55.1	74.0	100.0	75.8	66.5
Domestic fuels	**71.5**	**61.6**	**69.4**	**100.0**	**119.0**	**113.5**

Source: Consumer Price Index, Office for National Statistics

Compared to 2015, total domestic energy prices in 2016 decreased in real terms by 4.7%. Within the overall movement liquid fuels decreased by 12%, gas prices decreased by 7.5%, and electricity prices by 1.9%. Between 2015 and 2016 crude oil prices fell further by 16% to $44 per barrel. This drop in the raw material prices was passed through to petroleum products produced from refining crude oil, leading to a fall in liquid fuel prices of 12%.

Between 2006 and 2016, real prices for domestic energy increased by 38%, with the real price of electricity increasing by 36% and the real price of gas increasing by 43%. Liquid fuel prices rose to a peak in 2012 but are now lower than the price in 2006.

Petrol and diesel prices, 1990 to 2016



[1] Deflated using GDP (market prices) deflator (2010 = 100)

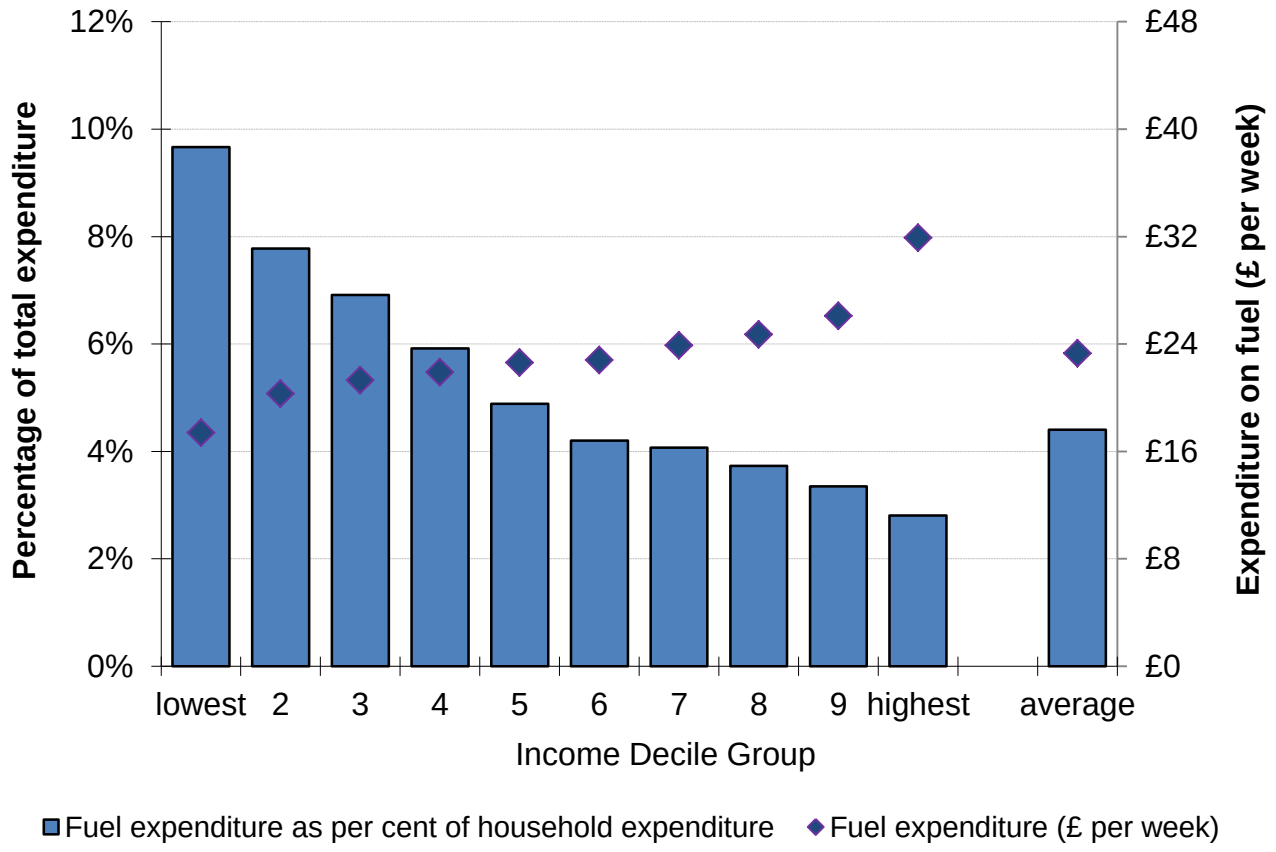
Current retail prices	Pence/litre	
	Petrol (ULSP)	Diesel
1990	42.0	40.5
1995	53.8	54.2
2000	79.9	81.3
2005	86.8	90.9
2010	116.9	119.3
2015	111.1	114.9
2016	108.8	110.1

In cash terms the price of Ultra Low Sulphur Petrol (ULSP) cost 2.3 pence less in 2016 than in 2015, whilst diesel cost 4.8 pence per litre less. These decreases reflect the prices of crude oil, 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. Crude oil prices have since been on the increase again. Average crude prices fell by 16% between 2015 and 2016.

In real terms the price of petrol was 4% lower in 2016 compared to 2015, whilst the price of diesel was 6% lower.

In 2016 taxes and duty accounted for 70% of the retail price of unleaded and 69% of the price of diesel.

Fuel expenditure of households[1], 2015/16



Fuel expenditure as a percentage of total household expenditure, 1990 to 2015/16

Fuel type	1990	2000/01	2010	2014	2015/16[4]
Gas	1.7%	1.2%	2.0%	2.3%	2.0%
Electricity	2.3%	1.6%	2.1%	2.3%	2.2%
Coal and Coke	0.3%	} 0.3%	0.4%	0.3%	0.2%
Heating oil	0.2%				
Total	**4.5%**	**3.1%**	**4.5%**	**4.9%**	**4.4%**

Source: Living Costs and Food Survey 2015/16, Office for National Statistics

(1) Includes non-consuming households

Households in the lowest income decile group (i.e. the 10% of households with the lowest income) spend just over half as much on domestic fuel per week compared to households in the highest income decile group (£17 compared to £32 per week). However when comparing expenditure on domestic fuels as a proportion of total expenditure in 2015/16, those in the lowest income decile group spend considerably more (9.7%) than those in the highest income decile group (2.8%).

Across all income deciles households spent, on average, 4.4% of their total expenditure on fuel in 2015/16, a slight decrease on 2014 (4.9%).

[4] In 2015, ONS moved from calendar to fiscal year for reporting the Living Costs and Food survey data

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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 toe	TJ	GWh	Million therms
		to:				
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 34, 35 and 36.

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 2017 edition, published on 27 July 2017, can be accessed 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 2017 edition of the chart, published on 27 July 2017, shows the flows for 2016 and can be accessed 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 efficiency, intensity and output since the 1970s, with a particular focus on trends since 1990. The information is presented in five sections covering overall energy consumption and energy consumption in the transport, domestic, industrial and service sectors.
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

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