



A National Statistics Publication



UK ENERGY IN BRIEF 2010

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This booklet summarises the latest statistics on energy production, consumption and prices in the United Kingdom. Figures are taken from the 2010 edition of the "Digest of UK Energy Statistics", published on 29 July 2010. Details of the Digest and other Department of Energy and Climate Change (DECC) statistical publications can be found on pages 40 and 41 of this booklet and are available on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/publications/publications.aspx

This booklet is also available on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/publications/brief/brief.aspx



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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 influence greenhouse gas emissions. It takes data from the main Department of Energy and Climate Change (DECC) statistical publications, the Digest of UK Energy Statistics, Energy Trends, Quarterly 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 and renewable energy. Information is also given on energy efficiency, energy prices and energy expenditure.

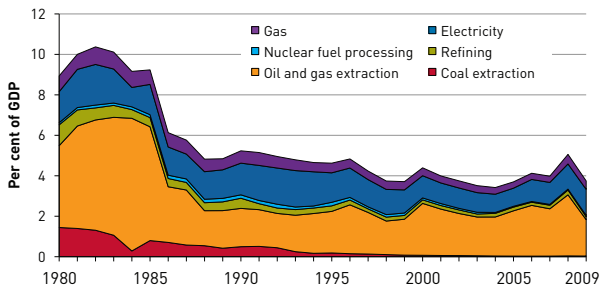
The detailed background data on energy production and consumption can be found in the Digest of UK Energy Statistics 2010 available from The Stationery Office, priced £54, but also available free of charge on the Internet at: www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx

Energy in the economy

THE ENERGY INDUSTRIES' CONTRIBUTION TO THE UK ECONOMY

- 3.7% of GDP
- 10.1% of total investment
- 49.6% of industrial investment
- 2.1% of annual business expenditure on research and development
- 150,200 people directly employed in 2009 (5% of industrial employment) and more indirectly e.g. an estimated 239,000 in support of UK Continental Shelf production.

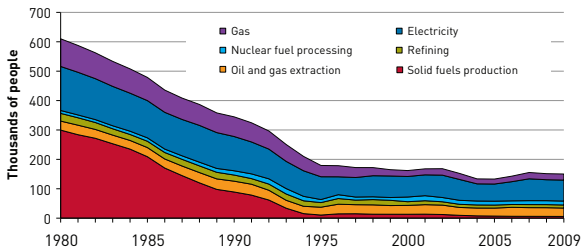
Contribution to GDP by the energy industries, 1980 to 2009



Source: Office for National Statistics
DECC estimate for 2009

Contribution to the UK economy by the energy industries peaked in 1982 at 10.3%. Despite the fall in 1986, the oil and gas extraction sector remained the major energy contributor to the UK economy (with its value dependent both on production and the price of oil and gas) followed by the electricity sector. For 2009, DECC estimated the contribution by the energy industries to the UK economy to be 3.7 % of GDP.

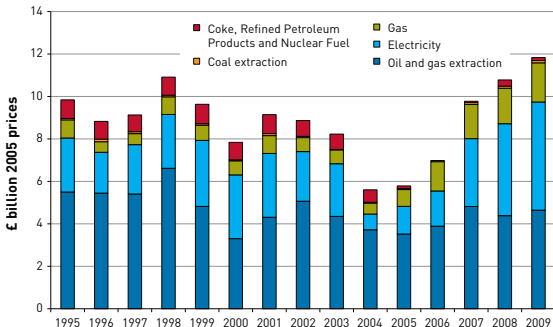
Trends in employment in the energy industries, 1980 to 2009



Source: Office for National Statistics

Employment in the energy industries fell rapidly in the 1980s and 1990s as a result of the closure of coal mines. Since 1995 employment has remained largely unchanged with almost half of the workforce in the electricity sector.

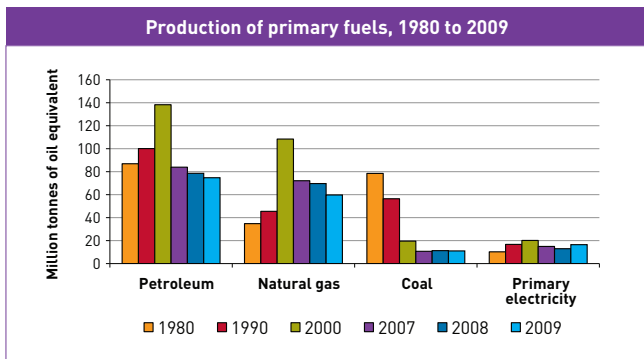
Investment in the energy industries, 1995 to 2009



Source: Office for National Statistics

Since 2004, investment in the energy industries has continued to grow. In 2009, of the total amount invested in the energy industry, 39% was in oil and gas extraction, 43% in electricity, 16% in gas with the remaining 2% in coal extraction and coke, refined petroleum products and nuclear fuels.

Overall energy



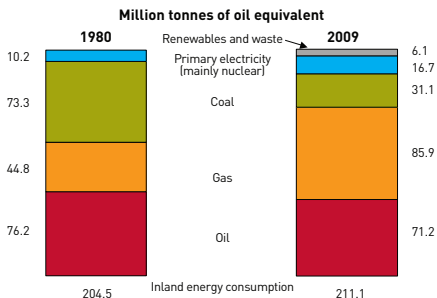
Million tonnes of oil equivalent

	1980	1990	2000	2007	2008	2009
Petroleum	86.9	100.1	138.3	83.9	78.6	74.7
Natural gas	34.8	45.5	108.4	72.1	69.7	59.7
Coal	78.5	56.4	19.6	10.7	11.3	11.0
Primary electricity	10.2	16.7	20.2	14.9	13.0	16.5
Renewables	..	0.7	2.3	4.4	4.5	4.9
Total	210.5	219.4	288.7	186.0	177.0	166.9

Total production of primary fuels, when expressed in terms of their energy content, fell by 5.7% in 2009 compared to 2008. Petroleum accounted for 45% of total production, natural gas 36%, coal 7% and primary electricity (nuclear, wind and natural flow hydro) 10%. Renewables and waste account for the remaining 4.9 million tonnes of oil equivalent.

Total production increased rapidly between 1980 and 2000, primarily due to the growth of oil and gas. Since 2000 production has started to decline and is now 21% lower than in 1980, and 42% lower than in 2000. Production in 2000 was at record levels for natural gas, whilst in 1999 it was at record levels for overall energy and petroleum.

Inland energy consumption, 1980 to 2009



Million tonnes of oil equivalent

	1980	1990	2000	2007	2008	2009
Conversion losses:			53.8	54.4	52.8	49.7
Distribution losses and energy industry use:	(62.1)	66.4)	20.7	18.4	18.2	17.5
Final consumption:						
Industry	48.3	38.7	35.4	31.0	30.7	26.7
Domestic	39.8	40.8	46.9	44.9	46.0	43.6
Transport	35.5	48.6	55.5	60.2	58.9	56.5
Services	18.7	19.2	21.5	18.6	18.7	17.1
Total final energy consumption:	142.4	147.3	159.2	154.7	154.3	143.9
Total inland primary energy consumption:	204.5	213.7	233.7	227.6	225.3	211.1
Temperature corrected total inland consumption	206.2	221.6	239.6	232.5	226.3	212.7

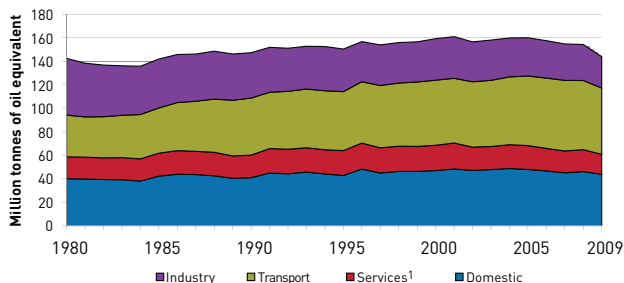
(1) Includes agriculture

(2) Excludes non-energy use

Primary energy consumption was 6.3% lower in 2009 than in 2008. Since 1980 consumption of natural gas and primary electricity has risen considerably, whilst consumption of oil has remained around the same and coal has fallen. Energy industry use, losses during conversion to secondary fuels and losses during distribution accounted for 31.8% of inland energy consumption in 2009.

Overall energy

Final energy consumption, 1980 to 2009



2009

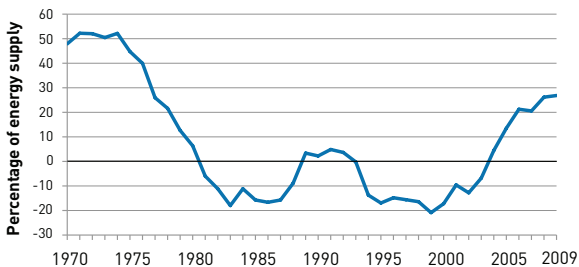
Million tonnes of oil equivalent

	Industry	Domestic	Transport	Services¹	Total
Coal & manufactured fuels	1.7	0.7	-	0.1	2.5
Gas	9.8	28.8	-	7.1	45.8
Oil	5.4	3.0	54.7	1.3	64.4
Electricity	8.4	10.5	0.8	8.0	27.7
Renewables and heat	1.3	0.5	1.0	0.7	3.5
Total	26.7	43.6	56.5	17.1	143.9

(1) Includes agriculture

The total final energy consumption (excluding non-energy use) was 6.7% lower in 2009 compared to 2008. By sector, final consumption fell by 13% in the industry sector, 5% in the domestic sector, 9% in the service sector and 4% in the transport sector. In terms of fuel types, final consumption of coal and manufactured fuels fell by 10%, gas 10%, oil 5%, electricity 6%, whilst renewables increased by 13%.

Import dependency of fossil fuels, 1970 to 2009



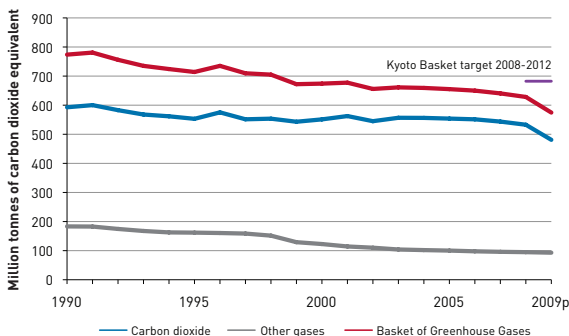
Percentage

	2000	2005	2006	2007	2008	2009
Coal	39%	71%	75%	69%	75%	78%
Gas	-11%	7%	12%	20%	26%	32%
Oil	-55%	-3%	9%	2%	9%	8%
Total	-17%	14%	21%	21%	26%	27%

In the 1970's the UK was a net importer of energy. Following development of oil and gas production facilities 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. The UK remains a net exporter of oil products, though the level of net imports of crude oil result in the UK being a net importer of oil.

Latest comparable data from Eurostat, for 2007, show that the UK had the second lowest level of import dependency in the EU, behind Denmark, which remains a net exporter.

Greenhouse gas and carbon dioxide emissions, 1990 to 2009



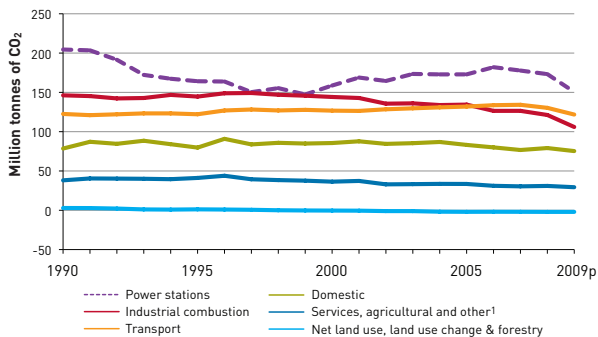
Million tonnes of carbon dioxide

	1990	1995	2000	2007	2008	2009p
Carbon dioxide	592.8	553.1	551.2	543.6	532.8	480.9
Methane	104.4	91.2	69.5	49.3	48.7	..
Nitrous oxide	65.1	53.5	42.3	34.7	33.9	..
HFC	11.4	15.5	8.7	11.0	11.2	..
PFC	1.4	0.5	0.5	0.2	0.2	..
SF ₆	1.0	1.2	1.8	0.8	0.7	..
'Basket' of greenhouse gases	773.8	714.1	674.1	640.5	628.3	574.6

Source: AEA, DECC (2009 provisional figures)

In 2009, UK emissions of the basket of six greenhouse gases covered by the Kyoto Protocol were provisionally estimated to be 574.6 million tonnes carbon dioxide equivalent. This was 8.6% lower than the 2008 figure of 628.3 million tonnes and 26% lower than the 1990 figure of 773.8 million tonnes. In 2009, carbon dioxide emissions contributed about 84% of the potential global warming effect of anthropogenic emissions of greenhouse gases and are primarily created when fossil fuels are burned. Estimates based on energy production and consumption in 2009 indicate that carbon emissions were 10% lower than the previous year, and 19% lower than in 1990.

Emissions by sector, 1990 to 2009



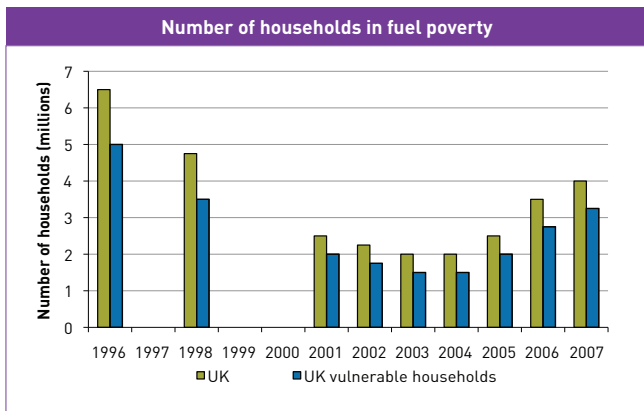
(1) Includes commercial and public service, military aircraft and naval vessels, fugitive emissions from solid fuels and natural gas and waste.

Million tonnes of carbon dioxide

	1990	1995	2000	2007	2008	2009p
Power stations	204.5	164.2	158.7	177.8	173.2	150.5
Industrial combustion	146.2	144.7	144.2	126.5	121.2	106.0
Transport	122.6	122.2	126.8	134.2	130.3	121.8
Domestic	78.5	79.7	85.6	76.7	79.2	75.3
Services, agriculture and other	38.1	41.1	36.4	30.4	31.0	29.3
NLULUCF	2.9	1.2	-0.4	-2.0	-2.0	-2.0
Total CO₂ emissions	592.8	553.1	551.2	543.6	532.8	480.9

Source: AEA, DECC (2009 provisional figures)

It has been provisionally estimated that 480.9 million tonnes of carbon dioxide (MtCO₂) were emitted during 2009. Carbon dioxide emissions have fallen by 19% since 1990. Power stations, at 150.5 MtCO₂, are the largest single source of carbon dioxide emissions. Between 1990 and 2009 emissions from electricity generation decreased by 26%. In 2009, CO₂ emissions from the transport sector, at 121.8 MtCO₂, accounted for a quarter of all CO₂ emissions. Emissions from this sector are now slightly below 1990 levels. Emissions from the residential sector accounted for around 16% of all CO₂; since 1990 emissions from this sector have decreased by 4%. The falls seen in 2009 are a result of many factors including the recession.



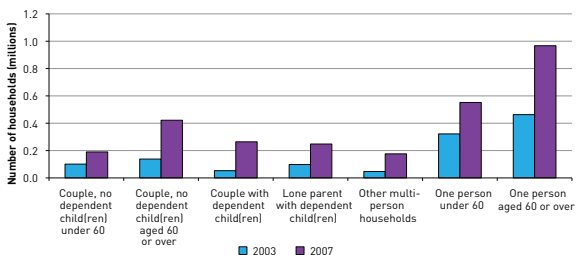
More information can be found at

www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/fuelpov_stats.aspx

Households are considered fuel poor if, in order to maintain a satisfactory heating regime, they need to spend more than 10% of their income on all household domestic fuel use. The number of fuel poor households in the UK has fallen from about 6½ million in 1996 to about 4 million in 2007. The 2007 figure is an increase of approximately half a million households since 2006 and continues the upward trend since 2004. This rise is mainly attributable to rising domestic fuel prices experienced in recent years (see page 35).

The number of vulnerable (those that contain children, elderly people, or those with disabilities or long-term illness) fuel poor households in the UK is estimated to have fallen from about 5 million to about 3¼ million between 1996 and 2007. The 2007 level is a rise from around 1½ million vulnerable fuel poor households in 2004.

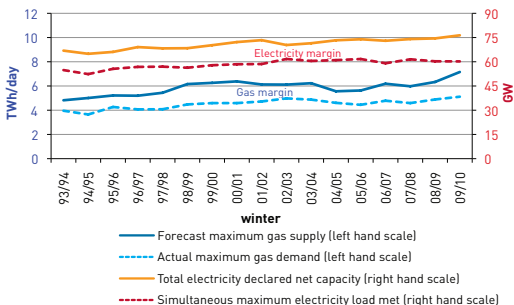
Fuel poverty by household composition, England



Households, England (000s)	2003		2007		Change (2003-2007)	
	Fuel poor households	Total households	Fuel poor households	Total households	Fuel poor households	Total households
Category						
Couple, no dependent child(ren) under 60	101	4,023	190	4,007	89	-16
Couple, no dependent child(ren) aged 60 or over	138	3,183	422	3,754	284	571
Couple with dependent child(ren)	53	4,971	264	5,050	211	79
Lone parent with dependent child(ren)	98	1,515	248	1,462	150	-53
Other multi-person households	47	1,458	176	1,527	129	69
One person under 60	322	2,649	552	2,413	230	-236
One person aged 60 or over	463	2,924	967	3,167	504	243
Total	1,222	20,724	2,819	21,380	1,597	656

Fuel poverty in England has risen from 5.9% of households in 2003 to 13.2% of households in 2007; an increase from 1.2m households in 2003 to 2.8m in 2007. Of the increase, nearly half were single person households, with the majority of these coming from single-person households aged 60 or over (up from just under half a million households in 2003 to nearly a million households in 2007). In 2003, one in ten households with at least one person aged 60 or over were in fuel poverty, rising to nearly one in five of these households by 2007.

Reliability – gas and electricity capacity margins – maximum supply and maximum demand 1993/94 to 2009/10



Source: National Grid and DECC

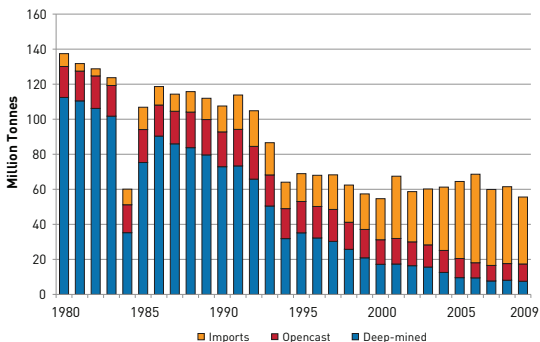
Whilst energy security is complex to measure, and subsequent charts on individual fuels provide fuller insight, this chart aims to provide a view on it, by looking at the difference between maximum supply and demand for gas and electricity.

In response to higher electricity prices, more previously mothballed capacity was back in service for winter 2005/06 and has remained in service since. There was a small increase in capacity in 2007/08 arising from a new plant and the inclusion of wind farm capacity¹. Peak demand in 2009/10 was slightly lower than in 2008/09, while increased capacity, largely from new gas stations, meant that the capacity margin increased from 23% to 27%.

For gas, the cold winter of 2009/10 led to record peaks in gas demand with peak gas demand 5% higher compared to 2008/09. The peak supply forecast also increased, largely due to an increase in LNG import capacity. This resulted in an increase in the gas capacity margin from 30% to 40%.

(1) Wind farms owned by major power producers are included from 2007/08 onwards, wind capacity has been de-rated by 0.43 to account for the intermittent nature of this energy source.

Coal production and imports, 1980 to 2009

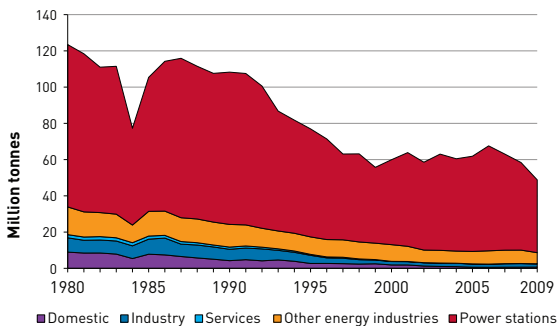


Million tonnes

	1980	1990	2000	2007	2008	2009
Deep mined	112.4	72.9	17.2	7.7	8.1	7.5
Opencast	15.8	18.1	13.4	8.9	9.5	9.9
Total (including slurry)	130.1	92.8	31.2	17.0	18.1	17.9
Coal imports	7.3	14.8	23.4	43.4	43.9	38.2

Coal production was 1% lower in 2009 than in 2008; deep mined production fell by 7%, while opencast production increased by 4%. Imports, initially of coal types in short supply in the UK, started in 1970 and then grew steadily to reach around 20 million tonnes a year by the late 1990s. The very rapid expansion of imports in 2001 meant that imports exceeded the level of UK production for the first time. Since 2002 imports have been rising at 15% a year on average and in 2006 imports were at a record 50 million tonnes to meet strong demand from generators and the steel industry. However, since the end of 2008, levels have started to decrease and in 2009 UK imports (38 million tonnes) were 13% lower than 2008. Despite this fall, UK imports still accounts for more than two thirds of UK supply.

Coal consumption, 1980 to 2009

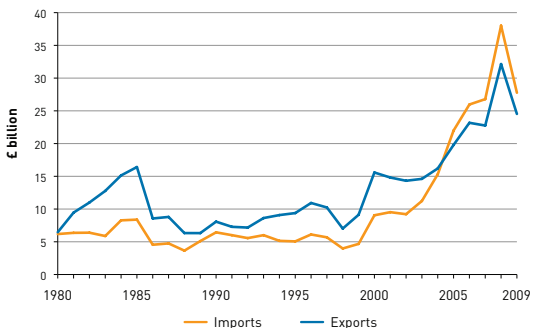


Million tonnes

	1980	1990	2000	2007	2008	2009
Power stations	89.6	84.0	46.8	53.0	48.3	40.1
Domestic	8.9	4.2	1.9	0.6	0.7	0.7
Industry	7.9	6.3	1.9	1.9	1.9	1.8
Services	1.8	1.2	0.1	< 0.1	< 0.1	< 0.1
Other energy industries	15.3	12.5	9.2	7.4	7.4	6.1
Total consumption	123.5	108.3	59.9	63.0	58.4	48.8

The proportion of coal consumed by power stations increased steadily from the 1970s to reach 86% in 2006 before falling back to 83% in 2008. The decline in coal consumption at power stations reached a low of 41.8 million tonnes in 1999 before climbing to 57.9 million tonnes in 2006. Since then it has declined and in 2009 it stood at 40 million tonnes, the lowest levels on record. Coal consumption as a whole declined sharply during the 1990s, at an average annual rate of 6% compared with just a 1% annual decline over the previous 20 years. Between 1999 and 2006 coal consumption grew by nearly 3% per year on average but in 2007 and 2008 it fell back by around 7% per year and by a further 16% in 2009 because of lower coal demand in power stations.

Foreign trade in crude oil and petroleum products, 1980 to 2009



Crude oil and petroleum products

£ billion

	1980	1990	2000	2007	2008	2009
Exports	6.5	8.1	15.6	22.8	32.1	24.5
Imports	6.2	6.4	9.0	26.8	38.0	27.8
Net imports	-0.3	-1.6	-6.5	4.0	5.9	3.2

Source: Office for National Statistics

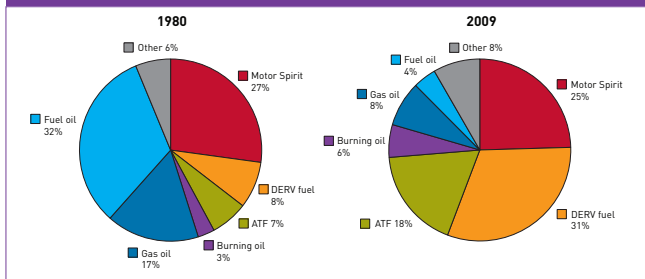
Crude oil and petroleum products

Million tonnes

	1980	1990	2000	2007	2008	2009
Exports	54.3	73.9	113.6	81.0	77.2	70.9
Imports	56.0	63.7	68.6	82.4	84.0	76.8
Net imports	1.7	-10.2	-45.0	1.4	6.8	5.9

Since the first 'surplus' on oil trade (£0.3 billion) which occurred in 1980, oil trade has contributed £77 billion to the UK balance of payments. The largest 'surplus' (£8 billion) in 1985 reflected high crude oil production and prices. In 1990 the 'surplus' fell from this peak due to lower prices but managed to peak again in 2000 (£6.5 billion). Since 2000 the surplus has steadily declined and in 2005 the UK became a net importer of oil (-£2.2 billion). In 2009, the deficit was £3.2 billion, a reduction of £2.6 billion from the previous year.

Demand by Product, 1980 to 2009



Million tonnes

	1980	1990	2000	2007	2008	2009
Energy uses¹						
Motor spirit (Petrol)	19.2	24.3	21.4	17.6	16.7	15.8
DERV fuel	5.9	10.7	15.6	21.1	20.6	20.1
Aviation turbine fuel	4.7	6.6	10.8	12.6	12.1	11.5
Burning oil	2.1	2.1	3.8	3.6	3.7	3.7
Gas oil	11.6	8.0	6.8	5.9	5.8	5.2
Fuel oil	22.7	14.0	3.3	3.2	3.3	2.7
Other	4.3	4.9	5.3	5.3	5.5	5.3
Total energy uses	70.5	70.6	67.1	69.3	67.7	64.2
Of which:						
Transport fuels	31.9	43.5	49.5	53.5	51.9	49.6
Industry	14.9	7.2	5.5	5.9	5.4	4.9
Energy Industry use	6.3	5.1	5.3	4.7	4.5	4.5
Non-energy uses	7.0	9.2	10.1	8.0	7.9	7.3
Total deliveries	77.5	79.8	77.2	77.9	76.2	72.0

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

Transport fuels decreased further in 2009, largely as a result of the recession, to almost the same level as 2000. Deliveries of motor spirit, DERV and ATF have decreased by 5.5%, 2.7% and 5.2% respectively since 2008.

Fuel oil remains at 4% of total deliveries, compared with 32% in 1980, due to electricity generation switching to other fuels.

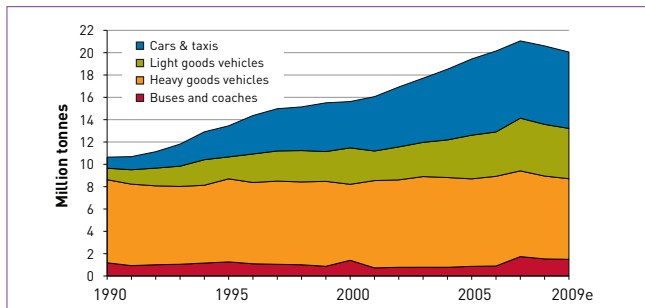
Demand for road fuels, 1990 to 2009

Petrol Demand

Thousand tonnes

	1990	1995	2000	2007	2008	2009
Total	24,310	21,950	21,403	17,594	16,678	15,762

DERV fuel



DERV Fuel Demand by Vehicle type

Thousand tonnes

	1990	1995	2000	2007	2008	2009
Cars & taxis	991	2,783	4,150	6,925	7,029	6,839*
Light goods vehicles	1,029	1,967	3,265	4,719	4,629	4,504*
Heavy goods vehicles	7,445	7,443	6,806	7,681	7,422	7,221*
Buses & coaches	1,185	1,267	1,410	1,740	1,534	1,492*
Total	10,650	13,460	15,632	21,065	20,613	20,057

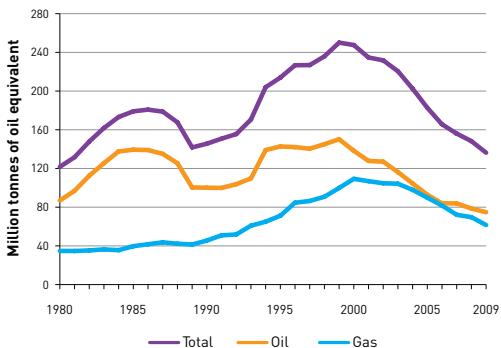
* estimated

UK motor spirit (petrol) consumption peaked in 1990 and has gradually declined ever since. Demand for DERV fuel however has increased, primarily due to DERV's gradual replacement of petrol in car use. The decline since 2007 is a factor of the economic slowdown and the impact of biofuels.

The breakdown in use of DERV fuel given above is based upon modelled fuel consumption produced by AEA when deriving the UK emissions inventory. Figures for 2009 have been estimated using the 2008 ratios.

Oil and gas production

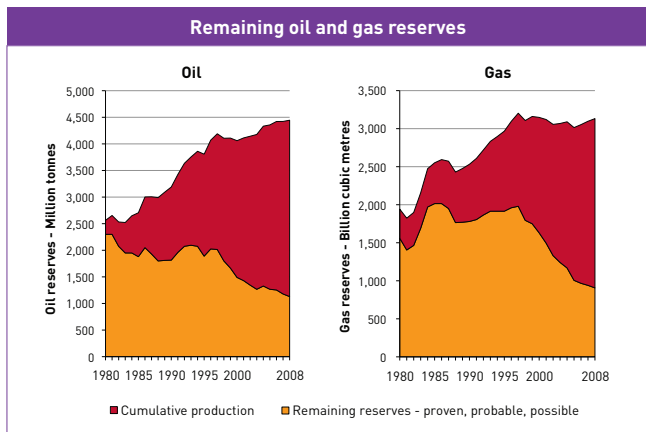
UK Continental Shelf production, 1980 to 2009



Million tonnes of oil equivalent

	1980	1990	2000	2007	2008	2009
Oil	86.9	100.1	138.3	83.9	78.6	74.8
Gas	34.8	45.5	109.3	72.1	69.7	61.5
Total	121.7	145.6	247.6	156.0	148.3	136.3

Oil production in 2009 was 50% lower than the record 150.2 million tonnes in 1999, and a 5% fall on 2008 production. Six new fields started production in 2009, although these are all relatively small. As with oil, UK gas production is also declining as UK Continental Shelf reserves deplete. Gas production in 2009 was 12% lower than in 2008 and 44% lower than the record level seen in 2000.

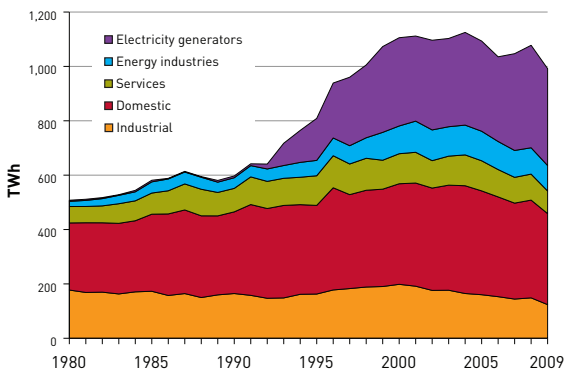


	1980	1990	2000	2006	2007	2008
Oil						
						Million tonnes
Cumulative production	263	1,374	2,570	3,167	3,243	3,315
Estimate of remaining reserves in present discoveries	2,300	1,815	1,490	1,254	1,179	1,130
Total reserves in present discoveries	2,565	3,190	4,060	4,421	4,422	4,445
Gas						
						Billion cubic metres
Cumulative production	382	752	1,518	2,086	2,157	2,225
Estimate of remaining reserves in present discoveries	1,560	1,785	1,630	967	940	907
Total reserves in present discoveries	1,940	2,535	3,150	3,053	3,097	3,132

Since 1980 estimates of reserves in present discoveries has increased by 73% for oil and 61% for gas by 2008. This reflects increased production at new discoveries and new technology allowing exploitation of discoveries that were previously regarded as unviable.

Natural gas

Natural gas consumption, 1980 to 2009

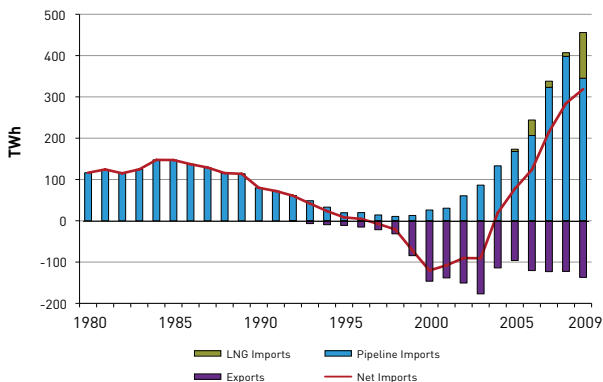


TWh

	1980	1990	2000	2007	2008	2009
Electricity generators	4.0	6.5	324.6	355.9	376.8	356.2
Energy Industries	19.1	39.2	102.1	98.9	96.9	93.8
Industry	177.5	164.6	198.5	144.3	148.7	123.9
Domestic	246.8	300.4	369.9	352.9	359.6	334.8
Services	60.4	86.4	110.5	94.8	95.6	83.1
Total	507.8	597.0	1,105.5	1,046.8	1,077.7	991.8

In the early 1970s, following the advent of UK production of natural gas, gas consumption grew rapidly. Industrial consumption peaked in 2000 but has fallen since then by around 38%, magnified by the economic recession, which saw a fall of 17% between 2008 and 2009. There was steady growth in all other sectors until around 2004. Consumption then declined until 2007, mostly as a result of higher prices, energy efficiency, and, to a lesser extent, of warmer than average temperatures, before rising in some sectors in 2008, and then falling off in 2009. After falling to an eight year low in 2006, gas consumption by electricity generators rose by 14% in 2007 and by a further 6% to a record high level in 2008, before returning to around 2007's level in 2009.

UK trade in natural gas, 1980 to 2009

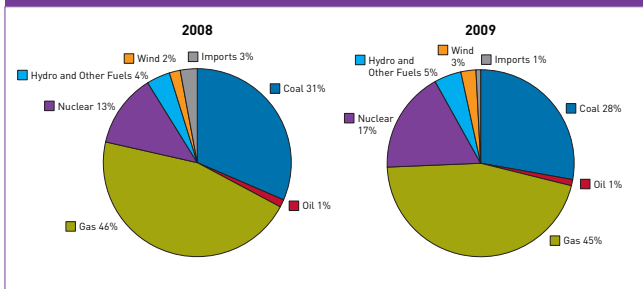


TWh

	1980	1990	2000	2007	2008	2009
Natural gas production	404.8	528.8	1,260.2	838.1	809.6	694.0
Imports	116.3	79.8	26.0	338.0	407.1	455.8
of which: LNG	-	-	-	14.9	8.9	110.6
Exports	-	-	-146.3	-123.2	-122.7	-137.1
Net imports (+) or exports (-)	+116.3	+79.8	-120.3	+214.9	+284.4	+318.7

UK gas production peaked in 2000 and has since been in general decline. With declining production the UK has become increasingly reliant on gas imports to meet demand. In 2009 net imports of gas were 12% higher than in 2008. LNG's share of total gas imports rose from 2% in 2008 to 24% in 2009 via two new LNG terminals at Milford Haven (South Hook and Dragon) and the expansion of the Isle of Grain LNG terminal.

Electricity supplied by fuel type, 2008 and 2009

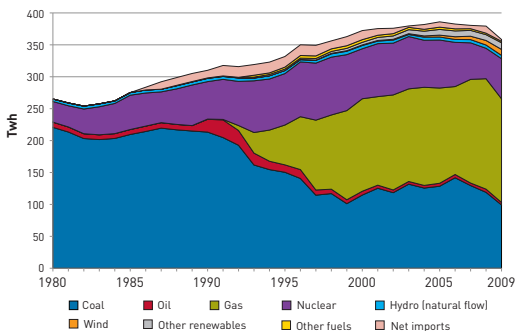


Between 2008 and 2009, electricity supplied from nuclear increased from 13% to 17% as stations returned from maintenance outages. This was at the expense of coal, which saw its relative price against gas increase in 2009. Gas's share fell slightly, from 46% in 2008 to 45% in 2009. Increased capacity led to an increase in wind's share from 2% to 3%.

	1980	1990	2000	2007	2008	2009
Coal	220.8	213.4	114.7	129.6	119.0	99.3
Oil	8.1	20.0	5.9	3.9	5.0	3.8
Gas	-	0.4	144.9	162.4	173.0	162.5
Nuclear	32.3	58.7	78.3	57.2	47.7	62.8
Hydro ²	3.9	5.2	4.2	3.8	3.8	4.1
Wind	-	-	0.9	5.3	7.1	9.3
Other fuels	-	-	8.3	11.8	11.5	12.6
Net Imports	-	11.9	14.2	5.2	11.0	2.9
Total electricity available for supply	264.9	309.4	371.4	379.2	378.1	357.2

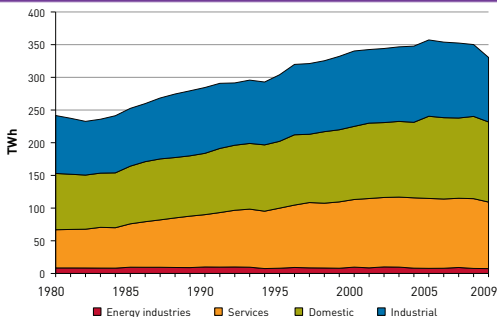
(2) Hydro includes net supply from pumped storage.

Electricity supplied by fuel type, 1980 to 2009



The mix of fuels used to generate electricity continues to evolve. Since 1990, the decline of coal and oil and the rise of gas have been the most marked features, but none of these fuels have followed a smooth path. Gas rose most markedly over this period from 1.6 TWh in 1980 to 153.7 TWh in 2004 before falling back to 137.8 TWh in 2006 and then rising again to new peaks in both 2007 and 2008. Gas fell in 2009 reflecting lower demand for electricity, but retained the same share of supply as in 2008. 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 again in 2009. Coal made up for the reduced availability of nuclear stations and as a substitute for high priced gas, recorded its highest level for 10 years in 2006. It fell back again in the last three years. Wind has followed a sharp upward trend since 2000 to its current level of 9.3 TWh. Electricity available for supply rose continuously from 1997 to reach a peak in 2005. It has subsequently fallen each year since, and in 2009 was 357.2 TWh.

Electricity consumption, 1980 to 2009

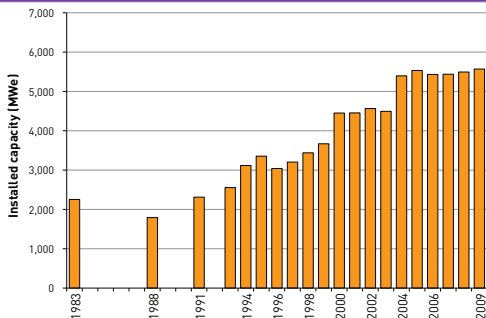


TWh

	1980	1990	2000	2007	2008	2009
Industrial	88.6	100.6	115.3	114.6	109.9	98.7
Domestic	86.1	93.8	111.8	122.8	125.8	122.5
Services	58.4	80.0	103.5	105.9	106.7	101.8
Energy industries	8.5	10.0	9.7	9.2	7.7	7.5
Total	241.6	284.4	340.3	352.4	350.1	330.5

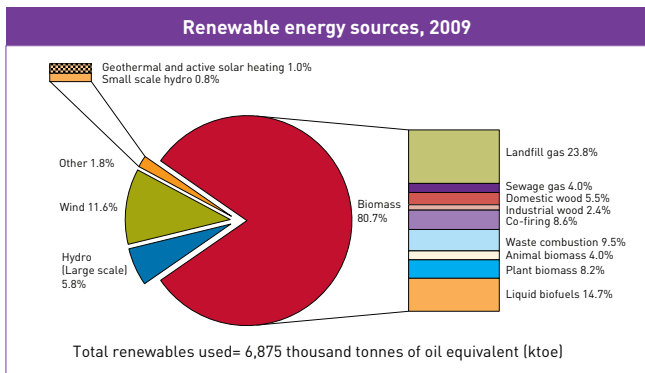
Between 2000 and 2005, electricity consumption in the domestic sector grew by 4½% to reach a record high of 116.8 TWh. However, in 2006 and 2007 mild winter weather, energy efficiency and high electricity prices resulted in domestic consumption falling in both years. In 2008, the cold winter led to domestic consumption rising once more, by 2½%, before falling again in 2009, to its lowest level since 2004. Services electricity consumption rose every year from 1998 to 2004, before falling off slightly in the next four years. In 2009 it fell by 4½% compared to 2008, to its lowest level since 1999. Industrial consumption has varied more: it rose every year between 1994 and 2000, fell back by 2½% in 2001 but subsequent growth meant that by 2004 it had exceeded the 2000 level and continued to grow, to a record high in 2005. Since then, however, industrial consumption has fallen continuously, with 2009 showing a fall of 10.2%, to its lowest level since 1994. Increased energy efficiency within the industrial sector, and the economic downturn will have contributed to the fall over this period.

Combined heat and power, 1983 to 2009



	1995	2000	2007	2008	2009
CHP electrical capacity (MWe)	3,354	4,451	5,438	5,494	5,569
CHP electrical generation (GWh)	14,778	25,246	27,846	27,901	27,777
CHP heat generation (GWh)	56,833	54,877	51,314	52,778	50,721
Number of CHP sites					
Less than 100 kWe	617	556	456	457	454
100 kWe to 999 kWe	396	532	687	706	738
1 MWe to 9.9 MWe	139	182	203	202	201
10 MWe and greater	68	70	70	72	72
Total	1,220	1,340	1,415	1,437	1,465

CHP electrical capacity and generation has remained broadly unchanged over the last 3 years. Despite the adverse economic climate electricity generation in 2009 was only slightly lower compared to 2008 (0.4%). A bigger fall was recorded for CHP heat generation, which was 3.9% lower in 2009 compared to 2008. A third of the CHP installations in the UK are small schemes with an electrical capacity of less than 100 kWe, however schemes larger than 10 MWe account for 84% of the total CHP installed electrical capacity. In 2009, just over 7% of the total electricity generated in the UK came from CHP plants.



Total use of renewables

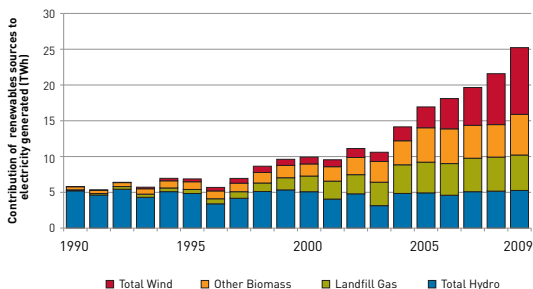
Thousand tonnes of oil equivalent

	1990	2000	2007	2008	2009
Geothermal and active solar heating	7.2	12.0	46.9	58.0	72.0
Wind and wave	0.8	81.3	453.5	610.3	800.0
Hydro (small and large-scale)	447.7	437.3	437.5	444.4	452.4
Landfill gas	79.8	731.1	1,547.5	1,573.9	1,637.8
Sewage gas	138.2	168.7	215.2	231.7	277.3
Wood (domestic and industrial)	174.1	458.4	433.2	520.8	539.7
Municipal waste combustion	100.8	374.8	520.5	538.2	655.8
Liquid biofuels	-	-	361.7	825.5	1,008.6
Other biomass	71.9	265.0	1,154.7	1,203.8	1,431.2
Total	1,020.5	2,528.5	5,170.6	6,001.8	6,874.9

In 2009, biomass accounted for 80.7% of renewable energy sources used, with most of the remainder coming from large-scale hydro and wind generation. Wind (with an 11.6% share) continues to account for more than large scale hydro (5.8%) in primary input terms.

Of the 6.87 million tonnes of oil equivalent of primary energy use accounted for by renewables, 4.90 million tonnes was used to generate electricity, 1.01 million tonnes was used for road transport, and 0.97 million tonnes to generate heat. Renewable energy use grew by 14.6% between 2008 and 2009 and is now more than two and a half times the level it was at in 2000.

Electricity generation from renewable sources since 1990



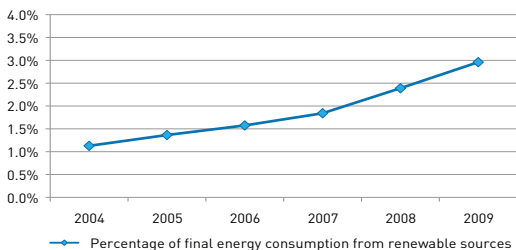
Renewable Electricity Generation, TWh

	1990	2000	2007	2008	2009
Wind	-	0.9	5.3	7.1	9.3
Hydro	5.2	5.1	5.1	5.2	5.3
Landfill Gas	0.1	2.2	4.7	4.8	5.0
Other Biomass	0.5	1.7	4.6	4.5	5.7
Total Renewables	5.8	9.9	19.7	21.6	25.2

At 25.2TWh, renewables accounted for 6.7% of electricity generated in the UK during 2009, up from 5.6% in 2008 and 2.6% in 2000. Overall generation from renewables increased by 16.9% between 2008 and 2009; generation from wind increased by 31.1%, with generation from all forms of biomass 14.4% higher; generation from hydro rose marginally.

When taking into account only renewable sources eligible under the Renewables Obligation, they accounted for 6.7% of UK electricity sales, up from 5.3% in 2008.

UK progress against EU renewable energy directive



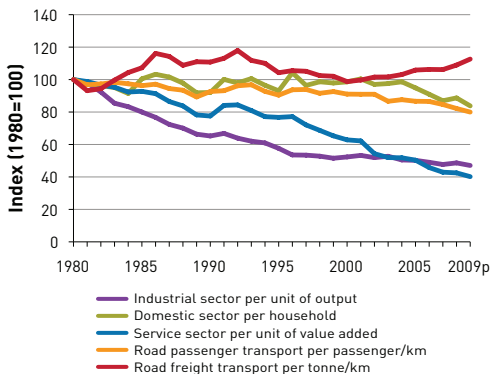
Progress against the Renewable Energy Directive

	2004	2005	2006	2007	2008	2009
Percentage of electricity from renewable sources	3.5	4.1	4.5	4.8	5.4	6.6
Percentage of heating and cooling from renewable sources	0.7	0.9	1.0	1.2	1.4	1.6
Percentage of transport energy from renewable sources	0.1	0.2	0.5	0.9	2.0	2.5
Overall renewable consumption as a percentage of capped gross final energy consumption using net calorific values	1.2	1.4	1.6	1.8	2.4	3.0

In March 2007, the European Council agreed to a common strategy for energy security and tackling climate change. An element of this was establishing a target of 20% of EU's energy to come from renewable sources. During 2008 a new Renewable Energy Directive was negotiated on this basis 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 a cap on fuel used for air transport – should be accounted for by energy from renewable sources.

Provisionally in the UK during 2009, 3.0% of final energy consumption was from renewable sources; this is up from 2.4% in 2008, and 1.8% in 2007. The Eurostat methodology, measures energy based on a net calorific value basis, as opposed to a gross basis that is generally used in presenting data in UK Energy in Brief and other UK Energy statistics publications.

Energy efficiency, 1980 to 2009

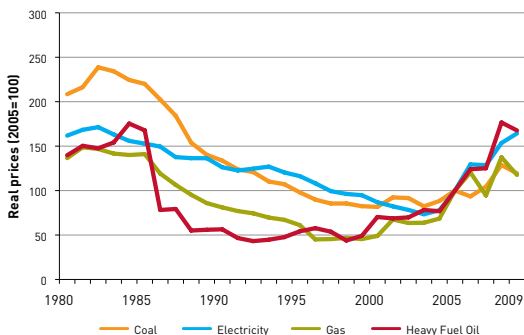


Tonnes of oil equivalent

	1980	1990	2000	2007	2008	2009p
Industrial energy consumption per million units of GVA	337.6	220.3	176.6	161.0	164.3	158.9
Domestic energy consumption per household	2.0	1.8	1.9	1.7	1.7	1.6
Service sector energy consumption per million units of GVA	50.7	39.3	31.9	21.8	21.6	20.4
Road passenger energy consumption per million passenger-kilometres	45.1	41.8	41.0	38.2	37.0	36.0
Road freight energy consumption per million freight-kilometres	79.5	87.2	78.2	82.9	84.4	87.3

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 can 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 have occurred in the industrial sector mainly due to structural change, and in the service sector due to general energy efficiency improvements.

Fuel price indices for the industrial sector, 1980 to 2009



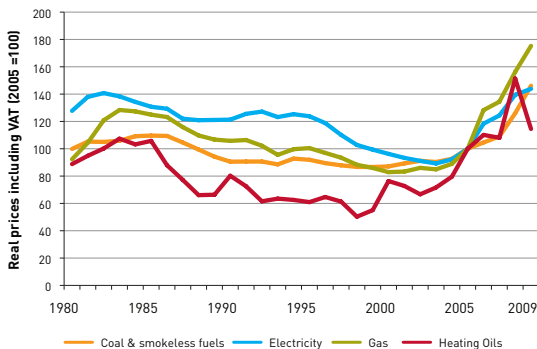
Real prices, 2005 = 100

	1980	1990	2000	2007 ¹	2008 ¹	2009 ¹
Coal	208.4	133.7	81.6	104.3	128.7	119.4
Electricity	161.8	126.2	86.9	128.6	153.5	164.3
Gas	136.5	81.1	48.9	94.4	137.5	117.6
Heavy fuel oil	139.7	56.4	70.3	125.1	176.6	167.6
Industrial prices	152.4	108.0	76.2	121.7	155.1	155.5

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

Industrial coal prices decreased in 2009 by 7% in real terms, and were 45% higher than 10 years earlier in 1999. Electricity prices increased in 2009 by 7% in real terms, and were 73% higher than 10 years earlier in 1999. Gas prices decreased by 14% in 2009, and were 159% higher than in 1999. Heavy fuel oil prices decreased by 5% in the year to 2009, and were over three times higher than in 1999. The rise in electricity prices is likely a consequence of the 2008 price increases for fossil fuels. Quarterly data shows that electricity prices have been falling since the start of 2009.

Fuel price indices for the domestic sector, 1980 to 2009



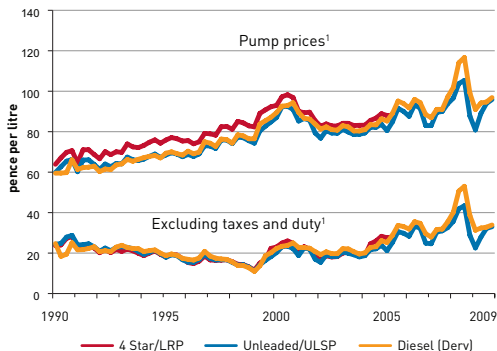
Real prices including VAT, 2005 = 100

	1980	1990	2000	2007	2008	2009
Coal and smokeless fuels	99.9	90.5	87.1	109.0	126.0	146.1
Electricity	127.7	121.3	96.2	124.3	139.5	143.8
Gas	92.3	105.8	82.9	134.4	156.2	175.3
Heating oils	88.8	80.2	76.4	108.0	151.4	114.5
Domestic prices (fuel & light)	109.8	109.7	88.0	126.2	145.7	152.7

Source: Retail Price Index, Office for National Statistics

Total domestic energy prices in 2009 increased in real terms by 5%. Within the overall movement, heating oils decreased by 24%, reflecting the fall in crude oil prices following the sharp rise in 2008. Electricity prices increased by 3%, whilst gas prices increased by 12%. Over the last ten years, between 1999 and 2009, real prices for domestic energy have risen by 60%, with the real price of electricity increasing by 45% and the real price of gas and heating oil increasing by 104% and 108% respectively.

Petrol and diesel prices, 1990 to 2009



(1) Deflated using GDP (market prices) deflator (2005 = 100).

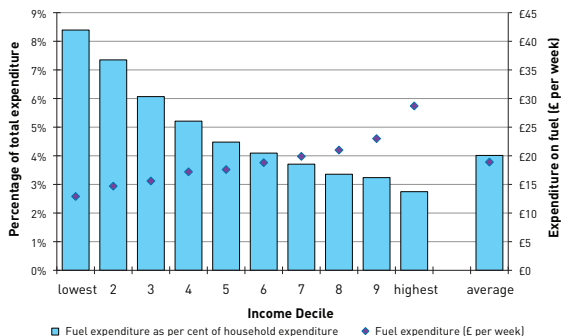
Current retail prices

Pence/litre

	4 star/LRP	Unleaded	Diesel
1990	44.9	42.0	40.5
1995	59.7	53.8	54.2
2000	84.9	79.9	81.3
2001	79.7	75.7	77.8
2002	77.0	73.2	75.5
2003	79.9	76.0	77.9
2004	84.4	80.2	81.9
2005	*	86.8	90.9
2006	*	91.3	95.2
2007	*	94.2	96.9
2008	*	107.1	117.5
2009	*	99.3	103.9

* The LRP series has been discontinued from September 2005 due to the low volume of sales.

In real terms the price of Ultra Low Sulphur Petrol (ULSP) fell by 9% between 2008 and 2009, whilst the price of diesel fell by 13%. In cash terms ULSP cost 7.8 pence less in 2009 than in 2008, whilst diesel cost 13.6 pence per litre less. This reflects the fall in crude oil prices from the highs reached in 2008.

Fuel expenditure of households¹, 2008

Fuel expenditure as a percentage of total household expenditure, 1980 to 2008

Fuel type	1980	1990	2000/01	2004/05	2005/06	2006	2007	2008
Gas	1.5%	1.7%	1.2%	1.3%	1.4%	1.5%	1.8%	1.9%
Electricity	2.7%	2.3%	1.6%	1.4%	1.5%	1.6%	1.7%	1.7%
Coal and Heating oil	0.9%	0.3%	0.3%	0.2%	0.2%	0.3%	0.2%	0.4%
	0.4%	0.2%						
Total	5.6%	4.5%	3.1%	2.9%	3.1%	3.5%	3.7%	4.0%

Source: Living Costs and Food Survey 2009, Office for National Statistics

(1) includes non-consuming households

Households in the lowest income decile (i.e. the 10% of households with the lowest income) spend less than half as much on domestic fuel per week compared to households in the highest income decile (£13 compared to £29 per week). However, when comparing expenditure on domestic fuels as a proportion of total expenditure, then those in the lowest income decile spend more (over 8%) than those in the highest income decile (nearly 3%). Since 2004/05, the proportion of household expenditure spent on fuel has been increasing.

Contacts

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In addition, there is a general enquiry number, which the deaf and hard of hearing can use to contact DECC: 0300 060 4000

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Some overseas callers have experienced problems connecting to our 0300 numbers. If you have difficulties calling an extension from overseas, please call our dedicated 24 hour switchboard, +44 (20) 7979 7777. Your call will then be put through to a named person or extension.

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.

		<i>to:</i> Thousand toe	TJ	GWh	Million therms
		<i>multiply by</i>			
<i>from:</i>	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 zero or less than half the final digit shown, and '..' is used to indicate 'not available'.

The Department of Energy and Climate Change is the source of all data except where stated.

All figures are for the United Kingdom, except for page 15.

References

The Department of Energy and Climate Change (DECC) also produces the following statistics publications:

The Digest of United Kingdom Energy Statistics is the annual energy statistics publication of DECC. 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 2010 edition was published by The Stationery Office on 29 July 2010 and costs £54. It can also be accessed on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx

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 2010 edition of the chart, published on 29 July 2010, shows the flows for 2009 and can be accessed on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/publications/flow/flow.aspx

Free copies are available from the Publications Orderline 0845 015 0010.

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. It is available on annual subscription together with Quarterly Energy Prices, or material can be accessed on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/publications/trends/trends.aspx

Single copies are available from the Publications Orderline 0845 015 0010 priced £6. Monthly updates to tables in Energy Trends are split by fuel source and can be accessed on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/source/source.aspx

Quarterly 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. It is available on annual subscription together with Energy Trends, or material can be accessed on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/publications/prices/prices.aspx

Single copies are available from the Publications Orderline 0845 015 0010 priced £8.

UK Energy Sector Indicators is an annual publication designed to show in headline form the progress that has been made in implementing energy policy. It can be accessed on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/publications/indicators/indicators.aspx

A further set of background indicators (charts and tables) will be available on the Internet (web address as above) in October 2010.

Energy Consumption in the United Kingdom brings together statistics from a variety of sources to produce a comprehensive review of energy consumption in the UK since the 1970s. The information is presented in five sections covering overall energy consumption and energy consumption in the transport, domestic, industrial and service sectors. It includes an analysis of the factors driving the changes in energy consumption, the impact of increasing activity, increased efficiency, and structural change in the economy. It can be accessed on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/publications/ecuk/ecuk.aspx

Regional Energy Consumption statistics are produced by DECC to emphasise the importance of local and regional decision making for energy policy in delivering a number of national energy policy objectives. Data can be accessed on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/regional/regional.aspx

Fuel Poverty Statistics is an annual publication produced by DECC, published in support of the annual UK Fuel Poverty Strategy report which sets out the progress that has been made in tackling fuel poverty. The report is available on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/fuelpov_stats.aspx

Free copies are available from the Publications Orderline 0845 015 0010

UK Greenhouse Gas Emissions statistics are produced by DECC to show progress against the UK's goals, both international and domestic, for reducing greenhouse gas emissions. Data can be accessed on the Internet at:

www.decc.gov.uk/en/content/cms/statistics/climate_change/gg_emissions/uk_emissions/uk_emissions.aspx

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