BERR | Department for Business Enterprise & Regulatory Reform

UK ENERGY IN BRIEF JULY 2008

A NATIONAL STATISTICS PUBLICATION

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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 2008 edition of the "Digest of UK Energy Statistics", published on 31 July 2008. Details of the Digest and other Department for Business, Enterprise and Regulatory Reform (BERR) energy publications can be found on pages 37 and 38 of this booklet and are available on the Internet at: **www.berr.gov.uk/energy/statistics/publications/index.html.**

This booklet is also available on the Internet at:
www.berr.gov.uk/energy/statistics/publications/in-brief/page17222.html

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Contents

Introduction to the charts and tables

The first four charts in this booklet are the four key indicators that are used to monitor progress in implementing the four goals for our energy policy as reiterated in the 2007 Energy White Paper. The four goals are:

- To put ourselves on a path to cut the UK's carbon dioxide emissions by some 60% by about 2050, with real progress by 2020;
- To maintain the reliability of energy supplies;
- To promote competitive markets in the UK and beyond, helping to raise the rate of sustainable economic growth and to improve our productivity; and
- To ensure that every home is adequately and affordably heated.

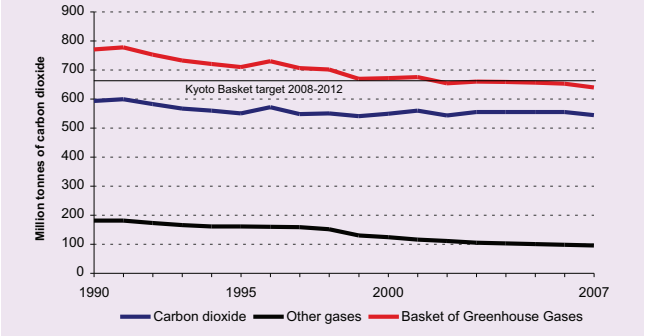
These key indicators and 28 further supporting indicators are published in UK Energy Sector Indicators 2008. These indicators along with a full set of background indicators, can be accessed on the BERR website at: www.berr.gov.uk/energy/statistics/publications/indicators/page46000.html

The remainder of this booklet deals with separate sections of the energy industry; the economics of the energy industry, overall energy production and consumption and trends in production and consumption of the major fuel sources are covered. Also discussed are developments in combined heat and power and renewable energy. Information is also given on energy prices, energy expenditure and energy efficiency.

The detailed background data can be found in the Digest of UK Energy Statistics 2008 available from The Stationery Office, priced £47, but also available free of charge on the BERR energy website at: www.berr.gov.uk/energy/statistics/publications/dukes/page45537.html

Key indicators

1. Low carbon – greenhouse gas and carbon dioxide emissions, 1990 to 2007



Source: Department for Environment, Food and Rural Affairs

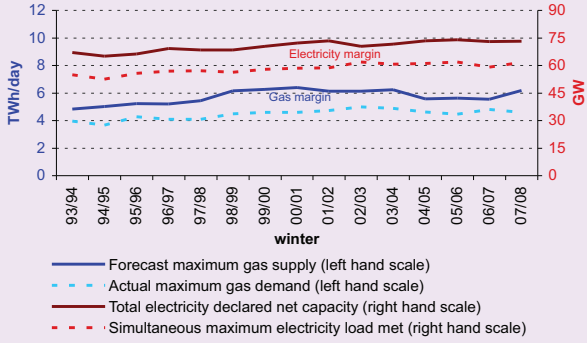
Million tonnes of carbon dioxide

	1990	1995	2000	2005	2006	2007(p)
Carbon dioxide	592.4	549.8	548.6	555.2	554.5	543.7
Methane	103.5	90.2	68.4	49.6	49.6	..
Nitrous oxide	63.8	53.0	43.6	39.8	38.3	..
HFC	11.4	15.5	9.1	9.2	9.2	..
PFC	1.4	0.5	0.5	0.3	0.3	..
SF_6	1.0	1.2	1.8	1.1	0.9	..
'Basket' of greenhouse gases	**770.8**	**709.0**	**671.4**	**655.5**	**652.3**	**639.4**

Source: Department for Environment, Food and Rural Affairs; BERR (2007 provisional figures)

Naturally occurring greenhouse gases maintain the earth's surface at a temperature 33°C warmer than it would be in their absence. At present greenhouse gas concentrations in the atmosphere are increasing as a result of human activities. Greenhouse gas emissions fell by 17% between 1990 and 2007. Carbon dioxide emissions contribute about 70% of the potential global warming effect of anthropogenic emissions of greenhouse gases and are created when fossil fuels are burned. Emissions of carbon dioxide fell by 6.4% between 1990 and 2006. Estimates based on energy production and consumption in 2007 indicate that carbon emissions were 1.9% lower than the previous year, and 8.2% lower than in 1990.

2. Reliability – gas and electricity capacity margins – maximum supply and maximum demand 1993/94 to 2007/08



Source: National Grid and BERR

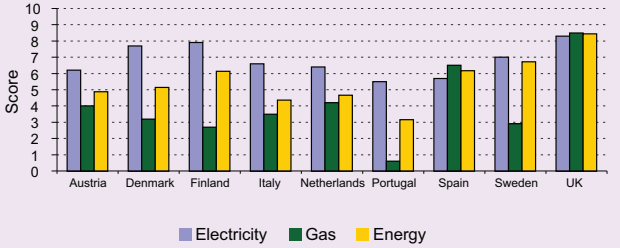
Note that the aim is not to maximise the gap between supply and demand in each case but that demand is always lower than maximum supply

Target is to ensure that the market provides sufficient capacity to meet maximum gas and electricity demand in each year.

In response to higher electricity prices, more previously mothballed capacity was back in service for winter 2005/06 and remained for the mild winter 2006/07 and the cooler winter of 2007/08. There was a small increase in capacity in 2007/8 arising from new plant, but a bigger increase in maximum demand with the winter not as mild as in 2006/7. As a result, the plant margin of 23% for the winter period in 2006/07 fell back to 19% in 2007/08.

For gas, Liquefied Natural Gas (LNG) imports and increased pipeline flows in 2007/08 kept maximum gas supply well above that of 2006/07. Higher gas prices meant that maximum gas demand in 2007/08 was not as high as in the previous year.

3. Competitiveness – overall competitiveness score for selected EU energy markets (using preliminary 2006 data)

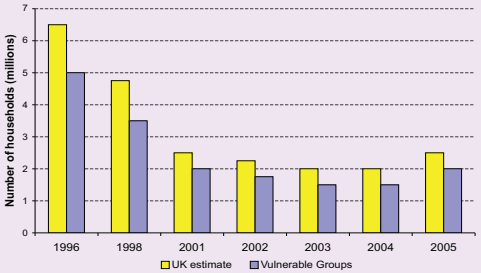


Source: Study undertaken by OXERA on behalf of BERR.
Overall energy index derived by BERR

The competitiveness of energy markets is measured using a methodology developed by OXERA on behalf of BERR, based on indicators of energy market liberalisation at each stage of the supply chain (upstream, wholesale markets, network and retail) and applied to energy markets in the EU and G7. The report sets out the methodology in more detail, and can be found at:
www.berr.gov.uk/energy/markets/competitiveness/page28432.html

In 2006, the UK ranks the highest out of all the EU and G7 countries in both electricity and gas markets, and therefore also has the most competitive energy market overall, as it has done in each of the five previous years.

4. Fuel poverty – number of UK households in fuel poverty[1]



Source: Various[2]

Estimated numbers in Fuel Poverty in England[1]	Total number of households (millions)					Number of vulnerable households (millions)[3]				
	1996	1998	2001	2004	2005	1996	1998	2001	2004	2005
England	5.1	3.4[4]	1.7	1.2	1.5	4.0	2.8[4]	1.4	1.0	1.2

(1) The bar chart above shows the incidence of fuel poverty in the UK when Housing Benefit and Interest for Mortgage relief payments (HB/ISMI) are included as household income. The table shows corresponding figures for England.

(2) Source: Department for Business, Enterprise and Regulatory Reform drawing on data from Communities and Local Government, Scottish Executive, National Assembly for Wales and the Department for Social Development in Northern Ireland. More information can be found at www.berr.gov.uk/energy/fuel-poverty/index.html

(3) Vulnerable households are households that contain children, elderly people, or those with disabilities or long-term illness.

(4) Based on estimated modelled data.

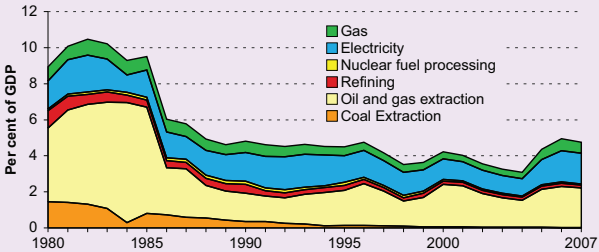
The number of households in fuel poverty in the UK has fallen from around 6.5 million in 1996 to around 2.5 million in 2005. The corresponding figures for vulnerable fuel poor households show a fall from around 5 million in 1996 to around 2 million in 2005. The increase in fuel poverty between 2004 and 2005 was due to rising energy prices. Analysis at a national level suggests that further price rises in 2006 are likely to have increased the number of households in fuel poverty in England by just under one million households between 2005 and 2006, with a proportional increase in the other countries of the UK.

Energy in the economy

THE ENERGY INDUSTRIES' CONTRIBUTION TO THE UK ECONOMY

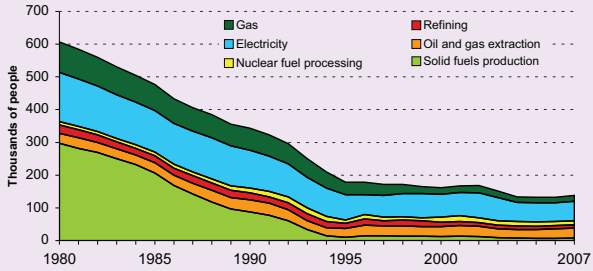
- 4.8% of GDP
- 8.6% of total investment
- 43.3% of industrial investment
- 2.5% of annual business expenditure on research and development
- 137,800 people directly employed in 2007 (5% of industrial employment) and more indirectly e.g. an estimated 260,000 in support of UK Continental Shelf production.

Contribution to GDP by the energy industries, 1980 to 2007



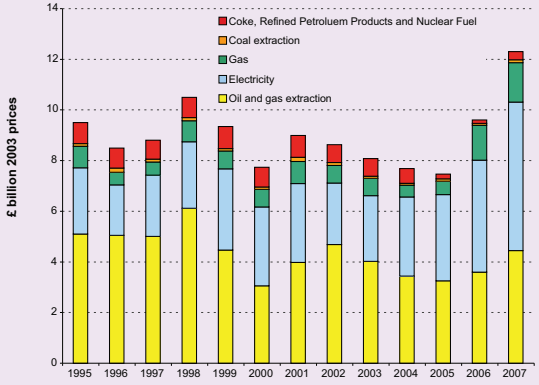
Source: Office for National Statistics

Trends in employment in the energy industries, 1980 to 2007



Source: Office for National Statistics

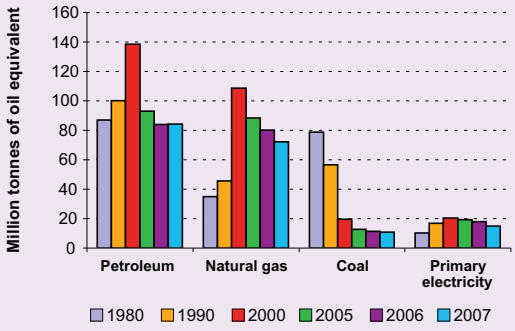
Investment in the energy industries, 1995 to 2007



Source: Office for National Statistics

Overall energy

Production of primary fuels, 1980 to 2007



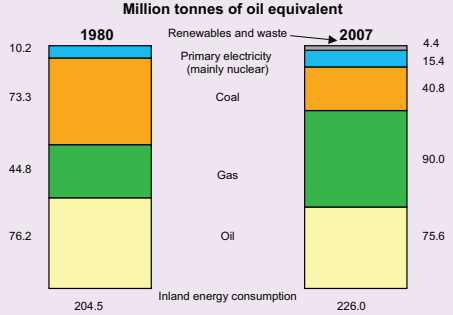
Million tonnes of oil equivalent

	1980	1990	2000	2005	2006	2007
Petroleum	86.9	100.1	138.3	92.9	84.0	84.2
Natural gas	34.8	45.5	108.4	88.2	80.0	72.1
Coal	78.5	56.4	19.6	12.7	11.4	10.7
Primary electricity	10.2	16.7	20.2	19.0	17.9	14.9
Total	**210.5**	**219.4**	**288.7**	**216.5**	**197.0**	**185.9**

Total production of primary fuels, when expressed in terms of their energy content, fell by 5.6% in 2007 compared to 2006. Petroleum accounts for 45% of total production, natural gas 39%, coal 6% and primary electricity (nuclear and natural flow hydro) 8%. Renewables and waste (not shown) account for the remaining 4.0 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 11.7% lower than in 1980. 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 2007



Million tonnes of oil equivalent

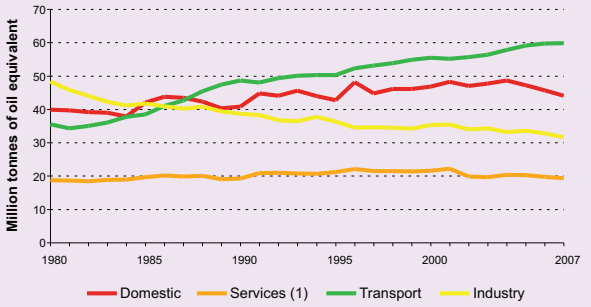
	1980	1990	2000	2005	2006	2007
Conversion losses	62.1	66.4	53.8	54.2	55.4	53.2
Distribution losses and energy industry use			20.7	20.2	18.9	17.8
Final consumption						
Industry	48.3	38.7	35.4	33.6	32.8	31.7
Domestic sector	39.8	40.8	46.9	47.2	45.7	44.0
Transport	35.5	48.6	55.5	59.1	59.8	59.8
Services[1]	18.7	19.2	21.5	20.2	19.7	19.3
Total final energy consumption	**142.4**	**147.3**	**159.2**	**160.2**	**157.9**	**154.9**
Total inland primary energy Consumption[2]	**204.5**	**213.6**	**233.7**	**234.7**	**232.3**	**226.0**
Temperature corrected Total	206.2	221.6	239.8	239.3	236.1	231.0

1. Includes agriculture
2. Excludes non-energy use

Primary energy consumption was 2.7% lower in 2007 than 2006. 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 31.4% of inland energy consumption in 2007.

Overall energy

Final energy consumption, 1980 to 2007



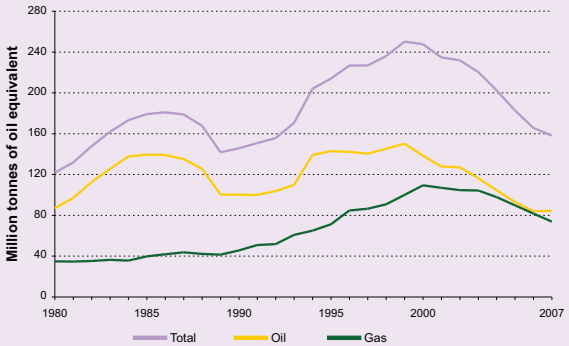
2007 **Million tonnes of oil equivalent**

	Industry	Domestic	Transport	Services[1]	Total
Coal & manufactured fuels	2.0	0.7	-	0.0	2.7
Gas	11.8	30.1	-	8.6	50.4
Oil	6.8	2.9	59.1	1.5	70.3
Electricity	10.1	9.9	0.7	8.7	29.4
Renewables and heat	0.9	0.5	-	0.6	2.0
Total	**31.7**	**44.0**	**59.8**	**19.3**	**154.9**

(1) Includes agriculture

Final energy consumption (excluding non-energy use) was 1.9% lower in 2007 than in 2006. Since 1980 energy consumption by individual sectors has changed substantially: there have been rises of 68% for transport, 10% for the domestic sector and 3% for the service sector, whilst consumption by industry has fallen by 34%.

UK Continental Shelf production, 1980 to 2007



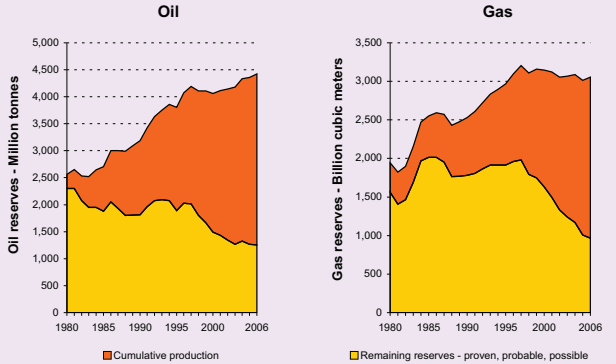
Million tonnes of oil equivalent

	1980	1990	2000	2005	2006	2007
Oil	86.9	100.1	138.3	92.9	84.0	84.2
Gas	34.8	45.5	109.3	89.8	81.7	73.8
Total	**121.7**	**145.6**	**247.6**	**182.7**	**165.6**	**158.0**

Oil production in 2007 was 44% lower than the record level seen in 1999, but remained virtually unchanged when compared with 2006. Nine new fields started production in 2007 including the very large Buzzard field. Without these new fields production in 2007 would have been 13% lower than in 2006. As with oil, UK gas production is also declining as UK Continental Shelf reserves deplete. Gas production in 2007 was 10% lower than in 2006 and 32% lower than the record level seen in 2000.

Oil and gas production

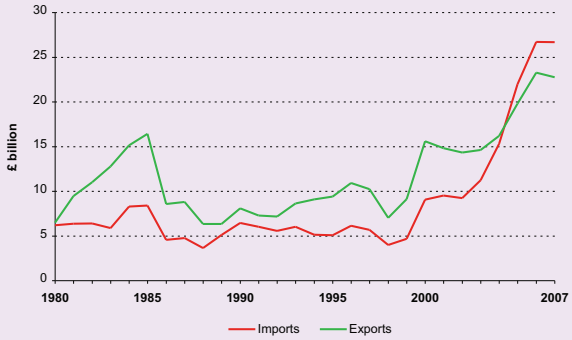
Remaining oil and gas reserves



	1980	1990	2000	2004	2005	2006
Oil						**Million tonnes**
Cumulative production	263	1,374	2,570	3,005	3,090	3,167
Estimate of remaining reserves in present discoveries	2,300	1,815	1,490	1,328	1,267	1,254
Total reserves in present discoveries	**2,565**	**3,190**	**4,060**	**4,333**	**4,357**	**4,421**
Gas						**Billion cubic meters**
Cumulative production	382	752	1,518	1,921	2,007	2,086
Estimate of remaining reserves in present discoveries	1,560	1,785	1,630	1,169	1,006	967
Total reserves in present discoveries	**1,940**	**2,535**	**3,150**	**3,090**	**3,013**	**3,053**

Since 1980 estimates of reserves in present discoveries has increased by 72% for oil and 57% for gas by 2006. This reflects increased production at new discoveries and new technology allowing exploitation of discoveries that were previously regarded as unviable.

Foreign trade in crude oil and petroleum products, 1980 to 2007



Crude oil and petroleum products **£ billion**

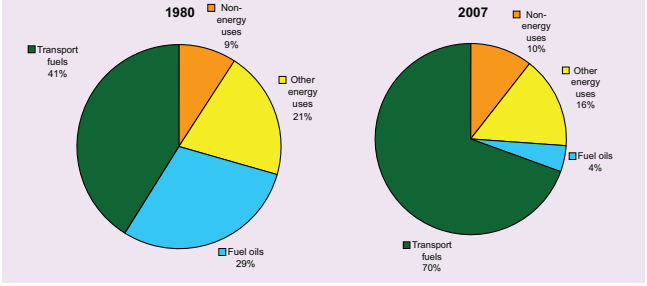
	1980	1990	2000	2005	2006	2007
Exports	6.5	8.1	15.6	19.8	23.3	22.8
Imports	6.2	6.4	9.0	22.0	26.7	26.7
Net exports	**0.3**	**1.6**	**6.5**	**-2.2**	**-3.4**	**-3.9**

Source: Office for National Statistics

Since the first 'surplus' on oil trade (£0.3 billion) which occurred in 1980, oil trade has contributed £86 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 2007 the deficit increased slightly (-£3.9 billion).

Petroleum

Demand by product, 1980 to 2007



Million tonnes

	1980	1990	2000	2005	2006	2007
Energy uses[1]						
Motor spirit (Petrol)	19.2	24.3	21.4	18.7	18.1	17.6
DERV fuel	5.9	10.7	15.6	19.4	20.1	21.0
Aviation turbine fuel	4.7	6.6	10.8	12.5	12.6	12.6
Burning oil	2.1	2.1	3.8	3.9	4.0	3.6
Gas oil	11.6	8.0	6.8	6.8	6.3	5.9
Fuel oil	22.7	14.0	3.3	3.5	3.1	3.3
Other	4.3	4.9	5.3	5.5	5.6	4.8
Total energy uses	**70.5**	**70.6**	**67.1**	**70.3**	**70.0**	**68.9**
Of which:						
Transport fuels	31.9	43.5	49.5	52.8	53.5	53.6
Non-energy uses	**7.0**	**9.2**	**10.1**	**10.7**	**10.0**	**8.0**
Total deliveries	**77.5**	**79.8**	**77.2**	**81.0**	**80.0**	**76.9**

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

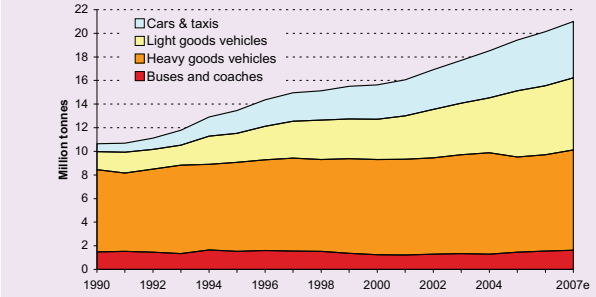
In 2007 transport fuels increased their share of overall oil demand when compared with 2006. Deliveries of motor spirit decreased but were offset by an increase in DERV fuel. There has been a decrease in Non-energy use since 2005 and the level is now similar to that in 1983.

Demand for road fuels, 1990 to 2007

Petrol Demand — **Thousand tonnes**

	1990	1995	2000	2005	2006	2007
Total	24,310	21,950	21,403	18,731	18,144	17,591

DERV fuel



DERV fuel demand — **Thousand tonnes**

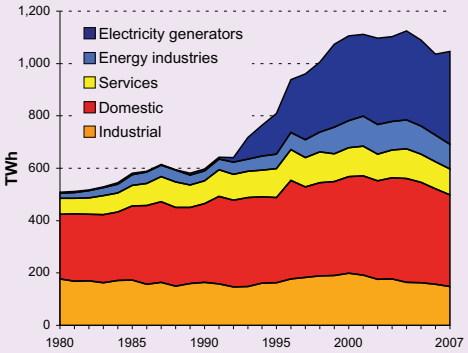
	1990	1995	2000	2005	2006	2007
Cars & taxis	660	1,917	2,898	4,308	4,577	4,772 estimated
Light goods vehicles	1,542	2,465	3,412	5,604	5,847	6,096 estimated
Heavy goods vehicles	6,956	7,528	8,075	8,049	8,164	8,512 estimated
Buses & coaches	1,485	1,537	1,238	1,466	1,548	1,614 estimated
Total	**10,643**	**13,447**	**15,623**	**19,427**	**20,136**	**20,994**

UK motor spirit (petrol) consumption peaked in 1990 and has gradually declined ever since.

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 2007 have been estimated using the 2006 ratios. Since 1990, demand for DERV fuel has increased use in cars supplanting petrol (see p18) and in light goods vehicles.

Natural gas

Natural gas consumption, 1980 to 2007

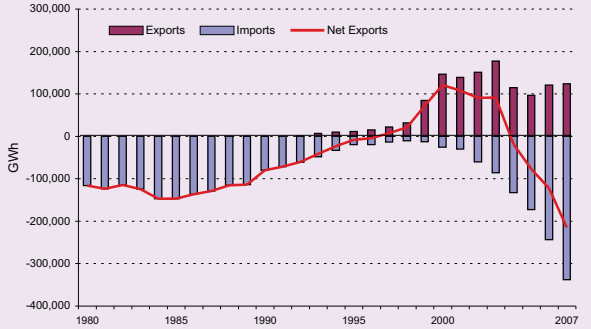


TWh

	1980	1990	2000	2005	2006	2007
Electricity generators	4.0	6.5	324.6	329.0	310.4	353.5
Energy Industries	19.1	39.2	102.1	107.8	101.6	94.2
Industry	177.5	164.6	198.5	162.0	156.2	147.9
Domestic	246.8	300.4	369.9	384.0	364.9	349.9
Services	60.4	86.4	110.5	107.5	103.1	99.9
Total	**507.8**	**597.0**	**1,105.5**	**1,090.3**	**1,036.2**	**1,045.5**

In the early 1970s, following the advent of natural gas, gas consumption grew rapidly. Industrial consumption peaked in 2000 and has fallen since then by around 25%. There was steady growth in all other sectors until around 2004. Since then consumption has declined, mostly as a result of higher prices and also to a lesser extent, as a result of warmer than average temperatures. Gas consumption by electricity generators fell in 2006 as greater use was made of coal for price reasons. However, a 14% increase in gas used for electricity generation in 2007, saw overall gas consumption increase on 2006 levels.

UK trade in natural gas, 1980 to 2007



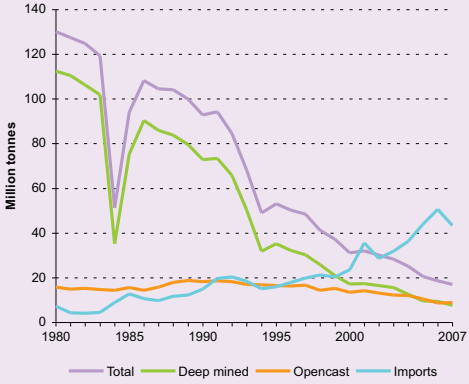
GWh

	1980	1990	2000	2005	2006	2007
Natural gas production	404,800	528,843	1,260,168	1,025,232	929,784	838,092
Imports	116,291	79,833	26,032	173,328	244,029	338,027
Exports	-	-	146,343	96,181	120,591	123,158
Net imports (-) or exports (+)	-116,291	-79,833	+120,311	-77,147	-123,439	-214,869

The UK began exporting natural gas in 1993 but did not become a net exporter of gas until 1997. Exports grew rapidly with the opening of the Bacton-Zeebrugge interconnector in 1998 with its use for exports peaking in 2003, although net exports peaked earlier in 2000. Declining UK indigenous production allied to increasing demand led to the UK becoming a net importer of gas once more in 2004. This trend continued in 2005 and 2006. In 2007 imports rose by 39 per cent and outstripped a rise in exports, up by 2 per cent.

Coal

Coal production and imports, 1980 to 2007

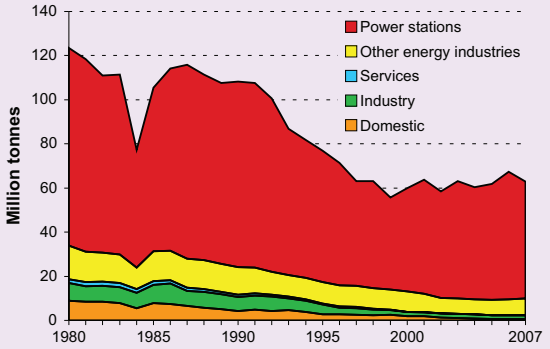


Million tonnes

	1980	1990	2000	2005	2006	2007
Deep mined	112.4	72.9	17.2	9.6	9.4	7.7
Opencast	15.8	18.1	13.4	10.4	8.6	8.9
Total (including slurry)	**130.1**	**92.8**	**31.2**	**20.5**	**18.5**	**17.0**
Coal imports	7.3	14.8	23.4	44.0	50.5	43.4

Coal production was 8% lower in 2007 than in 2006; deep mined production fell by 18%, while opencast production fell by 3%. Imports, initially of coal types in short supply in this country, started in 1970 and then grew steadily to reach the 20 million tonnes a year mark 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 per cent 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. In 2007, imports fell back by 14 per cent to just over 43 million tonnes.

Coal consumption, 1980 to 2007



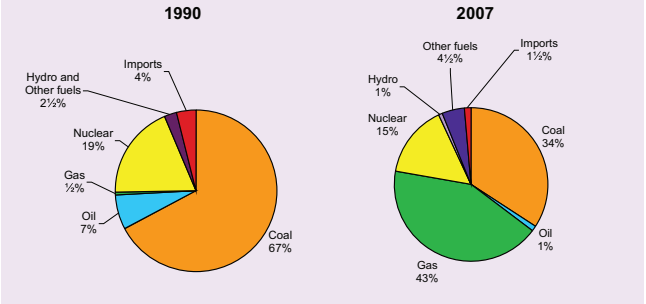
Million tonnes

	1980	1990	2000	2005	2006	2007
Power stations	89.6	84.0	46.8	52.5	57.8	53.0
Other energy industries	15.3	12.5	9.2	6.9	7.3	7.4
Services	1.8	1.2	0.1	<0.1	<0.1	<0.1
Industry	7.9	6.3	1.9	1.8	1.7	1.8
Domestic	8.9	4.2	1.9	0.6	0.6	0.6
Total consumption	**123.5**	**108.3**	**59.9**	**61.8**	**67.5**	**62.9**

The proportion of coal consumed by power stations has increased steadily since the 1970s to reach 86% in 2006 before falling back to 84% in 2007. The decline in coal consumption at power stations bottomed out at 41.8 million tonnes in 1999 climbing back to 57.8 million tonnes in 2006. 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 it fell back by 7% because of lower coal demand in power stations, as the gap between gas and coal prices narrowed.

Electricity

Electricity supplied by fuel type, 1980 to 2007

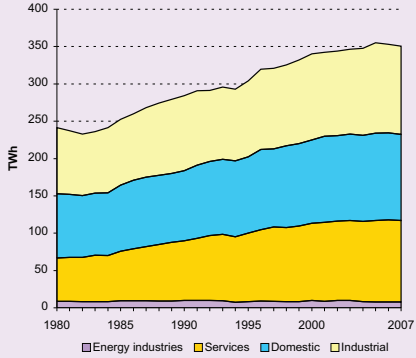


TWh

	1980	1990	2000	2005	2006	2007
Coal	190.0	208.0	114.7	128.6	142.2	129.4
Oil	33.9	21.1	5.9	4.5	4.5	4.1
Gas	1.6	1.6	145.0	149.2	138.1	161.1
Nuclear	32.3	58.7	78.3	75.2	69.2	57.2
Hydro	7.3	7.9	4.2	3.8	3.4	3.8
Other fuels	-	-	9.2	15.5	17.2	17.7
Net Imports	-	11.9	14.2	8.3	7.5	5.2
Total electricity available for supply	**265.1**	**309.4**	**371.5**	**385.0**	**382.2**	**378.5**

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 a 2004 peak of 153.7 TWh before falling back to 138.1 TWh in 2006 and then recovering to a record 161.1 TWh in 2007. Nuclear grew to a peak in 1998 before falling back. Since 2000 coal has made up for the reduced availability of nuclear stations and as a substitute for high priced gas and thus recorded its highest level for 10 years in 2006. Electricity available for supply fell by almost 1% in 2006, the first such fall since 1997, and fell by a further 1% in 2007.

Electricity consumption, 1980 to 2007



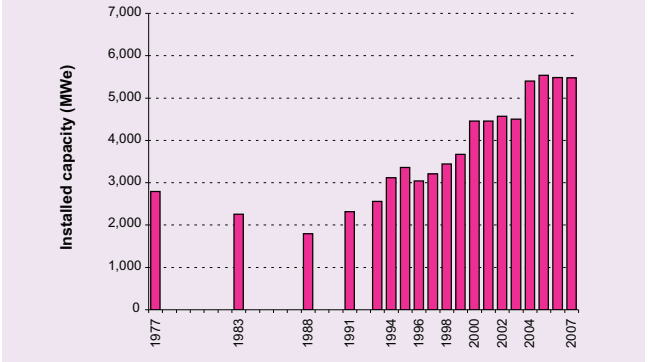
TWh

	1980	1990	2000	2005	2006	2007
Industrial	88.6	100.6	115.3	121.2	118.9	118.3
Domestic	86.1	93.8	111.8	116.8	116.4	115.1
Services	58.4	80.0	103.5	109.1	109.9	109.2
Energy industries	8.5	10.0	9.7	7.9	7.9	8.0
Total	**241.6**	**284.4**	**340.3**	**355.0**	**353.2**	**350.6**

In the 5 years to 2005 electricity consumption in the domestic and services sectors grew in total by 4½% and 6% respectively. However, in 2006 and 2007 mild winter weather and high electricity prices resulted in domestic consumption falling in both years to be 1½% below the 2005 level in 2007. Services electricity use saw a rise of less than 1% over the period 2005 to 2007. 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 in 2005. However, in 2006 industrial consumption fell back by 2% and in 2007 by a further 1%. Increased energy efficiency within the industrial sector will also have contributed to lower growth over this period.

Combined heat and power

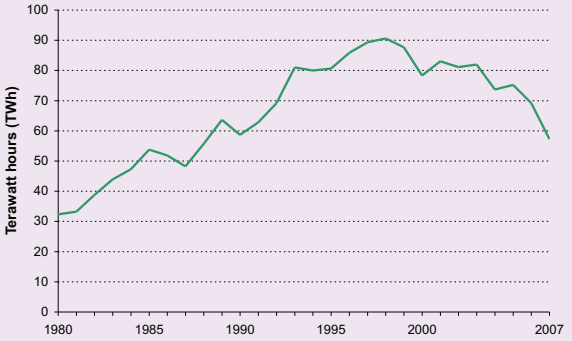
Combined heat and power, 1977 - 2007



	1995	2000	2005	2006	2007
CHP electrical capacity (MWe)	3,355	4,452	5,536	5,484	5,474
CHP electrical generation (GWh)	14,778	25,250	28,836	28,904	28,677
CHP heat generation (GWh)	56,833	54,884	56,455	53,519	53,050
Number of CHP sites					
Less than 100 kWe	619	560	470	472	475
100 kWe to 999 kWe	398	534	644	655	693
1 MWe to 9.9 MWe	139	182	189	189	198
10 MWe and greater	68	70	75	72	72
Total	**1,224**	**1,346**	**1,378**	**1,388**	**1,438**

CHP electrical capacity and electrical generation have been broadly unchanged over the last 3 years. However, CHP heat generation in 2007 was 6% lower than in 2005. 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 83% of the total CHP installed electrical capacity. In 2007, 7.3% of the total electricity generated in the UK came from CHP plants. The Government has a target of reaching at least 10,000 MWe of CHP electrical capacity by 2010, as part of its Climate Change Programme.

Gross electricity supplied by nuclear generation, 1980 to 2007



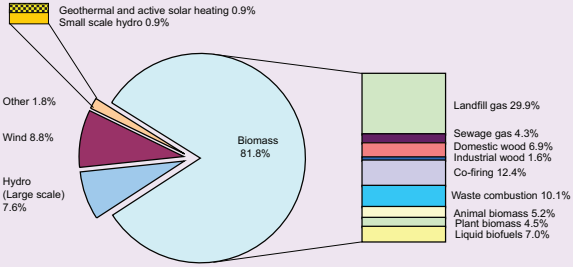
	1990	2000	2005	2006	2007
Electricity supplied by nuclear generation (gross) (TWh)	59	78	75	69	57
Nuclear as a percentage of electricity generation in the UK (%)	21	22	20	19	16

During 2005 nuclear generators increased their output from the low levels of 2004, caused by unplanned outages due to emergency maintenance and safety concerns, and electricity output was up by 2%. However in 2006 and 2007 further unplanned outages and the closure of two Magnox stations at the end of their life saw electricity supplied from nuclear fall to its lowest level since 1989. Nuclear represented just under a sixth of the total volume of electricity generated in the UK in 2007.

In 2007, in terms of energy supplied 3.0% of the UK's total energy demand was met by electricity generated from nuclear stations, while 6.2% of primary energy inputs were attributable to the generation of nuclear electricity.

Renewables

Renewable energy sources, 2007



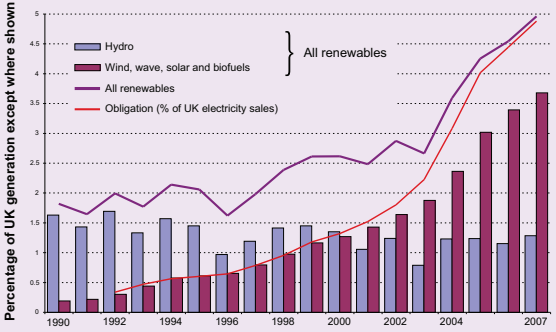
Total renewables used= 5.17 million tonnes of oil equivalent

Total use of renewables	Thousand tonnes of oil equivalent				
	1990	2000	2005	2006	2007
Geothermal and active solar heating	7.2	12.0	30.9	38.0	46.6
Wind and wave	0.8	81.3	249.7	363.3	453.5
Hydro (small and large-scale)	447.7	437.3	423.2	394.9	437.6
Landfill gas	79.8	731.2	1,420.8	1,464.7	1,547.5
Sewage gas	138.2	168.7	207.9	195.1	221.1
Wood (domestic and industrial)	174.1	425.0	367.5	403.3	439.2
Municipal waste combustion	100.8	374.8	460.0	512.7	520.5
Biofuels for transport	-	-	74.1	187.8	361.8
Other biomass	71.9	265.0	1217.5	1,208.9	1,143.1
Total	**1,020.5**	**2,495.2**	**4451.5**	**4,768.7**	**5,170.8**

In 2007, biomass accounted for 82% of renewable energy sources used with most of the remainder coming from large-scale hydro and wind generation. For the first time wind (with an 8.8% share) accounted for more than hydro (7.6%) in primary input terms.

Of the 5.17 million tonnes of oil equivalent of primary energy use accounted for by renewables, 4.08 million tonnes was used to generate electricity, 0.73 million tonnes to generate heat, and 0.36 million tonnes was used for road transport. Renewable energy use grew by 8.4% in 2007 and is now over five times the level it was at in 1990.

Growth in electricity generation from renewable sources since 1990



Percentage of UK generation except where shown

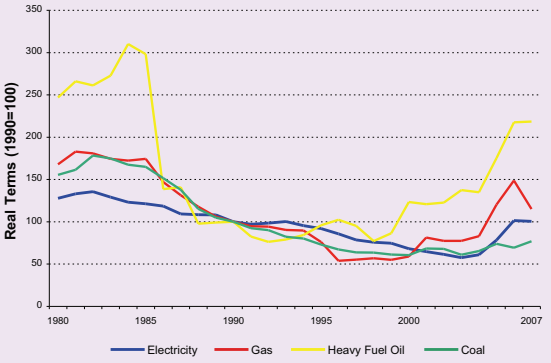
	1990	2000	2005	2006	2007
Wind, wave, solar and biomass	0.19	1.27	3.02	3.39	3.68
Hydro	1.63	1.35	1.24	1.15	1.28
Total Renewables	**1.82**	**2.62**	**4.25**	**4.54**	**4.96**
Obligation (% of UK electricity sales)	-	1.32	4.01	4.44	4.88

Renewables accounted for 5.0% of electricity generated in the UK in 2007, up from 4.5% in 2006. Continuing growth in wind and biomass was aided by the recovery of hydro levels which had been affected by decreased water flow in 2006.

Renewables accounted for 4.9% of UK electricity sales on a Renewables Obligation basis, up from 4.4% in 2006.

Prices

Fuel price indices for the industrial sector, 1980 to 2007



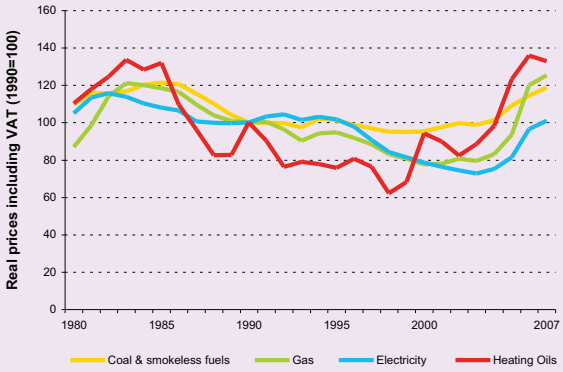
Real prices, 1990 = 100

	1980	1990	2000	2005[1]	2006[1]	2007[1]
Electricity	127.7	100	68.2	78.3	101.4	100.4
Gas	167.8	100	59.0	120.3	148.6	115.0
Heavy fuel oil	246.8	100	123.4	175.2	217.6	218.3
Coal	155.3	100	60.5	73.9	69.2	76.9
Industrial prices	**175.4**	**100**	**77.3**	**108.8**	**135.1**	**127.4**

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

Industrial electricity prices decreased in 2007 by 1% in real terms, but were 28% higher than 10 years earlier in 1997. Gas prices decreased by 23% in 2007, but were 108% higher than in 1997. Heavy fuel oil prices increased by less than 1% in the year to 2007, but were 130% higher than in 1997.

Fuel price indices for the domestic sector, 1980 to 2007



Source: Retail Price Index: ONS

Real prices including VAT 1990 = 100

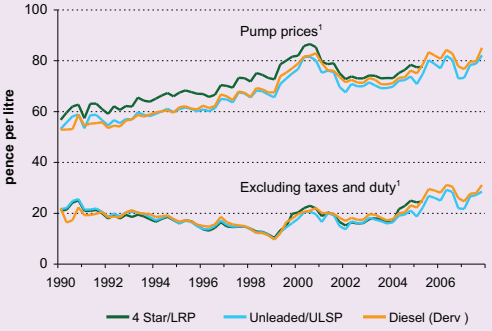
	1980	1990	2000	2005	2006	2007
Coal and smokeless fuels.	109.9	100	95.3	109.1	114.3	118.7
Gas	86.9	100	77.7	93.5	120.0	125.3
Electricity	104.9	100	78.6	81.4	96.5	101.0
Heating oils	110.3	100	94.3	123.2	135.8	132.8
Domestic prices (fuel & light)	**99.6**	**100**	**79.6**	**90.0**	**109.3**	**113.4**

Source: Retail Price Index, Office for National Statistics

Total domestic energy prices in 2007 increased in real terms by 4%. Within the overall movement, heating oils decreased by 2%, electricity prices increased by 5%, and the price of coal and smokeless fuels and of gas both increased by 4%. Over the last ten years, between 1997 and 2007, real prices have risen by 11% for electricity, whilst the real price of coal and smokeless fuels has increased by 23%, the real price of gas has increased by 42%, and the price of heating oils has increased by 74% in real terms.

Prices

Petrol and diesel prices, 1990 to 2007



(1) Deflated using GDP (market prices) deflator (2000 = 100).

Current retail prices **Pence/litre**

	4 star/LRP	Unleaded	Diesel
1980	28.3	..	29.7
1985	43.1	..	41.9
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

* 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) was the same in 2007 as in 2006, whilst the price of diesel decreased by 1%. In cash terms, a litre of ULSP cost 2.9 pence more in 2007 than a year earlier, whilst diesel increased by 1.6 pence per litre.

Fuel expenditure of households[1], 2006

Income Decile

	Lowest	Third	Fifth	Eighth	Highest	All households
Expenditure (£ per week)						
Gas	4.4	6.2	6.8	7.7	9.9	7.0
Electricity	4.9	6.6	7.3	8.7	10.6	7.5
Other Fuels	0.9	1.2	1.3	1.6	2.4	1.3
Total fuel expenditure	10.2	14.0	15.4	18.0	22.9	15.9
Total expenditure	**155.6**	**271.4**	**380.2**	**594.1**	**964.4**	**455.9**
Percentage of total expenditure						
Gas	2.8	2.3	1.8	1.3	1.0	1.5
Electricity	3.1	2.4	1.9	1.5	1.1	1.6
Other Fuels	0.6	0.4	0.3	0.3	0.2	0.3
Total fuel expenditure	**6.6**	**5.2**	**4.1**	**3.0**	**2.4**	**3.5**

Source: Expenditure & Food Survey 2006, Office for National Statistics

Fuel purchases as a percentage of total household expenditure

	1980	1990	2000/01	2004/05	2005/06	2006
Gas	1.6	1.7	1.2	1.3	1.4	1.5
Electricity	2.7	2.3	1.6	1.4	1.5	1.6
Coal and Coke	0.9	0.3	0.3	0.2	0.2	0.3
Heating oil	0.4	0.2				
Total	**5.6**	**4.5**	**3.1**	**2.9**	**3.1**	**3.5**

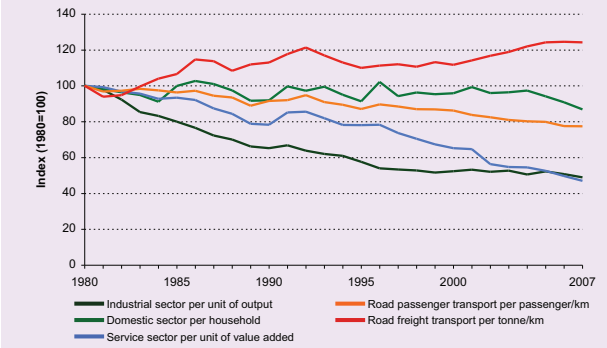
Source: Expenditure & Food Survey (formerly Family Expenditure Survey), Office for National Statistics

(1) includes non-consuming households

A household in the highest income decile (i.e. the 10% of households with the highest income) spent more than twice as much on fuel in 2006 as a household in the lowest decile (with similar ratios for all fuels). However, as total expenditure for the highest decile is over six times more than for the lowest, fuel expenditure counts for a far higher proportion of total expenditure for households on lower incomes. The percentage of expenditure on fuel for low-income households is almost double that of the average household and nearly three times as large compared to those with the highest incomes. There has been a slight rise in the total percentage amount spent on fuel between 2005/06 and 2006.

Energy efficiency

Energy efficiency, 1980 to 2007



Tonnes of oil equivalent

	1980	1990	2000	2005	2006	2007
Industrial energy consumption per million units of GVA	362.8	236.4	189.7	189.6	184.2	177.6
Domestic energy consumption per household	2.0	1.8	1.9	1.8	1.8	1.7
Service sector energy consumption per million units of GVA	83.2	65.1	54.3	43.8	41.3	39.1
Road passenger energy consumption per million passenger-kilometres	45.5	41.6	39.2	36.3	35.3	35.2
Road freight energy consumption per million freight-kilometres	77.7	87.7	86.7	96.5	96.7	96.5

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 fall in energy intensity over the last thirty years has occurred in the industrial sector and is mainly due to structural change. The largest increase has occurred in the road freight transport sector where the move towards heavier vehicles has resulted in higher levels of energy consumption, although the trend has been relatively stable over the last decade.

Contacts

Topic	Contact	Telephone (020 7215)	e-mail
General enquires about energy statistics	Clive Sarjantson	2698	Clive.Sarjantson@berr.gsi.gov.uk
Total energy statistics Temperatures Foreign Trade	Chris Michaels	2710	Chris.Michaels@berr.gsi.gov.uk
Coal and other solid fuels Natural gas consumption	James Hemingway	2717	James.Hemingway@berr.gsi.gov.uk
Natural gas production Petroleum production	Clive Evans	5189	Clive.Evans@berr.gsi.gov.uk
Petroleum consumption and stocks	Lisa Vine	6072	Lisa.Vine@berr.gsi.gov.uk
Gas and petroleum exploration drilling Gas and petroleum investment Indicative tariffs	Suhail Siddiqui	5262	Suhail.Siddiqui@berr.gsi.gov.uk
Electricity statistics	Joe Ewins	5190	Joe.Ewins@berr.gsi.gov.uk
Renewables and CHP	Mike Janes	5186	Mike.Janes@berr.gsi.gov.uk
Energy prices (industrial, international & oil prices)	Jo Marvin	6935	Jo.Marvin@berr.gsi.gov.uk
Energy prices (domestic)	Jack Cunliffe	6532	Jack.Cunliffe@berr.gsi.gov.uk
Fuel poverty	Damon Wingfield	2720	Damon.Wingfield@berr.gsi.gov.uk
Emissions of greenhouse gases Energy efficiency	Julian Prime	6178	Julian.Prime@berr.gsi.gov.uk

All of the above can be contacted by fax on 020 7215 2723

In addition, there is a Textphone number, which the deaf and hard of hearing can use to contact BERR: 020 7215 6740

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.

		to: **Thousand toe**	**TJ**	**GWh**	**Million therms**
		multiple by			
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 zero or less than half the final digit shown, and '..' is used to indicate 'not available'.

The Department for Business, Enterprise and Regulatory Reform is the source of all data except where stated.

All figures are for the United Kingdom, except for page 9.

The Department for Business, Enterprise and Regulatory Reform also produces the following energy publications:

The Digest of United Kingdom Energy Statistics 2008 is the annual energy statistics publication of BERR. 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 2008 edition was published by The Stationery Office on 31 July 2008 and costs £47. It can also be accessed via BERR's energy website:
www.berr.gov.uk/energy/statistics/publications/dukes/page45537.html.

The **Energy Flow Chart** is a triennial 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 2008 edition of the chart, published on 31 July 2008, shows the flows for 2007 and can be accessed via BERR's energy website:
www.berr.gov.uk/energy/statistics/publications/flowchart/page37716.html
Free copies are available from BERR 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, and complements the annual Digest of United Kingdom Energy Statistics publication. Subscriptions run alongside Quarterly Energy Prices (see below), priced at £40 for UK subscribers, or material can be accessed via BERR's energy website: www.berr.gov.uk/energy/statistics/publications/trends/index.html.

A subscription form can be downloaded from this page. Single copies are available from BERR Publications Orderline 0845 015 0010 priced £6. Monthly updates to tables in Energy Trends are split by fuel source and can be found at:
www.berr.gov.uk/energy/statistics/source/index.html.

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 (see above) from BERR, or material can be accessed via BERR's energy website:
www.berr.gov.uk/energy/statistics/publications/prices/index.html. Single copies are available from BERR Publications Orderline 0845 015 0010 priced £8.

UK Energy Sector Indicators 2008 is an annual publication designed to show in headline form the progress that has been made in implementing the four key energy policy goals as set out in the 2003 Energy White Paper, and reiterated in the 2007 Energy White Paper. The 4 key indicators and 28 further supporting indicators were published on 31 July 2008 and are available free from BERR and on the internet at
www.berr.gov.uk/energy/statistics/publications/indicators/page46000.html.

A further set of background indicators (charts and tables) will be available on the BERR website (address as above) in October 2008.

References

The Government's **Energy White Paper, 'Meeting the Energy Challenge'** was published by the Secretary of State for Trade and Industry on 23 May 2007. The White Paper sets out the Government's international and domestic energy strategy, and shows how the Government are implementing the measures set out in the Energy Review Report in 2006, as well as those announced since, including in the Pre-Budget Report in 2006 and the Budget in 2007. The White Paper is available on the BERR website: www.berr.gov.uk/energy/whitepaper/page39534.html and in hard copy from The Stationery Office.

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 material describes the key trends in energy consumption in the UK since 1970 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. 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 via BERR's website: www.berr.gov.uk/energy/statistics/publications/ecuk/page17658.html

UK Energy and CO_2 emissions projection: updated projections to 2020
This report provides key information on updated energy and emission projections. The latest projections have been updated for the Energy White Paper, and show the impact of the Energy White Paper measures and the EU ETS on energy demand, energy mix and carbon emissions between now and 2020. The report is to be found at: www.berr.gov.uk/files/file39580.pdf

The UK Fuel Poverty Strategy, 5th Annual Progress Report 2007 is produced by Defra and BERR in association with the Devolved Administrations. The report sets out the progress that has been made on tackling fuel poverty and is available to view at www.berr.gov.uk/files/file42720.pdf.
It is accompanied by detailed annexes published on the BERR website: www.berr.gov.uk/energy/fuel-poverty/strategy/index.html

The fifth annual report is also available free from BERR Publications Orderline 0845 015 0010

Publication of **Development of UK Oil and Gas Resource**s ended with the 2001 edition. Up-to-date information on the UK offshore industry is available via BERR's Oil and Gas website: www.og.berr.gov.uk

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