



A National Statistics Publication



# UK ENERGY IN BRIEF 2011



# UK ENERGY IN BRIEF 2011

This booklet summarises the latest statistics on energy production, consumption, prices and climate change in the United Kingdom. Figures are primarily taken from the 2011 edition of the "Digest of UK Energy Statistics", published on 28 July 2011. Details of the Digest and other Department of Energy and Climate Change (DECC) statistical publications can be found on pages 44 and 45 of this booklet and are available on the Internet at:

[www.decc.gov.uk/en/content/cms/statistics/publications/publications.aspx](http://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](http://www.decc.gov.uk/en/content/cms/statistics/publications/brief/brief.aspx)



## **This is a National Statistics publication**

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the UK Statistics Authority: Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs
- are well explained and readily accessible
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

# Contents

---

<b>INTRODUCTION TO THE CHARTS AND TABLES</b> .....	5
<b>ENERGY IN THE ECONOMY</b>	
The energy industries' contribution to the UK economy	6
Contribution to GDP	6
Trends in employment	7
Investment	7
<b>OVERALL ENERGY</b>	
Production of primary fuels	8
Inland energy consumption	9
Final energy consumption	10
Import dependency	11
Proportion of UK energy supply from low carbon sources	12
Diversity of primary energy supply in G8 countries	13
Energy and carbon ratios	14
<b>CLIMATE CHANGE</b>	
Greenhouse gas emissions	15
Carbon dioxide emissions by National Communication sector	16
<b>FUEL POVERTY</b>	
Number of households in fuel poverty	17
Fuel poverty by household composition	18
<b>SECURITY OF SUPPLY</b>	
Reliability	19
<b>COAL</b>	
Supply	20
Consumption	21
<b>PETROLEUM</b>	
Foreign trade in crude oil and petroleum products	22
Demand by product	23
Demand for road fuels	24
<b>OIL AND GAS PRODUCTION</b>	
UK Continental Shelf production	25
Remaining oil & gas reserves	26
<b>NATURAL GAS</b>	
Consumption	27
Trade	28
<b>ELECTRICITY</b>	
Electricity supplied by fuel type	29
Consumption	31
<b>COMBINED HEAT AND POWER</b>	32
<b>RENEWABLES</b>	
Energy sources	33
Electricity generation from renewable sources	34
Progress against EU Renewable Energy Directive	35
<b>ENERGY EFFICIENCY</b>	
Energy efficiency	36
Number of homes with energy efficiency measures	37
<b>PRICES</b>	
Fuel price indices for the industrial sector	38
Fuel price indices for the domestic sector	39
Petrol and diesel prices	40
<b>EXPENDITURE</b>	
Fuel expenditure of households	41
<b>CONTACTS</b>	42
<b>CONVERSION FACTORS AND DEFINITIONS</b>	43
<b>REFERENCES</b>	44

# Introduction to the charts and tables

---

UK Energy in Brief aims to provide a summary of some of the key developments in the UK energy system: how energy is produced and used and the way in which energy use influences greenhouse gas emissions. It takes data from the main Department 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.

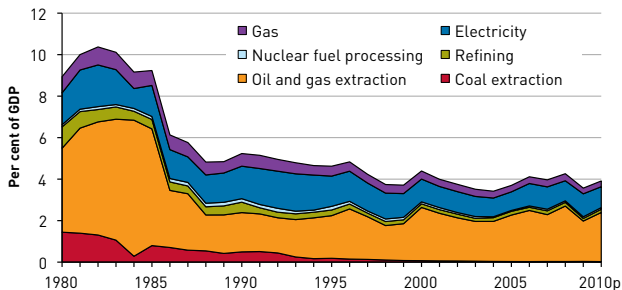
The detailed background data on energy production and consumption can be found in the Digest of UK Energy Statistics 2011 available from The Stationery Office, priced £60, but also available free of charge on the Internet at: [www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx](http://www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx)

# Energy in the economy

## THE ENERGY INDUSTRIES' CONTRIBUTION TO THE UK ECONOMY

- 3.9% of GDP
- 9.9% of total investment
- 51.8% of industrial investment
- 3.0% of annual business expenditure on research and development
- 173,000 people directly employed in 2010 (7% of industrial employment) and more indirectly e.g. an estimated 207,000 in support of UK Continental Shelf production.

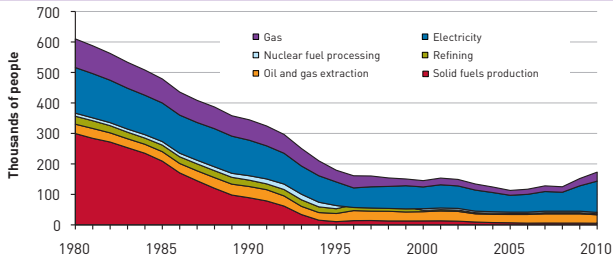
### Contribution to GDP by the energy industries, 1980 to 2010



Source: Office for National Statistics  
DECC estimate for 2010

The contribution to the UK economy by the energy industries peaked in 1982 at 10.4%. Despite the fall in 1986, oil and gas extraction is 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 2010, DECC estimated the contribution by the energy industries to the UK economy to be 3.9 % of GDP, with oil and gas extraction accounting for more than half the energy total.

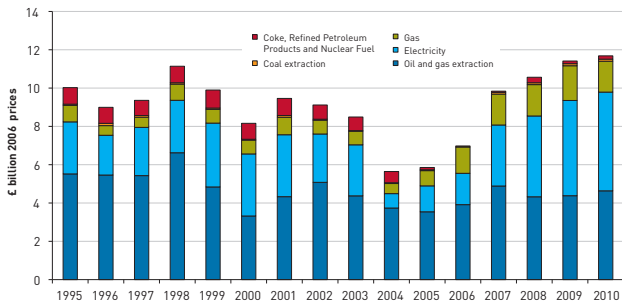
## Trends in employment in the energy industries, 1980 to 2010



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

Employment in the energy industries fell rapidly in the 1980s and 1990s as a result of the closure of coal mines. Between 1995 and 2008, employment declined though latest data suggests employment has increased in the last two years, driven by a growth in electricity.

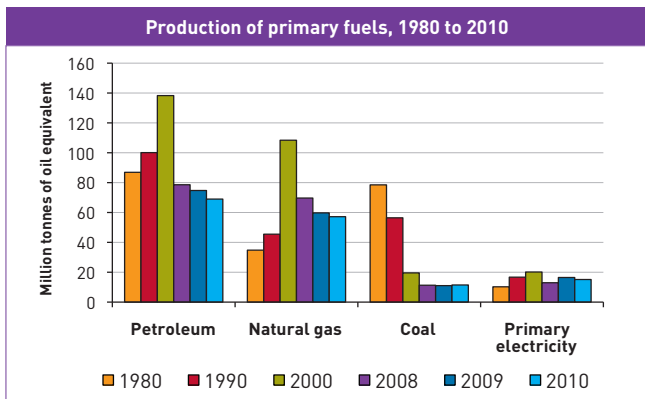
## Investment in the energy industries, 1995 to 2010



Source: Office for National Statistics

Since 2004, investment in the energy industries has continued to grow, specifically in electricity. In 2010, of the total amount invested in the energy industry, 40% was in oil and gas extraction, 44% in electricity, 14% in gas with the remaining 2% in coal extraction and coke, refined petroleum products and nuclear fuels.

# Overall energy



## Million tonnes of oil equivalent

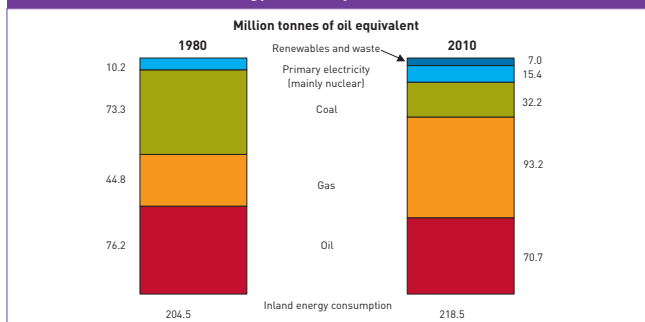
	1980	1990	2000	2008	2009	2010
Petroleum	86.9	100.1	138.3	78.6	74.7	69.0
Natural gas	34.8	45.5	108.4	69.7	59.7	57.2
Coal	78.5	56.4	19.6	11.3	11.0	11.5
Primary electricity	10.2	16.7	20.2	13.0	16.5	15.1
Renewables	0.0	0.7	2.3	4.5	5.0	5.3
<b>Total</b>	<b>210.5</b>	<b>219.4</b>	<b>288.7</b>	<b>177.0</b>	<b>167.0</b>	<b>158.1</b>

Total production of primary fuels, when expressed in terms of their energy content, fell by 5.3% in 2010 compared to 2009. Petroleum accounted for 44% 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 5.3 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 declined and is now 25% lower than in 1980, and 45% 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 2010



## Million tonnes of oil equivalent

	1980	1990	2000	2008	2009	2010
Conversion losses:			53.8	52.8	50.1	50.0
Distribution losses and energy industry use:	(62.1)	66.4)	20.7	18.7	17.9	18.3
Final consumption:						
Industry	48.3	38.7	35.5	30.9	26.6	27.5
Domestic	39.8	40.8	46.9	45.5	43.0	48.5
Transport	35.5	48.6	55.5	58.5	56.1	55.7
Services <sup>1</sup>	18.7	19.2	21.5	19.2	17.7	18.4
<b>Total final energy consumption:</b>	<b>142.4</b>	<b>147.3</b>	<b>159.4</b>	<b>154.0</b>	<b>143.4</b>	<b>150.1</b>
<b>Total inland primary energy consumption<sup>2</sup></b>	<b>204.5</b>	<b>213.7</b>	<b>233.9</b>	<b>225.6</b>	<b>211.5</b>	<b>218.5</b>
<b>Temperature corrected total inland consumption</b>	<b>206.2</b>	<b>221.6</b>	<b>239.6</b>	<b>226.7</b>	<b>213.0</b>	<b>212.3</b>

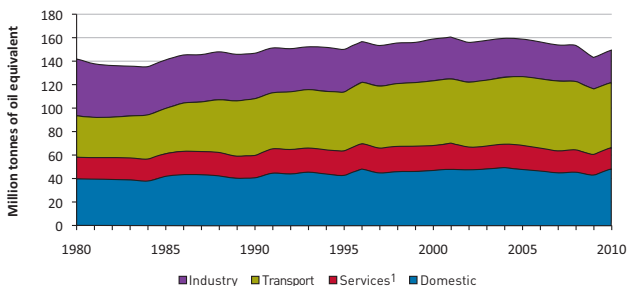
(1) Includes agriculture

(2) Excludes non-energy use

Primary energy consumption was 3.3% higher in 2010 than in 2009, though 0.4% lower on a temperature corrected basis. 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 31.3% of inland energy consumption in 2010.

# Overall energy

## Final energy consumption, 1980 to 2010



2010

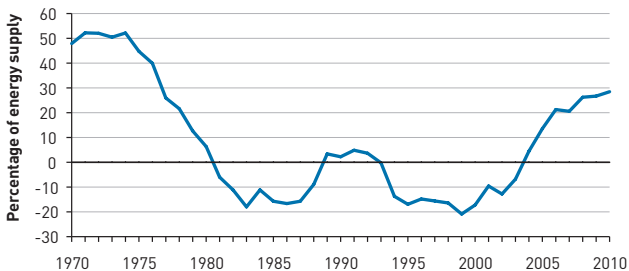
Million tonnes of oil equivalent

	Industry	Domestic	Transport	Services <sup>1</sup>	Total
Coal & manufactured fuels	1.8	0.8	0.0	0.0	2.6
Gas	10.5	33.5	-	7.6	51.6
Oil	5.0	3.4	54.1	1.3	63.8
Electricity	9.0	10.2	0.3	8.7	28.2
Renewables and heat	1.3	0.6	1.2	0.7	3.8
<b>Total</b>	<b>27.5</b>	<b>48.5</b>	<b>55.7</b>	<b>18.4</b>	<b>150.1</b>

(1) Includes agriculture

Total final energy consumption (excluding non-energy use) was 5% higher in 2010 compared to 2009. By sector, final consumption rose by 4% in the industry sector, 13% in the domestic sector and 4% in the service sector but fell by 1% in the transport sector due to weather and aviation disruptions. The increase in domestic consumption was mainly due to the cold weather in 2010, which was on average 1.1 degrees colder than in 2009. In terms of fuel types, final consumption of oil and electricity were at a similar level as in the previous year while coal and manufactured fuels rose by 3%, gas 13% and renewables by 12%.

## Import dependency, 1970 to 2010



## Percentage

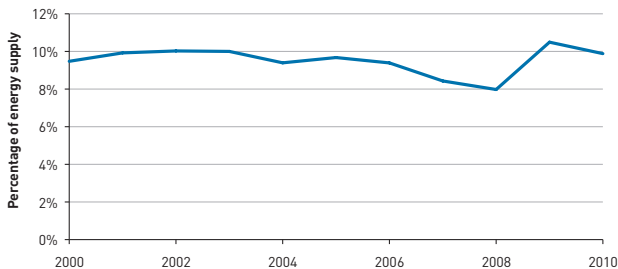
	2000	2006	2007	2008	2009	2010
Coal	39%	75%	69%	75%	78%	51%
Gas	-11%	12%	20%	26%	32%	38%
Oil	-55%	9%	2%	9%	8%	14%
<b>Total</b>	<b>-17%</b>	<b>21%</b>	<b>21%</b>	<b>26%</b>	<b>27%</b>	<b>28%</b>

In the 1970's the UK was a net importer of energy. Following development of oil and gas production in the North Sea, the UK became a net exporter of energy in 1981. Output fell back in the late 1980's following the Piper Alpha disaster, with the UK regaining a position as a net exporter in the mid 1990's. North Sea production peaked in 1999, and the UK returned to being an energy importer in 2004. 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. In 2010 28% of energy used in the UK was imported.

Latest comparable data from Eurostat, for 2009, show that the UK had the fourth lowest level of import dependency in the EU, behind Denmark, which remains a net exporter, Estonia and Romania.

## Overall energy

Proportion of UK energy supply from low carbon sources, 2000 to 2010

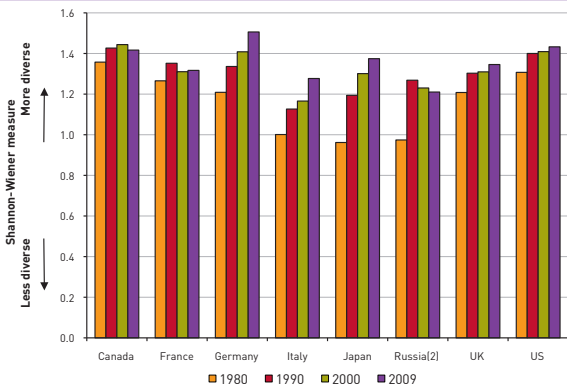


	Percentage					
	2000	2006	2007	2008	2009	2010
Nuclear	8.4%	7.3%	6.2%	5.3%	7.2%	6.4%
Wind	0.0%	0.2%	0.2%	0.3%	0.4%	0.4%
Hydro	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%
Biomass	0.9%	1.6%	1.7%	1.8%	2.2%	2.3%
Transport fuels	0.0%	0.1%	0.2%	0.4%	0.5%	0.6%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
<b>Total</b>	<b>9.5%</b>	<b>9.4%</b>	<b>8.4%</b>	<b>8.0%</b>	<b>10.5%</b>	<b>9.9%</b>

In 2010 the UK obtained 10% of its energy supply from low carbon sources, with two thirds from nuclear power. The second largest component of low carbon was biomass.

Energy supply from both wind and hydro were both effected by weather conditions in 2010, with low rainfall and lower average wind speeds resulting in lower output than from a normal year. Recent fluctuations in nuclear reflect reductions in output due to outages and maintenance activity.

The UK had the 9th lowest share amongst EU countries of low carbon energy in 2008, with the UK's share of supply being under half that of the EU average of 21%.

Diversity of primary energy supply in G8 countries<sup>1</sup>, 1980 to 2009

(1) Based on the shares of five groups of fuels: coal, oil, gas, primary electricity and biomass.

(2) Russia data for 1980 to 1990 estimated from Former USSR data. The latest available data for Russia is for 2008.

Shannon-Weiner measure<sup>3</sup>

	1980	1990	2000	2009
Canada	1.36	1.43	1.44	1.42
France	1.27	1.35	1.31	1.32
Germany	1.21	1.34	1.41	1.51
Italy	1.00	1.13	1.17	1.28
Japan	0.96	1.19	1.30	1.37
Russia (2)	0.97	1.27	1.23	1.21
UK	1.21	1.30	1.31	1.35
US	1.31	1.40	1.41	1.43

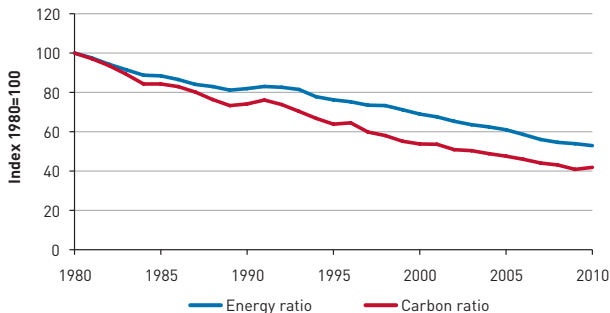
Source: DECC calculations based on International Energy Agency data.

[3] See definition on page 43.

All G8 countries have seen increases in the diversity of their primary energy supplies since 1980. However, in France the increasing dominance of nuclear power has resulted in a fall since 1990, with a more pronounced fall occurring in Russia. Of the G8 countries, Germany had the highest level of energy diversity in 2009, largely due to a relatively high level (8%) of contribution from biomass. The UK's share of primary energy from biomass was just under 3%.

# Overall energy

Energy and carbon ratios, 1980 to 2010



Index 1980=100

	1980	1990	2000	2008	2009	2010
Primary energy consumption <sup>1</sup>	100	107.5	116.2	109.7	103.1	102.5
Carbon dioxide emissions	100	97.2	90.6	86.6	78.1	81.1
GDP	100	131.2	168.5	201.0	191.2	193.6
<b>Energy ratio</b>	<b>100</b>	<b>81.9</b>	<b>69.0</b>	<b>54.6</b>	<b>53.9</b>	<b>52.9</b>
<b>Carbon ratio</b>	<b>100</b>	<b>74.1</b>	<b>53.8</b>	<b>43.1</b>	<b>40.9</b>	<b>41.9</b>

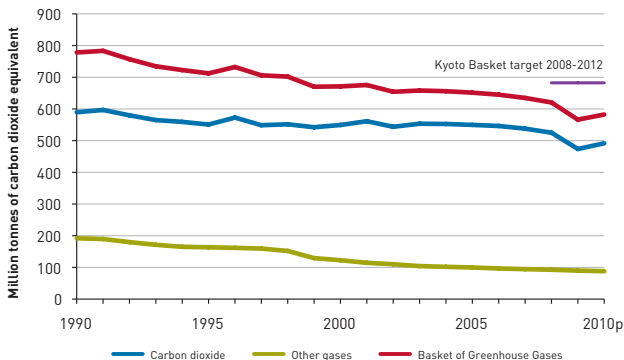
[1] Temperature corrected primary energy consumption.

The energy ratio is calculated by dividing temperature corrected primary energy consumption by GDP at constant prices, with the carbon ratio similarly calculated by dividing carbon dioxide emissions by GDP. Both ratios have fallen steadily, with the energy ratio declining by around 2% per year, with the carbon ratio declining at a faster pace of around 3% per year.

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

Latest International Energy Authority data shows that the energy ratio is falling in all G8 countries. The UK has the second lowest energy ratio in the G8 behind Japan.

## Greenhouse gas emissions, 1990 to 2010



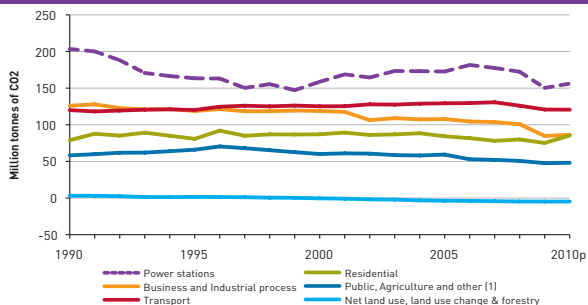
## Million tonnes of carbon dioxide equivalent

	1990	1995	2000	2008	2009	2010p
Carbon dioxide	589.7	550.8	549.4	525.1	473.7	491.7
Methane	110.4	90.1	66.7	44.5	43.6	..
Nitrous oxide	67.7	56.3	44.9	36.4	34.6	..
HFC	11.4	15.5	8.7	10.8	10.9	..
PFC	1.4	0.5	0.5	0.2	0.1	..
SF <sub>6</sub>	1.0	1.2	1.8	0.7	0.7	..
<b>'Basket' of greenhouse gases</b>	<b>778.3</b>	<b>712.3</b>	<b>671.2</b>	<b>620.5</b>	<b>566.3</b>	<b>582.4</b>

Source: AEA, DECC (2010 provisional figures)

In 2010, UK emissions of the basket of six greenhouse gases covered by the Kyoto Protocol were provisionally estimated to be 582.4 million tonnes carbon dioxide equivalent. This was 3% higher than the 2009 figure of 566.3 million tonnes but 25% lower than the 1990 figure of 778.3 million tonnes. In 2010, carbon dioxide emissions contributed about 84% of the estimated 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 2010 indicate that carbon emissions were 4% higher than the previous year, and 17% lower than in 1990.

## Carbon dioxide emissions by National Communication sector, 1990 to 2010



(1) Includes emissions from Public, Agriculture, Waste Management and other Energy supply.

### Million tonnes of carbon dioxide

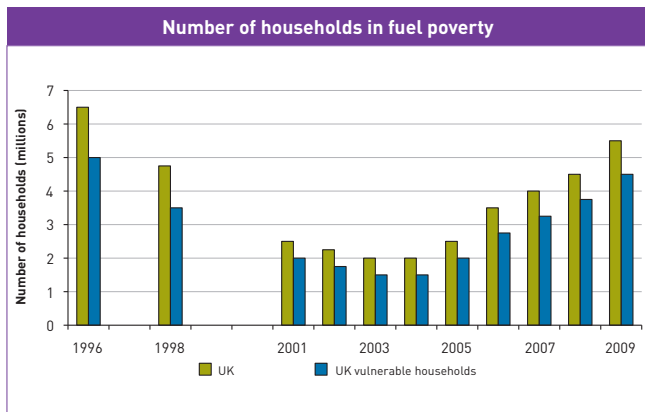
	1990	1995	2000	2008	2009	2010p
Power stations	203.4	163.4	163.1	172.4	150.3	156.2
Residential	79.0	80.8	92.0	79.9	75.2	85.3
Public, Agriculture and other <sup>(1)</sup>	58.2	66.0	70.4	50.7	47.6	48.1
Business and Industrial process	126.0	118.8	121.3	100.8	84.7	86.3
Transport	120.0	120.2	124.6	126.0	120.8	120.6
NLULUCF	3.1	1.6	1.4	-4.7	-4.8	-4.8
<b>Total CO<sub>2</sub> emissions</b>	<b>589.7</b>	<b>550.8</b>	<b>549.4</b>	<b>525.1</b>	<b>473.7</b>	<b>491.7</b>

Source: AEA, DECC (2010 provisional figures)

It has been provisionally estimated that 491.7 million tonnes of carbon dioxide (MtCO<sub>2</sub>) were emitted during 2010. Carbon dioxide emissions have fallen by 17% since 1990. Power stations, at 156.2 MtCO<sub>2</sub>, are the largest single source of carbon dioxide emissions. Between 1990 and 2010 emissions from electricity generation decreased by 23%. In 2010, CO<sub>2</sub> emissions from the transport sector, at 120.6 MtCO<sub>2</sub>, accounted for 25% of all CO<sub>2</sub> emissions, compared to 20% in 1990. Emissions from the residential sector accounted for around 17% of all CO<sub>2</sub>; since 1990 emissions from this sector have increased by 8%.

The increase in CO<sub>2</sub> emissions between 2009 and 2010 resulted primarily from a rise in residential gas use, combined with fuel switching away from nuclear power to coal and gas for electricity generation.





More information can be found at

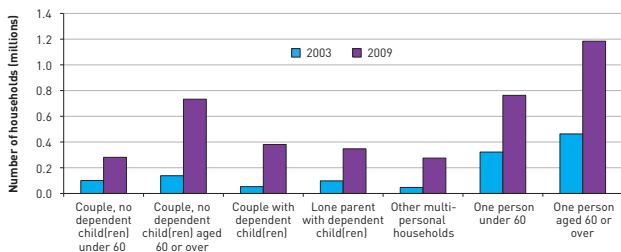
[www.decc.gov.uk/en/content/cms/statistics/fuelpov\\_stats/fuelpov\\_stats.aspx](http://www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/fuelpov_stats.aspx)

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 2 million in 2003 before rising to 5½ million in 2009. The 2009 figure is an increase of approximately a million households since 2008 and continues the upward trend since 2004. This rise is mainly attributable to rising domestic fuel prices experienced in recent years (see page 39).

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 at 4½ million in 2009. The 2009 level is a rise from the low of around 1½ million vulnerable fuel poor households in 2004, but ½ million lower than in 1996.

## Fuel poverty

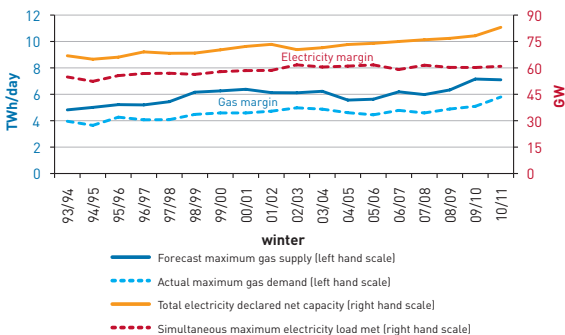
### Fuel poverty by household composition, England



Households, England (000s)	2003		2009		Change (2003-2009)	
	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	281	3,973	180	-50
Couple, no dependent child(ren) aged 60 or over	138	3,183	733	3,608	595	425
Couple with dependent child(ren)	53	4,971	381	4,727	328	-244
Lone parent with dependent child(ren)	98	1,515	347	1,688	249	173
Other multi-person households	47	1,458	275	1,527	228	69
One person under 60	322	2,649	763	2,941	441	292
One person aged 60 or over	463	2,924	1,184	3,072	721	148
<b>Total</b>	<b>1,222</b>	<b>20,723</b>	<b>3,964</b>	<b>21,535</b>	<b>2,742</b>	<b>812</b>

Fuel poverty in England has risen from 5.9% of households in 2003 to 18.4% of households in 2009; an increase from 1.2m households in 2003 to 4.0m in 2009. Of the increase, a large proportion were single person households, with the majority of these single-person households aged 60 or over (up from just under half a million households in 2003 to over a million households in 2009). In 2003, one in ten households with at least one person aged 60 or over were in fuel poverty, by 2009 this had increased to over one in four households.

## Reliability – gas and electricity capacity margins – maximum supply and maximum demand 1993/94 to 2010/11



Source: National Grid and DECC

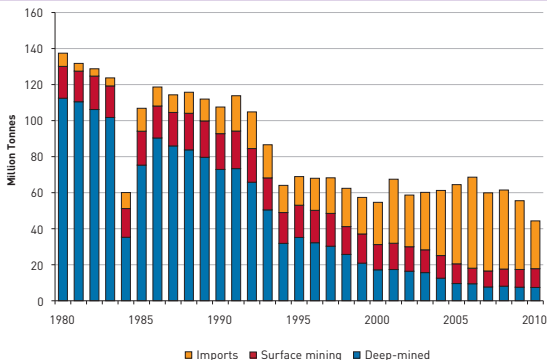
Whilst energy security is complex to measure, and subsequent charts on individual fuels provide fuller insight, this chart aims to provide a view on it, by looking at the difference between maximum supply and demand for gas and electricity.

For electricity, there was a small increase in capacity in 2007/08 due to new plant and the inclusion of wind farm capacity in the measure<sup>1</sup>. This was outweighed, however, by a 2.5 GW increase in peak demand that winter, resulting in a fall in the capacity margin. Since then, peak demand has fallen, remaining around the 60 GW mark, while capacity has continued to increase, with the margin increasing accordingly. In 2010, over 4 GW of new gas capacity (as well as a smaller amount of wind capacity) was added, resulting in an increase to the capacity margin, from 30% in 2009/10 to 36% in 2010/11, despite a small increase in peak demand.

For gas, the cold winter of 2010/11 led to record peaks in gas demand with peak gas demand 14% higher compared to 2009/10. With the peak supply forecast decreasing slightly the gas capacity margin fell from 40% in 2009/10 to 20%.

(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 2010

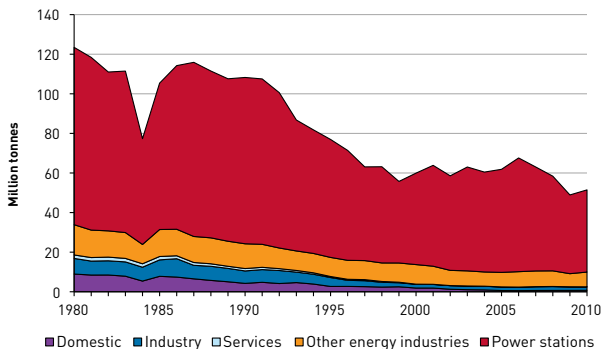


Million tonnes

	1980	1990	2000	2008	2009	2010
Deep mined	112.4	72.9	17.2	8.1	7.5	7.4
Surface mining	15.8	18.1	13.4	9.5	9.6	10.4
<b>Total (including slurry)</b>	<b>130.1</b>	<b>92.8</b>	<b>31.2</b>	<b>18.1</b>	<b>17.9</b>	<b>18.4</b>
Coal imports	7.3	14.8	23.4	43.9	38.2	26.5

Coal production was 3% higher in 2010 than in 2009; deep mined production fell by 2%, whilst surface mine production increased by 6%. 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 2010 UK imports (27 million tonnes) were 31% lower than 2009. Despite this fall, UK imports still account for nearly two thirds of UK supply (not including stocks).

Coal consumption, 1980 to 2010

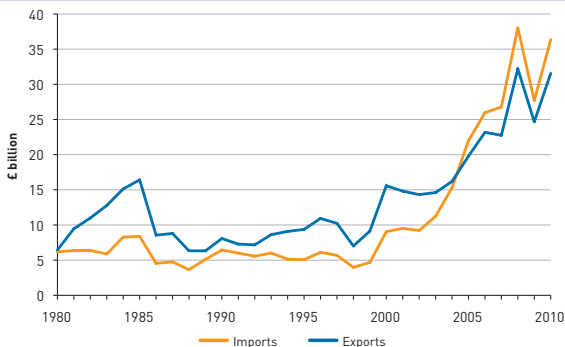


Million tonnes

	1980	1990	2000	2008	2009	2010
Power stations	89.6	84.0	46.2	47.8	39.8	41.5
Domestic	8.9	4.2	1.9	0.7	0.7	0.7
Industry	7.9	6.3	1.9	1.9	1.7	1.7
Services	1.8	1.2	< 0.1	< 0.1	< 0.1	< 0.1
Other energy industries	15.3	12.5	9.9	7.9	6.6	7.5
<b>Total consumption</b>	<b>123.5</b>	<b>108.3</b>	<b>59.9</b>	<b>58.4</b>	<b>48.9</b>	<b>51.5</b>

The proportion of coal consumed by power stations increased steadily from the 1970s to reach 85% in 2006 before falling back to 81% in 2010. Despite this increasing proportion coal consumption at power stations has been falling and reached a low of 41.2 million tonnes in 1999 before climbing to 57.4 million tonnes in 2006. Since then it has been in general decline to 2009 before increasing to 41.5 million tonnes in 2010. Coal consumption as a whole follows the pattern of power generation use. It 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 thereafter, fell back by 10% per year. In 2010, however, the demand for coal increased by 5% (from 2009 levels) to 51.5 million tonnes because of higher coal demand by power stations.

## Foreign trade in crude oil and petroleum products, 1980 to 2010



### Crude oil and petroleum products

£ billion

	1980	1990	2000	2008	2009	2010
Exports	6.5	8.1	15.6	32.2	24.7	31.5
Imports	6.2	6.4	9.0	38.0	27.7	36.4
<b>Net imports</b>	<b>-0.3</b>	<b>-1.6</b>	<b>-6.5</b>	<b>5.8</b>	<b>3.0</b>	<b>4.8</b>

Source: Office for National Statistics

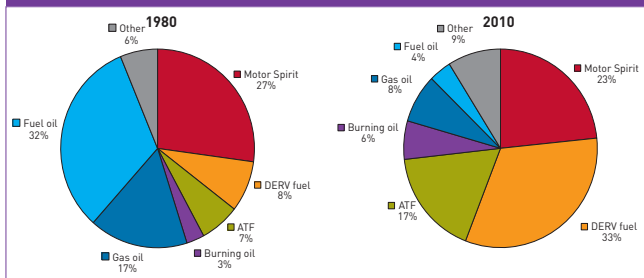
### Crude oil and petroleum products

Million tonnes of oil equivalent

	1980	1990	2000	2008	2009	2010
Exports	58.4	80.4	123.9	84.3	77.4	74.5
Imports	60.4	69.2	74.8	91.9	83.8	86.0
<b>Net imports</b>	<b>2.0</b>	<b>-11.2</b>	<b>-49.1</b>	<b>7.7</b>	<b>6.4</b>	<b>11.5</b>

Since the first 'surplus' on oil trade (£0.3 billion) which occurred in 1980, oil trade has contributed £73 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 2010, the deficit was £4.8 billion, an increase of £1.8 billion from the previous year.

## Demand by Product, 1980 to 2010



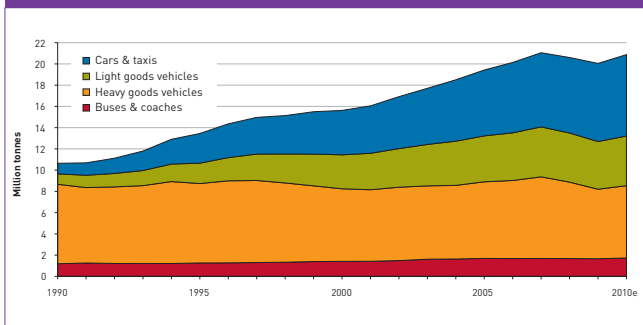
Million tonnes

	1980	1990	2000	2008	2009	2010
<b>Energy uses<sup>1</sup></b>						
Motor spirit (Petrol)	19.2	24.3	21.4	16.7	15.8	15.0
DERV fuel	5.9	10.7	15.6	20.6	20.1	20.9
Aviation turbine fuel	4.7	6.6	10.8	12.2	11.5	11.1
Burning oil	2.1	2.1	3.8	3.7	3.7	4.0
Gas oil	11.6	8.0	6.8	5.8	5.2	5.1
Fuel oil	22.7	14.0	3.3	3.3	2.6	2.4
Other	4.3	4.9	5.3	5.9	5.7	5.7
<b>Total energy uses</b>	<b>70.5</b>	<b>70.6</b>	<b>67.1</b>	<b>68.2</b>	<b>64.6</b>	<b>64.2</b>
Of which:						
Transport fuels	31.9	43.5	49.5	51.9	49.6	49.1
Industry	14.9	7.2	5.5	5.1	4.5	4.5
Energy Industry use	6.3	5.1	5.3	5.2	4.8	5.0
<b>Non-energy uses</b>	<b>7.0</b>	<b>9.2</b>	<b>10.1</b>	<b>7.9</b>	<b>7.4</b>	<b>7.5</b>
<b>Total deliveries</b>	<b>77.5</b>	<b>79.8</b>	<b>77.2</b>	<b>76.1</b>	<b>72.0</b>	<b>71.7</b>

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

The impact of the recession, cold weather and a variety of aviation issues and a decline in motor spirit use have resulted in falls in transport fuel use from 2009. Despite this transport use represented just over 75% of energy use of oil products in 2010. Fuel oil accounts for around 3% of total deliveries, compared to almost 30% in 1980, due to electricity generation switching to other fuels.

## Demand for road fuels, 1990 to 2010



Total deliveries of diesel road fuel (DERV) have almost doubled in the past 20 years, this has been mainly caused by the increased use of DERV in cars, taxis and light goods vehicles.

### Demand for DERV by Vehicle Type

Thousand tonnes

	1990	1995	2000	2008	2009	2010*
Cars & taxis	995	2,783	4,181	7,109	7,354	7,653
Light goods vehicles	979	1,917	3,197	4,623	4,490	4,673
Heavy goods vehicles	7,484	7,476	6,833	7,197	6,547	6,813
Buses & coaches	1,186	1,263	1,412	1,675	1,656	1,723
<b>Total</b>	<b>10,650</b>	<b>13,460</b>	<b>15,632</b>	<b>20,613</b>	<b>20,057</b>	<b>20,873</b>

(\*2010 estimated, total includes off road use of DERV. Figures are derived from AEA modelling)

Demand for petrol decreased in 2010, in line with an ongoing trend that has seen the diesel share of road transport increase substantially over the last decade. Petrol is almost exclusively used in cars and taxis. Despite increasing dieselisation of the car fleet, the petrol consumed by cars and taxis is still roughly double that DERV.

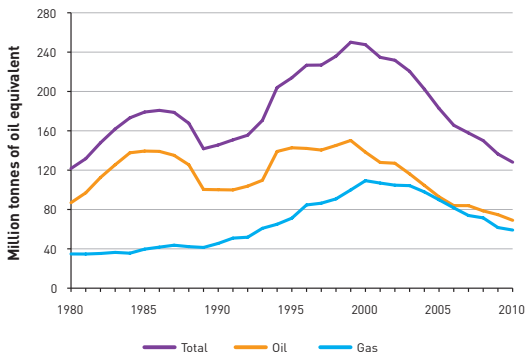
### Demand for Petrol

Thousand tonnes

	1990	1995	2000	2008	2009	2010
<b>Total</b>	<b>24,310</b>	<b>21,950</b>	<b>21,403</b>	<b>16,678</b>	<b>15,762</b>	<b>14,988</b>



## UK Continental Shelf production, 1980 to 2010



### Million tonnes of oil equivalent

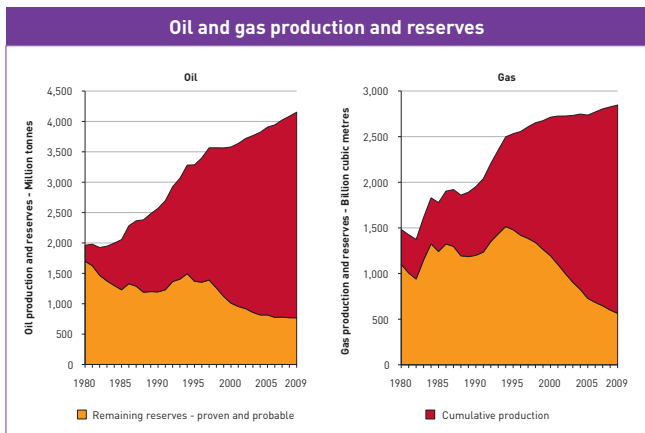
	1980	1990	2000	2008	2009	2010
Oil	86.9	100.1	138.3	78.6	74.7	69.0
Gas	34.8	45.5	109.3	71.5	61.6	59.1
<b>Total</b>	<b>121.7</b>	<b>145.6</b>	<b>247.6</b>	<b>150.1</b>	<b>136.4</b>	<b>128.1</b>

Oil production in 2010 was 54% lower than the record 150.2 million tonnes in 1999, and a 8% fall on 2009 production.

As with oil, UK gas production is also declining as UK Continental Shelf reserves deplete. Gas production in 2010 was 4% lower than in 2009 and 46% lower than the record level seen in 2000.

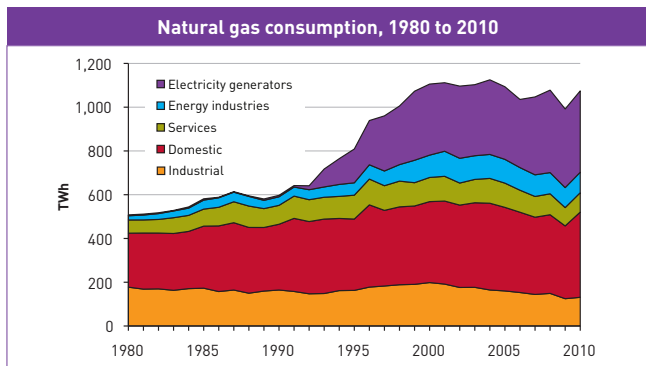
The declines in oil and gas production are broadly in line with the rate of decline since 2000 which are 7% and 6% respectively.

# Oil and gas production



	1980	1990	2000	2007	2008	2009
<b>Oil</b>						
					<b>Million tonnes</b>	
Cumulative production	263	1,374	2,570	3,243	3,315	3,383
Proven plus probable reserves	1,700	1,195	1,010	780	770	769
<b>Estimated Ultimate Recovery</b>	<b>1,963</b>	<b>2,569</b>	<b>3,580</b>	<b>4,023</b>	<b>4,084</b>	<b>4,152</b>
<b>Gas</b>						
					<b>Billion cubic metres</b>	
Cumulative production	382	752	1,518	2,157	2,225	2,282
Proven plus probable reserves	1,101	1,200	1,195	647	601	564
<b>Estimated Ultimate Recovery</b>	<b>1,483</b>	<b>1,952</b>	<b>2,713</b>	<b>2,804</b>	<b>2,826</b>	<b>2,846</b>

The Estimated Ultimate Recovery (EUR) shows the cumulative total of production to the end of the years given and the total of proven plus probable reserves as estimated at the end of those years. For both oil and gas, EUR has grown substantially since 1980, increasing by 112% for oil and by 92% for gas. This reflects increased new discoveries and the effect of new technology allowing exploitation of resources that were previously regarded as uncommercial. Total cumulative production of oil and gas are 72% and 54% greater than the estimated EUR in 1980.



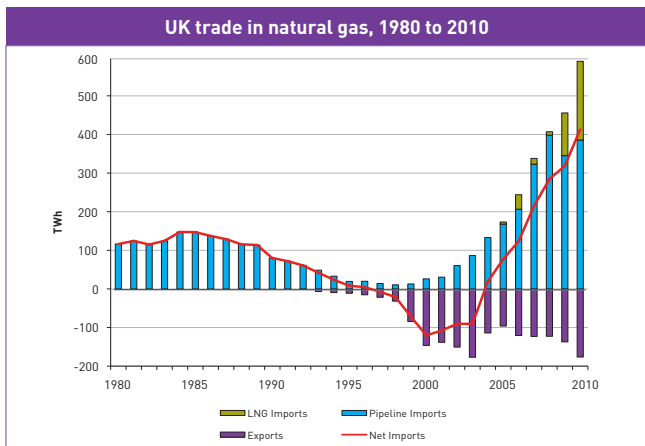
TWh

	1980	1990	2000	2008	2009	2010
Electricity generators	4.0	6.5	324.6	376.8	359.3	371.7
Energy Industries	19.1	39.2	102.1	97.0	91.4	93.4
Industry	177.5	164.6	198.5	149.0	124.9	131.1
Domestic	246.8	300.4	369.9	359.6	332.5	389.6
Services	60.4	86.4	110.5	95.6	83.7	88.6
<b>Total</b>	<b>507.8</b>	<b>597.0</b>	<b>1,105.5</b>	<b>1,078.0</b>	<b>991.8</b>	<b>1,074.5</b>

In the early 1970s, following the advent of UK production of natural gas, gas consumption grew rapidly reaching a record high in 2004 of 1125.0 TWh. Since then, consumption has seen an overall decline, mostly as a result of higher prices, energy efficiency, and, to a lesser extent, warmer than average temperatures. In 2010, total gas consumption was 1,074.5 TWh, similar to levels in 1999 and 2008 and higher than 2009, where levels dropped as a result of the recession.

Industrial consumption peaked in 2000 but has fallen since then by around 37% to 124.9 TWh in 2009, magnified by the economic recession. There was steady growth in all other sectors until around 2004 before declining until 2009. All sectors, especially the domestic sector, showed higher gas use in 2010, due to the cold weather. After falling to an eight year low in 2006 (311.4 TWh), gas consumption by electricity generators rose by 21% to a record high level in 2008 (376.8 TWh), before decreasing in 2009 and subsequently increasing to 371.7 TWh in 2010, a rise of over 3%.

# Natural gas

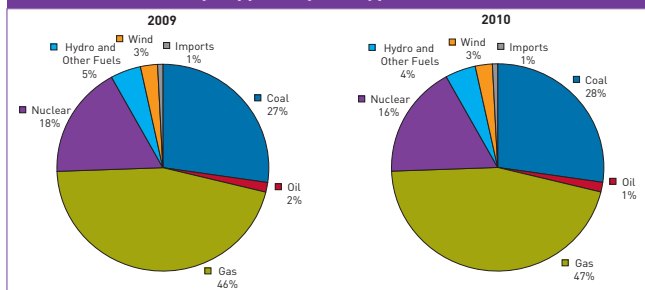


**TWh**

	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Natural gas production	404.8	528.8	1,260.2	809.6	694.0	664.4
Imports	116.3	79.8	26.0	407.1	455.8	589.5
<i>of which: LNG</i>	-	-	-	8.9	110.6	203.8
Exports	-	-	-146.3	-122.7	-137.1	-176.4
Net imports (+) or exports (-)	+116.3	+79.8	-120.3	+284.4	+318.7	+413.1

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 2010 net imports of gas were 30 per cent higher than in 2009. LNG's share of total gas imports rose from 24 per cent in 2009 to 35 per cent in 2010 via two new LNG terminals at Milford Haven (South Hook and Dragon) and the expansion of the Isle of Grain LNG terminal. The growth in LNG has also contributed to greater gas exports than seen in the past 7 years.

## Electricity supplied by fuel type, 2009 and 2010

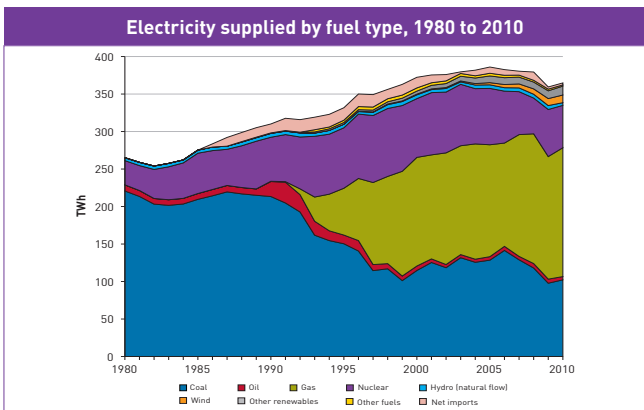


TWh

	1980	1990	2000	2008	2009	2010
Coal	220.8	213.4	114.7	118.1	97.8	102.3
Oil	8.1	20.0	5.9	5.9	5.4	4.4
Gas	-	0.4	144.9	173.0	163.5	171.8
Nuclear	32.3	58.7	78.3	47.7	62.8	56.5
Hydro <sup>1</sup>	3.9	5.2	4.2	3.8	4.1	2.5
Wind	-	-	0.9	7.1	9.3	10.2
Other fuels	-	-	8.3	11.4	12.6	13.5
Net Imports	-	11.9	14.2	11.0	2.9	2.7
<b>Total electricity available for supply</b>	<b>264.9</b>	<b>309.4</b>	<b>371.4</b>	<b>378.1</b>	<b>358.3</b>	<b>363.8</b>

[1] Hydro includes net supply from pumped storage.

Between 2009 and 2010, electricity supplied from nuclear decreased from 18% to 16% largely due to an extended outage at Sizewell B. Coal's share rose from 27% to 28%. Gas's share rose from 46% to 47%. Wind's share and imports were unchanged at 3% and 1% respectively. Further details on renewable electricity generation can be found on page 34.



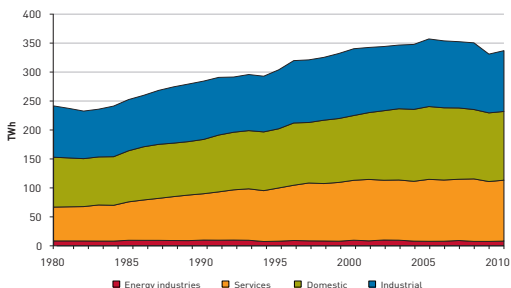
The mix of fuels used to generate electricity continues to evolve. Since 1990, the decline of coal and oil and the rise of gas have been the most marked features, but none of these fuels have followed a smooth path. Gas rose most markedly over this period from 0.4 TWh in 1990 to a peak of 173.0 TWh in 2008. After falling in 2009, as overall demand fell, gas rose again in 2010.

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. Nuclear fell again in 2010 due to further outages.

Coal recorded its highest level for 10 years in 2006, making up for the reduced availability of nuclear stations and as a substitute for high priced gas. It fell back again in the next three years before rising again in 2010, particularly due to higher winter electricity demand.

Wind has followed a sharp upward trend since 2000 to its current level of 10.2 TWh, a record high despite low wind speeds in 2010. Total electricity available for supply rose continuously from 1997 to reach a peak in 2005. It has subsequently fallen, with an increase in 2010 as the economy recovered from the downturn of 2009.

## Electricity consumption, 1980 to 2010



TWh

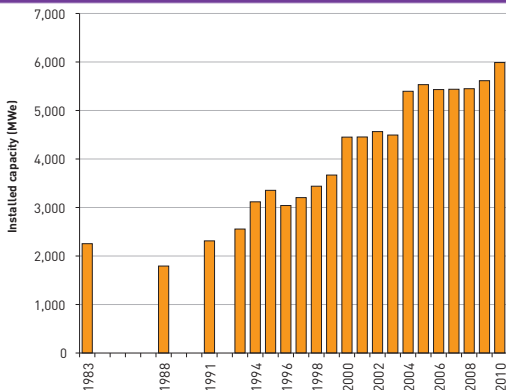
	1980	1990	2000	2008	2009	2010
Industrial	88.6	100.6	115.3	115.1	101.4	104.9
Domestic	86.1	93.8	111.8	119.8	118.5	118.7
Services	58.4	80.0	103.5	107.9	103.3	105.1
Energy industries	8.5	10.0	9.7	7.7	7.7	8.2
<b>Total</b>	<b>241.6</b>	<b>284.4</b>	<b>340.3</b>	<b>350.4</b>	<b>331.0</b>	<b>336.9</b>

Between 2000 and 2005, electricity consumption in the domestic sector grew by 12% to reach a record high of 125.7 TWh. However, between 2006 and 2008 mild winters, energy efficiency and high electricity prices resulted in domestic consumption falling. Domestic consumption continued to fall in 2009 due to energy efficiency and adverse economic conditions, before rising slightly in 2010, mainly due to a very cold final quarter.

Services electricity consumption has remained largely steady since 1999 with a peak in 2008. In 2009, it fell to its lowest level since 2004 before rising again in 2010 as the economic climate improved, and temperatures fell in the final quarter. Industrial consumption has varied more: it rose every year between 1994 and 2000, before falling between 2001 and 2003 but subsequent growth meant that in 2005 it had risen to a record high. Since then, however, industrial consumption has fallen, with 2009 showing a fall of 11.8% on 2008, 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, with improving economic conditions contributing to a rise of 3.5% in 2010.

## Combined heat and power

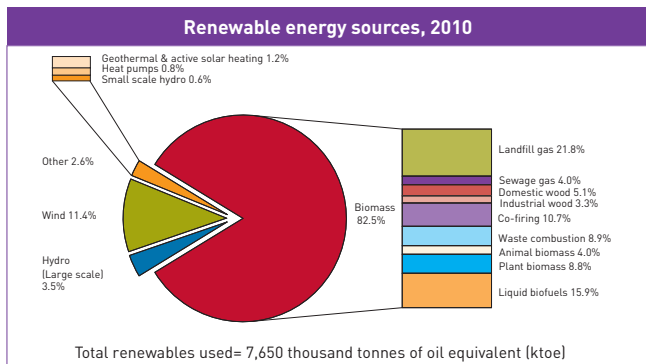
Combined heat and power, 1983 to 2010



	1995	2000	2008	2009	2010
CHP electrical capacity (MWe)	3,354	4,451	5,449	5,614	5,989
CHP electrical generation (GWh)	14,778	25,246	27,547	26,463	26,083
CHP heat generation (GWh)	56,833	54,877	51,945	48,155	47,815
Number of CHP sites					
Less than 100 kWe	617	556	457	448	462
100 kWe to 999 kWe	396	532	705	766	806
1 MWe to 9.9 MWe	139	182	201	209	231
10 MWe and greater	68	70	71	72	69
<b>Total</b>	<b>1,220</b>	<b>1,340</b>	<b>1,434</b>	<b>1,495</b>	<b>1,568</b>

CHP electrical capacity increased slightly in 2010 after having remained broadly unchanged over the last 6 years. However, due to the adverse economic climate electricity generation in 2010 was lower compared to 2008 (5.3%). A bigger fall was recorded for CHP heat generation, which was 8.0% lower in 2010 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 83% of the total CHP installed electrical capacity. In 2010, just under 7% of the total electricity generated in the UK came from CHP plants.



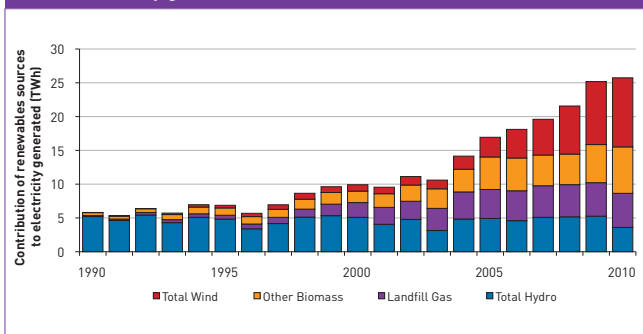
**Total use of renewables****Thousand tonnes of oil equivalent**

	1990	2000	2008	2009	2010
Geothermal and active solar heating	7.2	12.0	58.0	72.0	90.6
Wind and wave	0.8	81.3	610.3	800.0	875.5
Hydro (small and large-scale)	447.7	437.3	444.4	452.4	309.8
Landfill gas	79.8	731.1	1,573.9	1,637.8	1,665.6
Sewage gas	138.2	168.7	224.3	247.3	303.1
Wood (domestic and industrial)	174.1	458.4	578.8	598.6	647.5
Municipal waste combustion	100.8	374.8	538.2	655.8	684.6
Heat pumps	-	-	6.5	28.8	61.0
Liquid biofuels	-	-	844.5	1,038.5	1,214.4
Other biomass	71.9	265.0	1,207.2	1,434.8	1,797.5
<b>Total</b>	<b>1,020.5</b>	<b>2,528.5</b>	<b>6,086.1</b>	<b>6,965.9</b>	<b>7,649.7</b>

In 2010, biomass accounted for 82.5% of renewable energy sources used, with most of the remainder coming from large-scale hydro and wind generation. Wind (with an 11.4 % share) accounted for around 3 times the shares of large scale hydro (3.5%) in primary input terms.

Of the 7.6 million tonnes of oil equivalent of primary energy use accounted for by renewables, 5.2 million tonnes was used to generate electricity, 1.2 million tonnes was used for road transport, and 1.2 million tonnes to generate heat. Renewable energy use grew by 9.8% between 2009 and 2010 and is now three times the level it was at in 2000.

## Electricity generation from renewable sources since 1990



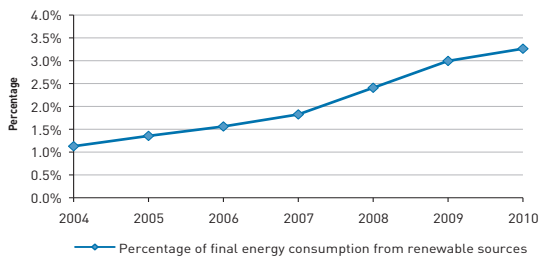
### Renewable Electricity Generation, TWh

	1990	2000	2008	2009	2010
Wind	-	0.9	7.1	9.3	10.2
Hydro	5.2	5.1	5.2	5.3	3.6
Landfill Gas	0.1	2.2	4.8	5.0	5.0
Other Biomass	0.5	1.7	4.5	5.6	6.9
<b>Total Renewables</b>	<b>5.8</b>	<b>9.9</b>	<b>21.6</b>	<b>25.2</b>	<b>25.7</b>

At 25.7TWh, renewables accounted for 6.8% of electricity generated in the UK during 2010, 0.1 percentage point higher than during 2009. Overall generation from renewables increased by 2.2% between 2009 and 2010. Despite low wind speeds during 2010 generation from wind increased by 9.6%, due to increased capacity; however the lowest rainfall since 2003 reduced hydro generation by 31.5%. Generation from all forms of biomass was 12.4% higher.

When taking into account only renewable sources eligible under the Renewables Obligation, they accounted for 7.0% of UK electricity sales, up from 6.7% in 2009.

## UK progress against 2009 EU Renewable Energy Directive



## Progress against the Renewable Energy Directive

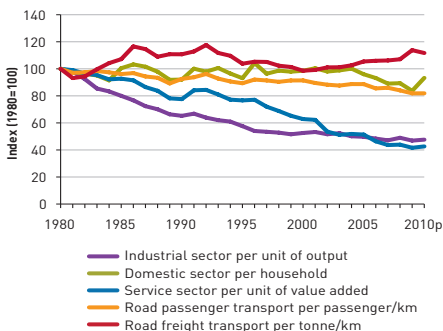
	2005	2006	2007	2008	2009	2010
Percentage of electricity from renewable sources	4.1	4.5	4.8	5.4	6.6	7.4
Percentage of heating and cooling from renewable sources	0.9	1.0	1.1	1.5	1.7	1.8
Percentage of transport energy from renewable sources	0.2	0.5	0.9	2.0	2.5	2.9
Overall renewable consumption as a percentage of capped gross final energy consumption using net calorific values	1.4	1.6	1.8	2.4	3.0	3.3

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 the EU's energy to come from renewable sources. In 2009 a new Renewable Energy Directive was implemented 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 2010, 3.3% of final energy consumption was from renewable sources; this is up from 3.0% in 2009, and 2.4% in 2008. 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

## Energy efficiency, 1980 to 2010



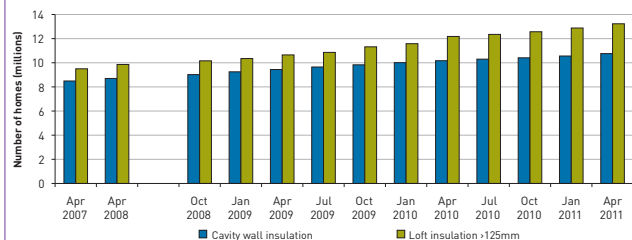
## Tonnes of oil equivalent

	1980	1990	2000	2008	2009	2010p
Industrial energy consumption per million units of GVA	346.1	225.8	181.9	169.6	162.3	164.8
Domestic energy consumption per household	2.0	1.8	1.9	1.7	1.6	1.8
Service sector energy consumption per million units of GVA	45.3	35.1	28.4	19.9	18.8	19.3
Road passenger energy consumption per million passenger-kilometres <sup>1</sup>	45.5	42.1	41.6	38.2	37.2	37.2
Road freight energy consumption per million freight-kilometres <sup>1</sup>	77.6	85.9	76.5	83.1	88.3	86.6

[1] DECC estimates for 2010

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 in the period before 2000, and in the service sector due to general energy efficiency improvements. The increase in domestic consumption in 2010 was due to the colder weather in 2010 with temperatures averaging 1.1 degrees below the 2009 average.

## Number of homes with energy efficiency measures



### Insulated homes in Great Britain (Thousands)

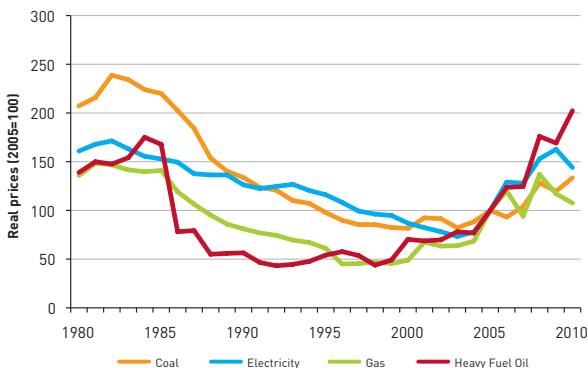
	Apr 2007	Apr 2008	Apr 2009	Apr 2010	Apr 2011
Cavity wall insulation	8,490	8,700	9,440	10,170	10,760
Loft insulation >125mm	9,500	9,860	10,650	12,180	13,230

Cost effective methods of improving energy efficiency in homes are to install cavity wall and loft insulation where these measures are practical. Building Regulations require new homes to reach thermal efficiency standards which would typically be met by installing these measures. In addition, existing homes have had these measures retrofitted through Government schemes or through a DIY loft insulation. These data show the change in the number of insulated homes as a result of new build and retro-fitting insulation.

The number of homes with cavity wall insulation has increased by 27 per cent between April 2007 and April 2011 such that 10.8 million, of the 18.7 million homes with cavities, are insulated.

The number of homes with loft insulation, of at least 125mm deep, has increased by 39 per cent between April 2007 and April 2011 such that 13.2 million, of the 23.3 million homes with lofts, are insulated.

## Fuel price indices for the industrial sector, 1980 to 2010



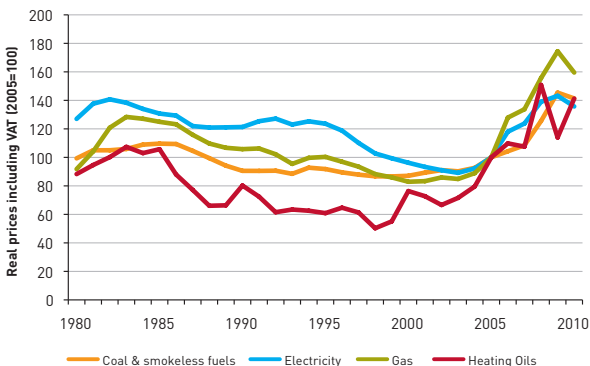
**Real prices, 2005 = 100**

	1980	1990	2000	2008	2009	2010
Coal	207.3	133.7	81.6	128.3	119.6	133.4
Electricity	160.9	126.2	86.9	153.0	162.7	144.0
Gas	135.7	81.1	48.9	137.0	117.0	107.6
Heavy fuel oil	138.9	56.4	70.3	176.0	169.2	202.4
Industrial prices	151.6	108.0	76.2	154.2	154.4	147.7

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

Compared to 2009 industrial coal prices increased in 2010 by 12% in real terms, and were 63% higher than 10 years earlier in 2000. Electricity prices decreased in 2010 by 12% in real terms, but were 66% higher than 10 years earlier in 2000. Gas prices decreased by 8% in 2010, but were 120% higher than in 2000. Heavy fuel oil prices increased by 20% in the year to 2010, and were over twice as high as in 2000. The rise in heavy fuel oil prices is due to the steady increase in the price of crude oil throughout 2010.

## Fuel price indices for the domestic sector, 1980 to 2010



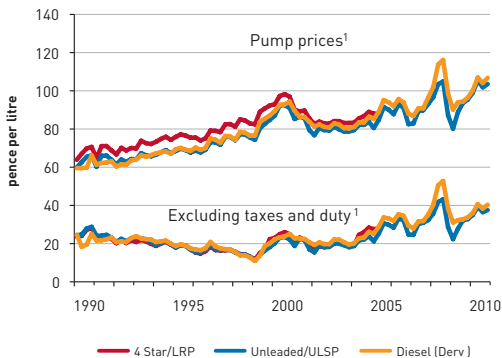
## Real prices including VAT, 2005 = 100

	1980	1990	2000	2008	2009	2010
Coal and smokeless fuels	99.3	90.5	87.1	125.5	145.4	141.3
Electricity	127.0	121.3	96.2	139.0	143.2	135.7
Gas	91.8	105.8	82.9	155.6	174.5	159.5
Heating oils	88.3	80.2	76.4	150.8	114.0	141.2
<b>Domestic prices (fuel &amp; light)</b>	<b>109.1</b>	<b>109.7</b>	<b>88.0</b>	<b>145.2</b>	<b>152.0</b>	<b>143.7</b>

Source: Retail Price Index, Office for National Statistics

Compared to 2009 total domestic energy prices in 2010 decreased in real terms by 5%. Within the overall movement, heating oils increased by 24%, reflecting the steady rise in crude oil prices throughout 2010. Electricity prices decreased by 5%, whilst gas prices decreased by 9%. Over the last ten years, between 2000 and 2010, real prices for domestic energy have risen by 63%, with the real price of electricity increasing by 41% and the real price of heating oil and gas increasing by 85% and 92% respectively.

## Petrol and diesel prices, 1990 to 2010



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

### Current retail prices

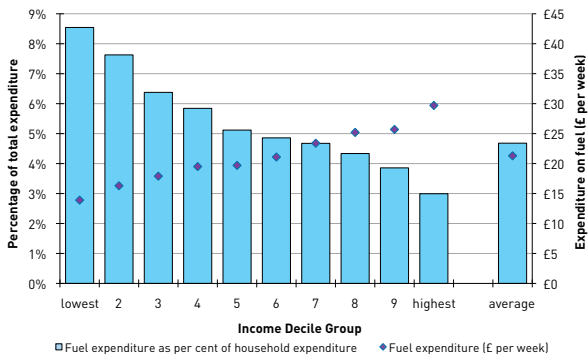
Pence/litre

	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
2010	*	116.9	119.3

\* 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) rose by 14% between 2009 and 2010, whilst the price of diesel rose by 12%. In cash terms ULSP cost 17.6 pence more in 2010 than in 2009, whilst diesel cost 15.3 pence per litre more. This reflects the steady rise in crude oil prices throughout 2010.



Fuel expenditure of households<sup>1</sup>, 2009

## Fuel expenditure as a percentage of total household expenditure, 1980 to 2009

Fuel type	1980	1990	2000/01	2006	2007	2008	2009
Gas	1.6%	1.7%	1.2%	1.5%	1.8%	1.9%	2.1%
Electricity	2.7%	2.3%	1.6%	1.6%	1.7%	1.7%	2.2%
Coal and Coke	0.9%	0.3%	0.3%	0.3%	0.2%	0.4%	0.3%
Heating oil	0.4%	0.2%					
<b>Total</b>	<b>5.6%</b>	<b>4.5%</b>	<b>3.1%</b>	<b>3.5%</b>	<b>3.7%</b>	<b>4.0%</b>	<b>4.7%</b>

Source: *Living Costs and Food Survey 2010*, Office for National Statistics

(1) Includes non-consuming households

Since 2004/05, the proportion of household expenditure spent on fuel has been increasing. Households in the lowest income decile group (i.e. the 10% of households with the lowest income decile group) spend less than half as much on domestic fuel per week compared to households in the highest income decile group (£14 compared to £30 per week). However, when comparing expenditure on domestic fuels as a proportion of total expenditure, then those in the lowest income decile group spend more (8.5%) than those in the highest income decile group (3%), these levels were last seen in the late 1990s.

# Contacts

Contacts			
Topic	Contact	Telephone (0300 068)	e-mail
General enquires about energy statistics	Clive Sarjantson	5056	Clive.Sarjantson@decc.gsi.gov.uk
Total energy statistics Foreign Trade Energy Efficiency	Anwar Annut	5060	Anwar.Annut@decc.gsi.gov.uk
Energy Efficiency Installations	Stephen Oxley	5025	Stephen.Oxley@decc.gsi.gov.uk
Climate Change	John Mackintosh	5581	John.Mackintosh@decc.gsi.gov.uk
Fuel Poverty	Damon Wingfield	5058	Damon.Wingfield@decc.gsi.gov.uk
Coal and other solid fuels Natural gas consumption	Mita Kerai	5044	Mita.Kerai@decc.gsi.gov.uk
Petroleum consumption and stocks	Warren Evans	5059	Warren.Evans@decc.gsi.gov.uk
Petroleum production Natural gas production	Clive Evans	5040	Clive.Evans@decc.gsi.gov.uk
Gas and petroleum exploration drilling Gas and petroleum investment Indicative tariffs	Mike Earp	5784	Mike.Earp@decc.gsi.gov.uk
Electricity	Chris Michaels	5050	Chris.Michaels@decc.gsi.gov.uk
CHP	Alison Judd	5043	Alison.Judd@decc.gsi.gov.uk
Renewables	Julian Prime	5054	Julian.Prime@decc.gsi.gov.uk
Energy prices (industrial, international & oil prices)	Jo Marvin	5049	Jo.Marvin@decc.gsi.gov.uk
Energy prices (domestic)	Laura Williams	5045	Laura.Williams@decc.gsi.gov.uk

All of the above can be contacted by fax on 0300 068 5006

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

## Calling DECC from overseas

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.

	to: <b>Thousand toe</b>	<b>TJ</b>	<b>GWh</b>	<b>Million therms</b>
	<i>multiply by</i>			
<i>from:</i> <b>Thousand toe</b>	1	41.868	11.630	0.39683
<b>TJ</b>	0.023885	1	0.27778	0.0094778
<b>GWh</b>	0.085985	3.6000	1	0.034121
<b>Million therms</b>	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 data within this publication are classified as National Statistics except for those on page 37 which are classified as experimental official statistics.

All figures are for the United Kingdom, except for pages 13 and 18.

## Shannon-Wiener measure of diversity

The Shannon-Wiener measure of diversity shows how the diversity of a particular market is changing over time. It is the sum of the market share multiplied by the natural log of the market share for each fuel in the market, e.g.

$$\text{Shannon-Wiener measure} = -\sum_i \rho_i \ln(\rho_i) ,$$

where  $\rho_i$  represents the proportion of the total supplied by fuel  $i$ .

The minimum value that the Shannon-Wiener measure can produce is zero which occurs when only one fuel is available for use and in which case, there would be no diversity of supply. Five fuels have been used to calculate the Shannon-Wiener measure of diversity for the primary energy supply. If each fuel making up the energy supply are in equal proportion, the maximum value of the Shannon-Wiener measure, showing total equality, is 1.61 .

## 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 2011 edition was published by The Stationery Office on 28 July 2011 and costs £60. It can also be accessed on the Internet at:

[www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx](http://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 2011 edition of the chart, published on 28 July 2011, shows the flows for 2010 and can be accessed on the Internet at:

[www.decc.gov.uk/en/content/cms/statistics/publications/flow/flow.aspx](http://www.decc.gov.uk/en/content/cms/statistics/publications/flow/flow.aspx)

Free copies are available from the Publications Orderline 0845 504 9188.

**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](http://www.decc.gov.uk/en/content/cms/statistics/publications/trends/trends.aspx)

Single copies are available from the Publications Orderline 0845 504 9188 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](http://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](http://www.decc.gov.uk/en/content/cms/statistics/publications/prices/prices.aspx)

Single copies are available from the Publications Orderline 0845 504 9188 priced £8.

**UK Energy Sector Indicators** is designed to show the extent to which secure, diverse and sustainable supplies of energy to UK businesses and consumers, at competitive prices, are ensured. It can be accessed on the Internet at:

[www.decc.gov.uk/en/content/cms/statistics/publications/indicators/indicators.aspx](http://www.decc.gov.uk/en/content/cms/statistics/publications/indicators/indicators.aspx)

**Energy Consumption in the United Kingdom** brings together statistics from a variety of sources to produce a comprehensive review of energy consumption and changes in efficiency, intensity and output since the 1970s, with a particular focus on trends since 1990. The information is presented in five sections covering overall energy consumption and energy consumption in the transport, domestic, industrial and service sectors. It can be accessed on the Internet at:

[www.decc.gov.uk/en/content/cms/statistics/publications/ecuk/ecuk.aspx](http://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](http://www.decc.gov.uk/en/content/cms/statistics/regional/regional.aspx)

**Fuel Poverty Statistics** are produced by DECC to support the UK Fuel Poverty Strategy. Data can be accessed on the Internet at:

[www.decc.gov.uk/en/content/cms/statistics/fuelpov\\_stats/fuelpov\\_stats.aspx](http://www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/fuelpov_stats.aspx)

**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](http://www.decc.gov.uk/en/content/cms/statistics/climate_change/gg_emissions/uk_emissions/uk_emissions.aspx)



The cover illustration used for UK Energy in Brief and other DECC energy statistics publications is from a photograph by Peter Askew. It was a winning entry in the DTI News Photographic Competition in 2002.

Produced by the Department of Energy and Climate Change.  
For further information telephone 0300 068 5056.



Printed in the UK on recycled paper containing a minimum of 75% post consumer waste  
Department of Energy and Climate Change. [www.decc.gov.uk](http://www.decc.gov.uk)  
First published July 2011. © Crown Copyright. DECC/1.5k/07/11/NP. URN 11D/220