



A National Statistics Publication



# ENERGY TRENDS

MARCH 2012

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- 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.

**Explanatory notes are to be found inside the back cover**

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

# Introduction

Energy Trends and Quarterly Energy Prices are produced by the Department of Energy and Climate Change (DECC) on a quarterly basis. Both periodicals are published concurrently in June, September, December and March. The March editions cover the fourth quarter of the previous year and also the previous year as a whole.

Energy Trends includes information on energy as a whole and by individual fuels. The text and charts provide an analysis of the data in the tables. The tables are mainly in commodity balance format, as used in the annual Digest of UK Energy Statistics. The 2011 edition of the Digest was published on 28 July 2011. Printed and bound copies of the 2011 Digest can be obtained from The Stationery Office and an electronic version is available on the DECC website 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 balance format shows the flow of a commodity from its sources of supply, through to its final use. The articles provide in-depth information on current issues within the energy sector.

The text and tables included in this publication represent a snapshot of the information available at the time of publication. However, the data collection systems operated by DECC, which produce this information, are in constant operation. New data are continually received and revisions to historic data made. To ensure that those who use the statistics have access to the most up-to-date information, revised data will be made available as soon as possible, via the electronic versions of these tables. The electronic versions are available free of charge from the DECC website. In addition to quarterly tables, the main monthly tables that were published in the period up to May 2001 when Energy Trends was produced monthly, continue to be updated and are also available on the DECC website. Both sets of tables can be accessed at:

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

Annual data for 2011 included within this edition is on a provisional basis. New data are continually received and revisions to previous data made. Finalised figures for 2011 will be published on the 26 July 2012 in the annual Digest of UK Energy Statistics.

Energy Trends does not contain information on Foreign Trade, Weather (temperature, wind speed, sun hours and rainfall) and Prices. Foreign Trade, and Weather tables are, however, available on the DECC website at: [www.decc.gov.uk/en/content/cms/statistics/source/source.aspx](http://www.decc.gov.uk/en/content/cms/statistics/source/source.aspx). Information on Prices can be found in the Quarterly Energy Prices publication and on the DECC website 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)

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### **The main points for 2011:**

- Total energy production was a record 13½ per cent lower than in 2010. This decline in output was due to the falls in oil and gas production as a result of maintenance activities and slowdowns, which resulted in a net import dependency of 36½ per cent, the highest level since 1976.
- Oil production was 17½ per cent lower than in 2010, the lowest level of production since the 1970s and part of a long downward trend.
- Natural gas production was 21 per cent lower than in 2010. In 2011 gross imports of natural gas were greater than gross production for the first time since 1967, with Liquefied Natural Gas (LNG) accounting for 47 per cent of gas imports. Gas exports were at record levels in 2011, higher by 4 per cent compared with 2010.
- Coal production was ½ per cent lower than in 2010. Coal imports were 23 per cent higher. Generators' demand for coal was higher by ½ per cent. Coal stocks were 4½ per cent lower.
- Total primary energy consumption for energy uses fell by 7½ per cent from 2010. When adjusted to take account of weather differences between 2010 and 2011, primary consumption fell by 2 per cent.
- Final energy consumption was 8 per cent lower than in 2010, with falls recorded in all sectors. Domestic consumption fell by 18½ per cent due to the milder weather in 2011, with temperatures being 1.8 degrees warmer than 2010.
- Gas demand was 17 per cent lower than in 2010 and was at its lowest level since 1995, whilst electricity consumption was 3½ per cent lower in 2011 than in 2010.
- Low carbon electricity's share of generation increased from 23 per cent in 2010 to 28½ per cent in 2011, due to higher renewables and nuclear generation.
- Of electricity generated in 2011, gas accounted for 40 per cent (a fall of 6 percentage points on 2010) and coal 30 per cent. Nuclear's share increased by 3 percentage points on 2010, to 19 per cent of the total. Renewables' share of generation increased by 2½ percentage points on 2010 to a record 9½ per cent.
- Hydro generation increased by 58 per cent on 2010 as a result of higher rainfall, whilst wind rose by 54½ per cent, of which offshore wind rose by 68 per cent, due to higher wind speeds and increased capacity. Overall hydro and wind generation was 55½ per cent higher than in 2010.
- Provisional estimates show that carbon dioxide emissions fell between 2010 and 2011; factors driving the change included warmer temperatures in 2011 leading to decreased heating demand, and a switch in electricity generation from gas to low carbon sources.

### **The main points for the fourth quarter of 2011:**

- Total energy production was 13 per cent lower than in the fourth quarter of 2010. This decline in output was due to a significant fall in petroleum and gas production as a result of maintenance work and slowdowns on a number of fields, which resulted in a net import dependency of 37 per cent.
- Oil production fell by 17 per cent when compared with the fourth quarter of 2010. This is the second largest annual quarterly decrease since quarterly reporting began in 1995, and reflects relatively large decreases in crude oil production and relatively large decreases in NGL production.
- Natural gas production was 12½ per cent lower than the fourth quarter of 2010. Gas imports fell by 17½ per cent, reflecting lower demand for gas than in 2010. Shipped imports of LNG accounted for a third of all imports.
- Coal production in the fourth quarter of 2011 was 13½ per cent lower than the fourth quarter of 2010. Coal imports were 24½ per cent higher and generators' demand for coal was down by 1½ per cent.
- Total primary energy consumption for energy uses fell by 13 per cent. However, when adjusted to take account of weather differences between the fourth quarter of 2010 and the fourth quarter of 2011, primary energy consumption fell by 4½ per cent.
- Final energy consumption was 14½ per cent lower than in the fourth quarter of 2010. Domestic consumption fell by 29½ per cent, with average temperatures being 4.1 degrees warmer than 2010.
- Gas demand was 24½ per cent lower than the fourth quarter of 2010, whilst electricity consumption was 7 per cent lower than in the fourth quarter of 2010.
- Of electricity generated in the fourth quarter of 2011, gas's share fell 5½ percentage points on the fourth quarter of 2010, to 34 per cent, whilst coal accounted for 37 per cent. Nuclear generation's share fell by 1 percentage point on a year earlier, to account for 15 per cent of the total, whilst renewables' share of electricity generation increased by 4½ percentage points on the fourth quarter of 2010 to a record 12 per cent in the fourth quarter of 2011.
- Hydro generation increased by 66 per cent on the fourth quarter of 2010 as a result of higher rainfall in the fourth quarter of 2011, offshore wind increased by 74 per cent, whilst onshore wind rose by 71 per cent due to higher wind speeds. Overall hydro and wind generation was 45½ per cent higher than in the fourth quarter of 2010.

## Section 1 - Total Energy

### Key results show:

#### Provisional 2011

Total energy production was 13.6 per cent lower than in 2010, a record decrease, due to significant falls in the production of oil and gas.

Total primary energy consumption for energy uses was by 7.3 per cent lower than in 2010. However, when adjusted to take account of weather differences between 2010 and 2011, primary energy consumption fell by 2.2 per cent.

Final energy consumption was 7.9 per cent lower than in 2010, with falls in all sectors, though on a temperature corrected basis final energy consumption fell by 2.6%.

Net import dependency was at a record high in 2011 at 36.4 per cent, due to the falls in oil and gas production. Fossil fuel dependency was at a record low in 2011 at 87.7 per cent.

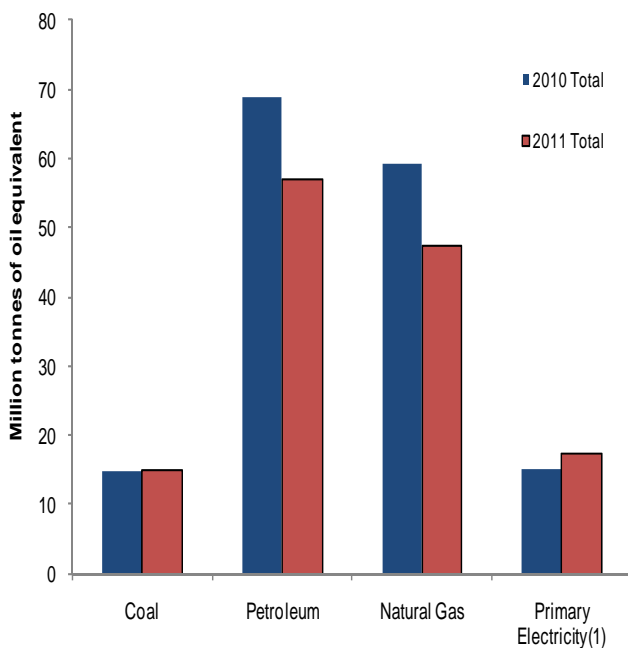
#### Quarter 4 2011

Total energy production was 13.2 per cent lower than in the fourth quarter of 2010. **(Charts 1.1 & 1.2)**

Total primary energy consumption for energy uses fell by 13.0 per cent. However, when adjusted to take account of weather differences between the fourth quarter of 2010 and the fourth quarter of 2011, primary energy consumption fell by 4.4 per cent. **(Chart 1.3)**

Final energy consumption fell by 14.7 per cent compared to the fourth quarter of 2010, with the warmer weather a significant factor. **(Charts 1.4 & 1.5)**

**Chart 1.1 Production of indigenous primary fuels**



(1) Nuclear and wind & natural flow hydro electricity.

Total production in 2011 was 136.6 million tonnes of oil equivalent, 13.6 per cent lower than in 2010. This record decrease was due to significant falls in the production of oil and gas. In the fourth quarter of 2011 production was 13.2 per cent lower than in the fourth quarter of 2010.

In 2011 production of coal and other solid fuels was 1.0 per cent higher than in 2010. In the fourth quarter of 2011 it was 9.2 per cent lower than a year earlier.

Production of petroleum was 17.4 per cent lower in 2011 than a year earlier. In the fourth quarter of 2011 it was 17.0 per cent lower than in the fourth quarter of 2010.

Production of natural gas fell by 20.0 per cent between 2010 and 2011. Between the fourth quarter of 2010 and the fourth quarter of 2011 it fell by 11.8 per cent.

Primary electricity output in 2011 was 14.6 per cent higher than in 2010 within which nuclear electricity output rose by 11.1 per cent and output from wind and natural flow hydro rose by 55.4 per cent. In the fourth quarter of 2011 primary electricity output was 6.3 per cent lower than in the fourth quarter of 2010, within which nuclear electricity output fell by 14.2 per cent but output from wind and natural flow hydro rose by 70.0 per cent.

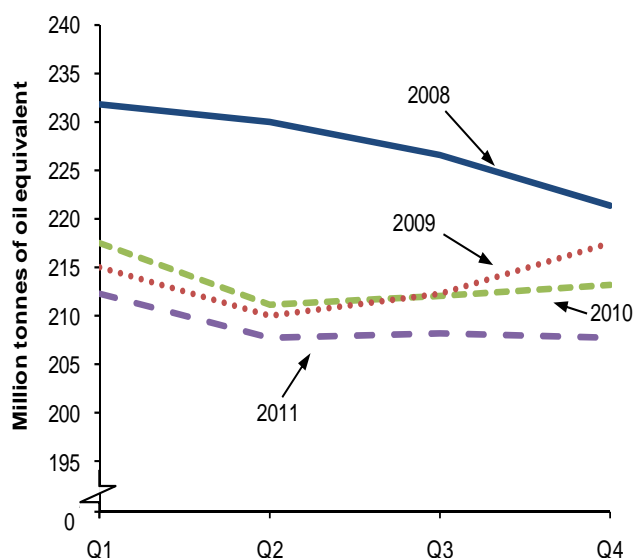


**Chart 1.2 UK production (annual growth rate)**



In the fourth quarter of 2011 the annual growth rate of UK production was -13.2 per cent. This was a direct result of the falls in oil and gas production as a result of maintenance activity and slowdowns in 2011.

**Chart 1.3 Total inland consumption (primary fuel input basis)<sup>(1)</sup>**



<sup>(1)</sup> Seasonally adjusted and temperature corrected annual rates.

Total inland consumption on a primary fuel input basis (temperature corrected, seasonally adjusted annualised rate), was 209.0 million tonnes of oil equivalent in 2011, a fall of 2.2 per cent from 2010. The average temperature in 2011 was 1.8 degrees Celsius warmer than in 2010.

Total inland consumption on a primary fuel input basis (temperature corrected, seasonally adjusted annualised rate), was 207.9 million tonnes of oil equivalent in the fourth quarter of 2011, a fall of 4.4 per cent compared to the fourth quarter of 2010. The average temperature in the fourth quarter of 2011 was a record 4.1 degrees Celsius warmer than the same period a year earlier.

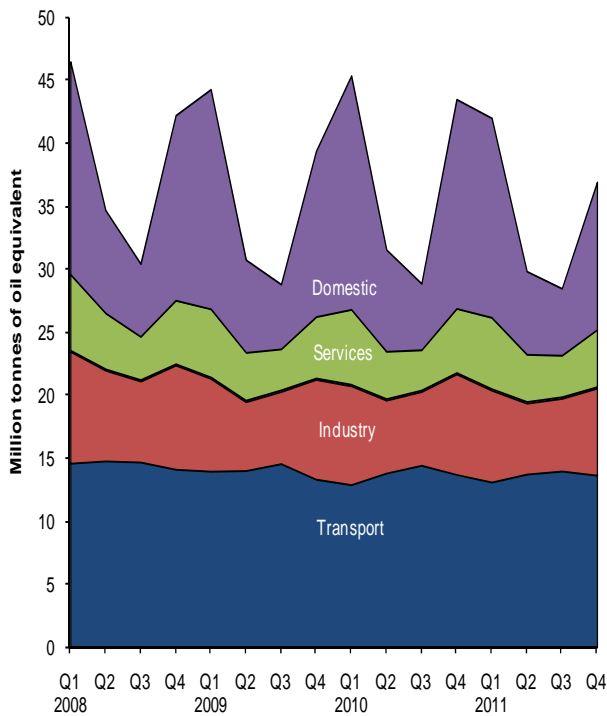
Between 2010 and 2011 (on a seasonally adjusted and temperature corrected basis) coal and other solid fuel consumption rose by 9.3 per cent. Between the fourth quarter of 2010 and the fourth quarter of 2011 consumption rose by 14.0 per cent.

Also on a seasonally adjusted and temperature corrected basis, oil consumption fell by 3.3 per cent between 2010 and 2011 and by 5.0 per cent between the fourth quarter of 2010 and the fourth quarter of 2011.

On the same basis, gas consumption fell by 8.9 per cent between 2010 and 2011 and by 11.4 per cent between the fourth quarter of 2010 and the fourth quarter of 2011.

## Total Energy

**Chart 1.4 Final energy consumption by user**



In 2011 total final energy consumption was 7.9 per cent lower than in 2010.

Total final energy consumption fell by 14.7 per cent between the fourth quarter of 2010 and the fourth quarter of 2011.

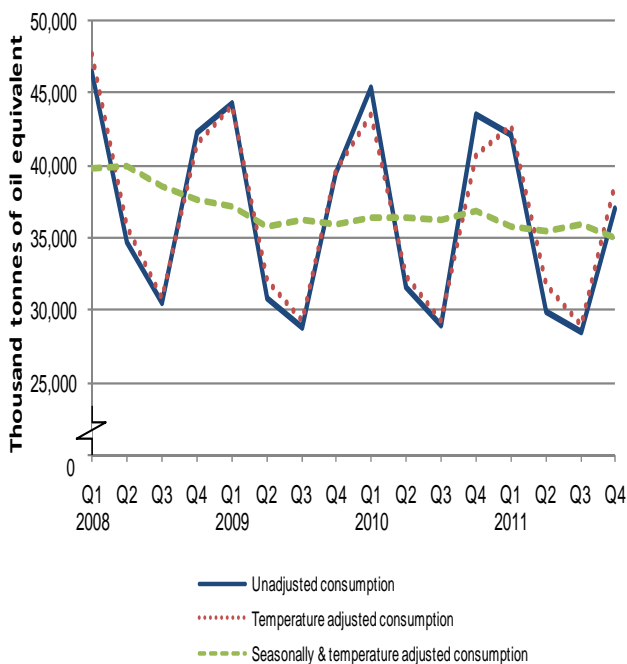
Domestic sector energy consumption fell by 29.5 per cent between the fourth quarter of 2010 and the fourth quarter of 2011; annually it fell by 18.7 per cent.

Service sector energy consumption fell by 10.6 per cent between the fourth quarter of 2010 and the fourth quarter of 2011; annually it fell by 4.0 per cent.

Industrial sector energy consumption fell by 13.5 per cent between the fourth quarter of 2010 and the fourth quarter of 2011; annually it fell by 6.8 per cent.

Transport sector energy consumption fell by 0.4 per cent between the fourth quarter of 2010 and the fourth quarter of 2011; annually it fell by 0.7 per cent.

**Chart 1.5 Seasonally adjusted and temperature corrected final energy consumption**



Total unadjusted final energy consumption (excluding non-energy use) fell by 8.0 per cent between 2010 and 2011. On a seasonally and temperature adjusted basis final energy consumption (excluding non-energy use) fell by 2.6 per cent.

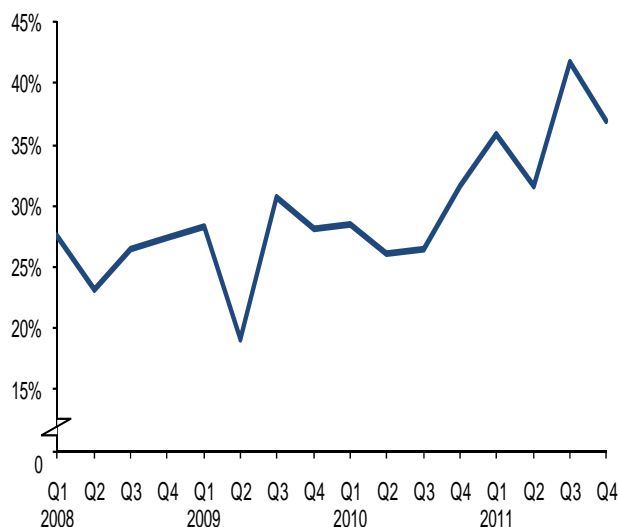
Total unadjusted final energy consumption (excluding non-energy use) fell by 15.1 per cent between the fourth quarter of 2010 and the fourth quarter of 2011.

On a seasonally and temperature adjusted basis final energy consumption (excluding non-energy use) fell by 4.9 per cent between the fourth quarter of 2010 and the fourth quarter of 2011.

Consumption data by fuel and sector is available in the table ET 1.3c on the DECC website at:

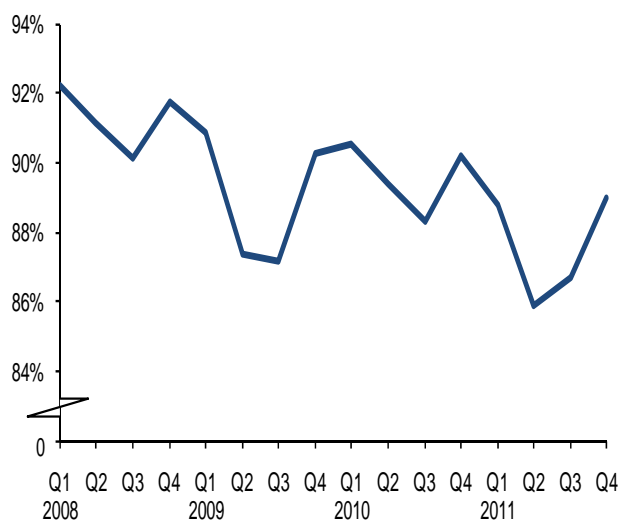
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**Chart 1.6 Net import dependency**



In the fourth quarter of 2011 net import dependency was 36.9 per cent, down 4.8 percentage points from the record high in the third quarter of 2011, but up 5.4 percentage points from the fourth quarter of 2010. Annually net import dependency was at 36.4 per cent, its highest level since 1976. It was up 8.1 percentage points from 2010, due to falls in oil and gas production as a result of maintenance activity and slowdowns.

**Chart 1.7 Fossil fuel dependency**



Dependency on fossil fuels in the fourth quarter of 2011 was 89.0 per cent, up 2.2 percentage points from the third quarter of 2011, but down 1.3 percentage points from the fourth quarter of 2010. Annually fossil fuel dependency was at a record low of 87.7 per cent, down 2.0 percentage points from 2010.

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# 1 TOTAL ENERGY

## TABLE 1.1. Indigenous production of primary fuels

Million tonnes of oil equivalent

		Primary electricity					
		Total	Coal <sup>1</sup>	Petroleum <sup>2</sup>	Natural gas <sup>3</sup>	Nuclear	Wind and natural flow hydro <sup>4</sup>
2009		167.0	14.1	74.7	61.6	15.2	1.25
2010		158.1	14.8	69.0	59.2	13.9	1.19
2011 p		136.6r	15.0r	57.0	47.3	15.5	1.85r
<i>Per cent change</i>		-13.6	+1.0	-17.4	-20.0	+11.1	+55.4
2010	Quarter 4	39.6r	4.0r	17.1	14.3r	3.8	0.40
2011	Quarter 1	38.3r	3.9r	16.0r	13.6r	4.4	0.40
	Quarter 2	35.0	3.8	14.7	11.7r	4.3	0.41
	Quarter 3	29.0r	3.7	12.1	9.4	3.5	0.37r
	Quarter 4 p	34.3r	3.6r	14.2	12.6r	3.3	0.67r
<i>Per cent change<sup>5</sup></i>		-13.2	-9.2	-17.0	-11.8	-14.2	+70.0

1. Includes solid renewable sources (wood, straw and waste), a small amount of renewable primary heat sources (solar, geothermal etc), liquid biofuels and an estimate for slurry.

2. Crude oil, offshore and land, plus condensates and petroleum gases derived at onshore treatment plants.

3. Includes colliery methane, landfill gas and sewage gas. Excludes gas flared or re-injected.

4. Includes generation by solar PV.

5. Percentage change in the fourth quarter of 2011 compared with a year earlier.

# 1 TOTAL ENERGY

**TABLE 1.2 Inland energy consumption: primary fuel input basis**

*Million tonnes of oil equivalent*

	Unadjusted <sup>5</sup>							Seasonally adjusted and temperature corrected <sup>6,7</sup> (annualised rates)						
	Total	Coal <sup>1</sup>	Petroleum <sup>2</sup>	Primary electricity			Net imports	Total	Coal	Petroleum	Primary electricity			Net imports
				Natural gas <sup>3</sup>	Nuclear	Wind and natural flow hydro <sup>4</sup>					Natural gas	Nuclear	Wind and natural flow hydro	
2009	211.3	35.4	71.3	87.9	15.2	1.25	0.25	213.4	36.0	71.3	89.4	15.2	1.25	0.25
2010	218.4	37.5	70.3	95.3	13.9	1.19	0.23	213.7r	36.4r	70.3	91.7r	13.9	1.19	0.23
2011 p	202.5r	37.6r	67.9r	79.1r	15.5	1.85r	0.53	209.0r	39.7r	67.9r	83.5r	15.5	1.85r	0.53
<i>Per cent change</i>	-7.3	+0.2	-3.3	-17.0	+11.1	+55.4	(+)	-2.2	+9.3	-3.3	-8.9	+11.1	+55.4	(+)
2010 Quarter 4	62.0r	11.6r	18.0	28.2r	3.8	0.40	0.02	217.5r	37.9r	72.2	89.9r	16.3r	1.28r	0.06
2011 Quarter 1	60.7r	11.4r	17.0	27.4	4.4	0.40	0.09	212.2r	40.2r	67.9	86.6r	15.8	1.39	0.37
Quarter 2	45.0	7.4	16.7	16.1	4.3	0.41	0.13	207.8r	37.8r	66.8	83.6r	17.0	2.09r	0.53
Quarter 3	42.9	7.4r	17.1	14.2r	3.5	0.37r	0.20	208.2r	37.8r	68.6r	84.0r	15.2	1.72r	0.81
Quarter 4 p	54.0r	11.4r	17.1r	21.3r	3.3	0.67r	0.11	207.9r	43.2r	68.6r	79.6r	13.9	2.19r	0.44
<i>Per cent change</i> <sup>8</sup>	-13.0	-1.4	-5.0	-24.3	-14.2	+70.0	(+)	-4.4	+14.0	-5.0	-11.4	-14.5	+71.0	(+)

1. Includes solid renewable sources (wood, straw and waste), a small amount of renewable primary heat sources (solar, geothermal, etc.), liquid biofuels and net foreign trade and stock changes in other solid fuels.

2. Inland deliveries for energy use, plus refinery fuel and losses, minus the differences between deliveries and actual consumption at power stations.

3. Includes gas used during production, colliery methane, landfill gas and sewage gas. Excludes gas flared or re-injected and non-energy use of gas.

4. Includes generation by solar PV. Excludes generation from pumped storage stations.

5. Not seasonally adjusted or temperature corrected.

6. Coal and natural gas are temperature corrected; petroleum and primary electricity are not temperature corrected.

7. For details of temperature correction see the June and September 2011 editions of Energy Trends; Seasonal and temperature adjustment factors were reassessed in September 2011 [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)

8. Percentage change in the fourth quarter of 2011 compared with a year earlier.

# 1 TOTAL ENERGY

## Table 1.3a Supply and use of fuels

Thousand tonnes of oil equivalent

	2010	2011 p	per cent change	2009 4th quarter	2010 1st quarter	2010 2nd quarter	2010 3rd quarter	2010 4th quarter	2011 1st quarter	2011 2nd quarter	2011 3rd quarter	2011 4th quarter p	per cent change <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production	158,120	136,379	-13.7	41,712	42,816	39,986	35,768	39,549	38,242r	34,894r	28,978r	34,265	-13.4
Imports	156,284	161,434	+3.3	39,859	41,462	37,399	33,660	43,763	42,531r	37,068r	38,881r	42,953	-1.9
Exports	-91,095	-83,848	-8.0	-22,954	-22,207	-24,204	-21,315	-23,368	-19,800	-21,936r	-19,935r	-22,178	-5.1
Marine bunkers	-2,251	-2,411	+7.1	-688	-494	-562	-628	-567	-581	-624	-646	-560	-1.2
Stock change <sup>2</sup>	+6,390	-1,106		+1,457	+5,519	-2,489	-1,353	+4,713	+2,413r	-2,278r	-2,500r	+1,259	
<b>Primary supply</b>	<b>227,448</b>	<b>210,447</b>	<b>-7.5</b>	<b>59,386</b>	<b>67,096</b>	<b>50,130</b>	<b>46,132</b>	<b>64,090</b>	<b>62,805r</b>	<b>47,124r</b>	<b>44,780r</b>	<b>55,739</b>	<b>-13.0</b>
Statistical difference <sup>3</sup>	+503	-174		-43	384	-135	+1	+253	+322r	-279r	-290r	+73	
<b>Primary demand</b>	<b>226,945</b>	<b>210,622</b>	<b>-7.2</b>	<b>59,429</b>	<b>66,712</b>	<b>50,265</b>	<b>46,130</b>	<b>63,837</b>	<b>62,483r</b>	<b>47,402r</b>	<b>45,070r</b>	<b>55,666</b>	<b>-12.8</b>
Transfers <sup>4</sup>	-106	-126		-24	-9	-16	-76	-4	-35r	-82r	-8r	-1	
<b>TRANSFORMATION</b>													
Electricity generation	-46,422	-44,495	-4.2	-12,204	-13,187	-10,427	-10,000	-12,808	-12,796r	-10,139r	-9,813r	-11,748	-8.3
Heat generation	-1,084	-1,084	-	-292	-327	-236	-211	-309	-327	-236	-211	-310	+0.1
Petroleum refineries	-222	288	(-)	-136	-234	-190	86	116	118	107r	63r	0	-99.6
Coke manufacture	-360	-104	-71.1	-96	-60	-91	-89	-120	-36	-30	-8	-30	-74.6
Blast furnaces	-1,925	-1,792	-7.0	-621	-542	-503	-442	-439	-462	-475	-445	-409	-6.8
Patent fuel manufacture	-5	9	(-)	2	11	-1	-18	2	5	3	6r	-5	(-)
Energy industry use	14,199	13,660	-3.8	3,558	3,607	3,567	3,378	3,648	3,604r	3,479r	3,246r	3,331	-8.7
Losses	4,104	3,644	-11.2	980	1,201	1,041	874	989	1,067	869	806	903	-8.6
<b>FINAL CONSUMPTION</b>													
Iron & steel	1,335	1,284	-3.8	333	347	340	320	328	300r	310r	346r	329	+0.1
Other industries	26,204	24,383	-7.0	7,615	7,523	5,459	5,552	7,670	7,010r	5,336r	5,444r	6,594	-14.0
Transport	55,124	54,736	-0.7	13,391	12,960	13,888	14,504	13,773	13,171r	13,801	14,045r	13,720	-0.4
Domestic	48,471	39,424	-18.7	13,148	18,535	8,076	5,260	16,599	15,825r	6,595r	5,306r	11,698	-29.5
Other Final Users	18,357	17,632	-4.0	4,962	6,045	3,852	3,288	5,173	5,753r	3,854r	3,398r	4,626	-10.6
Non energy use	9,027	8,554	-5.2	2,069	2,143	2,581	2,211	2,092	2,217r	2,309r	2,069r	1,959	-6.4
<b>DEPENDENCY<sup>5</sup></b>													
Net import dependency	28.4%	36.4%		28.1%	28.5%	26.0%	26.4%	31.5%	35.9%	31.7%	41.7% r	36.9%	
Fossil fuel dependency	89.7%	87.7%		90.3%	90.5%	89.4%	88.3%	90.2%	88.8% r	85.9%	86.7%	89.0%	

1. Percentage change in the fourth quarter of 2011 compared with a year earlier.

2. Stock fall (+), stock rise (-).

3. Primary supply minus primary demand.

4. Annual transfers should ideally be zero. For manufactured fuels differences occur in the rescreening of coke to breeze.  
For oil and petroleum products differences arise due to small variations in the calorific values used.

5. See article in the December 2010 edition of Energy Trends at:

[www.decc.gov.uk/en/content/cms/statistics/publications/trends/articles\\_issue/articles\\_issue.aspx](http://www.decc.gov.uk/en/content/cms/statistics/publications/trends/articles_issue/articles_issue.aspx)

# 1 TOTAL ENERGY

Table 1.3b Supply and use of fuels

Thousand tonnes of oil equivalent

	2010 Quarter 4									2011 Quarter 4 p								
	Coal	Manufactured fuels <sup>4</sup>	Primary oil	Petroleum Products	Natural gas <sup>5</sup>	Renewables & waste <sup>6</sup>	Primary electricity	Electricity	Heat sold	Coal	Manufactured fuels <sup>4</sup>	Primary oil	Petroleum Products	Natural gas <sup>5</sup>	Renewables & waste <sup>6</sup>	Primary electricity	Electricity	Heat sold
<b>SUPPLY</b>																		
Indigenous production	3,066	-	17,081	-	13,746	1,436	4,221	-	-	2,650	-	14,170	-	12,043	1,448	3,954	-	-
Imports	5,016	27	15,184	6,967	16,025	418	-	127	-	6,196	13	16,122	6,759	13,240	435	-	188	-
Exports	-165	-67	-11,829	-7,635	-3,535	-25	-	-112	-	-102	-138	-9,768	-7,501	-4,581	-8	-	-79	-
Marine bunkers	-	-	-	-567	-	-	-	-	-	-	-	-	-560	-	-	-	-	-
Stock change <sup>1</sup>	+2,436	-70	+465	+292	+1,590	-	-	-	-	+1,383	-76	-117	-194	+263	-	-	-	-
<b>Primary supply</b>	10,353	-110	20,901	-943	27,825	1,828	4,221	15	-	10,128	-202	20,406	-1,496	20,965	1,874	3,954	109	-
Statistical difference <sup>2</sup>	+151	-8	+89	-5	+1	-	-	+24	-	+83	-0	+106	-90	-31	-	-	+6	-
<b>Primary demand</b>	10,202	-102	20,812	-938	27,824	1,828	4,221	-9	-	10,045	-201	20,300	-1,406	20,996	1,874	3,954	104	-
Transfers <sup>3</sup>	-	-18	-541	+559	-5	-	-396	+396	-	-	-20	-498	+517	-1	-	-674	+674	-
<b>TRANSFORMATION</b>	-9,752	542	-20,272	20,029	-8,064	-1,092	-3,825	8,480	396	-9,644	613	-19,802	19,541	-6,611	-1,185	-3,281	7,471	396
Electricity generation	-8,434	-153	-	-313	-7,469	-1,092	-3,825	8,480	-	-8,369	-144	-	-224	-6,016	-1,185	-3,281	7,471	-
Heat generation	-82	-13	-	-16	-595	-	-	-	396	-82	-13	-	-17	-595	-	-	-	396
Petroleum refineries	-	-	-20,272	20,388	-	-	-	-	-	-	-	-19,802	19,803	-	-	-	-	-
Coke manufacture	-1,014	894	-	-	-	-	-	-	-	-958	928	-	-	-	-	-	-	-
Blast furnaces	-155	-255	-	-29	-	-	-	-	-	-180	-207	-	-22	-	-	-	-	-
Patent fuel manufacture	-68	69	-	-	-	-	-	-	-	-54	49	-	-	-	-	-	-	-
Energy industry use	0	165	-	1,392	1,467	-	-	600	23	1	161	-	1,286	1,304	-	-	556	23
Losses	-	32	-	-	371	-	-	586	-	-	36	-	-	315	-	-	552	-
<b>FINAL CONSUMPTION</b>	449	224	-	18,258	17,917	736	-	7,680	371	400	195	-	17,366	12,765	689	-	7,139	371
Iron & steel	11	106	-	9	129	-	-	73	-	19	98	-	9	130	-	-	73	-
Other industries	289	45	-	1,409	3,255	156	-	2,306	210	270	41	-	1,152	2,644	129	-	2,148	210
Transport	3	-	-	13,395	-	291	-	84	-	4	-	-	13,307	-	325	-	84	-
Domestic	139	74	-	1,183	12,042	181	-	2,962	19	100	57	-	797	7,909	155	-	2,662	19
Other final users	7	-	-	352	2,309	108	-	2,255	142	7	-	-	326	1,900	80	-	2,172	142
Non energy use	-	-	-	1,909	183	-	-	-	-	-	-	-	1,776	183	-	-	-	-

1. Stock fall (+), stock rise (-).
2. Primary supply minus primary demand.
3. Annual transfers should ideally be zero. For manufactured fuels differences occur in the rescreening of coke to breeze. For oil and petroleum products differences arise due to small variations in the calorific values used.
4. Includes all manufactured solid fuels, benzole, tars, coke oven gas and blast furnace gas.
5. Includes colliery methane.
6. Includes geothermal, solar heat and biofuels for transport; wind and wave electricity included in primary electricity figures.

## Section 2 - Solid Fuels and Derived Gases

### Key results show:

#### Provisional 2011

Overall production in 2011 was down 0.4 per cent (-0.1 million tonnes) compared to 2010 with deep-mined output down 1.1 per cent (-0.1 million tonnes) and surface mined output up 1.5 per cent (+0.2 million tonnes)

Coal imports up 23.0 per cent (+6.1 million tonnes) on levels shown in 2010.

The demand for coal by electricity generators in 2011, was 0.6 per cent (+0.2 million tonnes) higher than the demand in 2010.

Total stock levels were down 4.5 per cent (-0.8 million tonnes) compared to 2010.

#### Quarter 4 2011

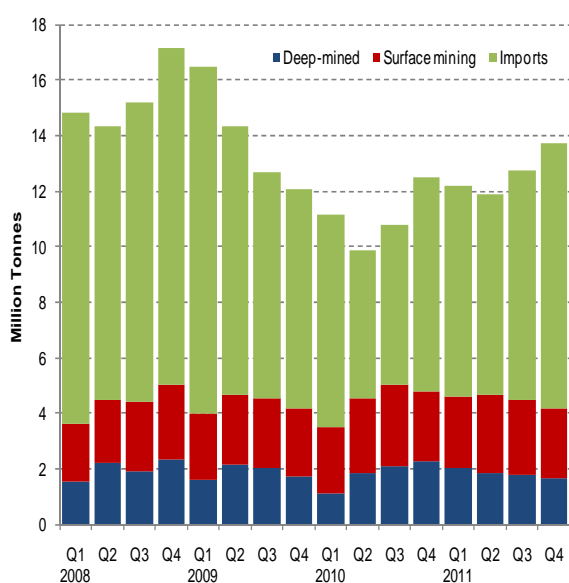
In Q4 2011, overall production was down 13.6 per cent (-0.7 million tonnes) compared to quarter 4 2010 with deep-mined output down 28.1 per cent (-0.6 million tonnes). **(Chart 2.1)**

Coal imports up 24.6 per cent (+1.9 million tonnes) on levels shown in quarter 4 2010. **(Charts 2.1 and 2.2)**

The demand for coal by electricity generators in the fourth quarter of 2011 was 1.6 per cent (-0.2 million tonnes) lower than demand shown in the fourth quarter of 2010. **(Chart 2.3)**

Total stock levels were down 4.5 per cent (-0.8 million tonnes) to 16.1 million tonnes compared to quarter 4 2010 and were down by 2.1 million tonnes on quarter 3 2011. **(Chart 2.4)**

**Chart 2.1 Coal supply**



Provisional figures for 2011 as a whole show that coal production (including an estimate for slurry) was 0.4 per cent down on 2010 at 18.3 million tonnes. Deep mined production was down 1.1 per cent while surface mine production was up 1.5 per cent.

Provisional figures for the fourth quarter of 2011 show that coal production (including an estimate for slurry) was down 13.6 per cent on the fourth quarter of 2010 at 4.3 million tonnes. The decrease was largely due to a fall of 28.1 per cent (-0.6 million tonnes) in deep-mined production from 2.3 million tonnes in the fourth quarter of 2010.

Imports of coal in 2011 as a whole were 23.0 per cent up on 2010 at 32.6 million tonnes.

Imports of coal in the fourth quarter of 2011 were 24.6 per cent higher than in the fourth quarter of 2010 at 9.6 million tonnes. However this is still below historical levels seen prior to the end of 2009.

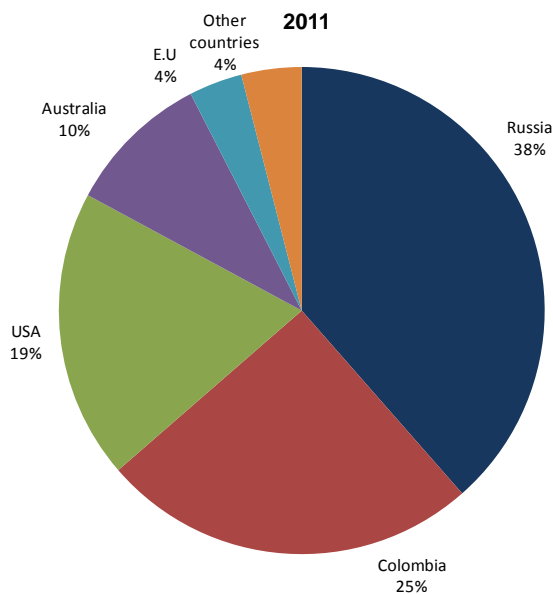
In quarter 4 2011, net imports (9.4 million tonnes) made up 59.6 per cent of coal supply, 13.4 percentage points higher compared to the fourth quarter of 2010 (46.2 per cent).



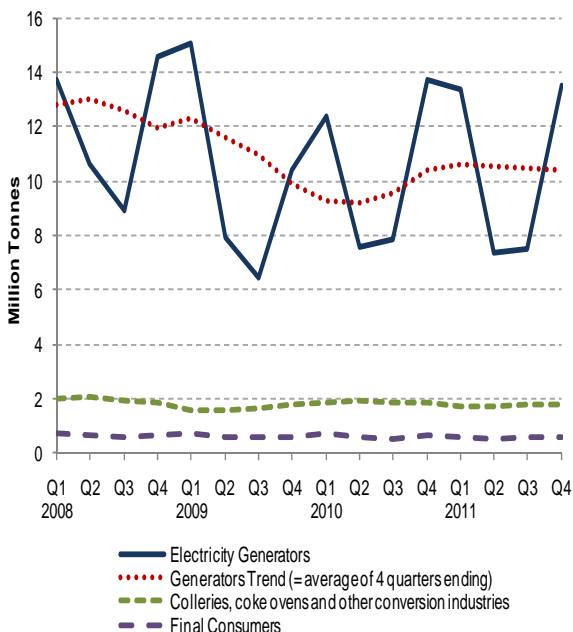
**Table 2A Coal imports by origin**

	Thousand Tonnes			
	2010	2011	2010 Q4	2011 Q4
<b>European Union</b>	954	1,155	202	142
Russia	9,750	12,567	2,319	3,523
Colombia	6,437	8,176	2,389	2,355
USA	4,522	6,283	1,409	2,297
Australia	3,247	3,127	896	781
Other Countries	1,610	1,303	472	479
<b>Total imports</b>	<b>26,521</b>	<b>32,610</b>	<b>7,687</b>	<b>9,577</b>

**Chart 2.2 All Coal imports by origin**



**Chart 2.3: Coal Consumption**



Steam coal, largely for the power stations market, accounted for 85.8 per cent of coal imported in the fourth quarter of 2011. Steam coal imports increased by 33.9 per cent in quarter 4 2011, when compared to the same period a year earlier.

Coking coal imports decreased by 12.2 per cent (-0.2 million tonnes) to 1.3 million tonnes, when compared to the fourth quarter in 2010. Imports of anthracite are negligible in comparison with coking coal and steam coal imports.

In 2011 27.0 million tonnes of the coal imported (82.8 per cent) was steam coal, largely for the power stations market.

All but 6.6 per cent of UK steam coal imports in quarter 4 2011 came from just three countries: Russia (42.9 per cent), Colombia (28.7 per cent) and the USA (21.9 per cent).

Russian steam coal imports increased by 31.9 per cent (+3.0 million tonnes) in the fourth quarter of 2011 compared to the same period a year earlier.

Steam coal imports originating from the USA were 90.4 per cent (+2.2 million tonnes) more in 2011 than in 2010.

Total demand for coal in 2011 was 51.1 million tonnes, 0.7 per cent lower than in 2010, with consumption by electricity generators up by 0.6 per cent.

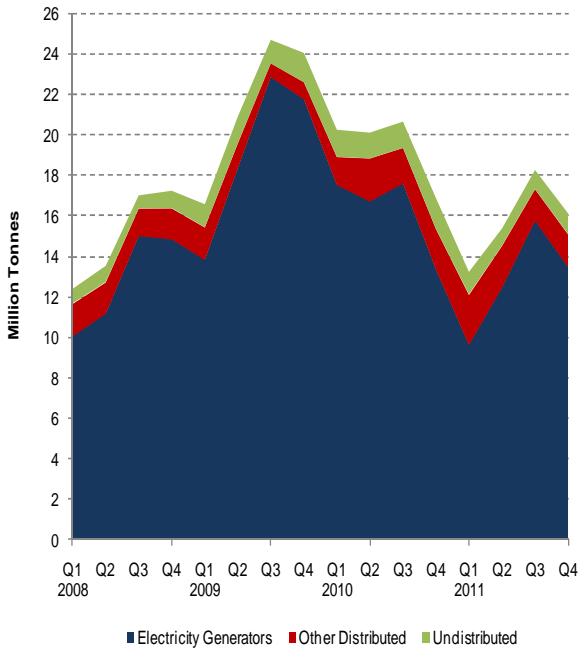
Total demand for coal in the fourth quarter of 2011, at 15.8 million tonnes, was 2.1 per cent lower than in the fourth quarter of 2010. Consumption by electricity generators was down by 1.6 per cent to 13.5 million tonnes.

Electricity generators accounted for 81.6 per cent of total coal use in 2011; compared with 80.6 per cent in 2010.

Electricity generators accounted for 85.1 per cent of total coal use in the fourth quarter of 2011; compared with 84.6 per cent a year earlier.

Sales to industrial users decreased by 3.9 per cent in quarter 4 2011. Also sales to final consumers (as measured by disposals to final consumers) were down by 24.3 per cent.

**Chart 2.4 Coal stocks**



Coal stocks showed a seasonal fall of 2.1 million tonnes during the fourth quarter of 2011 and stood at 16.1 million tonnes, 0.8 million tonnes lower than at the end of December 2010.

The level of coal stocks at power stations at the end of the fourth quarter of 2011 was 13.5 million tonnes, 0.1 million tonnes higher than at the end of December 2010.

Stocks held by producers (undistributed stocks) decreased during the fourth quarter of 2011 to stand at 1.0 million tonnes, 0.5 million tonnes lower than at the end of December 2010.

**Relevant tables**

2.1: Supply and consumption of coal.....Page 17  
 2.2: Supply and consumption of coke oven coke, coke breeze  
 and other manufactured solid fuels.....Page 18  
 2.3: Supply and consumption of coke oven gas, blast furnace gas, benzole and tars.....Page 19

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## 2 SOLID FUEL AND DERIVED GASES

Table 2.1 Supply and consumption of coal

	Thousand tonnes												
	2010	2011 p	per cent change	2009 4th quarter	2010 1st quarter	2010 2nd quarter	2010 3rd quarter	2010 4th quarter	2011 1st quarter	2011 2nd quarter	2011 3rd quarter	2011 4th quarter p	per cent change <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production	18,417	18,342	-0.4	4,290	3,623	4,703	5,164	4,927	4,701	4,761r	4,624r	4,256	-13.6
Deep mined	7,390	7,312	-1.1	1,699	1,138	1,856	2,113	2,284	2,039	1,838r	1,793	1,642	-28.1
Surface mining <sup>2</sup>	10,426	10,580	+1.5	2,477	2,336	2,690	2,894	2,506	2,550	2,805r	2,713r	2,511	+0.2
Other sources	600	450	-25.0	114	150	157	157	136	113	118	118	102	-25.0
Imports <sup>3</sup>	26,521	32,610	+23.0	7,888	7,679	5,349	5,806	7,687	7,579	7,235	8,219r	9,577	+24.6
Exports <sup>4</sup>	715	491	-31.3	287	181	160	155	219	133r	117r	107r	135	-38.5
Stock change <sup>5</sup>	+7,206	+752		+835	+3,824	+142	-546	+3,786	+3,654	-2,162r	-2,886r	+2,146	
<b>Total supply</b>	<b>51,429</b>	<b>51,213</b>	<b>-0.4</b>	<b>12,726</b>	<b>14,945</b>	<b>10,034</b>	<b>10,269</b>	<b>16,181</b>	<b>15,801r</b>	<b>9,718r</b>	<b>9,850r</b>	<b>15,844</b>	<b>-2.1</b>
Statistical difference	-35	+93		-42	-42	-25	+30	+2	+56r	+39r	-5r	+3	
<b>Total demand</b>	<b>51,464</b>	<b>51,121</b>	<b>-0.7</b>	<b>12,767</b>	<b>14,986</b>	<b>10,059</b>	<b>10,239</b>	<b>16,179</b>	<b>15,745r</b>	<b>9,679r</b>	<b>9,855r</b>	<b>15,841</b>	<b>-2.1</b>
<b>TRANSFORMATION</b>													
Electricity generation	48,968	48,796	-0.4	12,138	14,256	9,494	9,692	15,526	15,132r	9,121r	9,290r	15,253	-1.8
Heat generation <sup>6</sup>	480	480	-	130	142	107	97	135	142	107	97	135	-
Coke manufacture	5,654	5,282	-6.6	1,281	1,363	1,469	1,432	1,390	1,263	1,314	1,392	1,314	-5.5
Blast furnaces	978	995	+1.7	271	275	269	221	212	257	246	245	247	+16.3
Patent fuel manufacture	351	300	-14.4	84	68	81	108	94	77r	78r	70r	75	-19.9
Energy industry use	5	4		2	2	1	1	1	1	1	1r	1	
<b>FINAL CONSUMPTION</b>													
Iron & steel	60	55		15	14	14	15	15	-	-	29	26	+68.8
Other industries	1,655	1,651	-0.2	406	464	380	372	438	438r	415r	389r	410	-6.5
Domestic	718	554	-22.8	182	236	153	143	185	158r	131r	130r	136	-26.9
Other final users	58	60	+4.5	24	13	16	14	14	17r	11r	17r	15	+10.3
<b>Stocks at end of period</b>													
Distributed stocks	15,366	15,113	-1.6	22,620	18,926	18,849	19,372	15,366	12,121	14,542r	17,340r	15,113	-1.6
Of which:													
Major power producers <sup>7</sup>	13,370	13,496	+0.9	21,770	17,544	16,728	17,613	13,370	9,646	12,484	15,776	13,496	+0.9
Coke ovens	1,338	1,355	+1.3	806	831	1,189	1,199	1,338	1,187	1,112	1,324	1,355	+1.3
Undistributed stocks	1,517	1,018	-32.9	1,450	1,339	1,274	1,298	1,517	1,108	849r	937r	1,018	-32.9
<b>Total stocks<sup>8</sup></b>	<b>16,883</b>	<b>16,131</b>	<b>-4.5</b>	<b>24,070</b>	<b>20,266</b>	<b>20,124</b>	<b>20,670</b>	<b>16,883</b>	<b>13,229</b>	<b>15,391r</b>	<b>18,277r</b>	<b>16,131</b>	<b>-4.5</b>

1. Percentage change in the fourth quarter of 2011 compared with a year earlier.

2. The term 'surface mining' has now replaced opencast production. Opencast production is a surface mining technique.

3. For a detailed breakdown of UK Imports by country and grade of coal refer to Table 2.4 Coal imports (internet table only).

4. Trade is counted as an export under three conditions, when it is recorded as an import and is subsequently exported; it enters the UK port with the intention of being imported but due to a change of ownership at the port it is exported without having cleared the port; and when items leave the warehouse and are exported. Trade is not classified as exports when it is resting at a UK port and the UK is not the intended final destination.

5. Stock fall (+), stock rise (-).

6. Heat generation is based on an annual figure and is then split over a quarterly period. The 2011 heat generation will not be published until the end of July 2012. Therefore, the 2010 figure is used as an estimate for 2011.

7. This includes stocks held at ports.

8. For some quarters, closing stocks may not be consistent with stock changes, due to additional stock adjustments

## 2 SOLID FUEL AND DERIVED GASES

Table 2.2 Supply and consumption of coke oven coke, coke breeze and other manufactured solid fuels

	Thousand tonnes												
	2010	2011 p	per cent change	2009 4th quarter	2010 1st quarter	2010 2nd quarter	2010 3rd quarter	2010 4th quarter	2011 1st quarter	2011 2nd quarter	2011 3rd quarter	2011 4th quarter p	per cent change <sup>3</sup>
<b>SUPPLY</b>													
Indigenous production	4,340	4,342	-	1,049	1,079	1,113	1,096	1,052	1,029	1,075	1,174r	1,064	+1.2
Coke Oven Coke	3,990	4,021	+0.8	960	993	1,031	1,011	955	943	991	1,094	993	+4.1
Coke Breeze	32	31	-3.0	8	8	8	8	8	8	8	8	8	+0.2
Other MSF	318	289	-8.9	80	78	74	77	89	78	76	73r	63	-29.7
Imports	123	47	(-)	157	21	34	29	39	23	2	3	18	(-)
Exports	518	499	-3.6	66	132	155	136	94	135	58	112r	195	(+)
Stock change <sup>1</sup>	-215	-534		+7	+50	-30	-133	-101	-62	-129	-233r	-110	
Transfers	-	-		-	-	-	-	-	-	-	-	-	
<b>Total supply</b>	3,731	3,356	-10.0	1,146	1,018	962	856	895	855	890	833r	777	-13.2
Statistical difference	-4	4		-	-2	-	4	-7r	2	3	-	-1	
<b>Total demand</b>	3,735	3,351	-10.3	1,146	1,020	962	852	902	853	888	833r	778	-13.8
<b>TRANSFORMATION</b>	2,938	2,645	-10.0	925	801	758	683	696	673	712	660	601	-13.7
Coke manufacture	-	-		-	-	-	-	-	-	-	-	-	
Blast furnaces	2,938	2,645	-10.0	925	801	758	683	696	673	712	660	601	-13.7
Energy industry use	-	-		-	-	-	-	-	-	-	-	-	
<b>FINAL CONSUMPTION</b>	797	706	-11.4	221	218	204	169	206	181	175	173r	177	-14.0
Iron & steel	423	395	-6.6	127	110	116	97	100	96	107	99	94	-6.1
Other industries	53	33	-38.0	21	20	15	7	12	7	6	10	11	-7.0
Domestic	321	278	-13.4	73	88	73	65	95	78	63	65r	73	-23.2
<b>Stocks at end of period<sup>2</sup></b>	719	3,124	-10.0	597	455	468	603	719	732	753	771r	869	+20.8

1. Stock fall (+), stock rise (-).

2. For some quarters, closing stocks may not be consistent with stock changes, due to additional stock adjustments

3. Percentage change in the fourth quarter of 2011 compared with a year earlier.

## 2 SOLID FUEL AND DERIVED GASES

Table 2.3 Supply and consumption of coke oven gas, blast furnace gas, benzole and tars

GWh

	2010	2011 p	per cent change	2009 4th quarter	2010 1st quarter	2010 2nd quarter	2010 3rd quarter	2010 4th quarter	2011 1st quarter	2011 2nd quarter	2011 3rd quarter	2011 4th quarter p	per cent change <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production	21,923	20,908	-4.6	5,745	5,578	5,835	5,400	5,110	5,183	5,335	5,327	5,063	-0.9
Coke oven gas	8,822	8,748	-0.8	2,081	2,179	2,331	2,257	2,055	2,103	2,206	2,263	2,176	+5.9
Blast furnace gas	11,404	10,503	-7.9	3,256	2,994	3,029	2,709	2,672	2,677	2,717	2,645	2,464	-7.8
Benzole & tars	1,696	1,657	-2.3	408	405	475	434	383	403	412	419	422	+10.4
Transfers	263	60	(-)	109	111r	28	66	58	32	10	11	7	(-)
<b>Total supply</b>	<b>22,186</b>	<b>20,968</b>	<b>-5.5</b>	<b>5,854</b>	<b>5,689</b>	<b>5,863</b>	<b>5,466</b>	<b>5,168</b>	<b>5,215</b>	<b>5,345</b>	<b>5,338</b>	<b>5,070</b>	<b>-1.9</b>
Statistical difference	-133	-1		-28	-45	-9	-48	-31	-1	-	-	-	
<b>Total demand</b>	<b>22,318</b>	<b>20,969</b>	<b>-6.0</b>	<b>5,882</b>	<b>5,734</b>	<b>5,871</b>	<b>5,514</b>	<b>5,199</b>	<b>5,216</b>	<b>5,346</b>	<b>5,338</b>	<b>5,069</b>	<b>-2.5</b>
<b>TRANSFORMATION</b>													
Electricity generation	7,831	7,025	-10.3	2,489	2,097	1,968	1,981	1,785	1,799r	1,817r	1,739r	1,670	-6.5
Heat generation <sup>2</sup>	598	598	-	149	149	149	149	149	149	149	149	149	-
Energy industry use	7,909	7,671	-3.0	2,206	2,070r	2,001	1,916	1,922	1,901	1,927	1,967	1,875	-2.5
Losses	1,953	1,751	-10.4	221	414r	671	495	373	416	477	443	414	+11.1
<b>FINAL CONSUMPTION</b>													
Iron & steel	2,134	2,068	-3.0	349	547	563	486	538	499r	509r	573r	486	-9.6
Other industries	1,894	1,857	-2.0	467	457	520	486	431	451	465	466	474	+10.0

1. Percentage change in the fourth quarter of 2011 compared with a year earlier.

2. For Heat generation, the 2011 figures currently shown are the 2010 figures carried forward - these will be updated in July 2012.

## Section 3 - Oil and Oil Products

### Key results show:

#### Provisional 2011

In 2011, compared to 2010, production was 17.4 per cent lower, exports 20.5 per cent lower and imports 5.7 per cent higher. This was the lowest level of production since the 1970's and continues the downward trend seen since 2000.

In 2011, 31.7 per cent of crude oils and NGLs were supplied by net imports, compared to 16.4 per cent in 2010. In 2011, for the first time since the 1970's imports of crude oil exceeded indigenous production.

In 2011 the UK was a net exporter of petroleum products by 5.4 million tonnes, more than two and a half times the 2.1 million tonnes in 2010. The UK remains a net importer of DERV and aviation turbine fuel but a net exporter of Motor Spirit.

Refinery production in 2011 increased by 2.4 per cent, with large increases in diesel fuel and aviation fuel offset by decreases in gas oil.

In 2011 total deliveries of key transport fuels decreased by 0.4 per cent compared by 2010. Motor Spirit deliveries decreased by 4.8 per cent while DERV deliveries increased by 1.2 per cent and aviation fuel by 2.3 per cent.

#### Quarter 4 2011

Total indigenous UK production of crude oil and NGLs in the fourth quarter of 2011 was 17.0 per cent lower than a year previously. This is the second largest annual quarterly decrease since quarterly reporting began in 1995, and reflects relatively large decreases in crude oil production and NGL production. **(Chart 3.1)**

Thirty one per cent of crude oil and NGLs were supplied by net imports in Q4 2011, compared to 25 per cent in Q4 2010. **(Chart 3.1)**

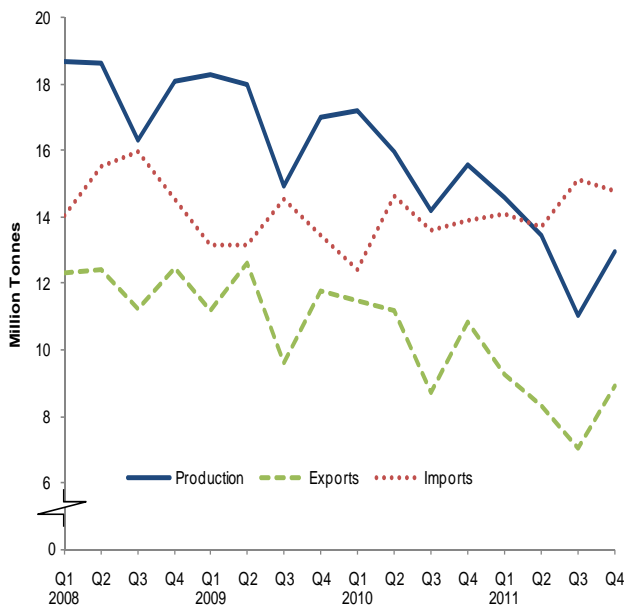
The UK was a net exporter of petroleum products by 0.7 million tonnes in Q4 2011, 12 per cent more than the same quarter a year ago. **(Chart 3.2)**

Refinery production decreased 3 per cent on the same quarter last year, with decreases in gas oil and fuel oil partially offset by increases in the production of diesel fuel and aviation fuel. **(Chart 3.2)**

Total deliveries of the key transport fuels were virtually unchanged when compared to the same period last year. In particular, deliveries of motor spirit decreased by 5.1 per cent compared to last year. **(Chart 3.5)**

Overall stocks of crude oil and petroleum products were almost 5.9 per cent lower at the end of 2011 than the end of 2010. The IEA Emergency Stockdraw for the shortfall in Libyan production will have impacted these figures. **(Chart 3.7)**

**Chart 3.1 Production and trade of crude oil and NGLs**



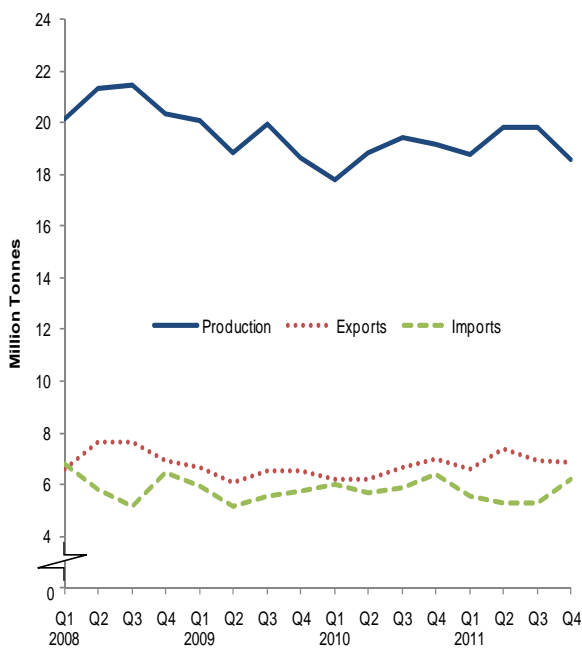
Total indigenous UK production of crude oil and NGLs in the fourth quarter of 2011 was 17.0 per cent lower than a year earlier. This is in-line with the annual change between 2010 and 2011 of 17.4 per cent.

This is the second largest quarterly decrease since quarterly reporting began in 1995 and reflects near record decreases in crude oil production and record decreases in NGL production. The largest was in the previous quarter.

Maintenance and other production issues, alongside the long-term reduction, were the main causes of the decrease.

Imports increased by 6.2 per cent and exports decreased by 17.4 per cent to make up for the loss of supply in 2011 Q4. These figures are in-line with the annual changes from 2010 to 2011 for imports (6 per cent increase) and exports (21 per cent decrease).

**Chart 3.2 Production and trade of petroleum products**



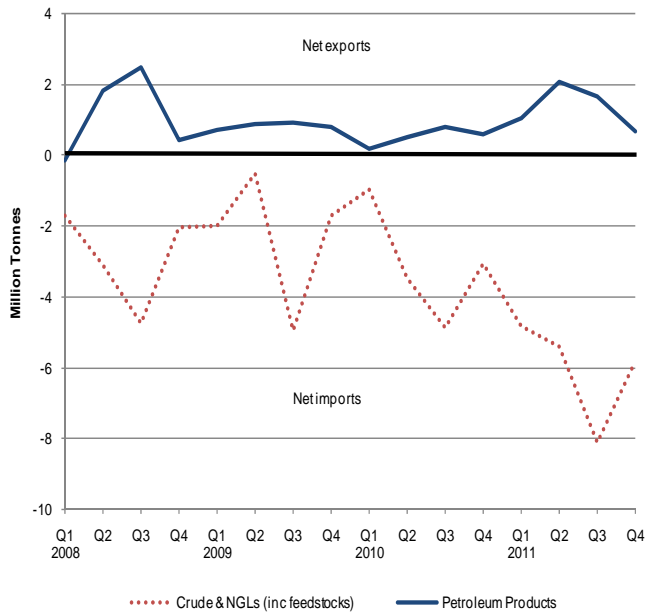
Refinery production in the latest quarter decreased 3.3 per cent on the same quarter of last year, however in comparison in 2011 refinery production increased by 2.4 per cent compared to 2010.

There have been decreases in production of gas oil and fuel oil, and increases in the production of diesel fuel (DERV) and aviation fuel in both the comparisons between 2011 Q4 and 2010 Q4 and 2011 and 2010.

Overall, imports decreased compared to the same quarter last year, falling by 3.3 per cent, with fuel oils and aviation fuel decreasing. Over the same period exports decreased by 2.0 per cent, with Motor Spirit exports decreasing, although DERV exports increased.

Whilst a net exporter of petroleum products, the UK remains structurally short in diesel road fuel and aviation turbine fuel. Increased production during the last quarter slightly decreased the UK's import dependence rates for these fuels.

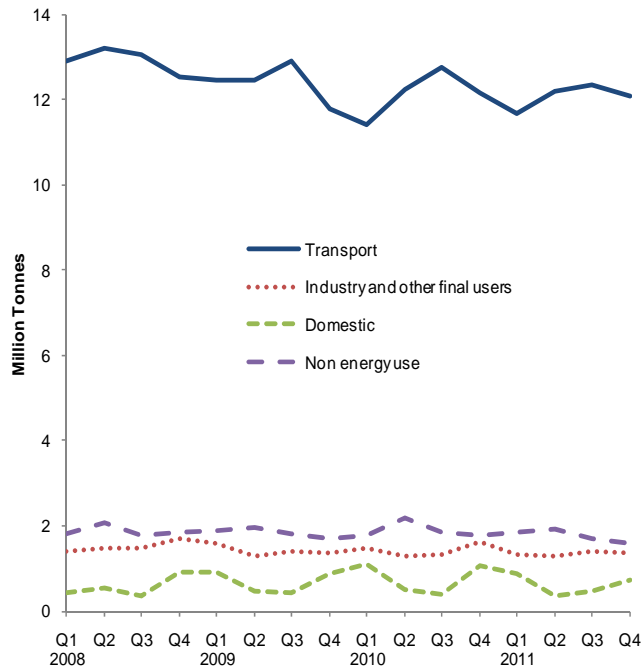
**Chart 3.3 Overall trade of crude oil and NGLs, and petroleum products**



The UK's overall net import dependence for oil and oil products was 16.4 per cent in the fourth quarter of 2011, with crude oil net import dependence being 45.1 per cent and petroleum products being minus 3.6 per cent (net exports). These figures are broadly in-line with the annual statistics. Crude oil dependence is on an increasing trend as the production from the UKCS declines.

The principal source of the UK's crude imports is Norway. On the other hand, petroleum products are sourced widely including significant volumes of diesel road fuel from Sweden, and aviation fuel from Kuwait, Qatar, and India.

**Chart 3.4 Final consumption of oil**



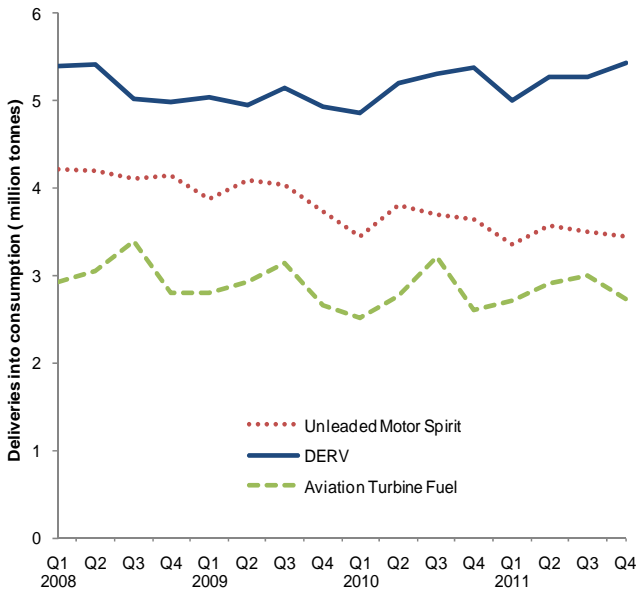
Final consumption in the oil sector is slightly seasonal with different products peaking at different times of the year. Consumption of domestic fuels for heating peaks in Q1 and Q4 each year, whilst consumption of aviation fuels is higher in Q2 and Q3.

Transport on average accounts for about three-quarters of the UK final consumption of petroleum products.

Overall final consumption of petroleum products was down by 4.9 per cent on the same quarter of last year, with transport use down 0.7 per cent. On an annual basis final consumption fell by 2.6 per cent, with transport use down by 0.5 per cent. The decrease in transport fuels is examined in more detail in Chart 3.5.



**Chart 3.5 Demand for key transport fuels**

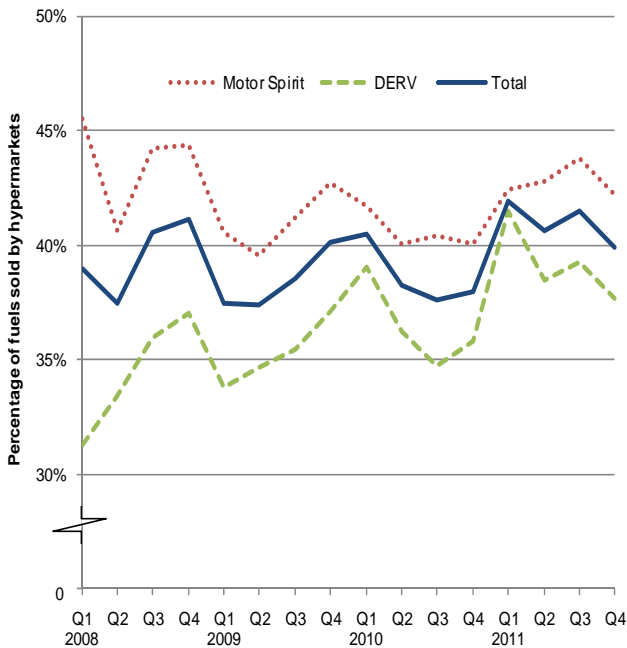


Total deliveries of key hydrocarbon transport fuels in 2011 Q4 were virtually unchanged when compared to the same quarter last year.

In 2011 Q4 deliveries of diesel increased by 1.0 per cent, whilst deliveries of motor spirit decreased by 5.1 per cent. Diesel's share of road fuels increased further, to another new peak at 61 per cent. On an annual basis diesel increased by 1.2 per cent whilst motor spirit fell by 4.8 per cent.

Deliveries of aviation fuel increased by 5.2 per cent on the same quarter last year, and by 2.3 per cent between 2010 and 2011.

**Chart 3.6 Hypermarket share of road fuel sales**

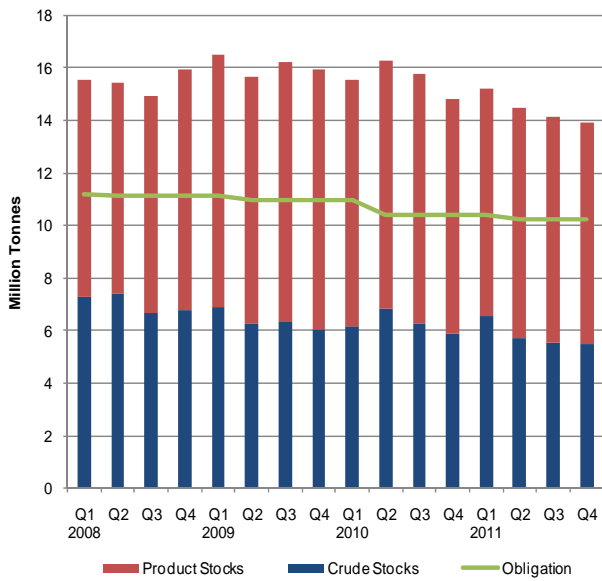


The retail shares of motor spirit and diesel that are sold through hypermarkets outlets increased when compared to the same quarter last year.

The hypermarket share of motor spirit and diesel stood at 42.2 per cent, and 37.7 per cent respectively. Hypermarkets increased their share by 2.2 and 1.9 percentage points respectively compared to Q4 2010.

The annual statistics were broadly in-line with these figures with the hypermarket share of motor spirit and diesel standing at 42.8 and 39.1 per cent respectively.

**Chart 3.7 UK oil stocks**



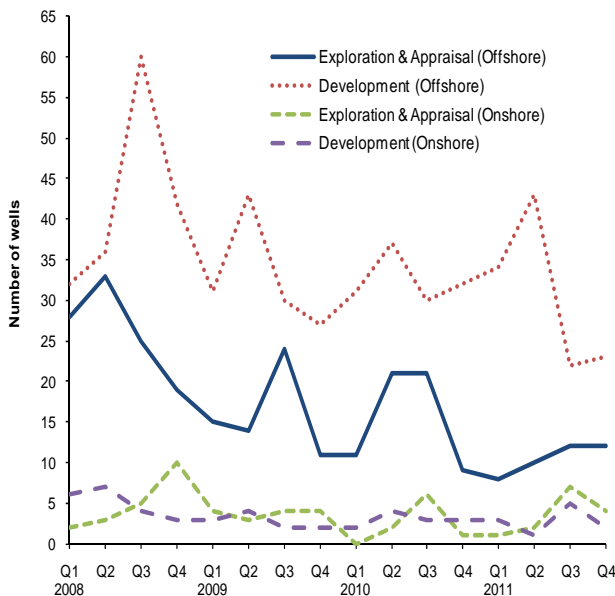
Stocks of crude oil and petroleum products were down almost 5.9 per cent on last year.

Chart 3.7 combines stocks of products with the product equivalent of stocks of crude oil to give an overall level of UK stocks of key products. At the end of the fourth quarter, the UK had stocks equal to 78 days of consumption.

On 23 June 2011, the IEA called for the release of emergency oil stocks in reaction to the short-fall in Libyan production. The UK directed petroleum companies to make available to the market some 3 million barrels (400 thousand tonnes) of oil. Petroleum companies were not required to restock until January 2012.

Companies also lowered their stocks as the market forecasts for middle distillate products indicated future prices lower than current prices.

**Chart 3.8 Drilling activity on the UKCS**



There were 42 exploration and appraisal wells started offshore in 2011, compared to 62 in 2010.

There were 122 development wells drilled offshore in 2011, compared to 130 in 2010.

There were 14 exploration and appraisal wells started onshore in 2011, compared to 9 in the previous year.

There were 11 development wells drilled onshore in 2011, compared to 12 in the previous year.

## Relevant tables

3.1: Supply and use of crude oil, natural gas liquids and feedstocks.....	Page 26
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# 3 OIL AND OIL PRODUCTS

## Table 3.1 Supply and use of crude oil, natural gas liquids and feedstocks<sup>1</sup>

Thousand tonnes

	2010	2011 p	per cent change	2009 4th quarter	2010 1st quarter	2010 2nd quarter	2010 3rd quarter	2010 4th quarter	2011 1st quarter	2011 2nd quarter	2011 3rd quarter	2011 4th quarter p	per cent change <sup>8</sup>
<b>SUPPLY</b>													
Indigenous production <sup>2</sup>	62,962	52,003	-17.4	17,018	17,197	15,985	14,185	15,595	14,570r	13,452r	11,037r	12,944	-17.0
Crude oil	58,047	48,602	-16.3	15,690	15,816	14,677	13,106	14,447	13,589r	12,557r	10,366r	12,090	-16.3
NGLs <sup>3</sup>	4,915	3,401	-30.8	1,328	1,381	1,307	1,079	1,148	981	895	672r	854	-25.6
Imports <sup>4</sup>	54,587	57,706	+5.7	13,471	12,430	14,639	13,617	13,901	14,083	13,717	15,143r	14,764	+6.2
Crude oil & NGLs	48,081	50,702	+5.5	12,078	11,076	13,050	12,010	11,945	12,154	12,046	13,183r	13,319	+11.5
Feedstocks	6,505	7,003	+7.7	1,393	1,354	1,588	1,607	1,956	1,929	1,671	1,960	1,444	-26.2
Exports <sup>4</sup>	42,196	33,544	-20.5	11,766	11,476	11,161	8,742	10,818	9,265r	8,319	7,030r	8,930	-17.4
Crude Oil & NGLs	39,239	29,636	-24.5	10,560	10,777	10,338	8,039	10,086	8,303r	7,376	5,959r	7,999	-20.7
Feedstocks	2,957	3,908	+32.2	1,206	700	823	703	732	963	943	1,071	931	+27.3
Stock change <sup>5</sup>	-39	+455		+201	-95	-553	+184	+426	-653r	+785r	+432r	-109	
Transfers <sup>6</sup>	-2,074	-1,977		-607	-508	-635	-483	-449	-492r	-567r	-500r	-418	
<b>Total supply</b>	<b>73,239</b>	<b>74,643</b>	<b>+1.9</b>	<b>18,319</b>	<b>17,548</b>	<b>18,274</b>	<b>18,761</b>	<b>18,656</b>	<b>18,242r</b>	<b>19,068r</b>	<b>19,082r</b>	<b>18,251</b>	<b>-2.2</b>
Statistical difference <sup>7</sup>	+39	-63		+158	+90	-48	-92	+89	+112r	-84r	-197r	+105	
<b>Total demand</b>	<b>73,200</b>	<b>74,706</b>	<b>+2.1</b>	<b>18,161</b>	<b>17,458</b>	<b>18,322</b>	<b>18,854</b>	<b>18,566</b>	<b>18,130</b>	<b>19,152r</b>	<b>19,279r</b>	<b>18,146</b>	<b>-2.3</b>
<b>TRANSFORMATION</b>													
Petroleum refineries	73,200	74,706	+2.1	18,161	17,458	18,322	18,854	18,566	18,130	19,152r	19,279r	18,146	-2.3
Energy industry use	-	-		-	-	-	-	-	-	-	-	-	

1. As there is no use made of primary oils and feedstocks by industries other than the oil and gas extraction and petroleum refining industries, other industry headings have not been included in this table. As such, this table is a summary of the activity of what is known as the Upstream oil industry.

2. Includes offshore and onshore production.

3. Natural Gas Liquids (NGLs) are condensate and petroleum gases derived at onshore treatment plants.

4. Foreign trade as recorded by the Petroleum Industry which may differ from the figures published by HM Revenue and Customs in the Overseas Trade Statistics. Data are subject to further revision as revised information on imports and exports becomes available.

5. Stock fall (+), stock rise (-). Stocks include stocks held at refineries, at oil terminals and also those held in tanks and partially loaded vessels at offshore facilities.

6. Mostly direct disposals to petrochemical plants.

7. Total supply minus total demand.

8. Percentage change in the fourth quarter of 2011 compared with a year earlier.

# 3 OIL AND OIL PRODUCTS

Table 3.2 Supply and use of petroleum products

Thousand tonnes

			2009										2011	
	2010	2011 p	per cent change	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	p	per cent change <sup>1</sup>
<b>SUPPLY</b>														
Indigenous production <sup>2</sup>	75,177	76,972	+2.4	18,650	17,763	18,807	19,414	19,193	18,781	19,832	19,800r	18,558		-3.3
Imports <sup>3</sup>	23,976	22,390r	-6.6	5,727	6,023	5,689	5,860	6,405	5,567r	5,307r	5,321r	6,195		-3.3
Exports <sup>3</sup>	26,065	27,801	+6.7	6,510	6,192	6,200	6,669	7,005	6,613	7,364r	6,957	6,868		-2.0
Marine bunkers	2,139	2,296	+7.3	656	470	534	597	539	554	594	615	533		-1.0
Stock change <sup>4</sup>	+603	+211		+193	+303	-43	+75	+268	+192r	+167	+33r	-180		
Transfers <sup>5</sup>	-232	-173		-42	-52	-43	-63	-74	-83r	-93r	+21r	-18		
<b>Total supply</b>	<b>71,321</b>	<b>69,302r</b>	<b>-2.8</b>	<b>17,362</b>	<b>17,375</b>	<b>17,677</b>	<b>18,021</b>	<b>18,248</b>	<b>17,291r</b>	<b>17,255r</b>	<b>17,603r</b>	<b>17,153</b>		<b>-6.0</b>
Statistical difference <sup>6</sup>	+150	-57r		-89	+136	-36	+60	-10	-1r	-77r	+103r	-83		
<b>Total demand</b>	<b>71,171</b>	<b>69,359r</b>	<b>-2.5</b>	<b>17,451</b>	<b>17,239</b>	<b>17,713</b>	<b>17,961</b>	<b>18,258</b>	<b>17,291r</b>	<b>17,332r</b>	<b>17,500r</b>	<b>17,236</b>		<b>-5.6</b>
<b>TRANSFORMATION</b>														
Electricity generation	1,343	1,001	-25.4	499	410	268	316	348	301r	223	235r	242		-30.5
Heat generation	1,138	814	-28.5	438	355	214	265	305	249r	174	185r	206		-32.5
Blast furnaces	63	63	-	16	16	16	16	16	16	16	16	16		-
Blast furnaces	142	125	-12.2	46	39	39	36	28	36	33	35r	21		-25.4
<b>Energy industry use</b>														
Petroleum Refineries	4,967	5,169	+4.1	1,214	1,080	1,243	1,327	1,317	1,289r	1,343r	1,319r	1,218		-7.5
Petroleum Refineries	4,478	4,679	+4.5	1,101	958	1,121	1,205	1,194	1,167	1,221	1,197	1,094		-8.4
Blast Furnaces	-	-	-	-	-	-	-	-	-	-	-	-		-
Others	490	490	+0.0	113	122	122	122	122	122	122	122	124		+1.3
<b>FINAL CONSUMPTION</b>														
Iron & steel	64,861	63,189	-2.6	15,738	15,749	16,201	16,317	16,593	15,701r	15,766r	15,946r	15,776		-4.9
Iron & steel	56	37	-33.6	12	25	12	10	9	6	8	15	9		-6.5
Other industries	4,472	4,209	-5.9	1,134	1,153	965	1,075	1,279	1,055r	950r	1,158r	1,046		-18.2
Transport	48,567	48,309	-0.5	11,783	11,397	12,242	12,774	12,154	11,667	12,207	12,361r	12,075		-0.7
Domestic	3,083	2,418	-21.6	886	1,104	514	398	1,068	870r	370r	460r	718		-32.7
Other final users	1,155	1,125	-2.6	230	310	299	223	323	269	317	239r	299		-7.4
Non energy use	7,527	7,090	-5.8	1,692	1,761	2,169	1,837	1,760	1,834r	1,914r	1,713r	1,629		-7.4

1. Percentage change in the fourth quarter of 2011 compared with a year earlier.
2. Includes refinery production and petroleum gases extracted as products during the production of oil and gas.
3. Foreign trade as recorded by the Petroleum Industry which may differ from the figures published by HM Revenue and Customs in the Overseas Trade Statistics.  
Data are subject for further revision as revised information on imports and exports becomes available.
4. Stock fall (+), stock rise (-).
5. Mainly transfers from product to feedstock.
6. Total supply minus total demand.

# 3 OIL AND OIL PRODUCTS

## Table 3.3 Supply and use of petroleum products - annual data

	2010										2011 p									
	Total Petroleum Products	Motor spirit	DERV <sup>9</sup>	Gas oil <sup>1</sup>	Aviation turbine fuel	Fuel oils	Petroleum gases <sup>2</sup>	Burning oil	Other products <sup>3</sup>	Total Petroleum Products	Motor spirit	DERV <sup>9</sup>	Gas oil <sup>1</sup>	Aviation turbine fuel	Fuel oils	Petroleum gases <sup>2</sup>	Burning oil	Other products <sup>3</sup>		
<b>SUPPLY</b>																				
Indigenous production <sup>4</sup>	75,177	19,918	15,332	9,505	5,781	7,525	7,283	2,570	7,264	76,972	19,914	16,869	8,683	6,379	7,907	7,468	2,409	7,343		
Imports <sup>5</sup>	23,976	3,137	7,709	705	7,353	1,020	362	972	2,718	22,390	3,283	7,750	1,242	6,716	790	195	618	1,798		
Exports <sup>5</sup>	26,065	8,619	2,121	4,358	1,487	4,895	732	191	3,662	27,801	9,372	3,127	4,667	1,210	5,140	820	173	3,292		
Marine bunkers	2,139	-	-	807	-	1,332	-	-	-	2,296	-	-	753	-	1,543	-	-	-		
Stock change <sup>6</sup>	+603	+299	+61	+95	+116	+115	-15	-5	-63	+211	+74	+130	+30	-52	-58	-16	+18	+85		
Transfers <sup>7</sup>	-232	+30	-180	+81	-649	-15	+0	+655	-94	-173	-49	-500	+418	-465	+44	+0	+419	-40		
<b>Total supply</b>	<b>71,321</b>	<b>14,705</b>	<b>20,802</b>	<b>5,220</b>	<b>11,114</b>	<b>2,419</b>	<b>6,898</b>	<b>4,000</b>	<b>6,163</b>	<b>69,302</b>	<b>13,849</b>	<b>21,121</b>	<b>4,953</b>	<b>11,368</b>	<b>2,001</b>	<b>6,826</b>	<b>3,291</b>	<b>5,893</b>		
Statistical difference <sup>8</sup>	+150	+103	+62	-8	-2	+16	-20	-12	+12	57	-46	+130	-131	-5	-40	-37	-16	+86		
<b>Total demand</b>	<b>71,171</b>	<b>14,602</b>	<b>20,740</b>	<b>5,228</b>	<b>11,116</b>	<b>2,403</b>	<b>6,918</b>	<b>4,012</b>	<b>6,152</b>	<b>69,359</b>	<b>13,895</b>	<b>20,991</b>	<b>5,084</b>	<b>11,372</b>	<b>2,040</b>	<b>6,863</b>	<b>3,307</b>	<b>5,807</b>		
<b>TRANSFORMATION</b>	1,343	-	-	70	-	733	329	-	210	1,001	-	-	66	-	558	329	-	48		
Electricity generation	1,138	-	-	65	-	539	324	-	210	814	-	-	61	-	381	324	-	48		
Heat generation	63	-	-	5	-	52	5	-	-	63	-	-	5	-	52	5	-	-		
Petroleum refineries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Coke manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Blast furnaces	142	-	-	-	-	142	-	-	-	125	-	-	-	-	125	-	-	-		
Patent fuel manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Energy industry use	4,967	-	-	490	-	613	2,463	-	1,401	5,169	-	-	489	-	653	2,555	-	1,472		
<b>FINAL CONSUMPTION</b>	64,861	14,602	20,740	4,668	11,116	1,056	4,125	4,012	4,541	63,189	13,895	20,991	4,528	11,372	830	3,979	3,307	4,287		
Iron & steel	56	-	-	-	-	56	-	-	-	37	-	-	-	-	37	-	-	-		
Other industries	4,472	-	-	2,072	-	273	639	1,489	-	4,209	-	-	1,930	-	159	798	1,322	-		
Transport	48,567	14,602	20,740	1,370	11,116	611	106	-	21	48,309	13,895	20,991	1,382	11,372	553	95	-	21		
Domestic	3,083	-	-	165	-	-	394	2,523	-	2,418	-	-	148	-	-	286	1,985	-		
Other final users	1,155	-	-	919	-	116	120	-	-	1,125	-	-	943	-	80	101	-	-		
<b>Non energy use</b>	<b>7,527</b>	<b>-</b>	<b>-</b>	<b>142</b>	<b>-</b>	<b>-</b>	<b>2,865</b>	<b>-</b>	<b>4,519</b>	<b>7,090</b>	<b>-</b>	<b>-</b>	<b>125</b>	<b>-</b>	<b>-</b>	<b>2,699</b>	<b>-</b>	<b>4,267</b>		

1. Includes: Middle distillate feedstock destined for use in the petrochemical industry and marine diesel oil

2. Includes ethane, propane, butane and other petroleum gases.

3. Includes naphtha, industrial and white spirits, lubricants, bitumen, petroleum waxes, petroleum coke and other oil products.

4. Includes refinery production and petroleum gases extracted as products during the production of oil and gas.

5. Foreign trade as recorded by the Petroleum Industry which may differ from the figures published by HM Revenue and Customs in the Overseas Trade Statistics

Data are subject to further revision as revised information on imports and exports becomes available.

6. Stock fall (+), stock rise (-).

7. Mainly transfers from product to feedstock.

8. Total supply minus total demand.

9. See page 15 of the March 2011 edition of Energy Trends for a note concerning changes to this table.

# 3 OIL AND OIL PRODUCTS

Table 3.4 Supply and use of petroleum products - latest quarter

Thousand tonnes

	2010 4th quarter									2011 4th quarter p								
	Total Petroleum Products	Motor spirit	DERV <sup>9</sup>	Gas oil <sup>1</sup>	Aviation turbine fuel	Fuel oils	Petroleum gases <sup>2</sup>	Burning oil	Other products <sup>3</sup>	Total Petroleum Products	Motor spirit	DERV <sup>9</sup>	Gas oil <sup>1</sup>	Aviation turbine fuel	Fuel oils	Petroleum gases <sup>2</sup>	Burning oil	Other products <sup>3</sup>
<b>SUPPLY</b>																		
Indigenous Production <sup>4</sup>	19,193	5,147	3,931	2,483	1,308	1,918	1,804	729	1,873	18,558	5,180	4,213	2,020	1,386	1,688	1,610	777	1,685
Imports <sup>5</sup>	6,405r	942r	2,003r	147	1,939	246	99	390	638	6,195	867	2,148	345	1,922	189	23	192	508
Exports <sup>5</sup>	7,005	2,482	540	1,275	371	1,204	185	55	892	6,868	2,666	774	1,213	191	990	166	86	783
Marine bunkers	539	-	-	209	-	330	-	-	-	533	-	-	173	-	360	-	-	-
Stock change <sup>6</sup>	+268	+102	-0	+44	+99	+97	+20	-4	-89	-180	+63	-9	+71	-258	+4	+38	-59	-29
Transfers <sup>7</sup>	-74	-47	-66	+59	-334	-3	-	+322	-4	-18	-12	-96	+86	-161	+5	+0	+149	+11
<b>Total supply</b>	<b>18,248r</b>	<b>3,662r</b>	<b>5,328r</b>	<b>1,250</b>	<b>2,641</b>	<b>723</b>	<b>1,739</b>	<b>1,381</b>	<b>1,525</b>	<b>17,153</b>	<b>3,432</b>	<b>5,482</b>	<b>1,136</b>	<b>2,698</b>	<b>536</b>	<b>1,504</b>	<b>973</b>	<b>1,391</b>
Statistical difference <sup>8</sup>	-10r	+16r	-50r	+3	+41	+4	+4	-19	-8	-83	-27	+51	-45	-38	-21	-2	-14	+13
<b>Total demand</b>	<b>18,258r</b>	<b>3,646r</b>	<b>5,378r</b>	<b>1,246</b>	<b>2,600</b>	<b>719</b>	<b>1,735</b>	<b>1,400</b>	<b>1,533</b>	<b>17,236</b>	<b>3,458</b>	<b>5,431</b>	<b>1,181</b>	<b>2,736</b>	<b>557</b>	<b>1,507</b>	<b>988</b>	<b>1,378</b>
<b>TRANSFORMATION</b>	348	-	-	21	-	197	82	-	48	242	-	-	18	-	137	82	-	-
Electricity generation	305	-	-	20	-	156	81	-	48	206	-	-	16	-	103	81	-	-
Heat generation	16	-	-	1	-	13	1	-	-	16	-	-	1	-	13	1	-	-
Petroleum refineries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coke manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blast furnaces	28	-	-	-	-	28	-	-	-	21	-	-	-	-	21	-	-	-
Patent fuel manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Energy industry use	1,317	-	-	123	-	147	660	-	386	1,218	-	-	124	-	165	583	-	346
<b>FINAL CONSUMPTION</b>	<b>16,593r</b>	<b>3,646r</b>	<b>5,378r</b>	<b>1,103</b>	<b>2,600</b>	<b>375</b>	<b>992</b>	<b>1,400</b>	<b>1,099</b>	<b>15,776</b>	<b>3,458</b>	<b>5,431</b>	<b>1,040</b>	<b>2,736</b>	<b>254</b>	<b>842</b>	<b>988</b>	<b>1,027</b>
Iron & steel	9	-	-	-	-	9	-	-	-	9	-	-	-	-	9	-	-	-
Other industries	1,279	-	-	519	-	57	191	512	-	1,046	-	-	497	-	17	137	395	-
Transport	12,154r	3,646r	5,378r	207	2,600	292	28	-	4	12,075	3,458	5,431	194	2,736	225	25	-	4
Domestic	1,068	-	-	73	-	-	106	888	-	718	-	-	48	-	-	77	593	-
Other final users	323	-	-	271	-	17	35	-	-	299	-	-	271	-	4	25	-	-
Non energy use	1,760	-	-	32	-	-	633	-	1,095	1,629	-	-	30	-	-	577	-	1,022

1. Includes middle distillate feedstock destined for use in the petrochemical industry and marine diesel
2. Includes ethane, propane, butane and other petroleum gases.
3. Includes naphtha, industrial and white spirits, lubricants, bitumen, petroleum waxes, petroleum coke and other oil products.
4. Includes refinery production and petroleum gases extracted as products during the production of oil and gas.
5. Foreign trade as recorded by the Petroleum Industry which may differ from the figures published by HM Revenue and Customs in the Overseas Trade Statistics.  
Data are subject to further revision as revised information on imports and exports becomes available.
6. Stock fall (+), stock rise (-).
7. Mainly transfers from product to feedstock.
8. Total supply minus total demand.
9. See page 15 of the March 2011 edition of Energy Trends for a note concerning changes to this table.

# 3 OIL AND OIL PRODUCTS

## Table 3.5 Demand for key petroleum products<sup>1</sup>

Thousand tonnes

			<i>per cent change</i>	2009	2010	2010	2010	2010	2011	2011	2011	2011	<i>per cent change</i> <sup>2</sup>
	2010	2011 p		4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter p	
<b>MOTOR SPIRIT</b>													
<b>Total sales</b>	14,602	13,895	-4.8	3,740	3,447	3,802	3,707	3,646	3,363	3,571	3,502	3,458	-5.1
By seller:													
Retail sales: <sup>3</sup>	14,082	13,435	-4.6	3,608	3,327	3,661	3,576	3,518	3,269	3,443	3,379r	3,344	-4.9
hypermarkets <sup>4</sup>	5,710	5,749	+0.7	1,540	1,388	1,466	1,446	1,410	1,386	1,472	1,479r	1,412	+0.2
refiners/other traders	8,372	7,686	-8.2	2,068	1,939	2,195	2,130	2,108	1,883	1,971	1,900	1,932	-8.4
Commercial sales <sup>5</sup>	520	460	-11.4	132	119	141	131	128	95	129	123	114	-10.7
By grade:													
4-Star/Leaded/LRP <sup>6</sup>	11	12	+7.3	3	3	3	3	3	2	3	3	3	+28.7
Super Premium Unleaded	646	552	-14.6	251	150	138	149	209	111r	119r	126r	196	-6.2
Premium Unleaded/ULSP <sup>7</sup>	13,944	13,331	-4.4	3,487	3,293	3,661	3,556	3,434	3,250r	3,450r	3,373r	3,259	-5.1
<b>GAS DIESEL OIL</b>													
<b>Total sales</b>	25,969	26,075	+0.4	6,145	6,228	6,423	6,694	6,624	6,310	6,476r	6,676r	6,612	-0.2
DERV fuel	20,740	20,991	+1.2	4,926	4,859	5,198	5,305	5,378	4,999	5,282	5,280	5,431	+1.0
Retail sales: <sup>3</sup>	13,157	13,545	+2.9	3,090	2,893	3,286	3,535	3,443	2,998	3,459	3,522	3,566	+3.6
hypermarkets <sup>4</sup>	4,781	5,300	+10.9	1,147	1,129	1,190	1,228	1,233	1,243	1,331	1,383r	1,343	+8.9
refiners/other traders	8,376	8,244	-1.6	1,944	1,764	2,096	2,307	2,210	1,755	2,128	2,138r	2,222	+0.6
Commercial sales <sup>5</sup>	7,583	7,446	-1.8	1,835	1,966	1,912	1,770	1,936	2,001	1,822	1,758	1,865	-3.6
Other gas diesel oil <sup>8</sup>	5,229	5,084	-2.8	1,219	1,368	1,225	1,390	1,246	1,311	1,195r	1,396r	1,182	-5.1
<b>AVIATION FUELS</b>													
<b>Total sales</b>	11,137	11,393	+2.3	2,662	2,527	2,776	3,230	2,604	2,722	2,925	3,005r	2,741	+5.2
Aviation spirit	21	21	-3.2	5	4	6	7	4	4	6	6	4	+6.9
Aviation turbine fuel	11,116	11,372	+2.3	2,658	2,523	2,770	3,223	2,600	2,718	2,918	2,999r	2,736	+5.2
<b>FUEL OIL</b>													
<b>Total Sales</b>	1,790	1,388	-22.5	469	458	442	317	572	328r	321	346	392	-31.5
Light	684	701	+2.6	111	132	86	131	334	130r	173	172	226	-32.4
Medium	119	123	+3.0	28	43	16	37	23	35r	28	35	25	+8.5
Heavy	987	564	-42.9	330	283	340	150	214	163r	120	140	141	-34.3

1. Monthly data for inland deliveries of oil products are available - See DECC website: [www.decc.gov.uk/en/content/cms/statistics/source/oil/oil.aspx](http://www.decc.gov.uk/en/content/cms/statistics/source/oil/oil.aspx)

2. Percentage change in the fourth quarter of 2011 compared with a year earlier.

3. Retail sales are those deliveries made to garages etc. mainly for resale to final consumers.

4. Data for sales by hypermarket companies are collected by a separate reporting system, but are consistent with the main data collected from companies.

5. Commercial sales are those deliveries made direct to a consumer for use in their own business, e.g. to bus and coach depots.

6. Sales of leaded petrol ceased from 31st December 1999, with Lead Replacement Petrol being introduced as a replacement fuel.

7. ULSP is Ultra Low Sulphur Petrol introduced during the second half of 2000 and first half of 2001 as a replacement for ordinary Premium grade unleaded petrol.

8. This includes gas diesel oil used for other purposes such as heating and middle distillate feedstock destined for use in the petrochemical industry.



# 3 OIL AND OIL PRODUCTS

Table 3.6 Stocks of petroleum<sup>1</sup> at end of period

Thousand tonnes

		Crude oil and refinery process oil				Petroleum products					Total stocks		
		Refineries <sup>2</sup>	Terminals <sup>3</sup>	Offshore <sup>4</sup>	Total <sup>5</sup>	Light distillates <sup>6</sup>	Kerosene & gas/diesel <sup>7</sup>	Fuel oils	Other products <sup>8</sup>	Total products	Net bilaterals <sup>9</sup>	Stocks in UK <sup>10</sup>	Total stocks
2009		3,848	1,136	682	6,033	1,157	6,276	927	1,555	9,915	2,728	13,221	15,948
2010		4,110	1,049	520	5,889	1,144	5,435	817	1,509	8,906	2,563	12,232	14,795
2011 p		3,889	758	714	5,512	849	5,262	862	1,437	8,410	2,100	11,822	13,922
2009	4th quarter	3,848	1,136	682	6,033	1,157	6,276	927	1,555	9,915	2,728	13,221	15,948
2010	1st quarter	3,743	1,544	472	6,176	1,150	5,800	950	1,476	9,376	2,565	12,987	15,552
	2nd quarter	4,283	1,571	449	6,811	1,060	5,924	1,012	1,473	9,469	2,858	13,422	16,280
	3rd quarter	4,133	1,327	617	6,257	1,212	5,928	827	1,540	9,507	2,841	12,923	15,764
	4th quarter	4,110	1,049	520	5,889	1,144	5,435	817	1,509	8,906	2,563	12,232	14,795
2011	1st quarter	4,402	1,484r	578	6,579r	1,102	5,263	880	1,407	8,652	2,516	12,715r	15,231r
	2nd quarter	3,959	1,069r	558r	5,736r	1,068	5,388	869	1,398	8,722	2,834	11,625r	14,459r
	3rd quarter	3,917	783r	624r	5,536r	1,045	5,295	841	1,440	8,621	2,647	11,510r	14,157r
	4th quarter p	3,889	758	714	5,512	849	5,262	862	1,437	8,410	2,100	11,822	13,922
<i>Per cent change<sup>11</sup></i>		-5.4	-27.8	+37.3	-6.4	-25.8	-3.2	+5.5	-4.8	-5.6	-18.0	-3.4	-5.9

1. Stocks held at refineries, terminals and power stations. Stocks in the wholesale distribution system and certain stocks at offshore fields (UK Continental Shelf [UKCS]), and others held under approved bilateral agreements are also included.

2. Stocks of crude oil, NGLs and process oil at UK refineries.

3. Stocks of crude oil and NGLs at UKCS pipeline terminals.

4. Stocks of crude oil in tanks and partially loaded tankers at offshore field (UKCS).

5. Includes process oils held under approved bilateral agreements.

6. Motor spirit and aviation spirit.

7. Aviation turbine fuel, burning oil, gas oil, DERV fuel, middle distillate feedstock (mdf) and marine diesel oil.

8. Ethane, propane, butane, other petroleum gases, naphtha (ldf), industrial white spirit, bitumen, petroleum wax, lubricating oil, petroleum coke and miscellaneous products.

9. The difference between the stocks held abroad for UK use under approved bilateral agreements and the equivalent stocks held in the UK for foreign use.

10. Stocks held in the national territory or elsewhere on the UKCS.

11. Percentage change in the fourth quarter of 2011 compared with a year earlier.

# 3 OIL AND OIL PRODUCTS

## Table 3.7 Drilling activity<sup>1</sup> on the UKCS

		<i>Number of wells started</i>					
		Offshore				Onshore	
		Exploration &		Exploration &			
		Exploration	Appraisal	Appraisal	Development <sup>2</sup>	Appraisal	Development <sup>2</sup>
2009		23	41	64	131	15	11
2010		28	34	62	130	9	12
2011 p		14	28	42	122	14	11
<i>Per cent change</i>		-50.0	-17.6	-32.3	-6.2	+55.6	-8.3
2009	4th quarter	6	5	11	27	4	2
2010	1st quarter	7	4	11	31	-	2
	2nd quarter	8	13	21	37	2	4
	3rd quarter	9	12	21	30	6	3
	4th quarter	4	5	9	32	1	3
2011	1st quarter	3	5r	8r	34	1	3
	2nd quarter	2	8	10	43	2	1
	3rd quarter	5	7	12	22	7	5r
	4th quarter p	4	8	12	23	4	2
<i>Per cent change</i> <sup>3</sup>		-	+60.0	+33.3	-28.1	(+)	-33.3

1. Including sidetracked wells

2. Development wells are production or injection wells drilled after development approval has been granted.

3. Percentage change in the fourth quarter of 2011 compared with a year earlier

## Section 4 - Gas

### Key results show:

#### Provisional 2011

Gross production of natural gas was 21 per cent lower than in 2010.

Gas exports were at record levels in 2011, higher by 4 per cent compared with 2010. Gas imports were just under 1 per cent lower, resulting in the trade position narrowing with net imports lower by 3 per cent in 2011 compared with 2010.

In 2011 gross imports of natural gas were greater than gross production for the first time since 1967, whilst exports were at their highest level since 2003.

Gas demand decreased by 17 per cent, driven by warmer weather, and was at its lowest level since 1995.

#### Quarter 4 2011

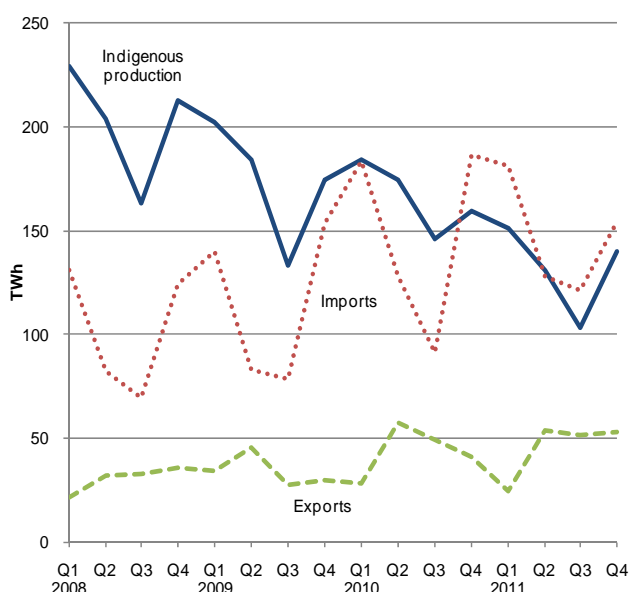
Gross production was 12 per cent lower than Q4 2010. **(Chart 4.1)**. Offshore production of gas decreased by just over 12 per cent. **(Chart 4.2)**

Gas available in Q4 2011 fell by just over 21 per cent compared to Q4 2010. **(Chart 4.3)**

Imports of gas decreased by 17 per cent compared to Q4 2010, with shipped imports of LNG accounting for half of all imports. **(Chart 4.4)**. The vast majority of the UK imports originated from Norway (52 per cent) and Qatar (32 per cent). **(Chart 4.5)**

UK gas demand decreased by 25 per cent, driven by warmer weather, compared to Q4 2010. **(Chart 4.6)**

**Chart 4.1 Production and imports and exports of natural gas**



Provisional figures for 2011 show that gross production of natural gas was 20.8 per cent lower than in 2010. This was due to an unusual coincidence of planned and unplanned maintenance work. In general terms UKCS production is continuing to decline year on year and, since production peaked in 2000, has decreased at around 7 per cent per annum.

In 2011 gross imports of natural gas were greater than gross production for the first time since 1967 (however, because the UK also exports gas, gross production remained higher than net imports).

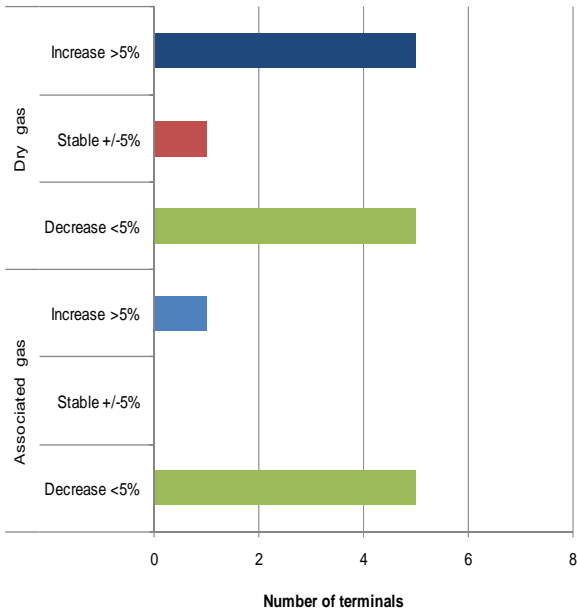
In 2011 the trade position shows net imports 3.0 per cent lower than in 2010. Gas exports were 4.1 per cent higher and gas imports were 0.9 per cent lower. Exports were at record levels in 2011 with the UK exporting more gas now than it did when gas production peaked in 2000.

UK production of natural gas in Q4 2011 was 12.4 per cent lower than a year earlier. Imports fell by 17.4 per cent, whilst exports increased by 29.6 per cent.

As a result, net imports fell by a third compared to the previous quarter. The milder weather in the fourth quarter of 2011 reduced UK demand for gas.

## Gas

**Chart 4.2 Comparison of the UK offshore gas production at UK terminals from Q4 2010 to Q4 2011**

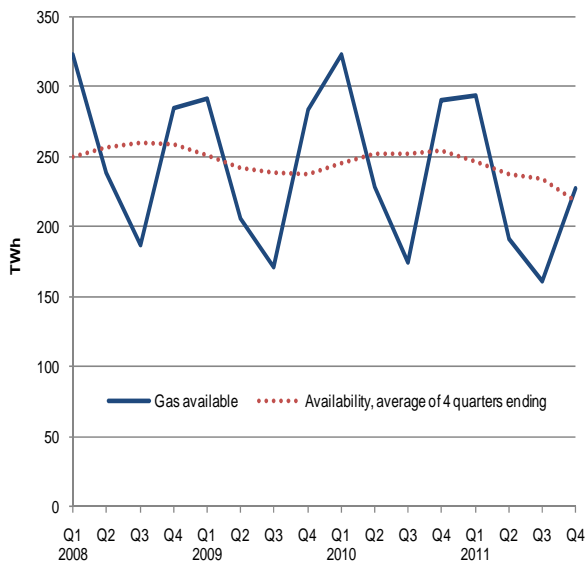


The UK offshore gas production reported at the main 17 terminals decreased from 143TWh in Q4 2010 to 125TWh in Q4 2011, a fall of 12 per cent.

Dry gas production decreased by 2 per cent from 57 TWh to 56TWh during the period. Five terminals reported production increasing by more than 5 per cent. This was somewhat offset by the same number reporting decreases.

Associated gas production decreased by nearly a fifth from 86TWh to 70TWh. Five terminals out of 6 reported a decrease in production of more than 5 per cent, whilst one terminal reported production increasing by more than 5 per cent.

**Chart 4.3 Gas availability**

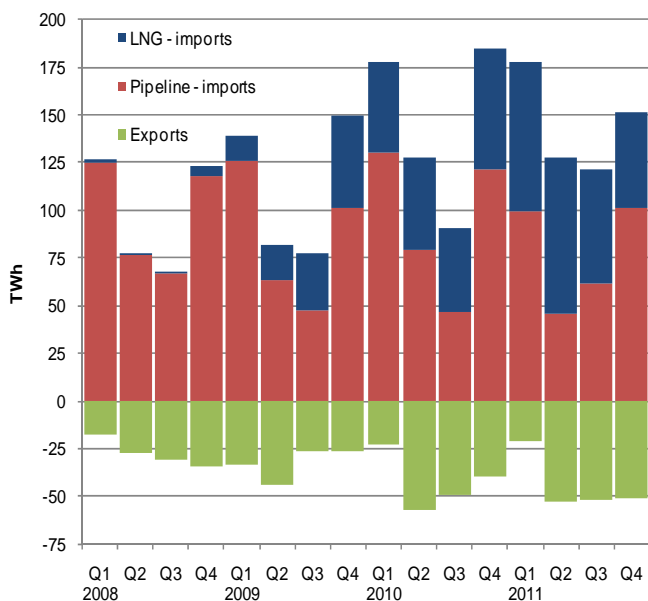


Gas available at terminals is equal to the gross gas production, minus producers own use, plus net imports.

Gas availability is seasonal, mirroring gas demand, and peaks during Q4 and Q1 each year. Gas available in Q4 2011 fell by just over 21 per cent compared to Q4 2010 to 227TWh.

The average availability over 4 rolling quarters has remained fairly constant since Q1 2008 at around 250TWh. However, in 2011, gas availability was lower at around 234TWh, reflecting lower gas demand driven by the milder weather.

**Chart 4.4 Imports and exports**



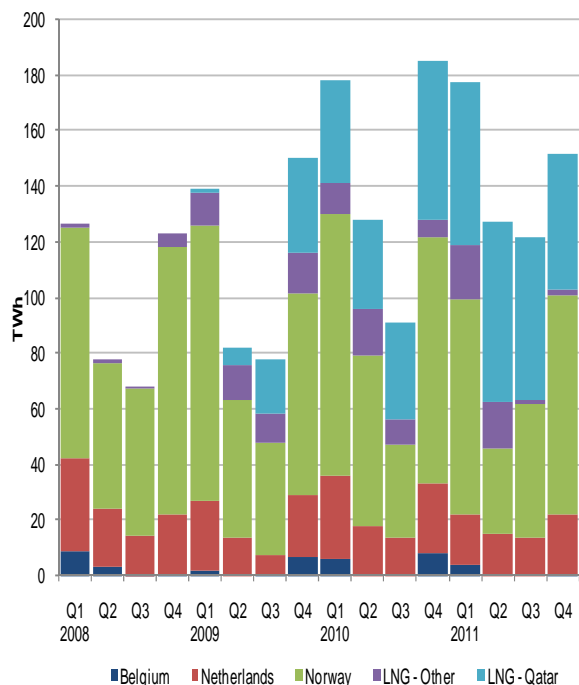
In 2011, exports were 4 per cent higher and were at record levels; the UK exported more gas in 2011 than it did when gas production peaked in 2000. Gas imports were just under 1 per cent lower. The trade position shows net imports were 3.0 per cent lower than in 2010.

Pipeline imports in 2011 were lower by 19 per cent compared with 2010. Liquefied Natural Gas (LNG) imports in 2011 were a third higher than in 2010 and accounted for just under half of total imports.

Total imports in Q4 2011 decreased by 17 per cent compared to the same quarter a year ago, whilst exports increased by nearly a third over the same period. The trade position shows net imports were 31 per cent lower in Q4 2011 compared with Q4 2010.

Pipeline imports in Q4 2011 were lower by 17 per cent compared with the same quarter a year earlier. Liquefied Natural Gas (LNG) imports in Q4 2011 were lower by 20 per cent and accounted for a third of all UK gas imports.

**Chart 4.5 Imports by origin**

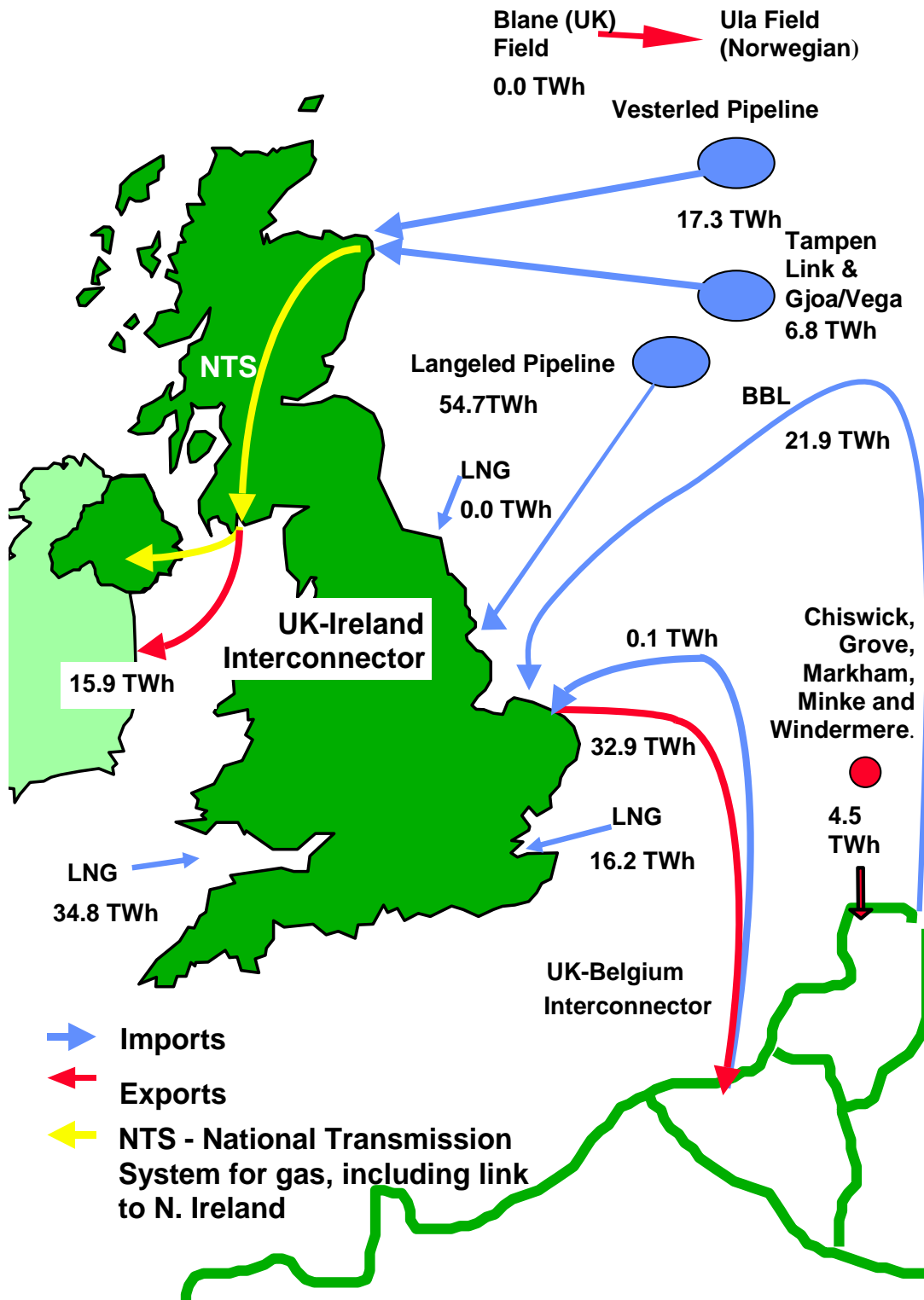


Imports from the Netherlands and Norway in 2011 were 17 per cent lower than in 2010. For the first time ever, imports of LNG exceeded Norwegian pipeline imports.

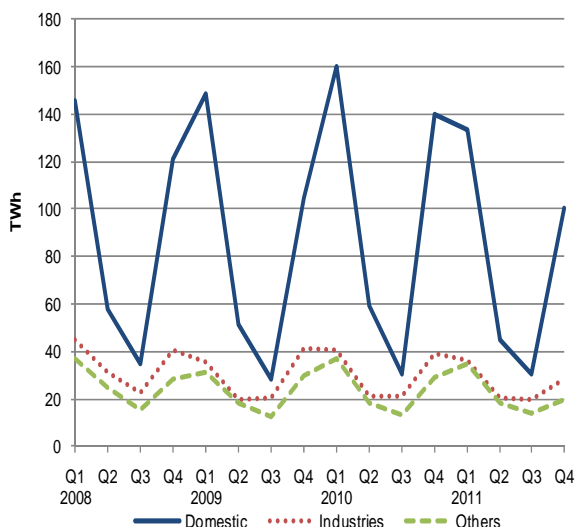
LNG imports from Qatar accounted for 85 per cent of total LNG imports in 2011 compared with 79 per cent in 2010.

In 2011 Q4, the UK imported 79TWh and 22TWh via pipelines from Norway and the Netherlands, accounting for 52 per cent and 14 per cent of all UK imports. LNG imports from Qatar made up around a third of all UK imports.

Map: UK imports and exports of gas Q4 2011



**Chart 4.6 UK demand for natural gas**



In 2011 gas demand decreased by 17 per cent and was at its lowest level since 1995. This fall in demand was largely driven by significantly milder weather in 2011, reducing demand for space heating, lower demand for electricity generation and improvements in energy efficiency.

Gas sales to the domestic sector were lower by 22.7 per cent. Gas used for electricity generation fell by 17.4 per cent. Gas used by industry was 11.1 per cent lower and sales to other final users were lower by 7.0 per cent.

In Q4 2011, gas demand was lower by around a quarter compared with the same period a year earlier, largely due to the milder weather. Domestic consumption decreased by a third. Electricity generation decreased by 19.5 per cent. Gas used by industry fell by 18.1 per cent and consumption by other final users fell by 17.7 per cent.

**Relevant table**

4.1: Natural gas supply and consumption.....Page 38

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# 4 GAS

## Table 4.1. Natural gas supply and consumption

GWh

	2010	2011 p	per cent change	2009 4th quarter	2010 1st quarter	2010 2nd quarter	2010 3rd quarter	2010 4th quarter	2011 1st quarter	2011 2nd quarter	2011 3rd quarter	2011 4th quarter p	per cent change <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production	664,353	526,030	-20.8	174,851	183,913	174,405	146,354	159,681	151,607	131,034r	103,515r	139,874	-12.4
Imports	589,497	584,414	-0.9	153,780	183,844	128,234	91,049	186,370	181,011	127,837	121,583	153,983	-17.4
<i>of which LNG</i>	203,789	270,733	+32.8	48,737	48,033	48,479	43,839	63,439	78,370	81,514	59,915	50,935	-19.7
Exports	176,399	183,689	+4.1	29,913	28,391	57,615	49,278	41,115	24,866	53,666	51,883r	53,275	+29.6
Stock change <sup>2</sup>	+15,271	-22,623		+6,104	+32,558	-21,833	-13,945	+18,491	+6,805	-21,374	-11,109	+3,055	
Transfers	-263	-60		-110	-111	-28	-66	-58	-32	-10	-11	-7	
<b>Total supply</b>	1,092,459	904,072	-17.2	304,712	371,813	223,164	174,114	323,368	314,526	183,822	162,095r	243,629	-24.7
Statistical difference	682	-2,226		-155	38	-34	662	17	1,004	-1,074	-1,791r	-364	
<b>Total demand</b>	1,091,777	906,299	-17.0	304,867	371,775	223,198	173,452	323,352	313,522	184,896	163,886r	243,994	-24.5
<b>TRANSFORMATION</b>													
Electricity generation	371,118	306,663	-17.4	100,446	101,652	96,616	86,137	86,713	80,601	76,993	79,255	69,814	-19.5
Heat generation <sup>3</sup>	23,890	23,890	-	6,285	7,358	5,125	4,487	6,919	7,358	5,125	4,487	6,919	-
Energy industry use	69,375	60,989	-12.1	17,345	19,099	18,114	15,126	17,036	16,824	15,585	13,437r	15,143	-11.1
Losses	18,737	14,546	-22.4	5,205	6,482	4,697	3,248	4,310	4,390	3,634	2,854r	3,668	-14.9
<b>FINAL CONSUMPTION</b>													
Iron & steel	5,826	5,757	-1.2	1,458	1,432	1,454	1,435	1,504	1,374	1,398	1,476r	1,510	+0.4
Other industries	116,113	102,600	-11.6	40,071	38,786	19,914	19,561	37,851	34,767	19,108	17,986r	30,738	-18.8
Domestic	389,595	300,971	-22.7	104,395	159,808	59,226	30,519	140,043	133,597	45,068	30,325r	91,981	-34.3
Other final users	88,625	82,384	-7.0	27,660	35,034	15,928	10,813	26,851	32,485	15,861	11,942r	22,096	-17.7
Non energy use <sup>3</sup>	8,499	8,499	-	2,000	2,125	2,125	2,125	2,125	2,125	2,125	2,125	2,125	-

1. Percentage change in the fourth quarter of 2011 compared with a year earlier.

2. Stock fall (+), stock rise (-).

3. For Heat generation and non energy use, the 2011 figures currently shown are the 2010 figures carried forward - these will be updated in July 2012.



## Section 5 – Electricity

### Key results show:

#### Provisional 2011

Electricity generated in 2011 fell by 4.2 per cent to 365.3 TWh from 381.1 TWh in 2010.

Low carbon electricity's share of generation increased from 23.1 per cent in 2010 to 28.4 per cent in 2011, due to higher renewables and nuclear generation. (**Chart 5.2**).

Renewables' share of electricity generation increased from 6.8 per cent in 2010 to a record 9.5 per cent in 2011. (**Chart 5.2**).

Nuclear's share of generation increased from 16.3 per cent in 2010 to 18.9 per cent in 2011 due to increased availability in 2011 after extensive major outages in the second and third quarters of 2010. Gas's share of generation fell from 45.9 per cent in 2010 to 39.8 per cent in 2011. (**Chart 5.2**).

Final consumption of electricity in 2011 was 3.6 per cent lower than in 2010, the lowest level since 1998. Domestic sales fell by 5.0 per cent, to the lowest level since 2000. (**Chart 5.4**).

#### Quarter 4 2011

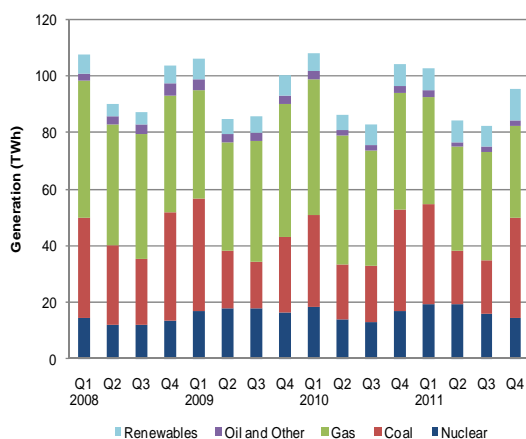
Electricity generated in the fourth quarter of 2011 fell by 8.2 per cent from 104.0 TWh a year earlier to 95.5 TWh, the lowest quarter four generation for 13 years (**Chart 5.1**).

Renewables' share of electricity generation increased from 7.3 per cent in the fourth quarter of 2010 to a record 11.9 per cent in the fourth quarter of 2011.

Nuclear's share of generation decreased from 16.4 per cent in the fourth quarter of 2010 to 15.3 per cent in the fourth quarter of 2011 due to maintenance outages at some stations. Gas's share of generation fell from 39.4 per cent to 33.8 per cent.

Final consumption in the fourth quarter of 2011 fell by 7.0 per cent on a year earlier, and domestic sales by 10.1 per cent - the lowest levels for quarter four in 13 years. (**Chart 5.5**).

**Chart 5.1 Electricity generated by fuel type**



In 2011, total electricity generated fell 4.2 per cent from 381.1 TWh in 2010 Q4 to 365.3 TWh.

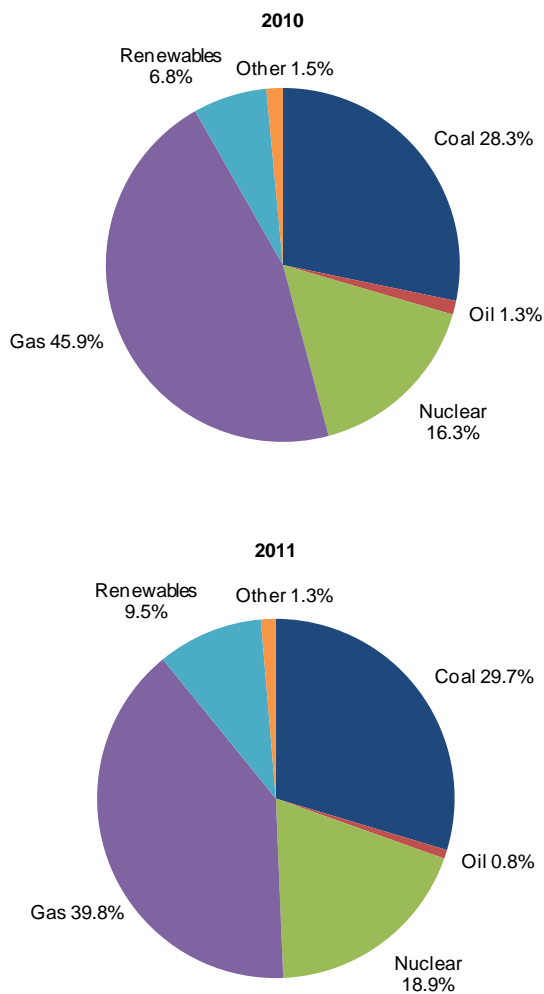
In 2011, coal fired generation rose by 0.6 per cent from 107.7 TWh in 2010 to 108.4 TWh. Gas fired generation fell 16.9 per cent from 175.0 TWh to 145.4 TWh, its lowest level since 1998. This was due to high gas prices, with several gas stations being run at minimal or zero levels as a result.

Nuclear generation rose 11.1 per cent from 62.1 TWh to 69.0 TWh, due to increased availability in 2011 after extensive outages in the second and third quarters of 2010.

In 2011, wind generation rose 54.5 per cent from 10.2 TWh to 15.8 TWh, with much increased capacity and much higher wind speeds compared to 2010. Hydro generation rose 58.0 per cent from 3.6 TWh to 5.7 TWh, with rainfall in 2011 84 per cent higher than a year earlier.

## Electricity

**Chart 5.2 Shares of electricity generation**



In 2011 Q4, total electricity generated fell 8.2 per cent from 104.0 TWh in 2010 Q4 to 95.5 TWh, the lowest Q4 generation for 13 years.

In 2011 Q4, coal fired generation fell by 1.5 per cent from 35.7 TWh in 2011 Q4 to 35.2 TWh. Gas fired generation fell 21.1 per cent from 41.0 TWh to 32.3 TWh, its lowest level since the first quarter of 2006, due to lower demand. Nuclear generation fell 14.2 per cent from 17.0 TWh to 14.6 TWh, due to maintenance outages at some stations.

In 2011 Q4, wind generation rose 72.0 per cent from 3.4 TWh to 5.8 TWh, with ever increasing capacity and much higher wind speeds compared to a year ago. Hydro generation rose 65.5 per cent from 1.2 TWh to 2.0 TWh, the highest since the first quarter of 2000. Rainfall for the quarter was over double that of a year earlier and was the highest for Q4 in five years.

The share of generation from coal increased from 28.3 per cent in 2010 to 29.7 per cent in 2011. Gas's share of generation decreased from 45.9 per cent in 2010 to 39.8 per cent in 2011, reflecting lower total generation and growth in other generation types. Nuclear's share of generation increased from 16.3 per cent in 2010 to 18.9 per cent in 2011, due to increased availability in 2011 after extensive outages in 2010.

The share of renewables (hydro, wind and other renewables) increased from 6.8 per cent in 2010 to 9.5 per cent in 2011. This was due to much higher rainfall and wind speeds and increased wind generation capacity.<sup>1</sup>

Low carbon electricity's share of generation increased from 23.1 per cent in 2010 to 28.4 per cent in 2011, due to higher renewables and nuclear generation.

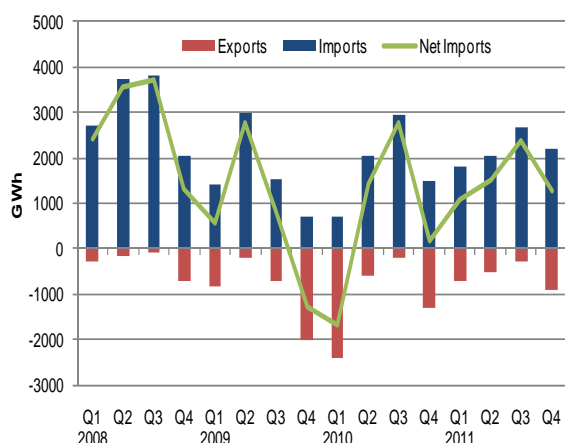
The share of generation from coal increased from 34.3 per cent in 2010 Q4 to 36.8 per cent in 2011 Q4. Gas's share of generation decreased from 39.4 per cent in 2010 Q4 to 33.8 per cent in 2011 Q4, its lowest share since 2009 Q1. Nuclear's share of generation decreased from 16.4 per cent in 2010 Q4 to 15.3 per cent in 2011 Q4, due to maintenance outages at some stations.

The share of renewables (hydro, wind and other renewables) increased from 7.3 per cent in 2010 Q4 to 11.9 per cent in 2011 Q4. This was due to much higher rainfall and wind speeds and increased capacity for wind generation.

Low carbon electricity's share of generation increased from 24.1 per cent in 2010 Q4 to 27.2 per cent in 2011 Q4, due to higher renewables generation.

<sup>1</sup> Prior to 2011, the renewables figures presented in table ET 5.1 (and chart 5.1) include non-biodegradable wastes (0.2%), which are not classed as renewables. In chart 5.2, for 2010, as for 2011, these are included under 'Other.'

Chart 5.3 UK trade in electricity

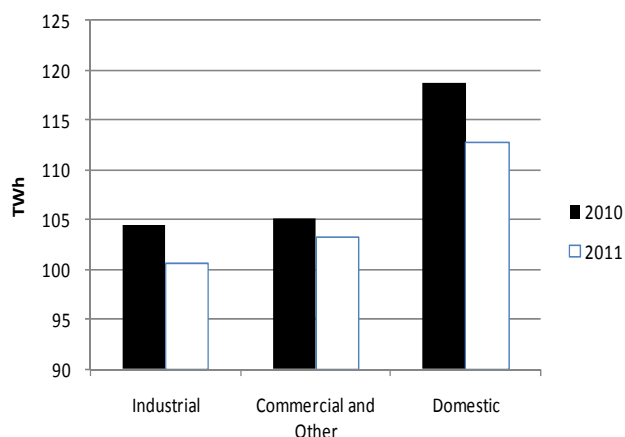


In 2011, imports of electricity rose by 21.6 per cent, whilst exports fell by 44.9 per cent. Net imports of electricity, at 6,222 GWh, were more than double the 2010 value of 2,663 GWh. This represented 1.8 per cent of electricity supplied in 2011.

In 2011, the UK was a net importer from France and the Netherlands with net imports of 4,678 GWh and 1,791 GWh respectively. The UK was a net exporter to Ireland, with net exports of 246 GWh. The UK started trading with the Netherlands in February 2011.

In 2011 Q4, compared with the same period in 2010, imports of electricity rose by 48.2 per cent, whilst exports fell by 29.2 per cent. For the seventh quarter running, the UK has been a net importer after two quarters of being a net exporter (2009 Q4 and 2010 Q1).

Chart 5.4 Electricity final consumption (annual)



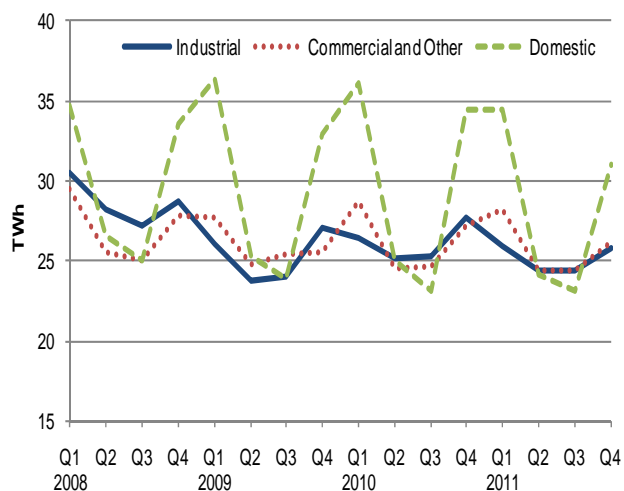
Net imports of electricity, at 1,269 GWh, rose by more than seven times the level in 2010 Q4. This represented 1.4 per cent of electricity supplied in 2011 Q4. In 2011 Q4, the UK was a net importer from France, the Netherlands and Ireland, with net imports of 802 GWh, 61 GWh and 407 GWh respectively.

Final consumption of electricity fell by 3.6 per cent in 2011, from 328.3 TWh in 2010, to 316.6 TWh, its lowest level since 1998.

Domestic use fell by 5.0 per cent, from 118.7 TWh to 112.7 TWh, its lowest level since 2000. Industrial use of electricity fell 3.8 per cent, from 104.5 TWh to 100.6 TWh, while consumption by commercial and other users<sup>2</sup> fell by 1.8 per cent, from 105.1 TWh to 103.3 TWh.

In 2011, temperatures were on average 1.8 degrees higher than in 2010.<sup>3</sup>

Chart 5.5 Electricity final consumption (quarterly)



Final consumption of electricity fell by 7.0 per cent in 2011 Q4, from 89.3 TWh in 2010 Q4, to 83.0 TWh, its lowest level for this particular quarter in at least 13 years.

Domestic use fell by 10.1 per cent, from 34.4 TWh to 31.0 TWh, again its lowest level for the fourth quarter for at least 13 years. Industrial use of electricity fell 6.6 per cent, from 27.7 TWh to 25.8 TWh, while consumption by commercial and other users fell by 3.6 per cent, from 27.2 TWh to 26.2 TWh.

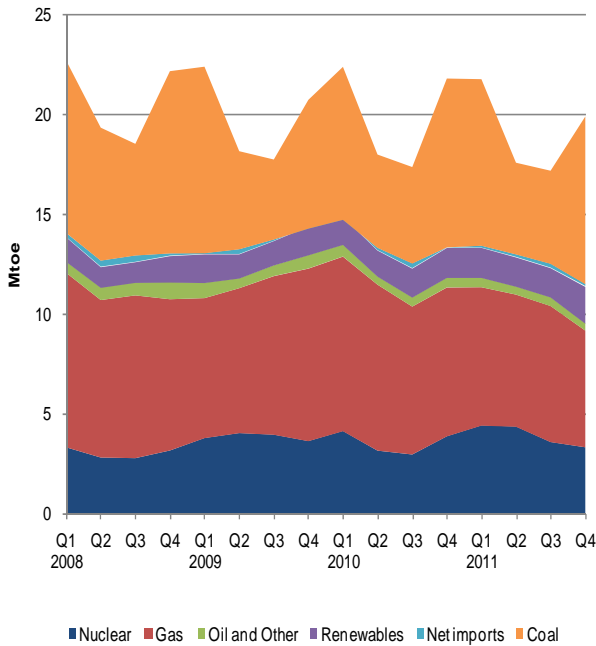
In 2011 Q4, temperatures were on average 4.1 degrees higher than a year earlier.

<sup>2</sup> Includes commercial, transport and other final users.

<sup>3</sup> Temperature data comes from table ET 7.1, at: [www.decc.gov.uk/en/content/cms/statistics/energy\\_stats/source/temperatures/temperatures.aspx](http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/source/temperatures/temperatures.aspx)

Electricity

**Chart 5.6 Fuel used for electricity generation**



Fuel used by generators in 2011 fell 3.9 per cent, from 79.3 mtoe in 2010 to 76.2 mtoe.

In 2011, gas use was 17.9 per cent lower than in 2010. Coal use during the quarter was 1.5 per cent higher than a year earlier, while nuclear sources were 11.1 per cent higher.

Fuel used by generators in 2011 Q4 fell 8.7 per cent, from 21.7 mtoe in 2010 Q4 to 19.8 mtoe.

In 2011 Q4, gas use was 21.6 per cent lower than in 2010 Q4, due to lower demand. Coal use during the quarter was 0.6 per cent lower than a year earlier, while nuclear sources were 14.2 per cent lower.

**Relevant tables**

5.1: Fuel used in electricity generation and electricity supplied..... Page 43

5.2: Supply and consumption of electricity.....Page 44

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# 5 ELECTRICITY

Table 5.1. Fuel used in electricity generation and electricity supplied

	2010	2011 p	per cent change	2009 4th quarter	2010 1st quarter	2010 2nd quarter	2010 3rd quarter	2010 4th quarter	2011 1st quarter	2011 2nd quarter	2011 3rd quarter	2011 4th quarter p	per cent change <sup>1</sup>
<b>FUEL USED IN GENERATION</b>													
<b>All generating companies</b>													
	Million tonnes of oil equivalent												
Coal	25.56	25.95	+1.5	6.43	7.64	4.66	4.83	8.44	8.33	4.59	4.65	8.38	-0.6
Oil	1.17	0.73	-37.9	0.39	0.36	0.23	0.27	0.32	0.22	0.16	0.18	0.17	-47.5
Gas	31.96	26.26	-17.9	8.65	8.75	8.32	7.42	7.47	6.94	6.63	6.83	5.86	-21.6
Nuclear	13.95	15.49	+11.1	3.59	4.09	3.11	2.92	3.83	4.37	4.31	3.54	3.28	-14.2
Hydro	0.31	0.49	+58.0	0.14	0.07	0.06	0.07	0.10	0.11	0.10	0.10	0.17	+65.5
Wind <sup>2</sup>	0.88	1.36	+54.5	0.22	0.21	0.14	0.24	0.29	0.29	0.31	0.26	0.50	+72.0
Other renewables <sup>3</sup>	4.42	4.40	-0.5	1.07	1.10	1.10	1.13	1.09	1.09r	1.05	1.09r	1.16	+6.5
Other fuels	0.82	1.01	+23.3	0.28	0.24	0.20	0.21	0.17	0.27r	0.25	0.28r	0.21	+19.7
Net imports	0.23	0.53	(+)	-0.11	-0.15	0.12	0.24	0.02	0.09	0.13	0.20	0.11	(+)
<b>Total all generating companies</b>	<b>79.30</b>	<b>76.21</b>	<b>-3.9</b>	<b>20.67</b>	<b>22.32</b>	<b>17.94</b>	<b>17.32</b>	<b>21.73</b>	<b>21.71r</b>	<b>17.53</b>	<b>17.13r</b>	<b>19.84</b>	<b>-8.7</b>
<b>ELECTRICITY GENERATED</b>													
<b>All generating companies</b>													
	TWh												
Coal	107.69	108.37	+0.6	26.78	32.62	19.55	19.81	35.71	35.12r	19.03r	19.05	35.16	-1.5
Oil	4.86	2.87	-41.0	1.58	1.45	0.94	1.15	1.32	0.89	0.52	0.61	0.85	-35.8
Gas	175.00	145.38	-16.9	46.98	48.06	45.31	40.65	40.98	38.02	36.69	38.35	32.32	-21.1
Nuclear	62.14	69.03	+11.1	16.29	18.22	13.87	13.01	17.04	19.45	19.20	15.76	14.62	-14.2
Hydro (natural flow)	3.60	5.69	+58.0	1.62	0.84	0.67	0.87	1.22	1.31r	1.14r	1.22r	2.02	+65.5
Wind <sup>2</sup>	10.22	15.78	+54.5	2.58	2.45	1.65	2.74	3.38	3.34	3.60	3.03r	5.81	+72.0
- of which, Offshore	3.04	5.11	+67.9	-	0.67	0.46	0.82	1.10	0.99	1.12	1.08r	1.92	+74.2
Other renewables <sup>3</sup>	12.84	13.27	+3.4	3.07	3.21	3.14	3.30	3.20	3.34r	3.12	3.31r	3.51	+9.8
Pumped Storage	3.15	2.91	-7.8	0.92	0.86	0.76	0.71	0.82	0.77	0.65	0.70	0.78	-4.7
Other fuels	1.63	1.98	+22.1	0.56	0.41	0.44	0.41	0.37	0.51r	0.51r	0.53r	0.43	+17.4
<b>Total all generating companies</b>	<b>381.13</b>	<b>365.28</b>	<b>-4.2</b>	<b>100.40</b>	<b>108.12</b>	<b>86.34</b>	<b>82.64</b>	<b>104.04</b>	<b>102.75r</b>	<b>84.47r</b>	<b>82.56r</b>	<b>95.50</b>	<b>-8.2</b>
<b>ELECTRICITY SUPPLIED<sup>4</sup></b>													
<b>All generating companies</b>													
	TWh												
Coal	102.27	102.94	+0.7	25.42	30.97	18.56	18.82	33.91	33.36r	18.08r	18.11	33.39	-1.5
Oil	4.36	2.58	-40.9	1.43	1.30	0.84	1.04	1.17	0.80	0.47	0.55	0.76	-35.3
Gas	171.82	142.68	-17.0	46.16	47.21	44.51	39.93	40.18	37.31r	36.02	37.62	31.73	-21.0
Nuclear	56.47	62.70	+11.0	14.80	16.56	12.61	11.82	15.49	17.67	17.44	14.32	13.28	-14.3
Hydro	3.58	5.66	+58.2	1.61	0.83	0.67	0.86	1.21	1.30r	1.14	1.21r	2.01	+65.6
Wind <sup>2</sup>	10.22	15.78	+54.5	2.58	2.45	1.65	2.74	3.38	3.34	3.60	3.03r	5.81	+72.0
- of which, Offshore	3.04	5.11	+67.9	-	0.67	0.46	0.82	1.10	0.99	1.12	1.08r	1.92	+74.2
Other renewables <sup>3</sup>	11.89	12.27	+3.2	2.77	2.97	2.91	3.05	2.96	3.09r	2.88r	3.06r	3.24	+9.6
Pumped Storage (net supply) <sup>5</sup>	-1.07	-0.95		-0.28	-0.29	-0.27	-0.23	-0.28	-0.26	-0.22	-0.23	-0.24	
Other fuels	1.58	1.93	+22.1	0.54	0.40	0.42	0.40	0.36	0.49r	0.50r	0.52r	0.42	+17.4
Net imports	2.66	6.22	(+)	-1.30	-1.69	1.42	2.76	0.18	1.06	1.53	2.36	1.27	(+)
<b>Total all generating companies</b>	<b>363.78</b>	<b>351.82</b>	<b>-3.3</b>	<b>93.74</b>	<b>100.70</b>	<b>83.33</b>	<b>81.20</b>	<b>98.55</b>	<b>98.17r</b>	<b>81.44r</b>	<b>80.54r</b>	<b>91.67</b>	<b>-7.0</b>

1. Percentage change in the fourth quarter of 2011 compared with a year earlier.

2. Includes solar PV and wave/tidal

3. Up to 2010 Q4, this includes non-biodegradable wastes. From 2011 Q1, this is included in 'Other fuels' (as it is not considered a renewable source).

4. Electricity supplied net of electricity used in generation

5. Net supply from pumped storage is usually negative, as electricity used in pumping is deducted.

# 5 ELECTRICITY

## Table 5.2 Supply and consumption of electricity

	<i>GWh</i>												
	2010	2011 p	<i>Per cent change</i>	2009 4th quarter	2010 1st quarter	2010 2nd quarter	2010 3rd quarter	2010 4th quarter	2011 1st quarter	2011 2nd quarter	2011 3rd quarter	2011 4th quarter p	<i>Per cent change</i> <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production	381,127	365,285	-4.2	100,396	108,118	86,335	82,635	104,038	102,753r	84,470r	82,561r	95,500	-8.2
Major power producers <sup>2,3</sup>	344,554	328,770	-4.6	90,716	98,482	77,553	73,799	94,720	93,350r	75,524r	73,754r	86,141	-9.1
Auto producers	33,423	33,608	+0.6	8,756	8,771	8,020	8,132	8,501	8,632r	8,292r	8,104r	8,579	+0.9
Other sources <sup>4</sup>	3,150	2,906	-7.8	924	865	763	705	818	770	654	702	780	-4.7
Imports	7,144	8,689	+21.6	702	698	2,025	2,943	1,479	1,787	2,054	2,656	2,192	+48.2
Exports	4,481	2,467	-44.9	1,999	2,384	610	184	1,303	723	525	297	922	-29.2
Transfers	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total supply</b>	<b>383,791</b>	<b>371,506</b>	<b>-3.2</b>	<b>99,099</b>	<b>106,432</b>	<b>87,751</b>	<b>85,394</b>	<b>104,214</b>	<b>103,817r</b>	<b>86,000r</b>	<b>84,920r</b>	<b>96,770</b>	<b>-7.1</b>
Statistical difference	-210	514	-	126	299	-277	-516	283	-210r	287r	372r	65	-
<b>Total demand</b>	<b>384,001</b>	<b>370,992</b>	<b>-3.4</b>	<b>98,973</b>	<b>106,133</b>	<b>88,028</b>	<b>85,910</b>	<b>103,931</b>	<b>104,028r</b>	<b>85,712r</b>	<b>84,548r</b>	<b>96,704</b>	<b>-7.0</b>
<b>TRANSFORMATION</b>													
Energy industry use <sup>5</sup>	28,642	28,323	-1.1	7,467	7,901	6,565	6,378	7,798	7,784r	6,741r	6,547r	7,252	-7.0
Losses	27,042	26,088	-3.5	5,973	7,074	6,734	6,417	6,816	7,601r	5,991r	6,072r	6,423	-5.8
<b>FINAL CONSUMPTION</b>													
Iron & steel	3,461	3,461	-	914	878	859	879	844	872r	869r	867r	853	+1.1
Other industries	101,038	97,118	-3.9	26,164	25,516	24,294	24,407	26,821	25,077r	23,563r	23,493r	24,985	-6.8
Transport	3,899	3,899	-	977	975	975	975	975	975	975	975	975	-
Domestic	118,681	112,740	-5.0	32,968	36,030	25,031	23,172	34,448	34,447r	24,207r	23,128r	30,959	-10.1
Other final users	101,238	99,363	-1.9	24,511	27,758	23,570	23,681	26,230	27,272r	23,366r	23,466r	25,259	-3.7
Non energy use	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Percentage change in the fourth quarter of 2011 compared with a year earlier.

2. Companies that produce electricity from nuclear sources plus all companies whose prime purpose is the generation of electricity are included under the heading "Major Power Producers". At the end of December 2010 they were:

AES Electric Ltd., Baglan Generation Ltd., Barking Power Ltd., British Energy plc., Centrica Energy, Coolkeeragh ESB Ltd., Corby Power Ltd., Coryton Energy Company Ltd., Derwent Cogeneration Ltd., DONG Energy Burbo UK Ltd, Drax Power Ltd., EDF Energy plc., E.On UK plc., Energy Power Resources, GDF Suez Teesside Power Ltd., Immingham CHP, Infinis plc, International Power Mitsui, Magnox North Ltd., Premier Power Ltd., RGS Energy Ltd, Rocksavage Power Company Ltd., RWE Npower plc., Scottish Power plc., Scottish and Southern Energy plc., Seabank Power Ltd., SELCHP Ltd., Spalding Energy Company Ltd., Statkraft Energy Ltd.

3. This table includes the change of definition of Major power producers (MPPs) to include major wind farm companies. Details of this change of definition were given in an article on pages 43 to 48 of the September 2008 edition of Energy Trends.

4. Gross supply from pumped storage hydro

5. Includes electricity used in generation and for pumping

## Section 6 – Renewables

### Key results show:

#### Provisional 2011

Renewables' share of electricity generation was a record 9.5 per cent in 2011, an increase of 2.7 percentage points on the 6.8 per cent in 2010. **(Table 6A)**

In 2011, on the 2008 Renewable Energy Directive basis, normalised renewable generation was 9.0 per cent of gross electricity consumption, an increase of 1.6 percentage points on 2010's share. **(Table 6A)**

Renewable electricity generation was 34.8 TWh in 2011, an increase of 35 per cent on the 25.7 TWh in 2010.

Renewable electricity capacity was 12.2 GW at the end of 2011, a 32 per cent increase (2.9 GW) on a year earlier, and a 17 per cent increase (1.7 GW) on 2011 Q3. **(Chart 6.3)**

#### Quarter 4 2011

Renewables' share of electricity generation was a record 11.9 per cent in 2011 Q4, up 4.6 percentage points on the share in 2010 Q4, reflecting high renewables generation and very low electricity demand. **(Chart 6.1)**

Renewable electricity generation was a record 11.3 TWh in 2011 Q4, an increase of 50 per cent on the 7.6 TWh in 2010 Q4, due to increased capacity, as well as very high rainfall and higher wind speeds. **(Chart 6.2)**

In 2011 Q4, a record 342 MW of installed capacity was confirmed on the Feed in Tariff scheme, more than doubling the total, to 658 MW. **(Chart 6.5)**

**Table 6A Renewable electricity shares – 2010 and 2011 (provisional)**

	2010	2011
<u>International Basis:</u> actual renewable generation / total generation	6.8%	9.5%
<u>2008 Renewable Energy Directive:</u> normalised renewable generation / gross electricity consumption	7.4%	9.0%
<u>2001 Renewables Directive:</u> normalised renewable generation / electricity demand	7.3%	8.8%

In 2011, renewables' share of electricity generation in the increased to 9.5 per cent, from 6.8 per cent in 2010, reflecting increased capacity, as well as more favourable weather conditions. Overall, electricity generation fell 4.2 per cent (from 381.1 TWh to 365.3 TWh), as a result of lower overall demand; this reduction contributed around 0.4 percentage points of the 2.7 percentage point increase in renewables' share.

On the 2008 Renewable Energy Directive (RED) basis, the share was 9.0 per cent, compared with 7.4 per cent in 2010. On the basis of the 2001 Renewables Directive (RD), the share increased from 7.3 per cent to 8.8 per cent. Both the RED and RD measures use normalised wind and hydro generation figures, to account for variable weather conditions. <sup>1</sup>

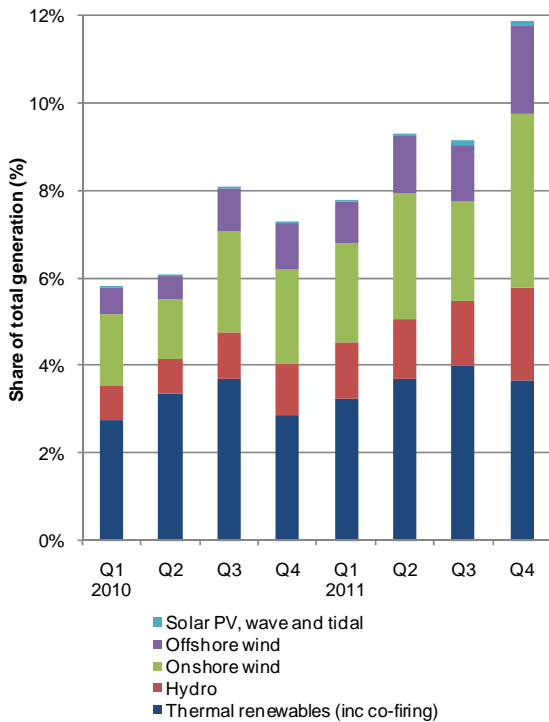
Renewables' share of electricity generation increased from 7.3 per cent in 2010 Q4, to a record 11.9 per cent in 2011 Q4. This was also a 2.6 percentage point increase on 2011 Q2's previous record high share of 9.3 per cent. <sup>2</sup>

The increase in the 2011 Q4 share on 2010 Q4 reflects increased capacity, particularly in offshore wind, and much higher rainfall and wind speeds. However, overall electricity generation (95.5 TWh) was down 8.2 per cent on a year earlier (as a result of much lower demand, largely due to higher temperatures), which contributed 1.0 percentage point of the 4.6 percentage point increase.

<sup>1</sup> For more information on normalisation, and the various measures of renewable electricity's shares, please see March 2011's "Renewable electricity 2010 – provisional data", at: [www.decc.gov.uk/en/content/cms/statistics/publications/trends/articles\\_issue/articles\\_issue.aspx](http://www.decc.gov.uk/en/content/cms/statistics/publications/trends/articles_issue/articles_issue.aspx)

<sup>2</sup> Total electricity generation and electricity demand figures can be found in tables ET 5.1 and ET 5.2, at: [www.decc.gov.uk/en/content/cms/statistics/energy\\_stats/source/electricity/electricity.aspx](http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/source/electricity/electricity.aspx)

**Chart 6.1 Renewables' share of electricity generation**



Total electricity generated from renewables in 2011 was up by 35 per cent on 2010, from 25.7 TWh to a record 34.8 TWh.

*Normalised* renewable generation rose from 28.0 TWh in 2010 to 32.6 TWh in 2011.

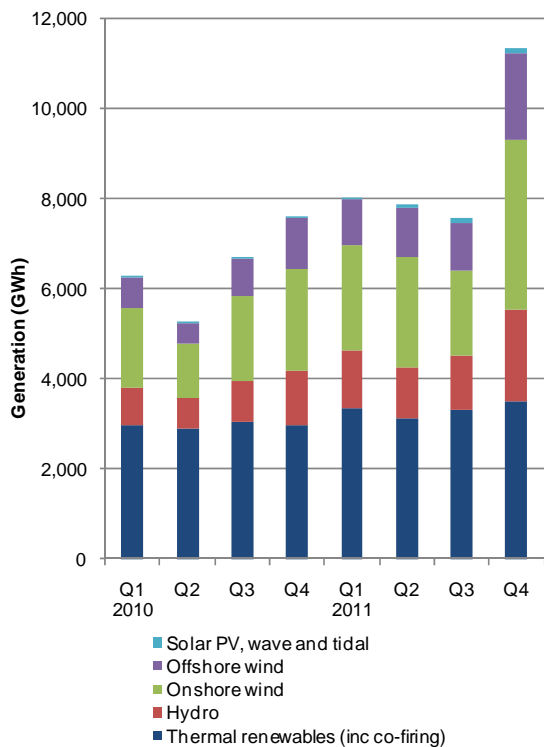
The largest absolute increase in generation was from onshore wind, rising from 7.1 TWh in 2010 to 10.4 TWh in 2011 (i.e. 30 per cent increase). This was partly due to increased capacity, but mainly due to much higher wind speeds (1.4 knots higher than in 2010). Also as a result of increased capacity and high wind speeds, offshore wind generation increased by 68 per cent, from 3.0 TWh in 2010 to 5.1 TWh in 2011.

Hydro generation rose by 58 per cent on a year earlier, from 3.6 TWh to 5.7 TWh, with rainfall levels in 2011 almost double that of 2010, and the highest in at least the last decade.

Generation from thermal renewables<sup>3</sup> increased from 11.9 TWh to 13.3 TWh, mainly due to increased co-firing and generation from landfill gas.

In 2011, 30 per cent of renewables generation was from onshore wind, 16 per cent from hydro, and 15 per cent from each of offshore wind and landfill gas. Despite a large increase in capacity, less than 1 per cent of generation was from solar PV.

**Chart 6.2 Renewable electricity generation**



Total electricity generated from renewables in 2011 Q4 was up by 50 per cent on 2010 Q4, from 7.6 TWh to a record high of 11.3 TWh.

Electricity generated from onshore wind in 2011 Q4 increased by two-thirds on 2010 Q4, from 2.3 TWh to 3.8 TWh. Offshore wind generation, in 2011 Q4, increased by almost three-quarters on a year earlier, from 1.1 TWh to 1.9 TWh. These increases were due to large increases in capacity and high wind speeds. It was the windiest quarter 4 for five years (and the windiest December in at least the last ten years), 3.2 knots higher than a year earlier.<sup>4</sup>

In 2011 Q4, hydro generation rose by 66 per cent on a year earlier, from 1.2 TWh to 2.0 TWh, due to high rainfall. It was the wettest December for five years and the wettest quarter 4 for at least ten years, with average rainfall over double that of a year earlier.

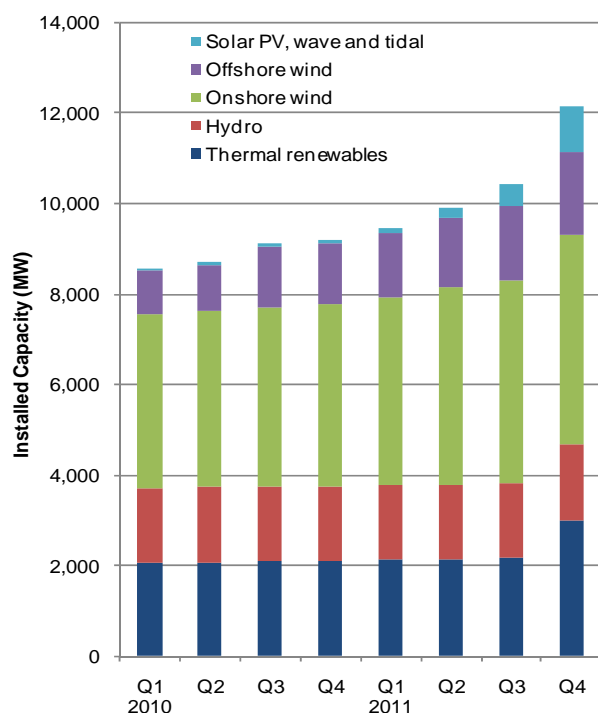
In 2011 Q4, onshore wind had the largest share of generation (33 per cent) with 31 per cent from thermal renewables, 18 per cent from hydro and 17 per cent from offshore wind.

<sup>3</sup> Thermal renewables consists of: landfill gas, sewage gas, municipal solid waste, plant biomass, animal biomass, and co-firing (generation only)

<sup>4</sup> Statistics on weather (temperature, wind speeds, rainfall and sun levels) can be found in tables ET 7.1 – 7.4, at: [www.decc.gov.uk/en/content/cms/statistics/energy\\_stats/source/temperatures/temperatures.aspx](http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/source/temperatures/temperatures.aspx)

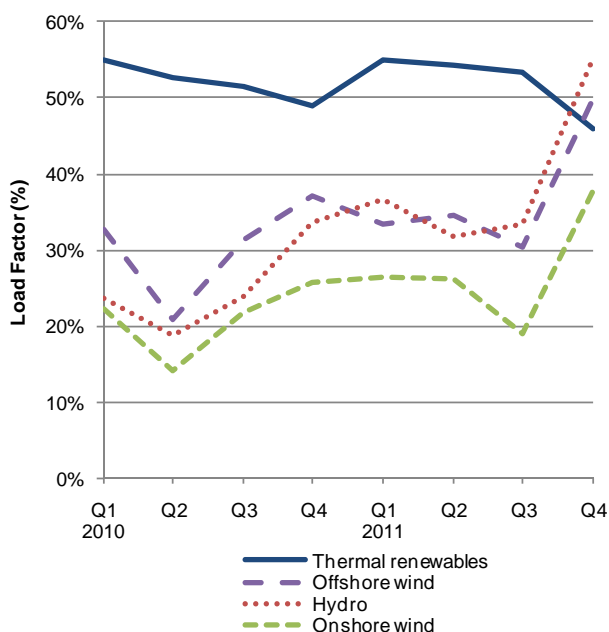


**Chart 6.3 Renewable electricity capacity (as at end of quarter)**



*To note that the solar PV (and onshore wind) figures not only include installations confirmed on the FiTs scheme, but also a large number of sub 50 kW installations commissioned, and registered on the Microgeneration Certification Scheme, that are awaiting confirmation on FiTs (as well as any capacity not supported by FiTs).*

**Chart 6.4 Renewable electricity load factors**



At the end of 2011 Q4, the UK's renewable electricity capacity totalled 12.2 GW, an increase of almost one third (2.9 GW) on that installed at the end of 2010 Q4 and 17 per cent (1.7 GW) on that installed at the end of the previous quarter.

At the end of 2011 Q4, onshore wind had the highest share of capacity (38 per cent), followed by thermal renewables (25 per cent), offshore wind (15 per cent) and hydro (14 per cent).

During 2011, the largest increase in capacity was in solar PV, with 937 MW being added to the 77 MW installed at the end of 2010. Plant biomass capacity increased by 765 MW (see below). Meanwhile, onshore wind capacity increased by 596 MW and offshore wind by 497 MW, with several large on and offshore wind farms opening during the year.

Of the 1.7 GW increase in capacity during 2011 Q4, 750 MW alone was due to the conversion of Tilbury B's, previously coal-fired, power station to dedicated biomass, more than trebling total plant biomass capacity. Meanwhile, solar PV capacity more than doubled during the quarter, from 464 MW to 1,014 MW, as a result of the Great Britain Feed in Tariff scheme. Solar PV is now 8.3 per cent of all renewables capacity in the UK.

In 2011 Q4, onshore wind capacity increased by 167 MW, while offshore wind increased by 188 MW, with the continued expansion of four new offshore wind farms (Ormonde, Greater Gabbard, Walney and Sheringham Shoal).

In 2011, onshore wind's load factor averaged 27.4 per cent, a 5.8 percentage point increase on 2010's 21.7 per cent. Meanwhile, offshore wind's load factor rose by 6.2 percentage points, from 30.4 per cent to 36.7 per cent. This was due to the high wind speeds experienced, particularly in the final quarter.<sup>5</sup>

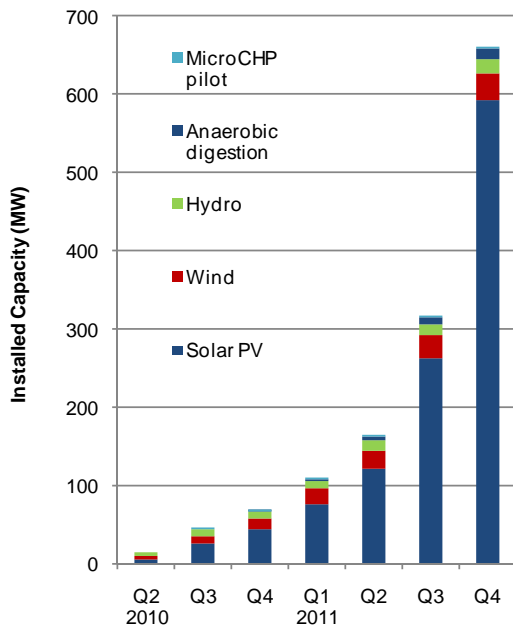
Due to much higher rainfall in 2011, hydro's load factor in 2011 increased by 14.3 percentage points, from 25.0 per cent to 39.3 per cent, the highest seen since at least 1997, and 1.1 percentage points higher than the recent high in 2007.

Hydro's load factor in 2011 Q4 rose to 55.1 per cent, an increase from 33.4 per cent a quarter earlier, and from 33.5 per cent a year earlier due to high rainfall. With high wind speeds in 2011 Q4, onshore wind's load factor of 37.8 per cent almost doubled that of 2011 Q3, and was up 12.1 percentage points on a year earlier. Offshore wind's load factor also rose markedly, to 49.8 per cent, from 2011 Q3's 30.4 per cent and 2010 Q4's 37.1 per cent.

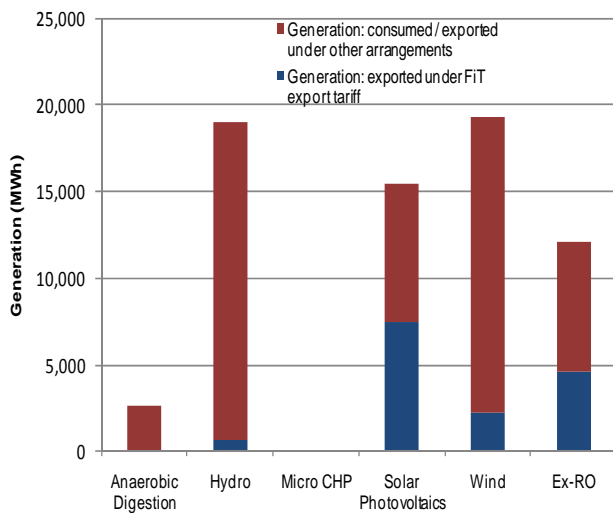
Thermal renewables' load factor was lower in 2011 Q4, but artificially so, due to Tilbury B not yet reaching full levels of operation during the quarter.

<sup>5</sup> Load Factors are calculated using an average of capacity at the start and end of the period. Therefore, they can also be influenced by the time in the year/quarter when any new capacity came online.

**Chart 6.5 Feed in Tariffs: installed capacity (as at end of quarter)**



**Chart 6.6 Feed in Tariffs: 2010/11 generation**



At the end of 2011 Q4, 658 MW of capacity was confirmed on the GB Feed in Tariff (FiT) scheme. This was over double the 316 MW installed at the end of 2011 Q3, and almost ten times the amount installed at the end of 2010 Q4.<sup>6 7</sup>

In terms of number of installations, at the end of 2011 Q4, there were 147,099 confirmed on the FiT scheme, an 82 per cent increase on the 80,734 confirmed at the end of the previous quarter.

Solar photovoltaics (PV) represents the majority of both installations and installed capacity confirmed on FiTs, with, respectively, 98 per cent and 90 per cent of the total. The majority of solar PV installations are sub-4 kW retrofitted schemes, which increased by 63,655 (191 MW) in 2011 Q4.

Whilst the majority of the increase in 2011 Q4 was due to sub-4 kW retrofitted schemes, the number of stand-alone solar PV sites continued to increase, with 247 schemes, totalling 70 MW, being confirmed on FiTs during the quarter.

Renewable installations confirmed on FiTs (all except MicroCHP) represented 5.4 per cent of all renewable installed capacity.

In 2010/11, a total of 68,559 MWh was generated under FiTs. This generation was from a total of 21,705 installations.<sup>8</sup>

Of total generation, hydro and wind installations each contributed 28 per cent, while solar PV contributed 23 per cent. Installations that have transferred from the Renewables Obligation (ex-RO) made up 18 per cent of generation. Anaerobic digestion installations contributed 4 per cent of all FiTs generation.

Of total generation, 22 per cent (14,941 MWh) was exported to the public distribution system under the FiTs export tariff. The remaining 78 per cent was either consumed or exported under other arrangements.

Solar PV contributed 50 per cent of all electricity exported under the FiTs export tariff<sup>9</sup>, with 31 per cent from ex-RO installations, 15 per cent from wind and 4 per cent from hydro.

See also special feature article: "Feed in Tariffs 2010/11 generation data" (page 80)

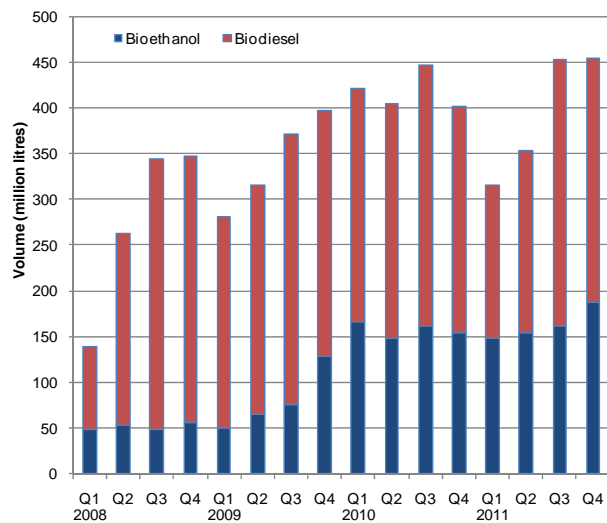
<sup>6</sup> These figures do not include installations installed but awaiting accreditation under FiTs.

<sup>7</sup> Feed in Tariff capacity and generation data can be found in tables ET 5.6 and ET 5.7, at: [www.decc.gov.uk/en/content/cms/statistics/energy\\_stats/source/fits/fits.aspx](http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/source/fits/fits.aspx)

<sup>8</sup> Generation from installations that received FiT generation payments during 2010/11. There were 30,100 installations confirmed on FiTs at the end of March 2011 – the remaining 8,395 had not received generation payments during the year.

<sup>9</sup> The majority of solar PV generation is from retrofitted 0-4 kW schemes. These are typically domestic installations, which are deemed to export 50 per cent of their output.

**Chart 6.7 Liquid biofuels for transport consumption**



In 2011, 1,577 million litres of liquid biofuels were consumed in transport, a fall of 5.9 per cent on 2010's record annual high of 1,676 million litres. Whilst the second half of 2011 saw record high consumption levels, the first half's levels were almost one-fifth lower than a year earlier.

Bioethanol consumption rose by 3.4 per cent, from 631 million litres in 2010 to a new record high of 652 million litres in 2011. Biodiesel consumption fell by 11.5 per cent, from 2010's record 1,045 million litres to 925 million litres in 2011.

Bioethanol represented 41 per cent of biofuels consumption, with biodiesel's share 59 per cent. In 2011, bioethanol accounted for 3.3 per cent of motor spirit, and biodiesel 3.6 per cent of diesel; the combined contribution was 3.5 per cent.

In 2011 Q4, 454 million litres of liquid biofuels were consumed in transport, an increase of 12.9 per cent on the 402 million litres in 2010 Q4, and a new record high, just surpassing 2011 Q3's previous record.

In 2011 Q4, biodiesel accounted for 4.0 per cent of diesel, and bioethanol 3.8 per cent of motor spirit. The combined contribution of the two fuels was 3.9 per cent, slightly lower than the previous quarter's record share.

Biodiesel consumption rose by 7.1 per cent, from 249 million litres in 2010 Q4 to 266 million litres in 2011 Q4. Bioethanol consumption rose by 22 per cent, from 153 million litres to a new record high of 188 million litres.

In 2011 Q4, as has been the case since 2006 Q1, biodiesel had the highest share of total biofuels consumption, with 59 per cent, compared with 41 per cent from bioethanol.

## Relevant tables

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## 6 RENEWABLES

**Table 6.1. Renewable electricity capacity and generation**

	2010	2011 p	per cent change	2010 1st quarter	2010 2nd quarter	2010 3rd quarter	2010 4th quarter	2011 1st quarter	2011 2nd quarter	2011 3rd quarter	2011 4th quarter p	per cent change
<b>Cumulative Installed Capacity<sup>1</sup></b>												<b>MW</b>
Onshore Wind	4,037	4,632	+14.8	3,860	3,877	3,981	4,037	4,137r	4,346r	4,466r	4,632	+14.8
Offshore Wind	1,341	1,838	+37.0	951	1,041	1,341	1,341	1,417r	1,554r	1,650r	1,838	+37.0
Shoreline wave / tidal	3	3	+22.0	2	2	3	3	3	3	3	3	+22.0
Solar photovoltaics	77	1,014	(+)	29	39	55	77	130r	203r	464r	1,014	(+)
Small scale Hydro	195	207	+6.0	187	195	195	195	198r	202r	206r	207	+6.0
Large scale Hydro	1,453	1,453	-	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	-
Landfill gas	1,025	1,062	+3.6	1,016	1,024	1,024	1,025	1,043	1,047	1,062	1,062	+3.6
Sewage sludge digestion	189	203	+7.5	187	189	189	189	201	201	203	203	+7.5
Municipal solid waste combustion	435	504	+15.7	435	435	435	435	438	438	438	504	+15.7
Animal Biomass <sup>2</sup>	139	161	+16.4	129	132	136	139	140r	140r	149r	161	+16.4
Plant Biomass <sup>3</sup>	309	1,074	(+)	306	306	307	309	314r	314r	316r	1,074	(+)
<b>Total</b>	9,202	12,152	+32.1	8,557	8,695	9,120	9,202	9,473r	9,901r	10,410r	12,152	+32.1
Co-firing <sup>4</sup>	390	349	-10.4	390	390	390	390	349r	349r	349r	349	-10.4
<b>Generation<sup>5</sup></b>												<b>GWh</b>
Onshore Wind <sup>6</sup>	7,137	10,416	+45.9	1,774	1,188	1,903	2,272	2,334r	2,427r	1,861r	3,795	+67.0
Offshore Wind <sup>6,7</sup>	3,044	5,109	+67.9	666	456	821	1,100	995	1,122	1,076r	1,917	+74.2
Shoreline wave / tidal <sup>6</sup>	2	1	-61.2	1	1	1	0	0	0r	0r	0	(+)
Solar photovoltaics <sup>6</sup>	33	259	(+)	4	10	11	8	15r	54r	89r	101	(+)
Hydro <sup>6</sup>	3,603	5,694	+58.0	838	674	871	1,221	1,308r	1,145r	1,221r	2,020	+65.5
Landfill gas <sup>6</sup>	5,037	5,345	+6.1	1,296	1,270	1,274	1,197	1,346r	1,328r	1,326r	1,344	+12.3
Sewage sludge digestion <sup>6</sup>	702	755	+7.5	175	186	180	161	187r	191r	186r	192	+19.1
Municipal solid waste combustion <sup>8</sup>	1,594	1,732	+8.6	399	399	399	399	419r	408r	419r	485	+21.8
Co-firing with fossil fuels	2,506	3,061	+22.2	602	514	687	702	822r	586r	767r	886	+26.1
Animal Biomass <sup>6,9</sup>	670	756	+12.9	171	171	161	167	185r	184r	193r	194	+16.3
Plant Biomass <sup>6,10</sup>	1,406	1,626	+15.7	332	366	366	342	380r	420r	419r	408	+19.4
<b>Total</b>	25,734	34,753	+35.1	6,258	5,234	6,674	7,568	7,990r	7,863r	7,557r	11,343	+49.9
Non-biodegradable wastes <sup>11</sup>	922	1,001	+8.6	230	230	230	230	242r	236r	242r	280	+21.7
<b>Load Factors<sup>12</sup></b>												
Onshore Wind	21.7%	27.4%		22.4%	14.1%	21.9%	25.7%	26.4%	26.2%	19.1%	37.8%	
Offshore Wind	30.4%	36.7%		32.6%	21.0%	31.2%	37.1%	33.4%	34.6%	30.4%	49.8%	
Hydro	25.0%	39.3%		23.6%	18.8%	23.9%	33.5%	36.7%	31.7%	33.4%	55.1%	
Landfill gas	57.2%	58.5%		60.0%	57.0%	56.3%	52.9%	60.3%	58.2%	57.0%	57.4%	
Sewage sludge digestion	46.3%	43.9%		47.2%	45.2%	43.1%	38.6%	44.3%	43.4%	41.6%	42.7%	
Municipal solid waste combustion	44.0%	42.1%		44.6%	41.9%	41.5%	41.5%	44.4%	42.7%	43.4%	46.7%	
Animal Biomass	59.3%	57.6%		63.8%	59.9%	54.3%	54.9%	61.7%	60.2%	60.7%	56.6%	
Plant Biomass	54.6%	26.8%		52.5%	54.7%	54.1%	50.3%	56.5%	61.2%	60.1%	26.6%	
<b>Total (excluding co-firing and non-biodegradable wastes)</b>	30.8%	33.9%		31.6%	25.1%	30.4%	33.9%	35.5%	34.4%	30.3%	42.0%	

1. Cumulative capacity at the end of the quarter/year

2. Includes the use of farm waste digestion, poultry litter and meat and bone.

3. Includes the use of waste tyres, straw combustion, short rotation coppice and hospital waste

4. This is the amount of fossil fuelled capacity used for co-firing of renewables based on the proportion of generation accounted for by the renewable source over the course of the year

5. Generation figures for the latest quarter are highly provisional, particularly for the thermal renewable technologies (such as landfill gas) in the lower half of the year

6. Actual generation figures are given where available, but otherwise are estimated using a typical load factor or the design load factor, where known.

7. For 2009, shoreline wave and tidal are included in offshore wind.

8. Biodegradable part only.

9. Includes the use of farm waste digestion, poultry litter combustion and meat and bone combustion

10. Includes the use of straw and energy crops.

11. Non-biodegradable part of municipal solid waste plus waste tyres, hospital waste and general industrial waste.

12. Load factors are calculated based on installed capacity at the beginning and the end of the quarter/year

## 6 RENEWABLES

Table 6.2. Liquid biofuels for transport consumption

	2010	2011 p	per cent change	2010 1st quarter	2010 2nd quarter	2010 3rd quarter	2010 4th quarter	2011 1st quarter	2011 2nd quarter	2011 3rd quarter	2011 4th quarter p	per cent change
<b>Volume</b>												
<b>Million litres</b>												
Bioethanol	631	652	+3.4	+167.0	149	161	153	148	154	162	188	+22.2
Biodiesel	1,045	925	-11.5	254	256	286	249	168	200	291	266	+7.1
<b>Total biofuels for transport</b>	<b>1,676</b>	<b>1,577</b>	<b>-5.9</b>	<b>421</b>	<b>405</b>	<b>447</b>	<b>402</b>	<b>316</b>	<b>354</b>	<b>453</b>	<b>454</b>	<b>+12.9</b>
<b>Energy</b>												
<b>Thousand tonnes of oil equivalent</b>												
Bioethanol	355	367	+3.4	94	84	91	87	83	87	91	106	+22.2
Biodiesel	859	760	-11.5	209	211	235	204	138	164	239	219	+7.1
<b>Total biofuels for transport</b>	<b>1,214</b>	<b>1,128</b>	<b>-7.2</b>	<b>303</b>	<b>294</b>	<b>326</b>	<b>291</b>	<b>221</b>	<b>251</b>	<b>331</b>	<b>325</b>	<b>+11.6</b>
<b>Shares of road fuels</b>												
Bioethanol as per cent of Motor Spirit	3.1%	3.3%		3.4%	2.8%	3.1%	3.0%	3.1%	3.1%	3.3%	3.8%	
Biodiesel as per cent of DERV	4.1%	3.6%		4.2%	4.0%	4.3%	3.7%	2.7%	3.1%	4.4%	4.0%	
<b>Total biofuels as per cent of road fuels</b>	<b>3.6%</b>	<b>3.5%</b>		<b>3.9%</b>	<b>3.4%</b>	<b>3.8%</b>	<b>3.4%</b>	<b>2.9%</b>	<b>3.1%</b>	<b>3.9%</b>	<b>3.9%</b>	

Source: HM Revenue and Customs Hydrocarbon Oils Bulletin, available at [www.uktradeinfo.co.uk/index.cfm?task=bulloil&hasFlashPlayer=true](http://www.uktradeinfo.co.uk/index.cfm?task=bulloil&hasFlashPlayer=true)

## **Sub-national electricity consumption statistics and household energy distribution analysis for 2010**

### **Introduction**

This article presents the findings of the latest analysis of electricity consumption data at English Region / Devolved Administration (NUTS1) and Local Authority (LAU1, formally NUTS4) level. This dataset was scheduled to be released in December 2011 but due to data issues arising during the final compilation process the publication was delayed until March 2012. These issues have now been resolved.

These data relate to 2010 and follow on from the results produced from similar exercises carried out for 2003 to 2009 data. To produce this analysis we are dependent on the excellent co-operation of the electricity industry, who we would like to thank once again for their continuous help and assistance.

To help further understand domestic energy consumption this article also includes analysis on the distribution of electricity and gas consumption in households.

Electricity data for 2003 to 2010 can be found on the sub-national energy consumption statistics webpage: [www.decc.gov.uk/en/content/cms/statistics/regional/electricity/electricity.aspx](http://www.decc.gov.uk/en/content/cms/statistics/regional/electricity/electricity.aspx)

### **Summary results**

In Great Britain in 2010:

- Average (mean) annual domestic electricity consumption per meter was 4,148 kWh, with total domestic electricity consumption of 112,856 GWh. Average consumption per ordinary domestic meter was 3,790 kWh, compared to 5,703 kWh for a household with an Economy 7 meter. In 2009 average consumption per domestic meter point was 4,152 kWh.
- Some households use electricity supplied by more than one meter, for instance a block of flats can have a separate meter for shared lighting. To allow for this, an alternative measure of average domestic consumption relating to average (mean) annual domestic electricity consumption per household has been produced; this measure showed an average Great Britain consumption per household of 4,370 kWh.
- Average (mean) annual non-domestic electricity consumption per meter was 77,705 kWh, with total non-domestic electricity consumption of 185,106 GWh. Average consumption was 2 per cent higher than in 2009 (76,262 kWh), with total consumption 1 per cent higher than in 2009 (182,986 GWh).

### **Methodology**

To produce these 2010 estimates, annualised consumption data were provided to DECC at Meter Point Administration Number (MPAN) level by the data aggregators (DA's). DA's are agents of the electricity suppliers, who collate/aggregate electricity consumption levels for each electricity meter in Great Britain.

In addition to this, information was obtained from the Gemserv ECOES database, which provides the geographical location of each MPAN, including the full address and postcode. Where the address information within the Gemserv database is incomplete, invalid or missing, the Royal Mail Postcode Address File (PAF) is used, where possible, to obtain a full address and postcode, and thus reduce the level of unallocated consumption. To complete the data allocation process, the National Statistics Postcode Directory (NSPD) was used to allocate MPAN postcodes and the associated consumption to statistical geographies at English Region/Devolved Administration (NUTS1) and Local Authority level (LAU1, formally NUTS4). Despite the efforts to obtain complete geographical information, there are still some addresses that do not contain sufficient information

## *Special feature – Sub-national electricity consumption and household analysis*

to be able to allocate them to a Local Authority with any degree of accuracy. These meters, and the associated consumption, are aggregated into an ‘unallocated’ row at the end of the published sheets. However, the above approach enabled 98.5 per cent of total consumption and 99.7 per cent of meters within Great Britain during 2010 to be accurately allocated to a Local Authority area.

As part of the data validation process all nominally allocated domestic customers with a recorded consumption greater than 100,000 kWh, and those with consumption greater than 50,000 kWh with address information indicating non-domestic use were re-classified as industrial and commercial customers.

Further background on the methodology can be found in the guidance note available on the DECC website at: [www.decc.gov.uk/en/content/cms/statistics/regional/regional.aspx](http://www.decc.gov.uk/en/content/cms/statistics/regional/regional.aspx).

### **Data limitations**

The use of administrative data from the electricity industry brings considerable benefits in enabling this level of disaggregation of electricity use to be produced. However, there are some limitations. The MPAN data used in this analysis consists of approximately 80 per cent actual (“Annual Advance”) readings and 20 per cent estimated readings (“Estimated Annual Consumption”) - further information can be found in the guidance notes. From year-to-year some meter readings supplied by data aggregators change from actual to estimated and vice-versa, which can cause extreme values to be created when an estimate is corrected.

With the exception of Half Hourly (HH) data (large consumers), it should also be noted that these data are not directly aligned with the calendar year and cover the year 31 January 2010 to 30 January 2011. The accuracy of total consumption is reliant on receiving data for all meter points from the energy industry.

It is important to note that making comparisons between years at a Local Authority level is not always meaningful as there are several factors that may affect consumption from year to year, for instance the building of major new housing developments.

### **Coverage**

The sub-national electricity consumption statistics illustrated in this article cover Great Britain only. Estimates of non-domestic (2010) and domestic (2009) electricity consumption data for Northern Ireland can be found in the December 2011 edition of Energy Trends, with articles containing the data starting on pages 96 and 104 respectively. Due to the differing methodology behind the data collection methods, comparisons between Great Britain and Northern Ireland consumptions should be treated with caution.

Electricity consumption relating to very large industrial consumers who receive their electricity via high voltage lines of the transmission system are not covered in this sub-national dataset. These consumers are classified as Central Volume Allocation (CVA) users and have different arrangements with their electricity suppliers, compared to HH and non-half hourly (NHH) metered customers. Electricity consumption by CVA users generally accounts for around 1.4 per cent of electricity sales.

The data in this article all relate to final consumption, which excludes electricity used by companies that generate their own electricity and consume it without it passing over the public distribution network. In 2010, this amounted to 18,518 GWh in the UK – 5 per cent of total UK demand. Much of this “autogeneration” is from Combined Heat and Power (CHP) schemes and an indication of the regional importance of such schemes can be obtained from an article beginning on page 27 of the September 2011 edition of Energy Trends (“Combined Heat and Power in Scotland, Wales, Northern Ireland and the regions of England in 2010”).

### Comparison with published UK statistics for 2010

In July 2011, DECC published final electricity consumption data in Chapter 5 of the Digest of United Kingdom Energy Statistics. This data, based on sales information, is collected from two separate annual surveys, one of major power producers and one of electricity suppliers<sup>1</sup>.

Table 1 below compares the total consumption based on meter points to the corresponding DUKES total.

**Table 1: Comparison with published UK statistics for 2010**

	GWh	
<b>Total final consumption (UK)</b>		
<b>Great Britain total consumption</b>		
Domestic	112,856	
Industrial and commercial	185,106	
	297,961	
<b>Implied UK total consumption</b>		
Great Britain total consumption (above)	297,961	
<b>Plus</b> Northern Ireland	8,059	
<b>Plus</b> Sales direct form high voltage lines (based on Ofgem data)	4,500	
Implied UK sales of electricity	310,520	
<b>DUKES total UK sales (DUKES 2011 Table 5.5)</b>	324,418	
<b>Statistical difference</b>	- 13,898	-4% of UK Sales

After taking into account consumption not included in the sub-national estimates (total consumption for Northern Ireland and sales from high voltage lines) there was a statistical difference of 13,898 GWh, -4 per cent of total UK sales.

One of the main factors behind this difference is that the NHH data covers the period from the end of January 2010 to the end of January 2011 and not the calendar year 2010 which DUKES covers. Some of this difference can also be attributed to the fact that around 20 per cent of the data in the sub-national exercise are based on estimated rather than actual meter readings.

### Domestic electricity consumption analyses

In Great Britain the average (mean) domestic consumption per MPAN during 2010 was 4,148 kWh, broadly unchanged (-4 kWh per meter) from the 2009 average. Table 2 shows the average (mean) domestic consumption per MPAN in English Region and Devolved Administration level.

The North East had the lowest average domestic consumption with 3,563 kWh per meter, whilst the East of England had the highest average domestic consumption at 4,482 kWh per meter.

The 2010 Great Britain average (mean) *ordinary* domestic consumption was 3,790 kWh per meter, compared to 5,703 kWh for the average *Economy 7* meter. Due to a smaller proportion of homes being connected to gas, Wales had the highest average Economy 7 consumption per meter in 2010 (7,249 kWh), conversely the East Midlands had the lowest average Economy 7 per meter at 4,791 kWh per meter. This indicates that Economy 7 meters are not only used for heating in households but also for other purposes.

<sup>1</sup> [www.decc.gov.uk/en/content/cms/statistics/source/electricity/electricity.aspx](http://www.decc.gov.uk/en/content/cms/statistics/source/electricity/electricity.aspx)



**Table 2: Average domestic electricity consumption per meter in 2010 by English Region / Devolved Administration**

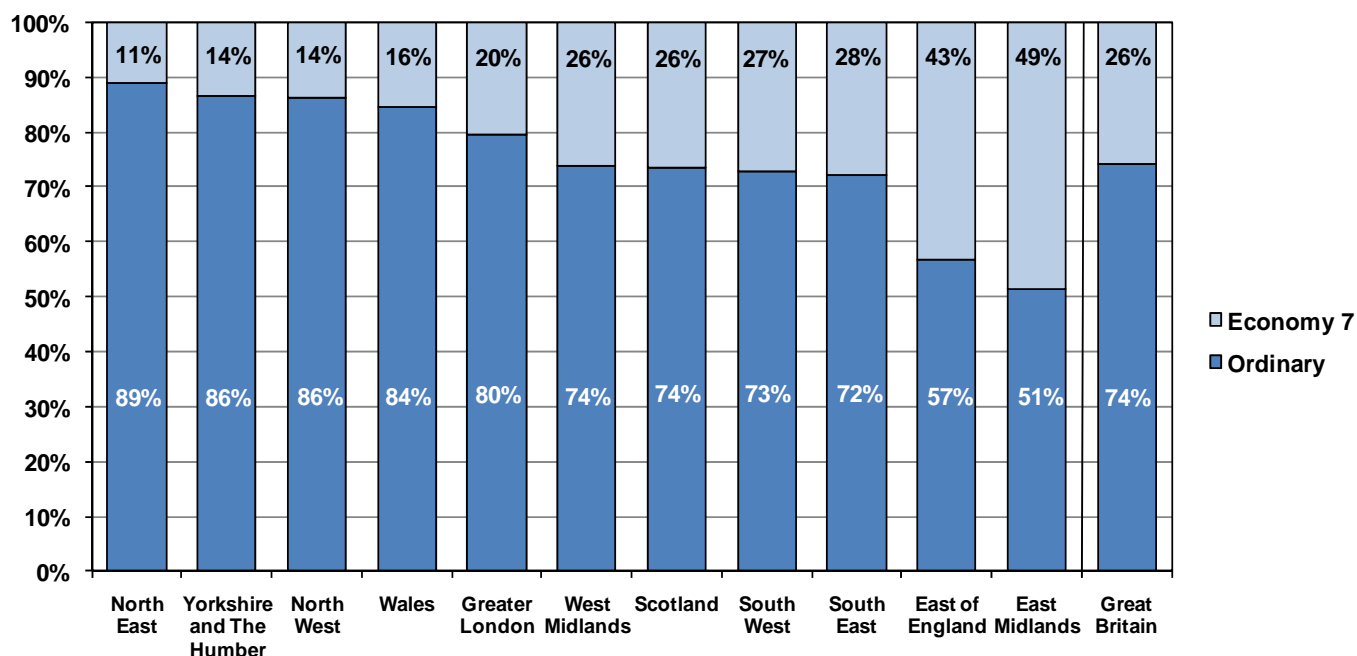
	kWh					
	All domestic meters		Ordinary domestic meters		Economy 7 meters	
	Average consumption (kWh)	Number of domestic meters (thousands)	Average consumption (kWh)	Percentage of total domestic meters	Average consumption (kWh)	Percentage of total domestic meters
North East	3,563	1,193	3,412	93%	5,542	7%
Yorkshire and The Humber	3,859	2,332	3,652	91%	6,024	9%
North West	4,006	3,134	3,770	91%	6,526	9%
Wales	3,916	1,369	3,610	92%	7,249	8%
London	3,988	3,378	3,739	85%	5,384	15%
West Midlands	4,194	2,364	3,846	80%	5,626	20%
Scotland	4,148	2,742	3,736	82%	5,989	18%
South West	4,419	2,415	3,885	83%	6,981	17%
South East	4,471	3,699	4,116	79%	5,771	21%
East of England	4,482	2,535	3,946	64%	5,446	36%
East Midlands	4,103	1,976	3,614	58%	4,791	42%
England	4,163	23,025	3,810	81%	5,631	19%
Great Britain <sup>1</sup>	4,148	27,209	3,790	81%	5,703	19%

1. Includes meters that could not be allocated at Local Authority level.

The distribution between households with ordinary standard domestic meters and economy 7 meters at English Region/Devolved Administration level in Great Britain is shown in Chart 1. Regions are ordered in decreasing order of the proportion of ordinary domestic meters.

For Great Britain 74 per cent of total domestic consumption was attributed to ordinary domestic meters and 26 per cent to Economy 7 meters, but across Great Britain the ratio between ordinary domestic and Economy 7 varied from 89 per cent ordinary domestic, 11 per cent Economy 7 in the North East to a 51 : 49 per cent split in the East Midlands.

**Chart 1: Distribution of total domestic electricity consumption by profile**



*Special feature – Sub-national electricity consumption and household analysis*

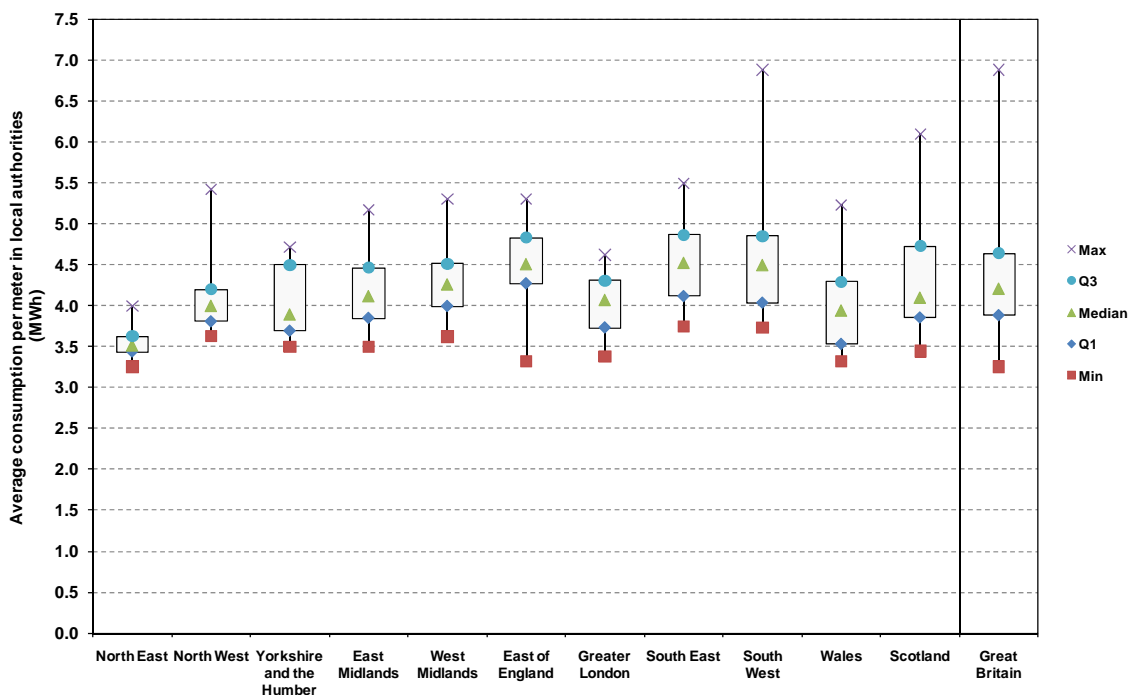
Total domestic consumption in Great Britain was estimated to be 112,856 GWh in 2010, 0.5 per cent higher than in 2009. The South East consumed 15 per cent of this total, whilst the North East was responsible for 4 per cent. Factors influencing total domestic electricity consumption include the population/household density of a region and the fuel mix used to meet domestic energy demands.

The map on page 58 gives further details about geographical location and electricity consumption, displaying the average (mean) domestic electricity consumption in each Local Authority in 2010. In general, high electricity consumption is dominated by local authorities where properties use electricity as their main source of heating as a result of limited connection to the gas network.

Chart 2 shows a series of box plots illustrating aspects of the distribution of average domestic electricity consumption for each English Region/Devolved Administration as well as a box plot for Great Britain. These have been calculated based on average (mean) consumption at Local Authority level within each region. The spread between the upper and lower quartile, the middle 50 per cent of the data (inter-quartile range), of average domestic electricity consumption in local authorities is greatest in Scotland (a difference of 872 kWh per meter), whereas the inter-quartile range for the North East was 194 kWh as indicated by the shorter box.

The Local Authority with the lowest average domestic consumption varies within each region from 3,253 kWh (South Tyneside) in the North East to 3,744 kWh (Portsmouth) in the South East. Whilst the largest average domestic consumption per meter varies from 3,992 kWh in the North East to 6,879 kWh in the South West. For the North East, North West, East Midlands, Yorkshire and the Humber, East of England and Scotland the median is located nearer to the lower quartile (the value such that 25 per cent of all data is lower) which indicates a positive or a right skewed distribution. It is also worth noting that the gap between the upper quartile and maximum value is largest for Scotland and the South West, this may be a result of electricity use for heating purposes.

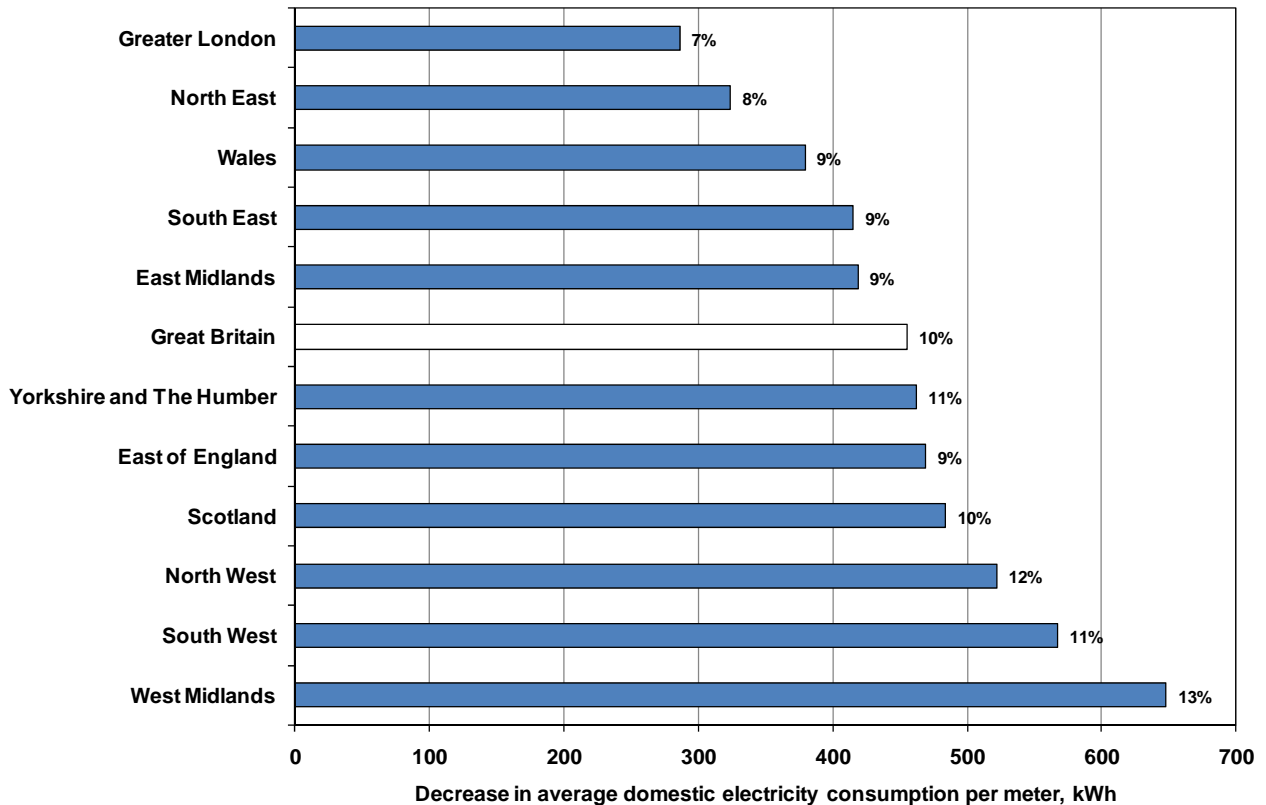
**Chart 2: Box plot of average domestic electricity consumption for local authorities within each English Region / Devolved Administration**



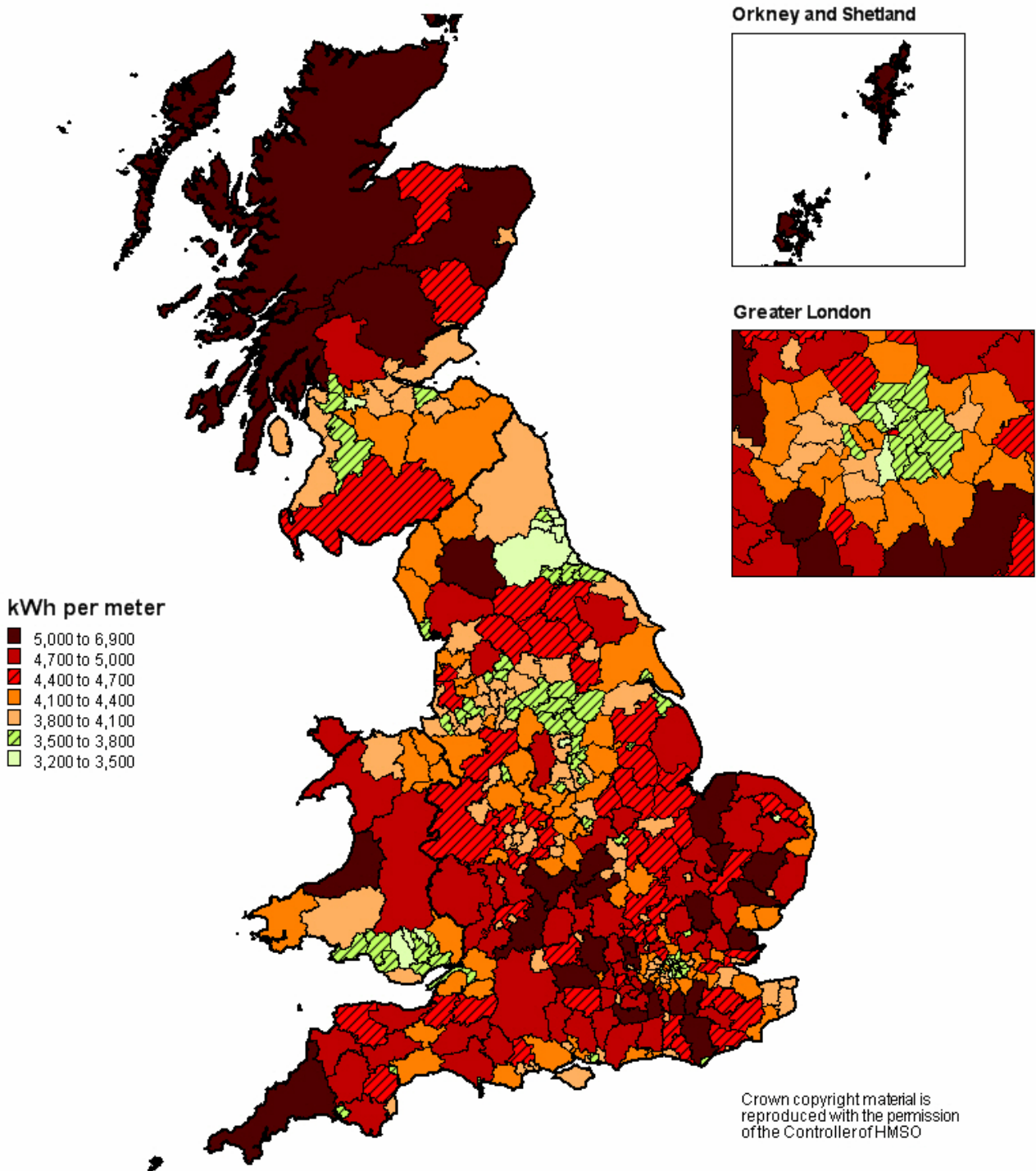
Energy efficiency improvements, such as increased levels of insulation, greater use of low energy light bulbs and more energy efficient appliances have helped to deliver domestic energy savings over the past few years. Average domestic electricity consumption per meter in Great Britain has decreased by 10 per cent between 2005 and 2010.

Chart 3 shows the decrease in average domestic consumption per meter point between 2005 and 2010 at English Region/Devolved Administration level. The chart is ranked by actual change in the level of consumption per meter point between the two years and the percentage changes are shown.

**Chart 3: Decrease in average domestic electricity consumption per meter point between 2005 and 2010**



Map 1: Average domestic electricity consumption per meter, 2010



## Non-domestic electricity consumption analyses

Table 3 shows the average (mean) non-domestic electricity consumption per meter in each English Region / Devolved Administration in decreasing order of consumption.

Average non-domestic consumption is a function of both the number of non-domestic sites in an area, the type of business and the volume of electricity they use.

**Table 3: Average non-domestic electricity consumption per meter in 2010 by English Region / Devolved Administration**

	Average NHH non-domestic consumption	Average HH non-domestic consumption	Average non-domestic consumption
North East	25,860	1,366,780	98,849
Yorkshire and The Humber	24,786	1,144,011	89,192
North West	25,556	1,240,356	88,565
East Midlands	24,335	1,069,014	85,177
Wales	21,249	1,516,937	84,541
West Midlands	23,629	999,371	78,245
East of England	26,718	1,089,785	75,499
Scotland	24,377	1,055,400	75,206
South East	23,177	1,093,552	71,429
London	20,096	1,106,137	70,631
South West	20,454	1,055,222	58,401
England	23,006	1,111,136	76,393
Great Britain	23,451	1,124,278	77,705

Table 3 also shows average consumption for two different meter types: non-half hourly meters and half hourly meters. The difference in average consumption between the two type of meters reflects that the half hourly meters tend to be installed in larger industrial/commercial customers.

At a Local Authority level, high average non-domestic consumption can occur where there are a small number of relatively high consumers which dominate the area. As a result, City of London (Greater London) and Neath Port Talbot (Wales) had the highest average non-domestic consumption of 359 MWh and 306 MWh respectively.

The Isles of Scilly (18 MWh) had the lowest average non-domestic consumption per meter in 2010. This low level of non-domestic consumption reflects the rural characteristic of the area.

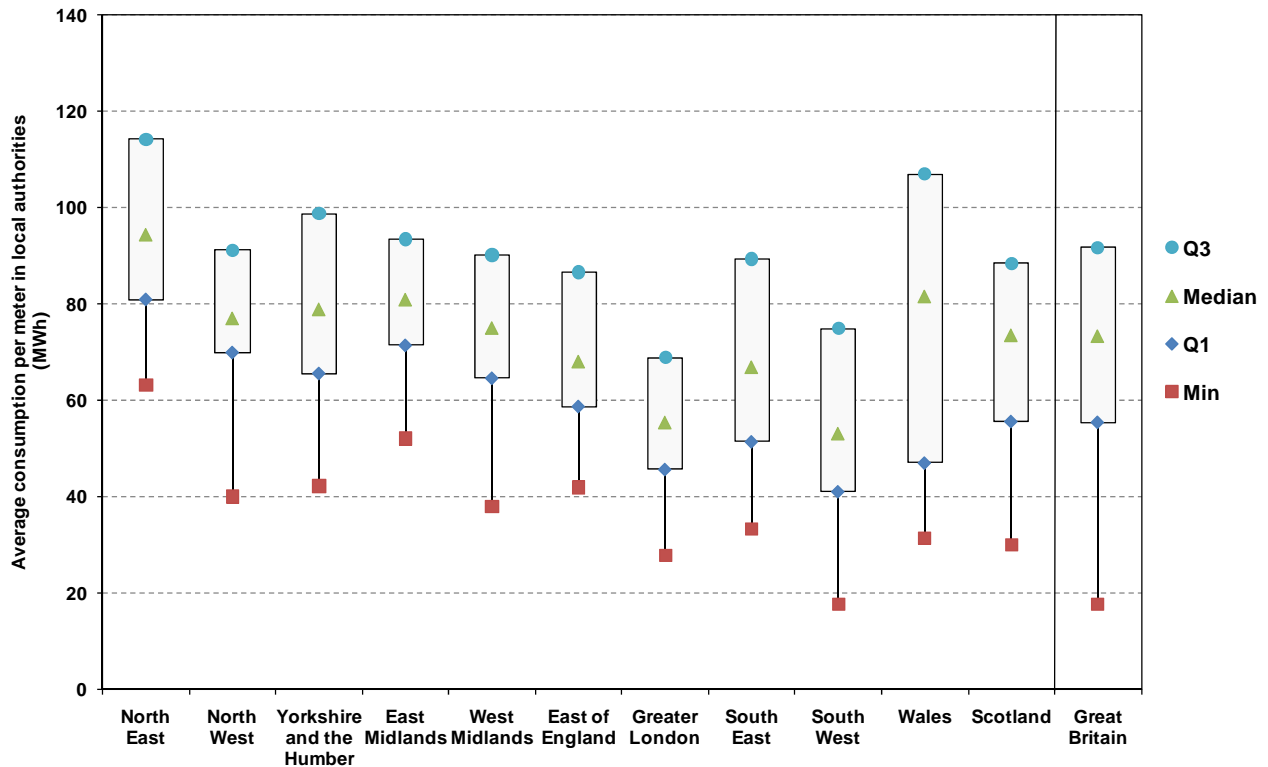
Chart 4 shows a box plot displaying aspects of the distribution of average non-domestic electricity consumption in local authorities for each of the English Regions/Devolved Administrations, as well as one for local authorities in Great Britain as a whole.

For each region, the box plot shows the minimum average (mean) non-domestic electricity consumption, the upper and lower quartile and the median average electricity consumption. The maximum average non-domestic electricity consumption values have been excluded due to the magnitude which distorted the scales – the maximum values ranged from 359 MWh in Greater London to 134 MWh in the South West.

From the chart it can be seen that the inter-quartile range of average electricity consumption in local authorities was greatest in Wales, whilst the North West had the smallest spread of average

non-domestic electricity consumption per Local Authority, reflecting the more uniform nature of business across this region.

**Chart 4: Box plot of average non-domestic electricity consumption for local authorities within each English Region / Devolved Administration, 2010**

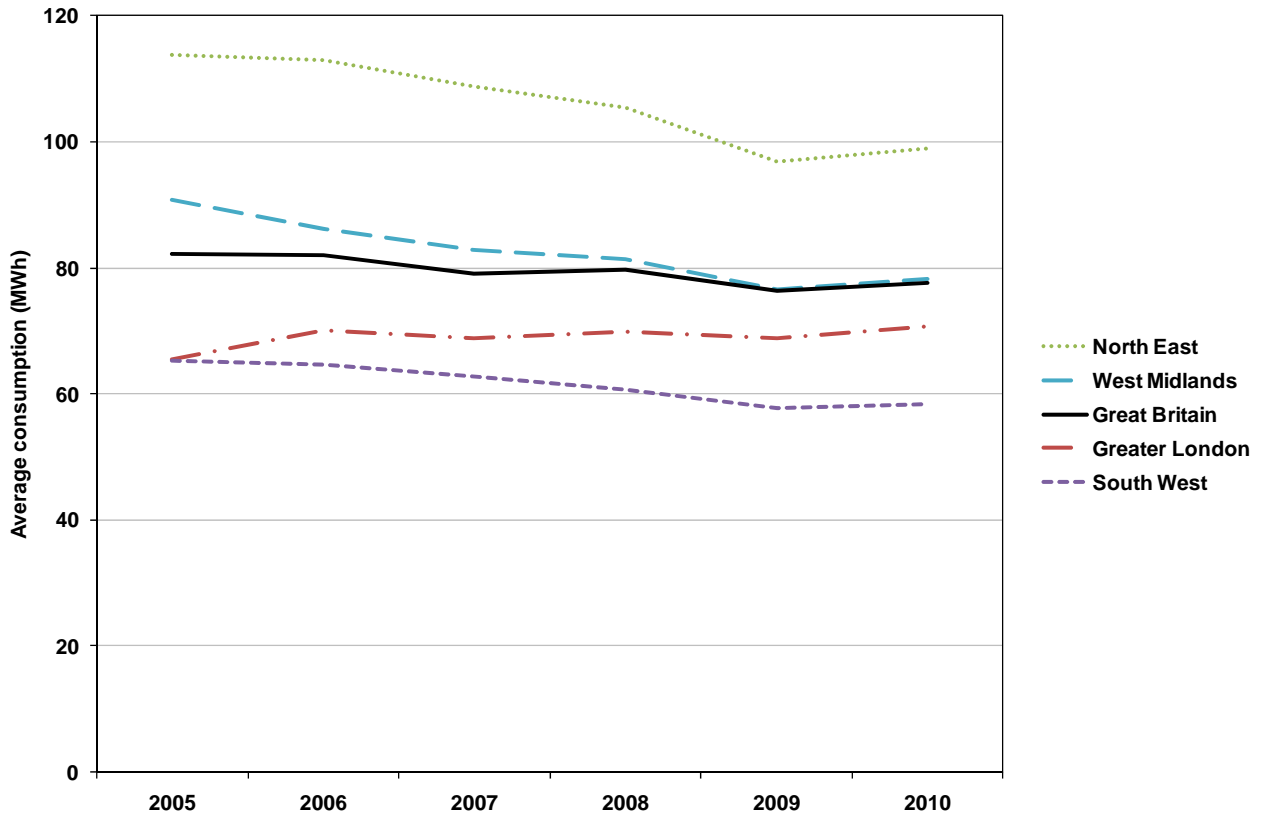


In comparison to domestic electricity consumption, there was a high variation in the trends for average annual non-domestic electricity consumption between 2005 and 2010. Alongside the Great Britain average, Chart 5 shows the trends in average non-domestic electricity consumption for selected English Regions – North East, West Midlands, Greater London, and the South West. The average consumption for all other English Regions/Devolved Administrations were between the North East (maximum) and South West (minimum).

The West Midlands saw the largest percentage decrease (14 per cent) in average non-domestic consumption between 2005 and 2010, whilst Greater London saw the largest increase (8 per cent). Over this time the average non-domestic consumption per MPAN for Great Britain decreased 5 per cent.

Between 2009 and 2010, ten of the eleven English Regions / Devolved Administration saw an increase in average non-domestic consumption per MPAN of between 1.1 and 3.6 per cent. The only exception was the East Midlands which saw a marginal decrease of 0.1 per cent. On average non-domestic consumption per MPAN in Great Britain increased by 1.9 per cent to 77,705 kWh. This was largely driven by demand from an increased number of half-hourly meters.

**Chart 5: Average non-domestic electricity consumption for selected English Regions, 2005 to 2010**



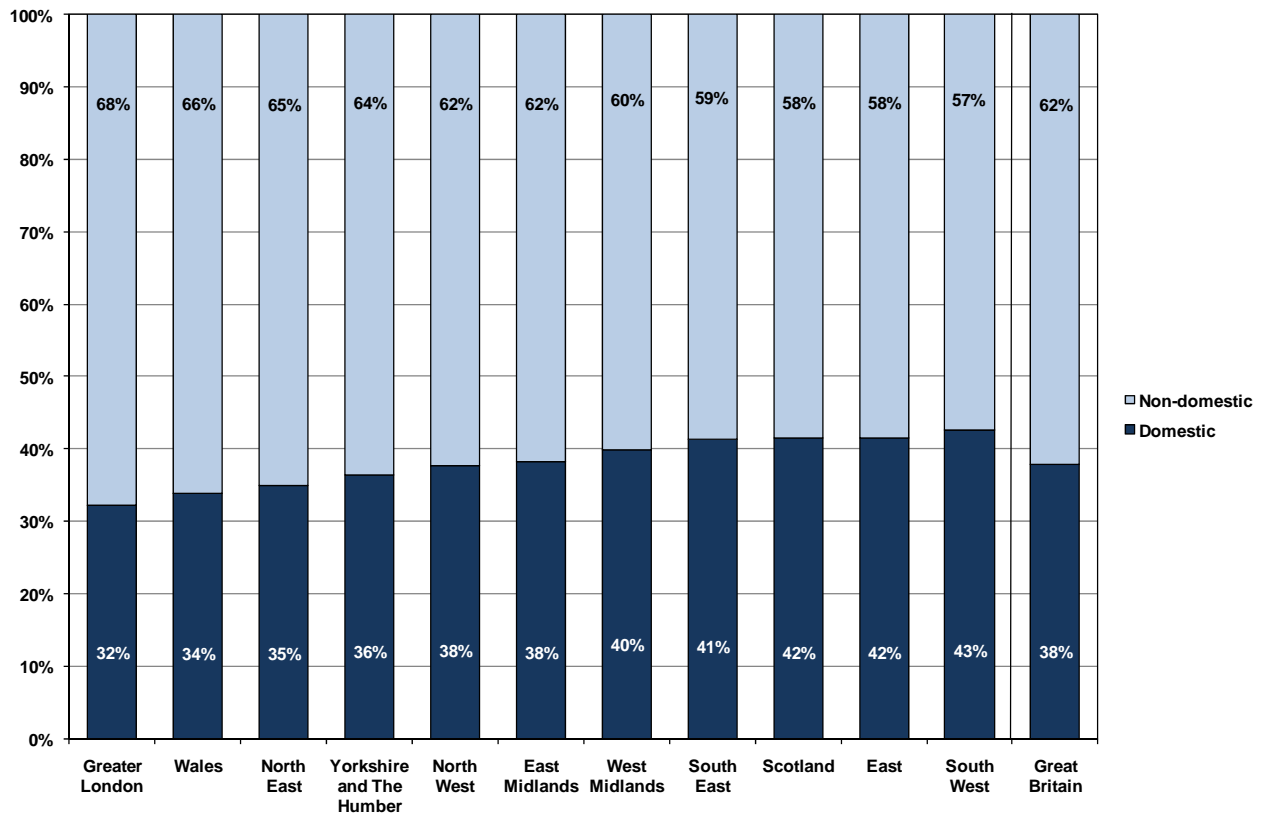
It is important to recognise that when making comparison at Local Authority level from year to year, total and average consumption levels are influenced by new industrial or commercial establishments or the closure or downsizing of existing business for economic reasons. The impact of these changes on totals and averages is highly dependent on the size of the business. Given the recession that occurred in 2009, the degree to which this impacted specific areas more or less than others will also be a driver of different rates of change seen between 2009 and 2010.

### Total electricity consumption analyses

The distribution of total electricity consumption between domestic and non-domestic varies from region to region as shown in Chart 6.

Thirty two per cent of total electricity consumption in Greater London was for domestic purposes, whereas it was 11 percentage points higher in the South West. Greater London, in particular, is subject to commuting patterns which result in employees commuting into Greater London from a different region. The distribution is also dependant on the type of industry/service in a respective region.

**Chart 6: Distribution of domestic and non-domestic electricity consumption by English Region/Devolved Administration, 2010**



**Consumption information below Local Authority area level**

Gas and electricity consumption data are also available for the years 2005 to 2010 at Middle Layer Super Output Area (MSOA) level (a census geography, each of which typically covers around 2,000 households) in England and Wales and at Intermediate Geography Zone (IGZ) in Scotland. The 2010 data were published alongside this edition of Energy Trends and can be accessed from the DECC website at:

[www.decc.gov.uk/en/content/cms/statistics/energy\\_stats/regional/electricity/mlsoa\\_llsoa/mlsoa\\_llsoa.aspx](http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/regional/electricity/mlsoa_llsoa/mlsoa_llsoa.aspx)

DECC also published domestic gas and electricity consumption data at a Lower Layer Super Output Area (LSOA) level (around 500 households) alongside this edition of Energy Trends. The data are available from the DECC website using the above link.



## Distribution analysis of domestic electricity and gas consumption in Great Britain, 2010

The following analysis looks at the distribution of both domestic electricity and gas consumption in Great Britain. The aim of this additional analysis is to further understand how domestic consumption varies between regions and also by fuel type. Table 4 shows the mean and median values for gas and electricity consumption for each English Region / Devolved Administration in Great Britain.

**Table 4: Mean and median of gas and electricity consumption for meters classified as domestic consumers in English Region/Devolved Administrations for 2010**

	kWh							
	Total domestic electricity		Ordinary domestic electricity		Economy 7 electricity		Gas	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
North East	3,563	2,977	3,412	2,933	5,542	4,140	15,378	14,177
North West	4,006	3,303	3,770	3,206	6,526	5,355	15,232	13,812
Yorkshire and the Humber	3,859	3,165	3,652	3,090	6,024	4,787	15,595	14,298
East Midlands	4,103	3,316	3,614	3,055	4,791	3,761	15,423	14,238
West Midlands	4,194	3,422	3,846	3,263	5,626	4,367	15,067	13,891
East of England	4,482	3,544	3,946	3,271	5,446	4,199	15,341	13,873
Greater London	3,988	3,098	3,739	2,960	5,384	4,301	14,962	13,078
South East	4,471	3,561	4,116	3,373	5,771	4,559	15,382	13,692
South West	4,419	3,416	3,885	3,209	6,981	5,689	13,439	12,067
Wales	3,916	3,202	3,610	3,097	7,249	5,937	14,674	13,605
Scotland	4,148	3,226	3,736	3,113	5,989	4,323	15,919	14,256
Great Britain	4,148	3,316	3,790	3,156	5,703	4,372	15,156	13,705

One measure which signifies that a distribution is symmetrical is if the mean is equal to the median. In the table above the mean is greater than the median throughout, implying that the distribution of domestic energy uses in each region, and in general, is positively skewed. Relating this to energy consumption, the mean being greater than median infers there are considerably more meter points with a low annual consumption compared to those with a higher consumption and the higher the consumption the lower the frequency of occurrences.

Also comparing the regional median and mean values to Great Britain gives an indication on the varying average consumptions which partly reflects the fuel mix for a specific region and the purposes (space heating, water heating, cooking, lighting, appliance use), gas and electricity consumption is being used for.

The mean average gas consumption for Great Britain was 3.65 times higher than the electricity equivalent, while the median average gas consumption was 4.1 times larger than the electricity median consumption. Chart 7 shows the number of gas and electricity meters per region.

To further understand the distribution of domestic energy consumption, in Chart 8 consumption for each meter point has been rounded to the nearest 10kWh, and then the number of meters in each 10kWh band have been plotted.

Data has been plotted for ordinary domestic electricity consumption (blue), Economy 7 domestic electricity consumption (red) and domestic gas consumption (green)

There are spikes for certain consumption values, for example at 3,100 kWh for ordinary domestic electricity, 3,000 kWh for economy 7 electricity and 20,600 kWh for domestic gas. These are all default estimated values of consumption in the datasets. These would have an impact on the mean and median values.

Chart 7: Gas and electricity meters per region, 2010

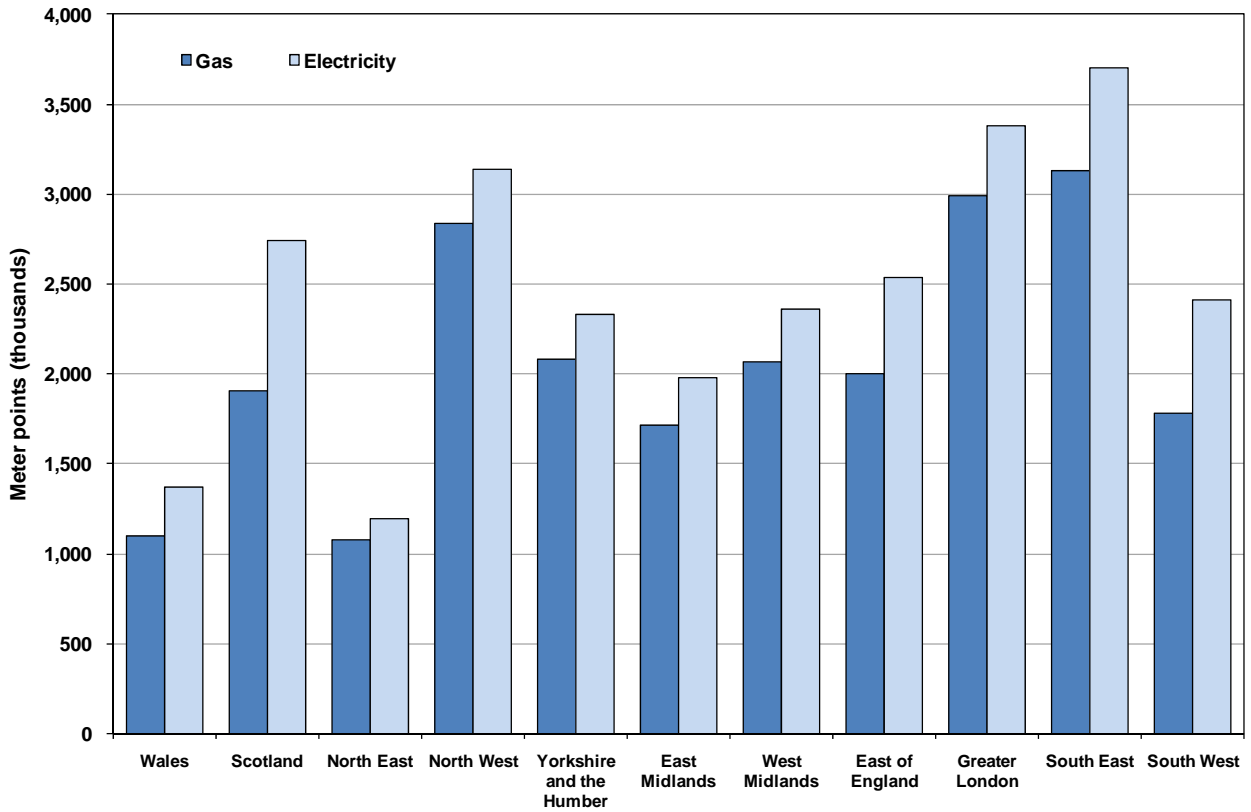
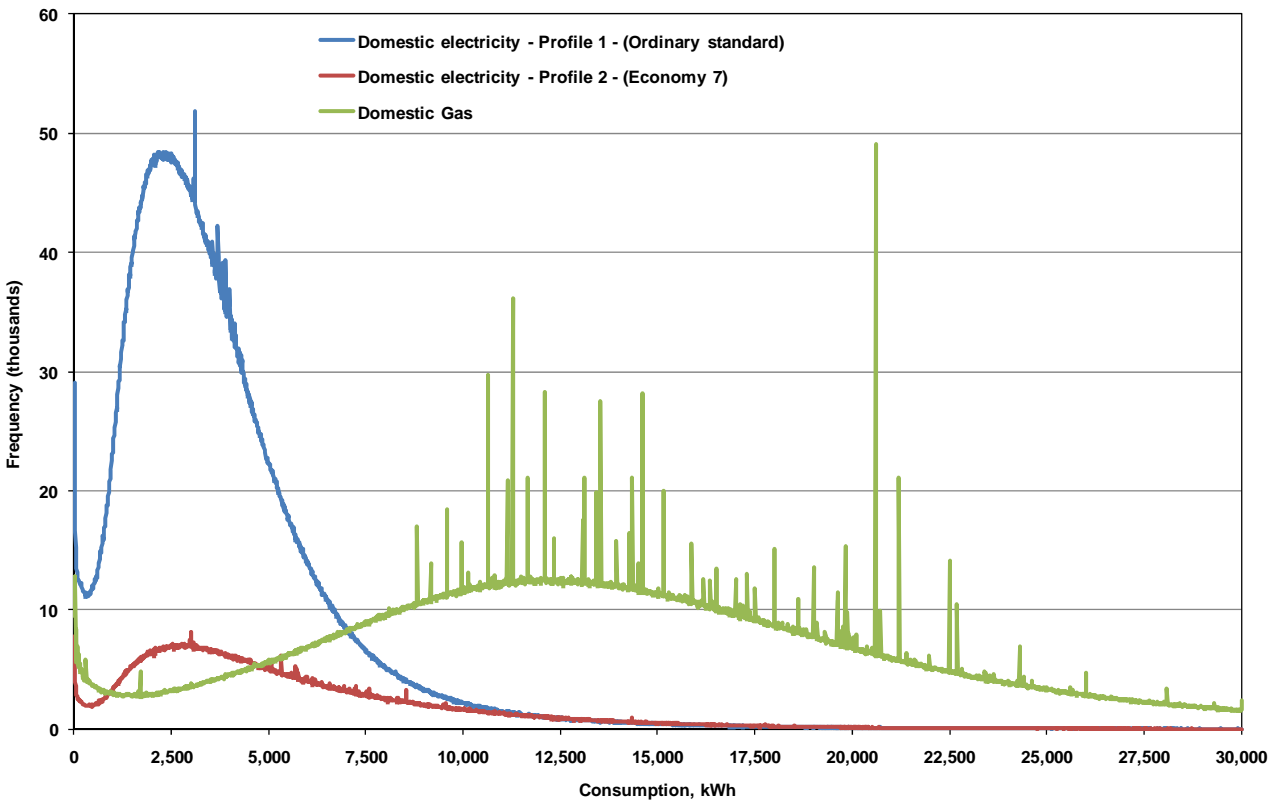


Chart 8: Domestic energy consumption by meter type in Great Britain, 2010



### **Acknowledgements**

DECC would like to thank the energy suppliers, data aggregators and Gemserv for their on-going co-operation in providing these data and making it possible to produce this analysis. In addition to the analysis conducted in DECC, Atha Elahi in BIS carried out the primary data processing.

### **User feedback**

We welcome all feedback from the users of this data, therefore if you would like to comment on these or on the content of this article, please contact Tom Rouse using the contact details below.

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Table 5: Sub - national electricity consumption statistics 2010 (National Statistics)

Government Office Regions and selected NUTS4 Regions	Domestic consumers		Commercial and industrial consumers		All consumers		Consumption per meter	
	Sales 2010 - GWh	Number of MPANs (thousands)	Sales 2010 - GWh	Number of MPANs (thousands)	Sales 2010 - GWh	Number of MPANs (thousands)	Average domestic consumption kWh	Average commercial and industrial consumption kWh
Merthyr Tydfil	89.1	26.2	136.1	1.7	225.2	27.9	3,396	82,060
Blaenau Gwent	105.4	31.7	173.1	2.1	278.5	33.9	3,322	80,820
Neath Port Talbot	226.0	64.0	1,196.6	3.9	1,422.6	67.9	3,531	305,570
Cardiff	545.7	148.7	1,141.4	11.2	1,687.1	159.9	3,669	102,234
<b>TOTAL WALES</b>	<b>5,361.1</b>	<b>1,369.1</b>	<b>10,456.7</b>	<b>123.7</b>	<b>15,817.8</b>	<b>1,492.8</b>	<b>3,916</b>	<b>84,541</b>
Orkney Islands	83.1	13.7	66.0	2.2	149.1	15.9	6,081	29,998
Eilean Siar (Western Isles)	93.8	18.5	62.8	1.9	156.6	20.5	5,061	32,492
Edinburgh, City of	932.9	256.0	1,680.7	17.9	2,613.6	273.9	3,644	93,919
Glasgow City	1,140.7	331.2	1,921.7	23.6	3,062.4	354.8	3,445	81,405
<b>TOTAL SCOTLAND</b>	<b>11,371.9</b>	<b>2,741.8</b>	<b>16,018.8</b>	<b>212.2</b>	<b>27,390.7</b>	<b>2,954.0</b>	<b>4,148</b>	<b>75,499</b>
Darlington	180.4	49.1	280.8	3.6	461.2	52.6	3,677	78,896
South Tyneside	227.6	70.0	248.0	3.9	475.5	73.9	3,253	63,253
Northumberland	600.5	150.4	1,008.0	12.8	1,608.5	163.3	3,992	78,513
County Durham	824.1	235.5	1,228.9	15.1	2,053.0	250.6	3,499	81,623
<b>TOTAL NORTH EAST</b>	<b>4,250.2</b>	<b>1,192.9</b>	<b>7,892.3</b>	<b>79.8</b>	<b>12,142.5</b>	<b>1,272.7</b>	<b>3,563</b>	<b>98,849</b>
Copeland	137.4	32.5	108.9	2.7	246.3	35.3	4,223	40,017
Rossendale	125.6	30.9	152.3	2.5	277.9	33.4	4,072	60,757
Cheshire West and Chester	611.7	145.7	1,778.6	11.2	2,390.3	156.9	4,199	158,255
Manchester	846.9	216.3	1,877.1	17.5	2,723.9	233.7	3,916	107,489
<b>TOTAL NORTH WEST</b>	<b>12,555.0</b>	<b>3,134.2</b>	<b>20,777.2</b>	<b>234.6</b>	<b>33,332.2</b>	<b>3,368.8</b>	<b>4,006</b>	<b>88,565</b>
Richmondshire	105.6	22.7	136.9	2.8	242.5	25.5	4,654	48,301
Craven	118.8	26.2	147.0	3.5	265.9	29.7	4,533	42,194
Sheffield	845.5	236.4	1,604.3	16.2	2,449.7	252.6	3,577	98,747
Leeds	1,336.3	339.4	2,285.9	23.7	3,622.2	363.1	3,938	96,393
<b>TOTAL YORKSHIRE AND THE HUMBER</b>	<b>8,999.6</b>	<b>2,332.2</b>	<b>15,676.2</b>	<b>175.8</b>	<b>24,675.8</b>	<b>2,507.9</b>	<b>3,859</b>	<b>89,192</b>
Oadby and Wigston	88.8	22.7	103.8	1.4	192.7	24.1	3,908	74,101
Melton	101.6	22.2	163.1	2.1	264.7	24.3	4,574	77,819
Nottingham	490.2	130.8	876.4	10.9	1,366.6	141.7	3,749	80,067
Leicester	458.4	127.4	954.7	11.7	1,413.1	139.1	3,598	81,464
<b>TOTAL EAST MIDLANDS</b>	<b>8,109.4</b>	<b>1,976.3</b>	<b>13,075.0</b>	<b>153.5</b>	<b>21,184.5</b>	<b>2,129.8</b>	<b>4,103</b>	<b>85,177</b>
Malvern Hills	163.6	33.3	127.2	3.3	290.8	36.6	4,917	37,992
Tamworth	137.7	32.1	186.3	2.1	324.1	34.1	4,293	90,533
Shropshire	616.6	132.8	908.0	15.5	1,524.5	148.3	4,643	58,401
Birmingham	1,712.4	423.6	2,739.7	34.6	4,452.1	458.2	4,043	79,109
<b>TOTAL WEST MIDLANDS</b>	<b>9,912.9</b>	<b>2,363.7</b>	<b>15,004.9</b>	<b>191.8</b>	<b>24,917.8</b>	<b>2,555.5</b>	<b>4,194</b>	<b>78,245</b>

Table 5: Sub - national electricity consumption statistics 2010 (National Statistics) - continued

Government Office Regions and selected NUTS4 Regions	Domestic consumers		Commercial and industrial consumers		All consumers		Consumption per meter	
	Sales 2010 - GWh	Number of MPANs (thousands)	Sales 2010 - GWh	Number of MPANs (thousands)	Sales 2010 - GWh	Number of MPANs (thousands)	Average domestic consumption kWh	Average commercial and industrial consumption kWh
Castle Point	170.9	37.5	90.5	2.2	261.4	39.7	4,557	41,951
Rochford	158.5	34.5	142.3	2.3	300.8	36.7	4,595	63,233
Central Bedfordshire	484.6	107.8	565.0	7.9	1,049.6	115.7	4,496	71,453
King's Lynn and West Norfolk	353.5	70.4	779.2	6.3	1,132.7	76.7	5,024	123,469
<b>TOTAL EAST OF ENGLAND</b>	<b>11,360.5</b>	<b>2,534.9</b>	<b>15,958.0</b>	<b>212.2</b>	<b>27,318.5</b>	<b>2,747.1</b>	<b>4,482</b>	<b>75,206</b>
Kingston upon Thames	283.1	64.9	321.3	6.2	604.4	71.0	4,364	52,220
Harrow	373.4	86.7	254.3	5.7	627.7	92.4	4,307	44,343
Tower Hamlets	402.7	106.2	2,762.4	15.6	3,165.0	121.8	3,790	177,222
Westminster	510.8	121.3	3,553.1	42.0	4,063.9	163.3	4,211	84,560
<b>TOTAL GREATER LONDON</b>	<b>13,468.5</b>	<b>3,377.6</b>	<b>28,245.4</b>	<b>399.9</b>	<b>41,713.9</b>	<b>3,777.5</b>	<b>3,988</b>	<b>70,631</b>
Adur	117.9	27.7	106.7	2.1	224.7	29.8	4,258	51,409
Epsom and Ewell	135.5	30.2	107.8	2.1	243.3	32.3	4,487	52,223
Brighton and Hove	477.3	125.1	576.0	14.0	1,053.3	139.1	3,815	41,246
Milton Keynes	421.3	101.3	1,020.2	7.3	1,441.5	108.6	4,160	139,657
<b>TOTAL SOUTH EAST</b>	<b>16,538.2</b>	<b>3,698.6</b>	<b>23,458.7</b>	<b>328.4</b>	<b>39,997.0</b>	<b>4,027.0</b>	<b>4,471</b>	<b>71,429</b>
Isles of Scilly	7.9	1.1	8.3	0.5	16.2	1.6	6,879	17,674
Christchurch	92.0	23.4	119.6	1.9	211.6	25.3	3,934	62,219
Wiltshire	1,013.2	206.7	1,248.7	21.0	2,261.9	227.8	4,901	59,335
Cornwall	1,300.1	257.3	1,422.1	31.7	2,722.2	288.9	5,053	44,931
<b>TOTAL SOUTH WEST</b>	<b>10,668.6</b>	<b>2,414.5</b>	<b>14,332.7</b>	<b>245.4</b>	<b>25,001.3</b>	<b>2,659.9</b>	<b>4,419</b>	<b>58,401</b>
Unallocated	259.4	73.0	4,209.8	24.9	4,469.2	97.9	3,553	169,185
<b>GREAT BRITAIN</b>	<b>112,855.5</b>	<b>27,208.9</b>	<b>185,105.8</b>	<b>2,382.1</b>	<b>297,961.3</b>	<b>29,591.0</b>	<b>4,148</b>	<b>77,705</b>

## **Gas and electricity consumption data below Local Authority level**

This article gives a summary of the sub-national energy consumption analysis produced by DECC and released on 29 March 2012. Information in this article only acts as an overview for the datasets; detailed background notes on data interpretation can be found on DECC's regional energy statistics website at: [www.decc.gov.uk/en/content/cms/statistics/regional/regional.aspx](http://www.decc.gov.uk/en/content/cms/statistics/regional/regional.aspx).

The aim of this work is to provide users with energy consumption data below Local Authority level. This enables councils and others to monitor and target small areas for further interventions as parts of their local energy strategies and enhance implementation of energy efficiency programmes and thus reduce carbon dioxide emissions.

### **Middle Layer Super Output Area (MSOA) and Intermediate Geography Zone (IGZ) electricity and gas data 2010**

On 29 March 2012, DECC released 2010 electricity and gas consumption data for England and Wales at Middle layer Super Output Area (MSOA) level, and for Scotland at Intermediate Geography Zone (IGZ) level. These data are available for both domestic and non-domestic gas and domestic and non-domestic electricity consumption (though excluding consumption from businesses on half-hourly meters).

These follow on from the publication of similar estimates for 2005 to 2009 and are classed as National Statistics. MSOAs are a statistical geography developed by the Office for National Statistics (ONS) as part of the 2001 census. MSOAs and IGZs have more stable boundaries and are more comparable in terms of population than NUTS5/LAU2 areas or electoral ward areas. On average, an MSOA contains a population of around 7,200 (with a minimum of 5,000), while IGZs are slightly smaller containing an average of around 4,000 people (with a minimum of 2,500).

### **Lower Layer Super Output Area (LSOA) electricity and gas data 2010**

Also on 29 March 2012, DECC released 2010 LSOA electricity and gas consumption data for domestic consumers within England and Wales. This data has previously been published for the whole of England and Wales for 2008 and 2009 and follows on from a successful pilot carried out during 2009, when the 2007 data was published for around 40 local authorities.

Since the methodology for producing these data is still developmental, DECC are currently classing these statistics as experimental. LSOAs are also a statistical geography developed for the 2001 Census by the ONS. The 34,378 LSOAs in England and Wales have a minimum population of 1,000 (or around 400 households) and are used as the building block for MSOAs. Again, the advantage of using these Census geographies (instead of geographies such as electoral ward) is that they are of consistent size across the country and will not be subjected to regular boundary change.

DECC are only able to publish the gas and electricity LSOA consumption data for domestic consumers. Due to the small size of these geographical areas, the majority of the non-domestic consumption would be disclosive and would have to be aggregated. Since the non-domestic consumption is available at MSOA, DECC took the decision that publishing non-domestic LSOA level data after aggregation would not add much value for users. In addition, the gas and electricity consumption data at a Data Zone (DZ) level is currently not available for Scotland. The 6,505 Data Zones each have a minimum population of 500 and the energy suppliers (who provide us with the data) have not granted DECC permission to publish consumption at this level for disclosure reasons.

Further information on the geographies described above is available on the Office of National Statistics website at:

[www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/census/super-output-areas--soas-/index.html](http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/census/super-output-areas--soas-/index.html)

### *Special feature – Gas and electricity consumption data below Local Authority level*

For gas and electricity, there is information for each MSOA and IGZ on total consumption, total number of meters and average (mean) consumption for non-domestic consumers and domestic consumers (which is further split for electricity by domestic ordinary tariff and domestic off peak based tariffs such as Economy 7). Due to data disclosure issues, consumption relating to half hourly non-domestic electricity consumers – who are generally larger energy users - has not been disaggregated below local authority level (i.e. it is excluded from the non-domestic MSOA electricity data).

Similarly, for each LSOA in England and Wales, there is information on total consumption, total number of meters and average consumption for domestic consumers (again split by standard tariff and Economy 7 tariff for electricity). Users should note, however, that some LSOAs may be missing from the datasets. This only occurs if the MSOA to which it belongs is disclosive and has been merged with another MSOA. In these instances, the LSOA is automatically disclosive and as such cannot be published.

The excel workbooks containing this information can be found on the DECC website at:

[www.decc.gov.uk/en/content/cms/statistics/energy\\_stats/regional/electricity/MLSOA\\_lloa/MLSOA\\_lloa.aspx](http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/regional/electricity/MLSOA_lloa/MLSOA_lloa.aspx)

### **Neighbourhood Statistics**

The 2005 to 2009 MSOA gas and electricity consumption data have been incorporated onto the ONS Neighbourhood Statistics database. This database allows users to analyse different official statistical datasets at a local level, enabling a greater level of analytical integration. DECC plans to add the 2010 MSOA and 2010 LSOA data to the Neighbourhood Statistics database shortly. The data can be found at: [www.neighbourhood.statistics.gov.uk](http://www.neighbourhood.statistics.gov.uk)

### **User feedback**

We welcome all feedback from the users of this data, therefore if you would like to comment on these or on the content of this article, please contact Tom Rouse using the contact details below.

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## Comparison of M-1 and M-2 oil data

### Introduction

The UK supplies monthly oil data to the International Energy Association (IEA) via the Monthly Oil Survey (MOS) and for the Joint Organisations Data Initiative (JODI) via the JODI questionnaire. The information from both data collections are published on IEA and JODI websites.

These data are completed every month for the two most recent months (M-1 and M-2). This article looks at the relationship between the M-1 with M-2 submissions in order to provide users with a view of the accuracy of the M-1 estimates.

### Methodology

The difference, for each month, between the M-1 and M-2 estimate were taken and then totalled by calendar year. All differences were considered positive, otherwise opposing differences would cancel each other out.

### Results – Crude Oil

Table 1 below shows the differences in volume and percentage terms between M-1 and M-2 data for crude oil between 2006 and 2011.

**Table 1**

M1-M2 differences for Crude Oil

Unit : Thousand Tonnes

Crude Oil	2006	% diff M-1/ and M-2	2007	% diff M-1/ and M-2	2008	% diff M-1/ and M-2	2009	% diff M-1/ and M-2	2010	% diff M-1/ and M-2	2011	% diff M-1/ and M-2	2006-2011 Total % diff
Production	1,118	1.6	1,289	1.8	1,879	2.9	1,450	2.3	1,719	3.0	1,351	2.8	2.4
Imports	2,600	5.1	3,882	7.9	4,172	8.1	3,684	7.8	4,295	9.0	3,603	7.2	7.5
Exports	3,441	8.0	6,487	15.4	3,271	8.0	2,252	5.9	2,840	7.8	2,879	10.3	9.3
Closing Stocks	3,974	5.9	2,407	3.6	2,983	5.0	1,771	3.2	2,855	5.2	3,283	6.3	4.8
Refinery Intake	1,138	1.5	207	0.3	1,334	1.8	202	0.3	32	0.0	58	0.1	0.7

Differences less than 5%     Differences between 5% and 10%     Differences over 10%

Half of M-1 estimates for Crude Oil are within five per cent of the M-2 estimate, while the vast majority of the data (28 out of 30) are within 10 per cent accuracy.

Overall, the largest differences for crude oil are with trade data. Crude oil exports are estimated for M-1 as complete oil field and terminal data are not available at the time M-1 is compiled. This is because the deadline for Petroleum Production Reporting System (PPRS) returns (our upstream reporting system) is not until about a week after the M-1 data are prepared and invariably there are late returns. As a result import data for crude oil are also variable between M-1 and M-2.

Refinery intake of crude oil is sourced from imports and indigenous supply from the UK Continental Shelf (UKCS). There is often confusion between what is indigenous supply from the UKCS and what are imports. There are various reasons for misreporting of the source for crude oil, but the key one is confusion of receipts from the Norwegian transshipment terminal at Teesside where cargoes of crude oil may be all Norwegian, all UKCS, or partial Norwegian and UKCS. The PPRS reporting system allows us to separate out these shares but these data are again not available until after the M-1 deadline.



## Results – Petroleum Products

Eighty per cent of estimates for petroleum products were within five per cent of the M-2 estimate, while the vast majority of the data (29 out of 30) are within 10 per cent accuracy. Five of the six estimates that were outside the five per cent accuracy level were for imports.

**Table 2**

M1-M2 differences for Petroleum Products

Unit : Thousand Tonnes

Petroleum Products	2006	% diff M-1/ and M-2	2007	% diff M-1/ and M-2	2008	% diff M-1/ M-2	2009	% diff M-1/ M-2	2010	% diff M-1/ M-2	2011	% diff M-1/ M-2	2006-2011 Total % diff
Refinery Output	355	0.4	689	0.9	957	1.2	713	1.0	928	1.3	604	0.8	0.9
Imports	1,248	4.7	1,504	6.5	1,778	8.3	1,857	7.9	3,364	13.7	1,368	5.9	7.8
Exports	487	1.7	93	0.3	416	1.5	762	3.0	590	2.3	362	1.3	1.7
Closing Stocks	733	0.9	2,909	3.6	1,932	2.4	659	0.8	696	0.9	671	0.9	1.6
Demand	2,197	2.6	1,694	2.1	2,947	3.8	2,607	3.5	4,518	6.1	2,692	3.7	3.6

Differences less than 5%

Differences between 5% and 10%

Differences over 10%

Overall, the largest variations between M-1 and M-2 for petroleum products are with imports. Information on imports is gathered from essentially two sources; refineries and HMRC. HMRC data are used to determine imports made by non refining companies or other companies that DECC do not directly survey. HMRC data are not available at the time of M-1 and are therefore estimated. These figures also impact on the demand side of the balance, because these imports by non reporting companies are assumed to be imports for UK consumption.

## Summary

The analysis shows that DECC's initial M-1 estimate for both crude oil and petroleum products are mostly within 10 per cent pent and 5 per cent respectively, of the estimate provided for M-2. Thus these M-1 estimates provide a useful early insight into production, trade and demand. Where there are larger differences these are mostly due to trade data which are incomplete and heavily reliant upon estimation by DECC at the time of producing M-1 estimates. Looking at the size and scale of revisions year on year, indicates no significant difference and hence no deterioration of the value of the M-1 early estimates. Further work is required to understand any potential bias in the M-1 estimates. DECC will continue to review and refine methodology to produce timely data, whilst maintaining a minimal burden on data providers.

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## Identifying local areas with higher than expected domestic gas use

### Introduction

This article presents analysis undertaken in 2010 that has been carried out to improve the understanding of energy efficiency. The aim of this analysis was to produce a statistical model to predict expected gas use at a local area level using publicly available data. Modelled gas consumption data could then be compared with actual data produced by DECC at local levels ([www.decc.gov.uk/en/content/cms/statistics/energy\\_stats/regional/electricity/mlsoa\\_llsoa/mlsoa\\_llsoa.aspx](http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/regional/electricity/mlsoa_llsoa/mlsoa_llsoa.aspx)). Where actual gas use is higher than predicted gas use by more than, say, 10 per cent then this might imply a lower level of efficiency in homes (of course there could be other reasons why gas consumption may be higher) and hence may help direct efficiency investment in that area.

### Methodology

The neighbourhood statistics<sup>1</sup> (NeSS) database is maintained by the Office for National Statistics and contains datasets that describe the characteristics of neighbourhoods in the UK. Data from the census, currently census 2001, makes up the main information in the database but other government departments have provided data to complement this, including DECC which has provided data on domestic gas consumption. At the time of the analysis, 2008 sub-regional gas consumption data was the latest available dataset, the 2009 data is now available with the 2010 data being released on 29<sup>th</sup> March 2012.

The data are available down to Lower layer Super Output Area (LSOA). There are over 34,000 LSOAs in England and Wales and each one has a minimum population of 1,000 (the average being 1,500). The analysis was carried out for England only, since some variables were not available for Wales on the database. The following variables in the neighbourhood statistics database were assumed as having the potential to influence gas consumption.

Variable	Groupings	Latest year at time of modelling
Index of Multiple Deprivation (IMD)	Scale taking value between 0-100 <sup>a</sup>	2007
Age of population (%)	0-15, 16-59/64 <sup>b</sup> , 60/65+	2008
Dwelling stock by tenure (%)	Owner, Private rented Social rented	2001
Dwelling stock by type (%)	Detached, Semi –detached, Terrace, Purpose built flat, Converted flat	2001

<sup>a</sup> The higher the value the more deprived the area

<sup>b</sup> Includes females aged 59 and under and males aged 64 and under. It is also possible to disaggregate the working age population into smaller groups (e.g. 30-44)

The IMD<sup>2</sup> is a measure at LSOA level of multiple deprivation and is made up of seven domains indices (income deprivation, employment deprivation, health deprivation and disability, education deprivation, barriers to housing and services, living environment deprivation and crime). The overall IMD was picked as providing the most comprehensive picture of deprivation in the LSOA.

### Data limitations

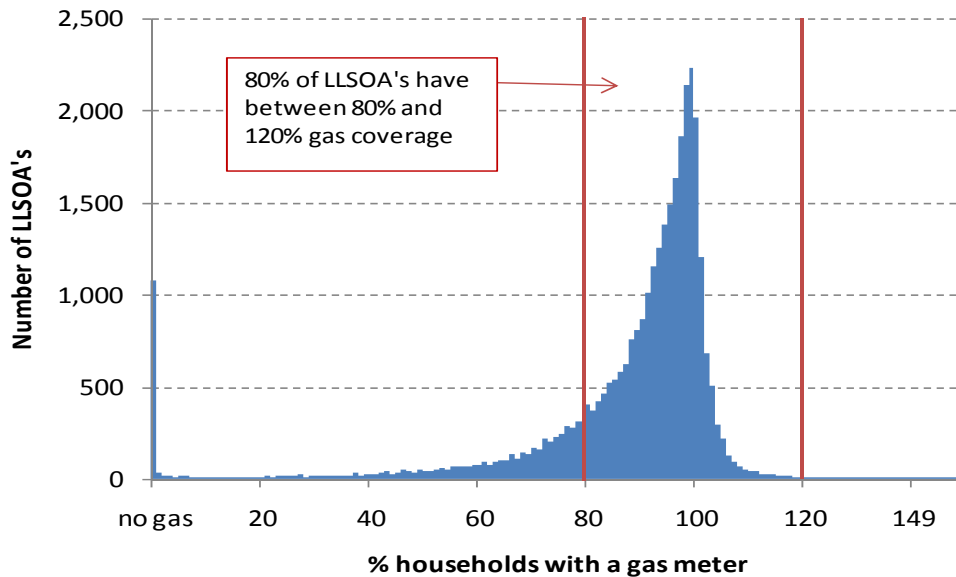
There were a number of data issues that were examined before undertaking the analysis. As the data are aggregated to LSOA level there is no way of knowing which houses use gas. As the focus of the work was to model gas consumption as the primary heating fuel, it was important to only consider local areas where this was the case. Therefore, an approximate 'gas coverage'

<sup>1</sup><http://neighbourhood.statistics.gov.uk/dissemination/LeadHome.do;jessionid=2yFyPJSpt2t6dGK1qtt0wJvHqYBjK35Lz2c6L2YXG69wKXrpGvcx!1519500766!1330958910756?m=0&s=1330958910756&enc=1&nsjs=true&nsck=true&nssvg=false&nswid=119>

<sup>2</sup> [www.communities.gov.uk/publications/communities/indicesdeprivation07](http://www.communities.gov.uk/publications/communities/indicesdeprivation07)

indicator for each LSOA was created. This was calculated by dividing the number of domestic gas meters by the total number of electricity meters in each LSOA as, in theory, it is likely that all domestic houses will have an electricity meter. The spread is shown in chart 1 below.

**Chart 1: Percentage of households with a gas meter in each LSOA**



The distribution of the bars indicates that a large number of LSOAs have around 100 per cent of the households on gas. However, around 16 per cent of LSOAs had less than 80 per cent gas coverage (with 3 per cent having no gas). There are also 11 per cent of LSOAs with over 100 per cent gas coverage (the majority of these within 100-105 per cent), this could indicate that some electricity meters are missing or it could be due to the way 'domestic gas' is defined. For the gas consumption figures, a domestic meter is defined as one where less than 73,200 kWh is used in a year. However, the use of this definition is thought to categorise some small businesses as domestic, whereas for electricity the definition of 'domestic' is thought to be more robust as domestic dwellings have a different meter profile number.

LSOAs with a gas coverage indicator of over 80 per cent and under 120 per cent were included in the analysis. This means that around 80 per cent of LSOAs were used. Table 1 shows how this proportion varies by region. The results are in-line with expectations, for example, only 60 per cent of the households in the South West are included, where there are known to be areas in Cornwall off the gas network.

**Table 1: LSOAs used by region**

Region	Not used in analysis	Used in analysis	Total	% Used
East Midlands	492	2,240	2,732	82%
East of England	1,060	2,490	3,550	70%
London	743	4,022	4,765	84%
North East	190	1,466	1,656	89%
North West	501	3,958	4,459	89%
South East	1,252	4,067	5,319	76%
South West	1,273	1,953	3,226	61%
West Midlands	609	2,873	3,482	83%
Yorkshire and The Humber	488	2,805	3,293	85%
<b>Total</b>	<b>6,608</b>	<b>25,874</b>	<b>32,482</b>	<b>80%</b>

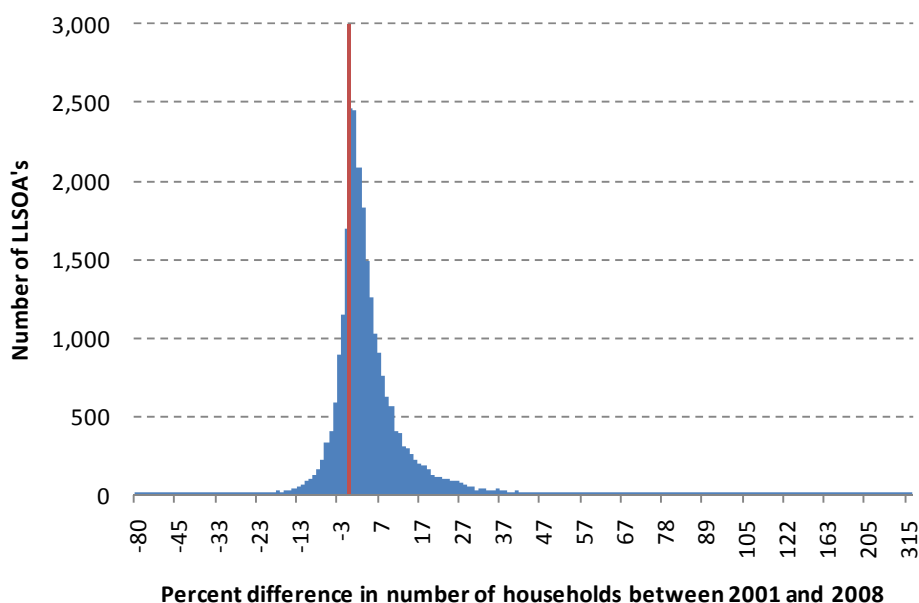
It should also be noted that although a household may have a gas meter, there is no way of knowing whether the gas is being used for heating only or also for cooking. If gas use for cooking

### Special feature – Local areas domestic gas use

is of similar proportions between all LSOAs this will have little impact on the analysis but if there are some LSOAs where a large proportion of the households on gas only use it for heating and some LSOAs where the majority use gas for both heating and cooking then these LSOAs will appear to have higher than expected gas use. For this initial analysis, it has been assumed that gas use for cooking is broadly constant across LSOAs.

The only variables on the neighbourhood statistics website which describe the housing stock in an area are based on 2001 census data, i.e. it describes the housing stock 7 years prior to the consumption data. To get an indication of which areas are particularly affected by the time lag, the number of electricity meters in each LSOA was compared to the number of households given in the census. Chart 2 shows the distribution of the percentage difference, 24 per cent of LSOAs had fewer electricity meters in 2008 compared to census dwellings listed and 66 per cent had more electricity meters (10 per cent showed no change in housing stock between 2001 and 2008). Over 80 per cent of the LSOAs were within +/- 10 per cent of the number of census dwellings.

**Chart 2: Percentage difference between number of households in 2001 census and the number of electricity meters in 2008<sup>3</sup>**



In order to avoid reducing the LSOAs included in the analysis further, it was decided that all the remaining LSOAs would be included even if it appeared that the structure of the area may have changed since the census was taken. The percentage change will be reported for each LSOA so users can decide if a particular area has been particularly affected by housing change. Newer houses will be built in line with current building regulations and these will have higher levels of efficiency, so higher concentration of new houses may explain lower actual gas use.

Groupings within the 'dwelling stock by type' category are related, e.g. if the percentage of detached properties in an LSOA is 90 per cent no other category can be more than 10 per cent. One option would be to just put the strongest category into the model (e.g. per cent detached). However, average gas consumption for an LSOA that is 80 per cent detached and 20 per cent purpose built flat will be different to an LSOA with 80 per cent detached and 20 per cent semi-detached. Therefore it was decided that a weighting system would be used to produce one overall figure to capture the housing stock in the area. One of the main reasons that detached houses have higher gas consumption is because they are likely to be bigger than other house types (e.g. semi-detached houses). Data from the English Housing Survey 2007 was used to provide an average floor area for each type of dwelling. The floor area was then multiplied by the proportion

<sup>3</sup> Only looks at LSOAs selected for analysis (i.e. those with a 'gas coverage' indicator of 80-120%).

of houses of that type in the LSOA (i.e. the dwelling type information from the census was used to get a proxy for the average size of dwelling for each LSOA). The floor areas used are given in table 2 followed by an example calculation.

**Table 2: Dwelling type and corresponding average floor area<sup>4</sup>**

Dwelling type	Average floor area (m <sup>2</sup> )
Detached	146
Semi-detached	93
Terrace	82
Converted flat	66
Purpose built flat	56

In an LSOA with 80 per cent detached and 20 per cent purpose built flat the average floor area would be 128m<sup>2</sup> ((146 x 0.8) + (56 x 0.2)) compared to 135.4m<sup>2</sup> for an LSOA with 80 per cent detached and 20 per cent semi-detached ((148 x 0.8) + (93 x 0.2)).

For the remainder of this document this variable will be referred to as 'average floor area'. It is however, only a proxy measure and assumes that each house type has the same floor area in all areas of England, in reality it is also possible that some flats may have a bigger floor area than a terraced house, for example.

The variable for 'dwelling stock by tenure' and age has the same issue of local variation as described for 'dwelling stock by type'. For these variables the percentage of owner/occupiers and percentage of pensionable age were used as these showed a positive correlation with gas consumption, with a correlation coefficient of 0.42 and 0.27 respectively.

The gas consumption data used in this analysis is temperature corrected, therefore different temperature patterns across the UK have already been taken into account.

## **Descriptive analysis**

To get a clearer idea of the relationship between average household gas consumption and the five variables of interest, each variable was grouped into quintiles and box and whisker plots were drawn to illustrate the variation in gas consumption within each quintile.

Chart 3 looks at the relationship between IMD and gas consumption. The line in the middle of the box indicates the median average gas consumption for LSOAs in each quintile. The top and bottom of the box indicates the upper quartile and the lower quartile respectively and the line the 5th and 95th percentile (i.e. the range excluding the most extreme LSOAs). Overall, the median average gas consumption decreases as deprivation increases. It can also be seen that there are a number of LSOAs in the most deprived quintile that have an average gas consumption that is higher than gas consumption of some LSOAs in the least deprived quintile. The width of the lines also shows that variation between LSOAs is higher in the least deprived areas compared to the most deprived. In the most deprived areas 90 per cent of the LSOAs have an average gas consumption between 10,800 kWh and 18,400 kWh. In the least deprived areas the range is 14,500 kWh to 28,100 kWh.

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<sup>4</sup> Source: Table SS2.0, Stock profile 2007, English Housing Survey  
[www.communities.gov.uk/housing/housingresearch/housingsurveys/englishhousecondition/ehcsdatasupporting/ehcsstandardtables/summarystatistics/](http://www.communities.gov.uk/housing/housingresearch/housingsurveys/englishhousecondition/ehcsdatasupporting/ehcsstandardtables/summarystatistics/)

**Chart 3: Average household consumption by IMD quintile**

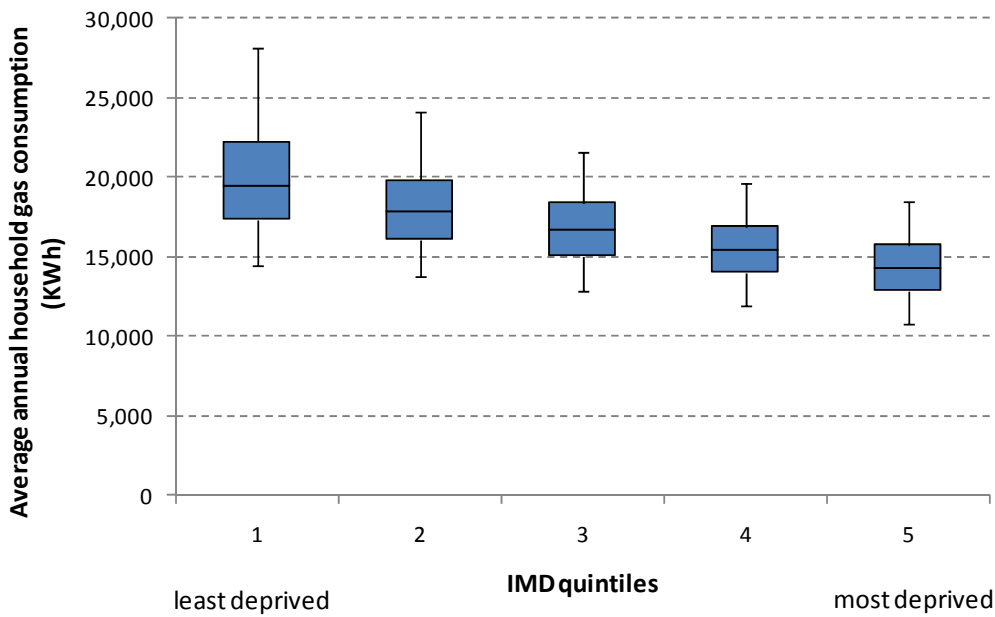
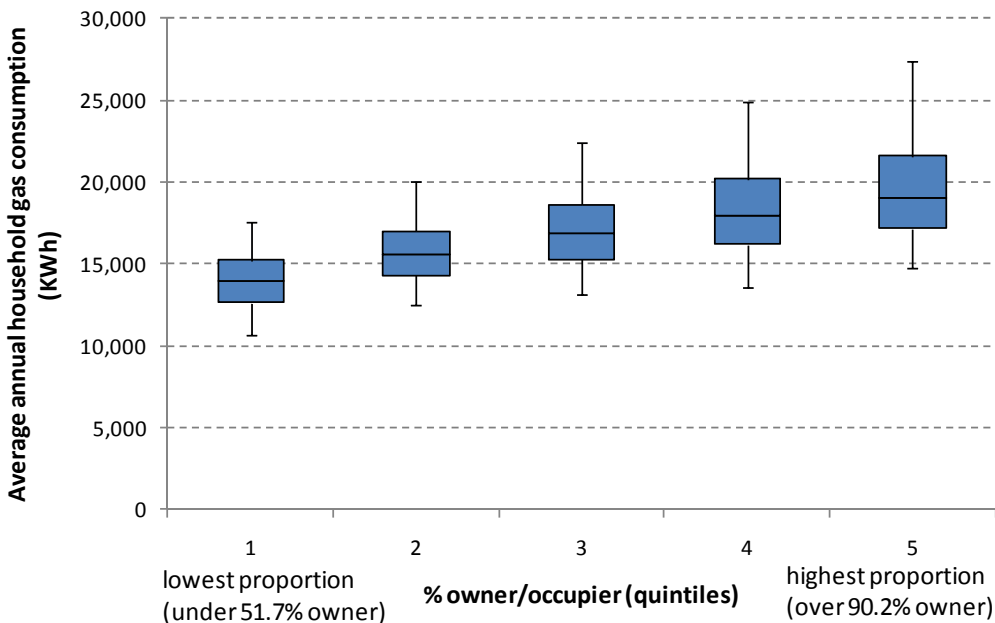


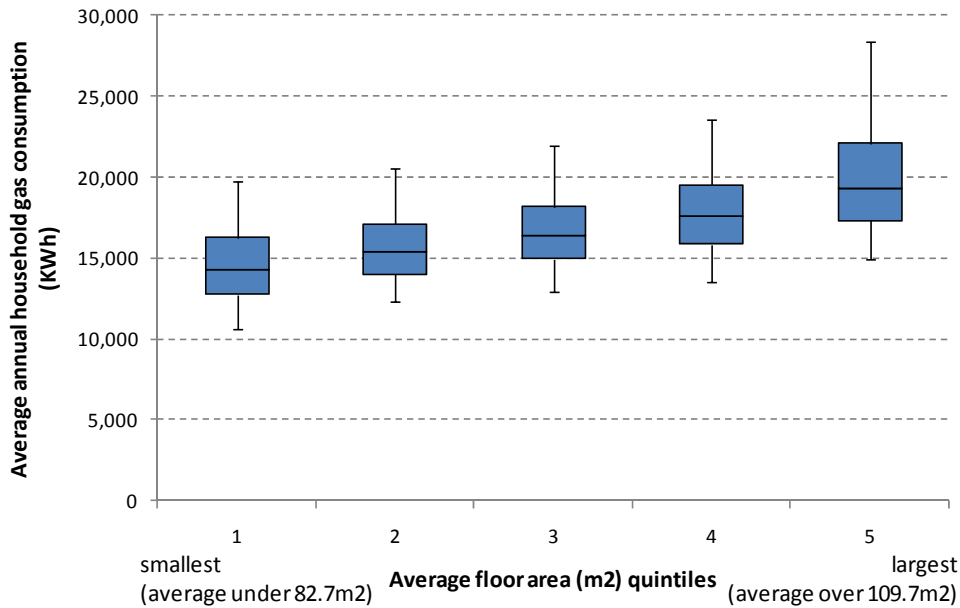
Chart 4 looks at the relationship between the proportion of owner/occupiers in the area and gas consumption. As the proportion of owner/occupiers increases so does the median average gas consumption. The median LSOA in the highest quintile (where over 90 per cent of the householders are owner/occupiers) has an average annual gas consumption of 19,000 kWh compared to 13,900 kWh for the median LSOA in the lowest quintile (where under 50 per cent of the householders are owner/occupiers).

**Chart 4: Average household gas consumption by proportion of owner/occupiers**



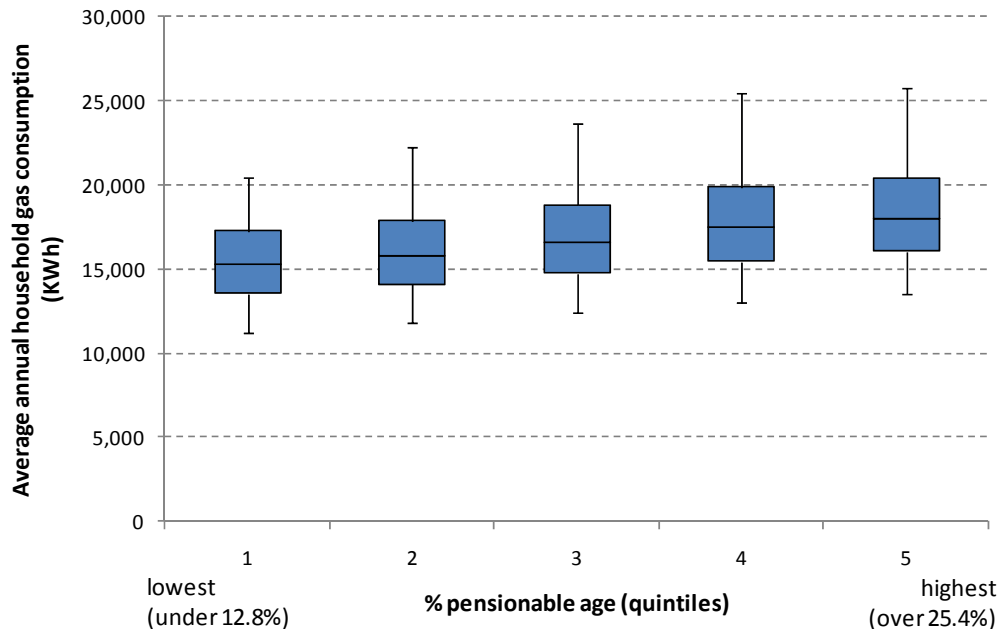
As expected, as the average floor area increases, gas consumption also increases (see chart 5), although again there is an overlap between the quintiles. For example, 25 per cent of the LSOAs with smallest average floor area (lowest quintile) have an average annual gas consumption of over 16,300 kWh a year and 25 per cent of the LSOAs in the (highest quintile) have an average annual gas consumption of under 17,300 kWh.

**Chart 5: Average household gas consumption by average floor area**



The proportion of the population over pensionable age had the weakest association with average gas consumption, with a positive correlation coefficient of 0.27. This is also evident in chart 6, where although the median average gas consumption increased as the proportion of pensionable age increased, the overlap between the quintiles was greater than that observed for the other variables. It should of course be noted that correlations exist between the factors described in charts 3 - 5.

**Chart 6: Average household gas consumption by proportion of pensionable age**



**Regression analysis**

As the four variables above are correlated (e.g. the proportion of owner/occupiers is higher in areas with low deprivation), stepwise regression analysis was carried out to try and unpick the effect of each individual variable. This is an iterative process whereby the most significant variable is entered at each step and any variables already in the model are re-tested to determine whether they are still statistically significant. The first variable to enter was ‘% owner/occupier’, this variable alone explained 31.6 per cent of the variation in average gas consumption between

### Special feature – Local areas domestic gas use

LSOAs (indicated by the R2 term). Adding in the average floor area increased the R2 to 36.6 per cent. Following this, the 'IMD' variable was entered, increasing the R2 by only 0.5 per cent. The percentage of pensionable age was the last variable to enter the model and although statistically significant the R2 did not increase noticeably when given to 3 decimal places.

The final model explains 37.2 per cent of the variation in average gas consumption between LSOAs. As seen in charts 3-6, the quintiles containing what are likely to be the most affluent LSOAs (the ones with the largest floor area, the highest proportion of owner/occupiers and the lowest IMD score) tend to have the biggest variation in average household gas consumption. This suggests that any predictive regression models that do not account for individual actions or choices, are likely to be less accurate for more affluent LSOAs.

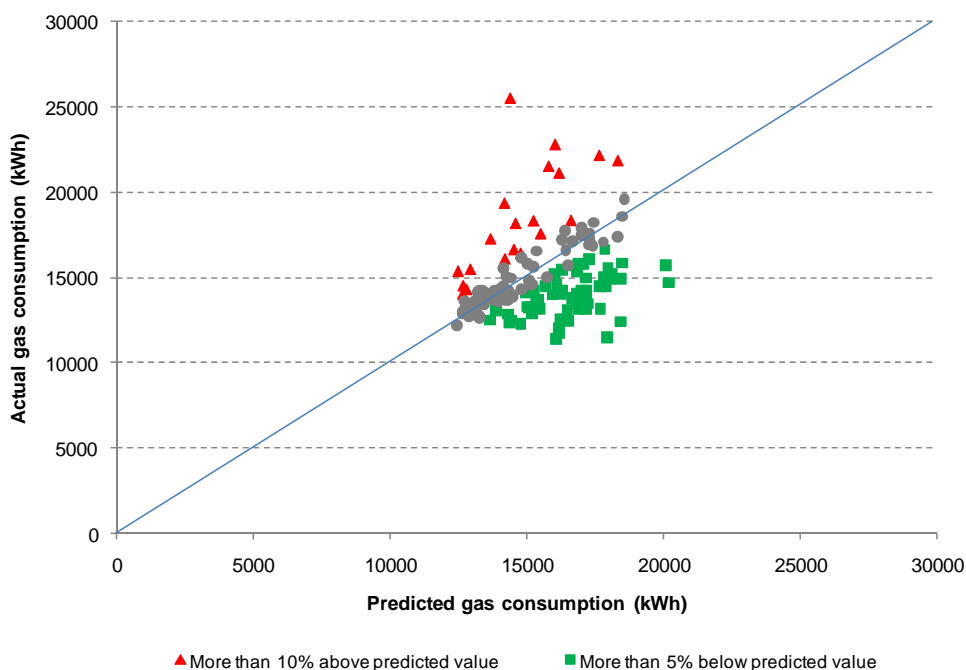
Using the coefficients computed by the regression model, a predicted gas consumption figure can be calculated for each LSOA using the equation below:

$$\text{Predicted gas consumption in LSOA (kWh)} = 8034.9 + 43.3 * \% \text{ owner/occupier} + 67.2 * \text{Average floor area} - 28.3 * \text{IMD} + 8.3 * \% \text{ pensionable age}$$

### Selecting areas to target

One method for selecting LSOAs would be to set a criteria above which the actual value should lie in relation to the predicted value (e.g. if actual gas consumption is more than 10% above the predicted value then this LSOA will be targeted). This also helps to allow for the fact that the model has a lot of unexplained variance so the fact that an LSOA is slightly above the predicted value may not necessarily mean that gas use is higher than you would expect given the characteristics. The following example provides an illustration of the output that can be produced using this methodology.

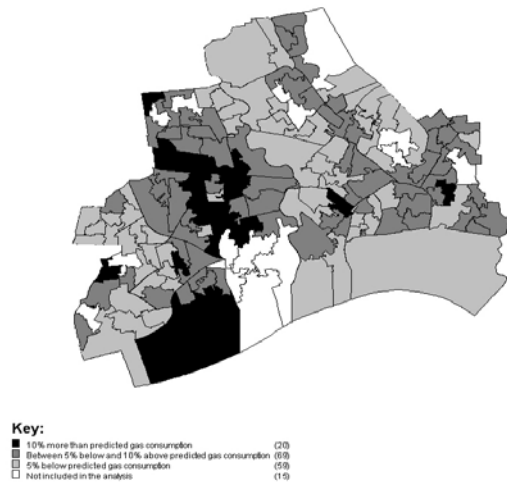
**Chart 7: Kingston upon Hull - Predicted average annual gas consumption compared to actual, 2008**





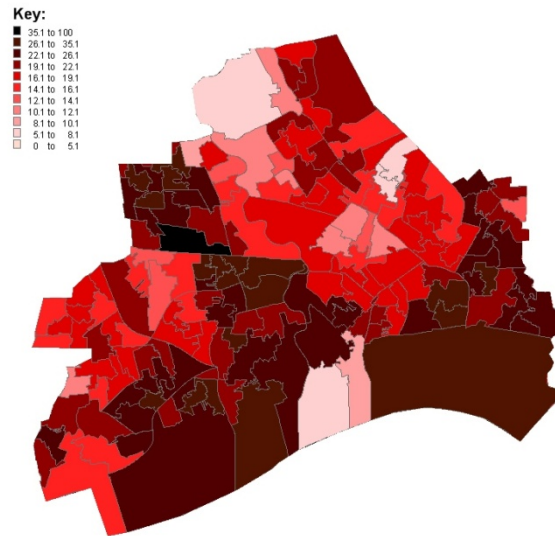
## Special feature – Local areas domestic gas use

**Kingston upon Hull: Actual gas consumption compared to predicted, 2008**



Source: ONS, Super Output Area Boundaries. Crown copyright 2004. Crown copyright material is reproduced with the permission of the Controller of HMSO.

**Kingston upon Hull: Percentage of households in fuel poverty in each lower layer super output area, 2008**



Source: ONS, Super Output Area Boundaries. Crown copyright 2004.

Both chart 7 and the map on the left-hand side show that, 14 per cent of LSOAs in Kingston upon Hull (20 out of 148) included in the analysis have actual gas consumption 10 per cent above predicted gas consumption, i.e. potential areas to target for energy efficiency measures. These areas are highlighted in black. In addition, the map on the right-hand side shows the fuel poverty ratios for each LSOA in this local authority, where the darker areas represent LSOAs that are more fuel poor. Ninety per cent of those LSOAs identified in Kingston upon Hull (18 out of 20) also have higher than average fuel poverty levels (the national fuel poverty ratio in 2008 was 15.6 per cent). As discussed, high gas use is often associated with low deprivation/high owner occupancy which are generally not characteristics of fuel poverty. Therefore, this high gas use is potentially being driven by energy inefficient housing. As such, these LSOAs could potentially be areas where efficiency investment could be directed to first.

### User engagement

There is still some work to be done to refine the model but in the meantime DECC would like some feedback from users on this piece of analysis. If you would like to see the dataset for your local authority, please contact Mita Kerai using the details below. We are particularly keen to work with local authorities and housing associations who have a good level of knowledge of local housing, which could contribute either knowledge or inferences (such as high proportion of private rented). DECC statisticians will continue to work on the model, but working with others will help us to develop the work.

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## Feed in Tariffs: 2010/11 generation data

### Introduction

DECC has published for the first time data on electricity generation and exports from installations registered on the Great Britain Feed in Tariff (FiT) scheme. These financial year data are based on payments received (for generation) during the first year of FiTs, 2010/11 (so will not cover all FiTs generation that has taken place in the year). These data can be found in table ET 5.7, available on DECC's FiTs statistics website:

[www.decc.gov.uk/en/content/cms/statistics/energy\\_stats/source/fits/fits.aspx](http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/source/fits/fits.aspx)

This article provides a background to the source behind the electricity generation and exports data, as well as a brief summary of the outturn data for the first year of the FiT scheme. In addition, DECC has used the generation data to estimate load factors for each technology, to provide an indication of the availability rates of FiTs installations.

### Data source

Ofgem have compiled aggregate data from reported payments made by electricity suppliers to FiT registered installations for generation during the first full year of the operation of the scheme (1 April 2010 to 31 March 2011). Additionally, Ofgem have collated data reported by suppliers on the amount of electricity exported by FiTs installations to the Great Britain public distribution system (PDS). Data on electricity generation and electricity exports are based on payments made to suppliers during the first FiTs year. The data are allocated by tariff band, including technology specific tariff bands<sup>1</sup> as well as the "ex-gen" tariff (of 9p per unit, for sub-50 kW installations commissioned prior to 15 July 2009, that have transferred from the Renewables Obligation scheme), which covers multiple technologies.

These data are also published, at a more aggregated level, in Ofgem's Feed in Tariff annual report, 2010-2011 available at:

[www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=26&refer=Sustainability/Environment/fits](http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=26&refer=Sustainability/Environment/fits)

### Data limitations

Since the data are based on payments made between 1 April 2010 and 31 March 2011, it is dependent on installation owners submitting meter readings to their supplier. Therefore, generation may be omitted where readings have not been submitted for all generation during this time period, particularly in the weeks leading up to 31 March 2011. This may be due to readings being submitted part way through the year, so only part of the generation has been captured; or where not all confirmed installations have been able to submit a reading.

The electricity suppliers reported to Ofgem that, as at 31 March 2011, 21,705 installations had received payments for generation. This compares with 30,100 installations that were confirmed on FiTs at this time, mainly retrofitted solar photovoltaic schemes. Therefore, the generation from over 8,000 confirmed installations would not have received any payments during the first year. This is most probably due to meter readings not being submitted for these sites before 31 March 2011. This 8,000 difference is approximately the number of installations confirmed on FiTs in February and March of 2011. Depending on the eligibility date of these installations, this 'missing' generation may be for just one day, but could even be for the whole of the first year of FiTs.

The generation data are allocated to the tariff code under which payments were made at the time. The FiTs register is continually being updated, and there are often retrospective revisions to installations' tariff bands (for example, if the installed capacity was initially mis-reported), so a scheme classed in a tariff band now, may have been previously classed in, and paid under, a different tariff band. There is also potential for error if generation has been mistakenly attributed to the wrong tariff band, for example 0-4 kW solar photovoltaic installations possibly being attributed to the new build tariff as opposed to the retrofit tariff.

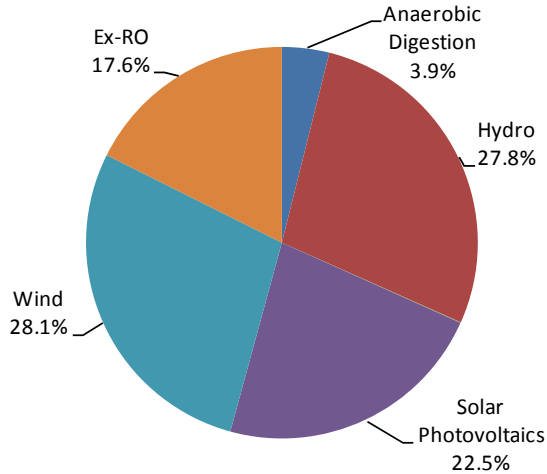
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<sup>1</sup> In cases where multiple technologies share a generation meter, a single tariff is paid.

### Generation summary

In 2010/11, 68.6 GWh of electricity was reported as being generated under the FiT scheme. Of this, 19.3 GWh was generated by wind installations, 19.0 GWh by hydro installations, and 15.4 GWh by solar photovoltaic installations, 2.7 GWh by anaerobic digestion installations and less than 0.1 GWh by micro CHP installations. Installations receiving the ex-gen tariff accounted for 12.1 GWh of generation. These data are shown in table 1, while the proportions accounted for by each technology are given in chart 1.

**Chart 1: Feed in Tariffs generation: shares, by technology, 2010/11**



One quarter (17.1 GWh) of the total generation in 2010/11 was from hydro schemes in the 100 kW to 2 MW tariff band. Whilst only nine installations in this band generated, these were high capacity schemes. Hydro is generally the least intermittent of the three weather dependent technologies covered by FiTs, so schemes on this tariff would be expected to contribute a large share.

Of generation under the wind tariffs, almost three-quarters (14.2 GWh) came from installations on the 500 kW to 1.5 MW tariff band. This was from just six schemes but, again, these were the largest wind installations on the FiT scheme.

The tariff band for 0-4 kW retrofitted solar photovoltaic installations represented over 90 per cent of all solar photovoltaic generation, with 14.1 GWh. Almost 18,000 of these installations (over 80 per cent of all generating schemes) generated in 2010/11. During 2010/11, there was no reported generation from the three larger-scale solar photovoltaic installations registered on the 100 kW to 5 MW tariff, while there was less than 0.1 GWh from the 11 stand alone schemes that generated during the year.

### Exports summary

Over one fifth (14.9 GWh) of electricity generated under FiTs was exported (or deemed to be exported) to the PDS. Of this 14.9 GWh, 50 per cent was solar photovoltaic installations, with 31 per cent from ex-RO schemes, 15 per cent from wind and 4 per cent from hydro. No electricity was exported from anaerobic digestion schemes. Across the technologies, there was considerable variation in the proportion of generation exported in 2010/11, possibly due to the varying export arrangements across installations, and particularly between larger and small scale schemes.

The majority of solar photovoltaic installations, and the generation reported against them, is from retrofitted 0-4 kW schemes, which are typically domestic installations, which are deemed to export 50 per cent of their output. Therefore, the 49 per cent of generation exported by solar photovoltaic installations in 2010/11 is expected. Within this, however, stand alone schemes (that are not attached to buildings) exported only one quarter of their output. This could be down to many of

### *Special feature – Feed in Tariffs generation*

these, often large, schemes negotiating their own export tariffs (in excess of the FiTs export tariff of 3p per unit), so much of the exports have not been captured in this data.<sup>2</sup>

For hydro and wind, respectively, just 3 per cent and 11 per cent of generation was exported. For both of these technologies, however, the majority of recorded generation was under the largest capacity tariff bands, where no corresponding exports were recorded. For smaller-scale schemes, export ratios ranged from 25 per cent to 60 per cent.

#### **Derived load factors: methodology**

The load factor of an installation (or a group of installations) is defined as the amount of electricity actually generated compared with the maximum possible that could have been generated given the amount of capacity and the number of hours available to run. In order to estimate load factors, for each technology, the actual generation figure (in MWh) is divided by the maximum possible generation (in MWh). DECC has utilised additional data provided by Ofgem (and used to produce FiTs capacity table ET 5.6), providing data on installed capacity, tariff band, eligibility and confirmation dates, at installation level, to produce estimates of maximum possible generation. Using this has allowed DECC to compare, for each tariff band, actual generation with maximum possible generation.

Deriving load factors from the 2010/11 generation data has presented some methodology issues, since the number of installations covered by the generation data is much less than the actual number confirmed on the FiT scheme during that time. Alongside the generation data reported to Ofgem, suppliers also reported the corresponding number of installations covered for each tariff band. Unfortunately, the exact installations covered by these numbers is unknown. Therefore, DECC has estimated maximum possible generation for each tariff band for those installations *most likely* to be included in Ofgem's actual generation data for 2010/11.

For each tariff band, DECC's sample has used the same number of installations, including only those that were confirmed on FiTs before 31 March 2011, and ranking them by eligibility date. So, for example, where 18,000 0-4 kW solar photovoltaic schemes reported generation in 2010/11, it is the first 18,000 eligible installations (confirmed on FiTs before 31 March 2011) that are included in the sample for calculating maximum possible generation, as these are the most likely to have reported generation.

For each installation included in DECC's maximum possible generation calculations, the installed capacity (in kW) is multiplied by the number of hours eligible to generate under FiTs.<sup>3</sup> In the case of FiTs, many installations have not been eligible for all of the year, being commissioned at various points throughout the year. Therefore, only generation from the date of eligibility will be included in the actual generation figure. When calculating the amount of hours available to run, for each installation, DECC has therefore only considered the time between the date of eligibility and the end of the FiTs year (31 March 2011).

Drawbacks to this methodology are that some of the installations included in DECC's estimations of maximum possible generation may not have reported actual generation, while some omitted may have reported actual generation. In addition, some of these installations may not have reported actual generation for the entire time period between the date of eligibility and the 31 March 2011, perhaps covering only until January or February (particularly as meter readings for domestic installations are often given on a quarterly basis). Further issues may be that the actual generation data within each technology may be subject to misclassification across the tariff bands, particularly around the borders of eligibility for tariff bands. Load factors by tariff band may, therefore, be erratic in certain cases.

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<sup>2</sup> All exports made to the public distribution system, including those made under feed in tariffs, will be included under 'transfers' in DECC's electricity statistics (for example, DUKES 5.3).

<sup>3</sup> The total number of hours is calculated using 24 hours in a day. Solar photovoltaic installations are not able to generate during the night, so the load factor will be expected to be lower than other technologies.

On account of the above limitations, DECC has presented load factors considering maximum possible generation up to 31 January 2011 (a point to which most confirmed installations would be expected to have submitted generation readings) and 31 March 2011, and on a technology, rather than tariff band basis <sup>4</sup>.

### Derived load factors: results

The resultant load factors for each technology for 2010/11 are given in Table 1.

**Table 1: Feed in Tariffs generation and load factors by technology, 2010/11**

Technology aggregated tariff bands	Actual generation (as reported by Ofgem) – 2010/11 (MWh)	Number of sites corresponding to actual generation	Number of sites as percentage of number confirmed on FiTs at 31 March 2011	Maximum possible generation to 31 January 2011		Maximum possible generation to 31 March 2011	
				Generation from eligibility date (MWh)	Load Factor (%)	Generation from eligibility date (MWh)	Load Factor (%)
Anaerobic Digestion	2,671	2	67%	3,284	81%	4,269	63%
Hydro	19,048	58	71%	50,798	37%	61,542	31%
Micro CHP	29	49	49%	128	23%	193	15%
Solar Photovoltaics	15,439	18,435	72%	176,505	8.7%	244,506	6.3%
Wind	19,294	466	79%	62,118	31%	76,631	25%
Ex-RO	12,079	2,695	73%	62,811	19%	74,961	16%
<b>Total</b>	<b>68,559</b>	<b>21,705</b>	<b>72%</b>	<b>355,643</b>	<b>19%</b>	<b>462,103</b>	<b>15%</b>

As shown in table 1, technologies that are predominantly domestic installations (solar photovoltaics and micro CHP), at the end of March, had a low coverage of schemes that had submitted generation readings. When comparing with just those schemes eligible at the end of January, the coverage increased greatly - solar photovoltaics to 89 per cent, and micro CHP to 83 per cent - so the load factors presented for installations eligible at the end of January, 8.7 per cent and 23 per cent respectively, may be closest to reality. <sup>5</sup>

Technologies that are more commonly utilised by non-domestic FiTs installations (that may submit more frequent generation meter readings) may be more likely to have load factors based on generation right up to 31 March 2011, as the coverage did not increase markedly when comparing against those schemes eligible at the end of January. For anaerobic digestion and hydro, the coverage at both points in time was much the same, resulting in a significant increase in the respective load factors when comparing against the end of January.

### User feedback

DECC would welcome views on the methodologies employed in producing these load factors, and in the estimated load factors themselves. If you would like to comment, please contact James Hemingway or Laura Williams, using the contact details below.

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<sup>4</sup> This has been carried out by aggregating actual generation figures for the tariff bands covered by the technology, and dividing by corresponding maximum possible generation.

<sup>5</sup> Load factors will also be influenced by the time of year when installations were commissioned. For example, much solar photovoltaic capacity was installed towards the end of the year, so generation would have taken place in winter months, lowering the load factor.

## Domestic energy bills in 2011

### Introduction

Estimates are published in Quarterly Energy Prices (QEP)<sup>1</sup> of domestic electricity and gas bills based on fixed consumption levels. However, annual consumption in 2011 was significantly different to that in 2010. This article presents estimates of average energy bills in 2011 on both the fixed consumption basis and also based on actual average consumption. A chart showing average consumption levels for the last 8 years has also been included.

### Domestic bills based on fixed consumption levels

In the December editions of QEP analysis, first estimates are made of domestic energy bills for the latest year. The estimates are made using fixed consumption estimates: with annual consumption set at 3,300 kWh for standard electricity usage (for economy 7 usage, we assume annual consumption of 6,600 kWh, of which 3,600 kWh are consumed at the off peak night rate) and 18,000 kWh for gas. These bill estimates are revised in March when full data is available from the energy suppliers. Estimates are produced showing bills by the different payment methods & regions and reflect prices during the year. The following table summarises the main information. Separate information looking at bills by different payment method are available in QEP.

**Table 1 – Average energy bills on fixed consumption**

	Electricity	Gas	Combined
2009	£430	£683	£1,113
2010	£417	£658	£1,075
2011	£453	£719	£1,172
Change 2010-11	£36	£61	£97
% change	8.6%	9.3%	9.0%

The key advantage of presenting bills with a fixed consumption level is that users can see the effects of price changes in the table. Also estimates can be produced in advance of detailed consumption information being made available. The first estimates of gas bills are published in December of the year, whilst estimates of domestic consumption are first published in March of the following year, with data subsequently being revised in the July edition of DUKES (Digest of UK Energy Statistics).

### Domestic consumption in 2011

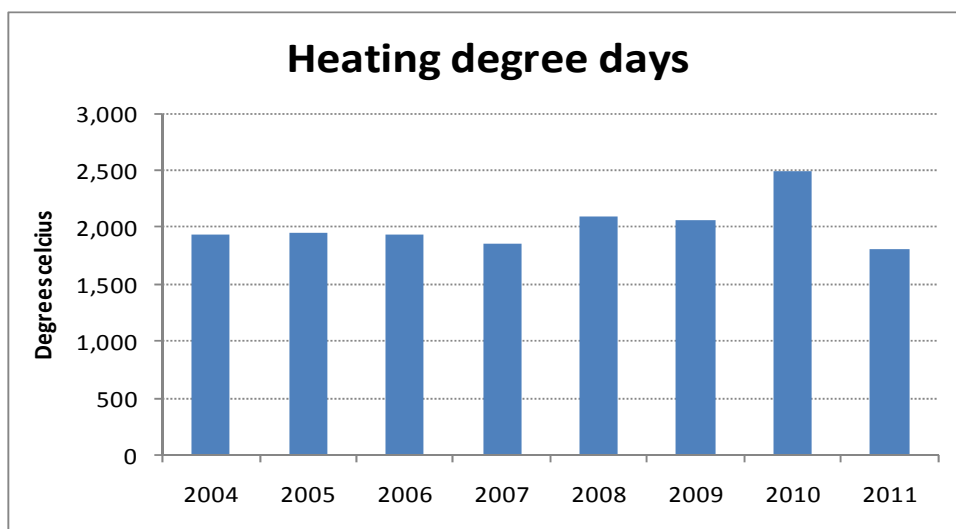
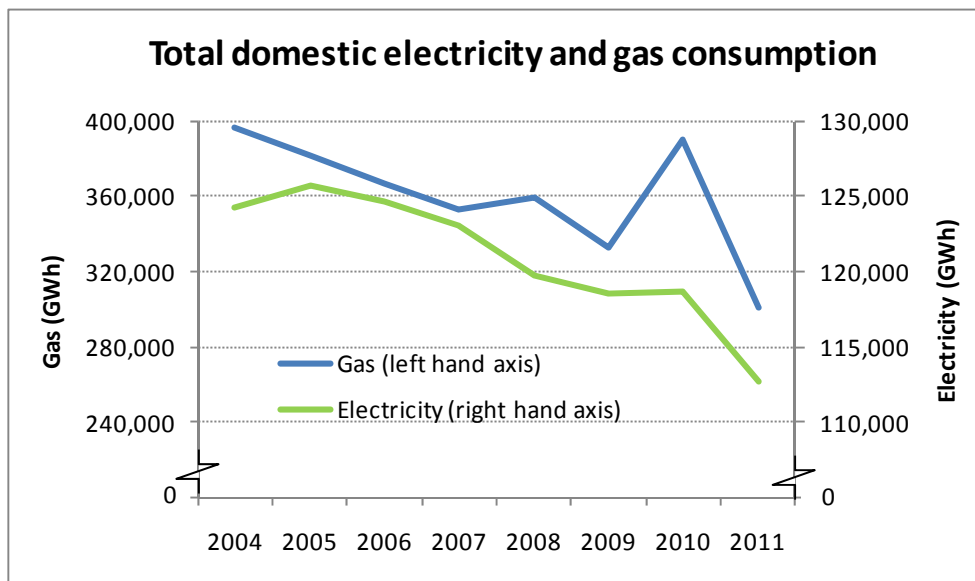
Data on total energy consumption are published monthly in Table 1.2 of Energy Trends. The monthly data are summed to produce the quarterly series. Data are collected from a variety of sources: surveys of producers; DECC administrative systems; with some data modelled. Data on final energy consumption are published on a quarterly basis: data for domestic gas consumption are published in table 4.1, with data for domestic electricity consumption in table 5.2. These tables show that domestic energy consumption fell sharply in 2011, with gas consumption down nearly 23 per cent, and electricity down 5 per cent. Data split between standard and Economy 7 meters is only estimated on an annual basis with the results presented in DUKES.

These demand reductions are largely due to the comparatively warmer weather experienced in 2011 compared to 2010. Other factors will have played a part including the greater deployment of energy efficiency measures to the household stock, it is likely there was some reduction in demand in reaction to the rises in energy prices in the winter of 2010/11 and in the autumn of 2011.

The following charts shows domestic gas and electricity consumption and the number of heating degree days in each of the last 8 years. The total number of heating degree days in 2011 is

<sup>1</sup> QEP - [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)

estimated at 1,815 degree days, which was 27 per cent lower than the number in 2010. The methodology for calculating this is described in an article in the June 2011 edition of Energy Trends.



The table below shows estimates of energy consumption per household for the last four years. These estimates are based on data from energy companies as well as other Government data. A split of electricity consumption, between standard and Economy 7 usage in 2011 has been estimated, based on the split in 2010 and changes in gas consumption. Data for earlier years are taken from DUKES.

**Table 2 – Average consumption by household**

	Standard electricity meters	E7 electricity meters	Total electricity	Gas
2008	4,119	6,422	4,497	16,539
2009	4,116	6,190	4,436	15,231
2010	4,091	6,229	4,417	17,814
2011	3,932	5,670	4,190	13,680
Change 2010 to 2011	-159	-559	-227	-4,134
% change	-3.9%	-9.0%	-5.1%	-23.2%

## Special feature – Domestic energy bills in 2011

This reduction in consumption, especially for gas will have had a large effect on the energy bill faced by a household.

### Energy bills to reflect annual actual consumption

Most energy tariffs are made up of a fixed element and a variable portion: these usually comprise a standing charge combined with a price per unit consumed; or with a two tariff price structure, with a higher price being paid for the first units combined before a lower price for subsequent consumption. The result of this structure is that the more you use, the lower your average price paid.

The table below shows average prices derived from the DECC published fixed consumption bills. The first two columns show these bills by dividing the numbers in table 1 by the DECC standard consumption assumption; the third and fourth columns show prices derived from using the consumption estimates in table 2.

**Table 3 – Average prices based on standard and actual consumption (pence / kWh)**

	Using standard volume assumptions		Using actual volume estimates	
	Std electricity	Gas	Std electricity	Gas
2009	13.03	3.79	12.75	3.89
2010	12.64	3.66	12.39	3.66
2011	13.79	4.00	13.55	4.18
% change	9.0%	9.4%	9.4%	14.1%

Combining the actual consumption estimates with the prices above suggests that average bills by consumers using dual fuel gas and electricity were as follows:

**Table 4 - Average energy bills on actual consumption**

	Electricity	Gas	Total
2009	£525	£593	£1,118
2010	£507	£653	£1,160
2011	£533	£572	£1,105
Change	+ £26	- £81	- £55
% change	5.1%	-12.4%	-4.7%

In 2010, the average electricity bill faced by consumers fell by £18, as both prices and volumes fell. Spending on gas increased as the large increase in volumes consumed outweighed the effect of the price cuts. In 2011, prices for both fuels increased, but consumption fell, a result of the milder weather.

For electricity, the 3.9 per cent fall in consumption was not sufficient to offset the 9.4 per cent rise in prices, so actual bills for consumers were estimated to have risen by £26. For gas, the 23.2 per cent fall in consumption more than offset the 14.1 per cent rise in prices, with bills estimated to have fallen by £81. Overall dual fuel gas and electricity bills are estimated to have fallen by a combined £55 to an average of £1,105 in 2011.

### User feedback

Please send any comments or queries regarding this analysis to Iain MacLeay using the contact details below.

#### Iain MacLeay

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## UKCS capital expenditure survey 2011

A survey of activity relating to oil and gas fields and associated infrastructure on the UK Continental Shelf (UKCS) was conducted in autumn 2011. The annual joint DECC–Oil & Gas UK survey was conducted by Oil & Gas UK who have collated the data and provided it to DECC. The survey covered operators' intentions to invest in UKCS oil and gas production. It also collected information on projected operating and decommissioning costs and on oil and gas production. The survey excluded exploration and appraisal activity. This note is restricted to development capital expenditure in the period up to 2016.<sup>1</sup>

### Summary of results

The survey indicates total development capital expenditure (i.e. excluding expenditure on exploration, appraisal and decommissioning) relating to existing fields and significant discoveries of just under £9 billion in 2011. The reported survey data suggest that (in 2011 prices) expenditure might rise to more than £12 billion in 2012 and £11 billion in 2013 but great uncertainty applies to these figures and, based on recent experience, they seem unlikely to be reached in practice, with £11.5 billion in 2012 and £10 billion in 2013 more reasonable central estimates.

After 2013, the survey indicates a sustained high level of development capital expenditure but such projections are inevitably very uncertain. It is extremely unlikely that all of the possible projects will go ahead as reported, at least on the timeframe indicated, but against that the survey excludes activity relating to new and some recent discoveries and extends beyond the time horizon for planning many incremental projects.

### Background

Operators were asked to report their investment intentions for all oil and gas field developments and projects where development data were available. They placed each field or project in one of the following categories:

**Sanctioned fields** - fields, including sanctioned incremental investments, which are in production or under development assuming minimum ongoing investment (e.g. mandatory environmental or safety projects, etc.).

**'Probable' incremental projects** - projects which are not yet sanctioned but with at least 50% probability of being technically and economically developable.

**Probable new field developments** - new fields which are not yet sanctioned but with at least 50% probability of being technically and economically producible.

**'Possible' incremental projects** - projects which are not yet sanctioned with a significant but less than 50% probability of being technically and economically developable.

**Possible new field developments** - new fields which are not yet sanctioned with a significant but less than 50% probability of being technically and economically producible.

Operators were asked to include any developments which have the potential to become commercial at some time in the next 10 years. They were asked to indicate the probability of each new field or project going ahead and to use the central (most likely) case in the event that there was uncertainty about the timing of expenditure. Operators' estimates (of costs and production) were meant to be consistent with commercial development.

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1. A report by Oil & Gas UK on the full range of findings from the survey and a parallel survey of exploration and appraisal activity, *2012 Activity Survey*, was published in February 2012 and is available online at [www.oilandgasuk.co.uk/](http://www.oilandgasuk.co.uk/).

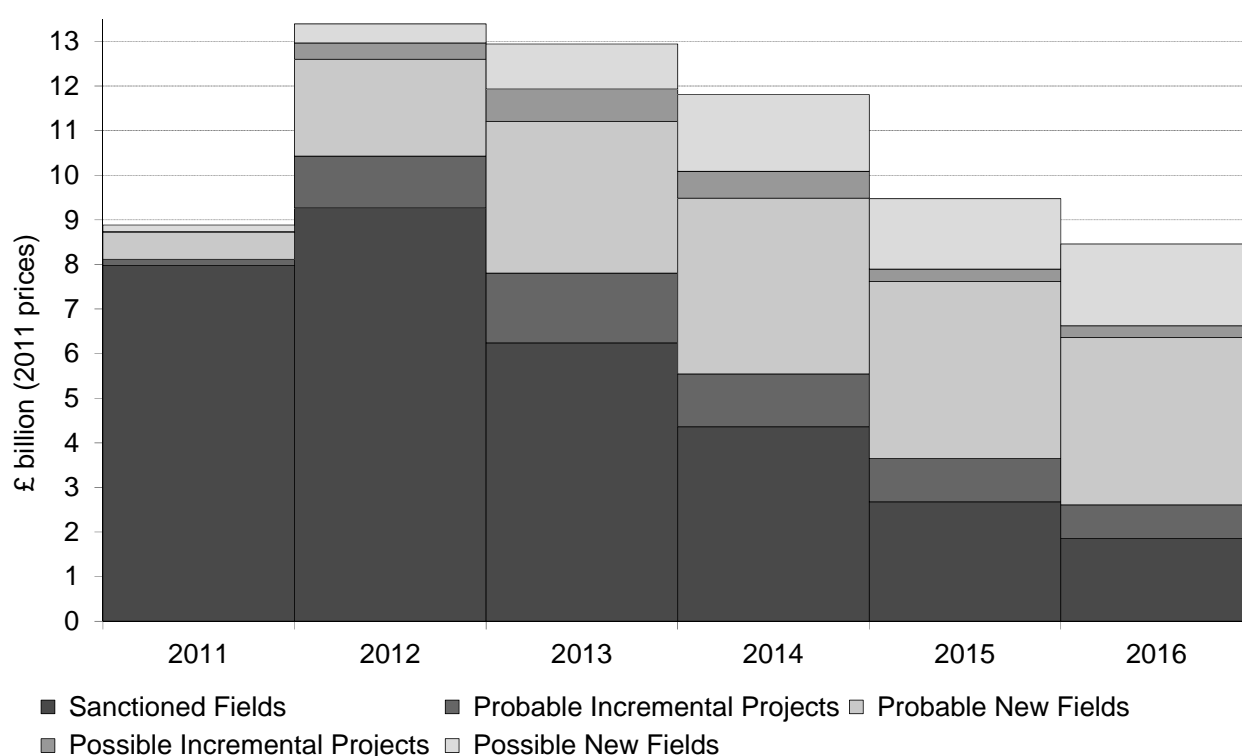
## Capital expenditure plans by category

The results of the survey are summarised in Table 1 and illustrated in Chart 1. Expenditure has been included on the scale and at the time reported by the operators though it is likely that at least some of the less-certain projects will slip or even not materialise. The table also includes weighted totals which reflect the probabilities assigned by the operators. The resultant profile for total development capital expenditure is very close to that for sanctioned fields plus probable projects.

**Table 1: Total development capital expenditure plans by category**

(£ billion, 2011 prices)	2011	2012	2013	2014	2015	2016	Total for 2012–2016
<b>Sanctioned Fields</b>	<b>8.0</b>	<b>9.3</b>	<b>6.2</b>	<b>4.4</b>	<b>2.7</b>	<b>1.9</b>	<b>24.4</b>
Probable Incremental Projects	0.1	1.2	1.6	1.2	1.0	0.8	5.6
Probable New Fields	0.6	2.2	3.4	3.9	4.0	3.7	17.2
<b>Sanctioned plus Probable</b>	<b>8.7</b>	<b>12.6</b>	<b>11.2</b>	<b>9.5</b>	<b>7.6</b>	<b>6.4</b>	<b>47.3</b>
Possible Incremental Projects	0.0	0.4	0.7	0.6	0.3	0.3	2.2
Possible New Fields	0.1	0.4	1.0	1.7	1.6	1.8	6.6
<b>Sanctioned plus Probable plus Possible</b>	<b>8.9</b>	<b>13.4</b>	<b>12.9</b>	<b>11.8</b>	<b>9.5</b>	<b>8.5</b>	<b>56.1</b>
<b>Weighted Total</b>	<b>8.7</b>	<b>12.4</b>	<b>11.0</b>	<b>9.5</b>	<b>7.5</b>	<b>6.1</b>	<b>46.5</b>

**Chart 1: Total development capital expenditure plans by category**



Compared with the intentions over the five years following the survey conducted in 2010, the 2011 survey indicates a large increase in sanctioned expenditure both absolutely and as a proportion of the total, reflecting the approval of several major projects in the last year, while expenditure on probable projects has fallen both absolutely and as a proportion of the total.

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# Explanatory notes

## General

More detailed notes on the methodology used to compile the figures and data sources are included in the annual Digest of United Kingdom Energy Statistics

## Notes to tables

- Figures for the latest periods and the corresponding averages (or totals) are provisional and are liable to subsequent revision.
- The figures have not been adjusted for temperature or seasonal factors except where noted.
- Due to rounding the sum of the constituent items may not equal the totals.
- Percentage changes relate to the corresponding period a year ago. They are calculated from unrounded figures but are shown only as (+) or (-) when the percentage change is very large.
- Quarterly figures relate to thirteen week periods except in the gas and petroleum sections where they relate to calendar quarters.
- All figures relate to the United Kingdom unless otherwise indicated.

## Abbreviations

ATF	Aviation turbine fuel
CCGT	Combined cycle gas turbine
DERV	Diesel engined road vehicle
GVA	Gross value added
LNG	Liquefied natural gas
MSF	Manufactured solid fuels
NGLs	Natural gas liquids
UKCS	United Kingdom continental shelf

## Symbols used in the tables

- .. not available
- nil or less than half the final digit shown
- p provisional
- r revised; where a column or row shows 'r' at the beginning, most, but not necessarily all, of the data have been revised.
- e estimated; totals of which the figures form a constituent part are therefore partly estimated

## Conversion factors

1 tonne of crude oil =	7.55 barrels
1 tonne =	1,000 kilograms
1 gallon (UK) =	4.54609 litres
1 kilowatt (kW) =	1,000 watts
1 megawatt (MW) =	1,000 kilowatts
1 gigawatt (GW) =	1,000 megawatts
1 terawatt (TW) =	1,000 gigawatts

All conversion of fuels from original units to units of energy is carried out on the basis of the gross calorific value of the fuel. More detailed information on conversion factors and calorific values is given in Annex A of the Digest of United Kingdom Energy Statistics.

## Conversion matrices

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

To:	Thousand toe	Terajoules	GWh	Million therms
<b>From</b>	<b>Multiply by</b>			
Thousand toe	1	41.868	11.630	0.39683
Terajoules (TJ)	0.023885	1	0.27778	0.0094778
Gigawatt hours (GWh)	0.085985	3.6000	1	0.034121
Million therms	2.5200	105.51	29.307	1

To:	Tonnes of oil equivalent	Gigajoules	kWh	Therms
<b>From</b>	<b>Multiply by</b>			
Tonnes of oil equivalent	1	41.868	11,630	396.83
Gigajoules (GJ)	0.023885	1	277.78	9.4778
Kilowatt hours (kWh)	0.000085985	0.003600	1	0.034121
Therms	0.0025200	0.105510	29.307	1

Note that all factors are quoted to 5 significant figures

## Sectoral breakdowns

The categories for final consumption by user are defined by the Standard Industrial Classification 2007, as follows:

Fuel producers	05-07, 09, 19, 24.46, 35
Final consumers	
Iron and steel	24 (excluding 24.4, 24.53 and 24.54)
Other industry	08, 10-18, 20-23, 24.4 (excluding 24.46), 24.53, 24.54, 25-33, 36-39, 41-43
Transport	49-51
Other final users	
Agriculture	01-03
Commercial	45-47, 52-53, 55-56, 58-66, 68-75, 77-82
Public administration	84-88
Other services	90-99
Domestic	Not covered by SIC 2007

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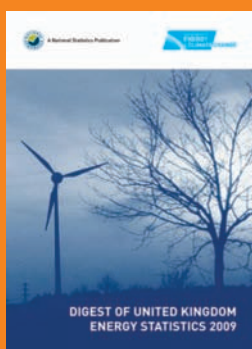
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